DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 49TH FIGHTER WING (ACC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO

18 MAY 1994

MEMORANDUM FOR US Environmental Protection Agency
Region VI, 6H-CS (Mr Barry Feldman)
1445 Ross Avenue
Dallas, TX 75202-2733

FROM: 49 CES/CD
550 Tabosa Ave
Holloman AFB, NM 88330-8458

SUBJECT: Risk Assessment for Holloman AFB (HAFB) Lagoons and Lakes

1. Attached is a copy of the December 1993 draft final risk assessment report for the seven HAFB wastewater lagoons and Lakes Holloman and Stinky. The lagoons are collectively considered a regulated unit under the Resource Conservation and Recovery Act (RCRA) and are currently operated for treatment of non-hazardous wastes pending construction of a new wastewater treatment plant. The portion of the assessment covering the wastewater lagoons is part of the investigations to support closure of the lagoon system. The lakes are Solid Waste Management Units (SWMUs) on HAFB's RCRA Part B permit and, therefore, must be investigated under the RCRA corrective action program; the portion of the risk assessment covering the lakes is part of this regulatory program. Because of the large area of the lagoons (100 acres) and lakes (160 acres), different management strategies may be appropriate for individual lagoons and lakes. Therefore, separate risk assessments are performed for each of the seven lagoons and the two lakes.

2. It should be recognized that these risk assessments represent work in progress and are an attempt to quantitatively summarize what we currently know about potential impacts to human health and the environment. The risk assessments identify several concerns which will be investigated further in the coming year. Three major areas of concern are: (1) polychorinated-biphenyl (PCB) contamination of waterfowl, (2) heptachlor epoxide contamination in sludge and sediments, and (3) organic lead contamination of water. All three of these areas showed risk at levels of concern (cancer risk above one in 1,000,000 or hazard index above 1) but also had significant data gaps. The significant PCB concentrations in waterfowl were estimated solely from the risk assessment models without direct sampling of waterfowl. The heptachlor epoxide data in each of the three locations was based upon a single sample with questionable analytical chemistry results. The organic lead results are based upon a single set of surface water samples collected in 1990 and analyzed with a non-EPA method with a detection limit two orders of magnitude higher than observed levels of total lead. Results of organic lead quality control sampling indicated equipment rinsate blank levels similar to sample levels. All of these issues will receive additional investigation during 1994-95. Following the investigation, we will revisit the risk assessments and prepare an addendum indicating any changes in the assessment predictions.

3. Please direct questions to Dr Fred Fisher, (505) 475-3931. Dr Fisher will be in Dallas 24-26 May 94 to attend the Region VI Federal Facilities Conference and will be available to discuss this or any other issues.

Howard E. Moffitt
HOWARD E. MOFFITT
Deputy Base Civil Engineer

Attachment
Risk Assessment Vols I, II, and III

cc: w/o Atch

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Headquarters, Air Combat Command
Langley Air Force Base,
Virginia

Draft

Holloman Risk Assessments

Sewage Lagoons and Lakes Investigation

Volume I - Report

December 1993

49th FIGHTER WING

49 CES/CEV
Holloman Air Force Base,
New Mexico

PURPOSE OF DOCUMENT

A. This report presents the results, conclusions, and recommendation of the Risk Assessment for Sewage Lagoons and Lakes Investigation at Holloman Air Force Base (AFB), New Mexico. Holloman AFB operates a RCRA-permitted on-site storage facility for currently generated hazardous wastes. The permit requires investigation of Lakes Holloman and Stinky under the RCRA corrective action program. This document was prepared for, and in cooperation with, the Base Environmental Office: 49 CES/CEV, 550 Tabosa Avenue, Holloman AFB, NM, 88330-8454, phone 505/475-3931.

B. The risk assessments present an assessment of the carcinogenic risks and noncancer hazards to human health and the environment associated with current and potential future activities at the sewage lagoons and lakes. Separate risk assessment for *each* of the seven lagoons (Ponds A, B, C, D, E, F, and G), the ditch from Pond G to Lake Holloman, and Lakes Holloman and Stinky were conducted to evaluate current and potential future impacts to human health and the environment, and to support closure of the lagoons as hazardous waste management units while allowing continued use for treatment of nonhazardous wastewater. In addition, separate ecological risk assessments were conducted for *each* site to evaluate potential impacts to the environment.

C. The purpose of this risk assessment was to provide closure recommendations for each of the sewage lagoons, individually. Each impoundment was considered as a potential source of contamination and all logical pathways and receptors were considered in the evaluation. Recommendations for the sites include four general categories: 1) continued current operation; 2) continued current operation with access control; 3) additional sampling suggested; and 4) closure suggested. Each of the ten sources evaluated in the risk assessment was recommended for one of these categories.

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HOLLOMAN RISK ASSESSMENTS

SEWAGE LAGOONS AND LAKES INVESTIGATION

VOLUME I - REPORT

DRAFT FINAL

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Holloman Air Force Base, NM

and

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Acronyms

AFDC	Air Force Missile Development Center
BGL	Below Ground Level
BHC	Benzenehexachloride
BLM	Bureau of Land Management
C	Conductivity
COCs	Chemicals of Concern
CPS-3	Contour Plotting System
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DO	Dissolved Oxygen
EQ	Ecological Quotient
HAFB	Holloman Air Force Base
HEAST	Health Effects Assessment Summary Tables
HI	Hazard Index
HpCB	Heptachlorinated Biphenyl
HpCDD	Heptachlorinated Dibenzo-p-Dioxin
HpCDF	Heptachlorinated Dibenzofuran
HQ	Hazard Quotient
HWMU	Hazardous Waste Management Unit
HxCB	Hexachlorinated Biphenyl
HxCDF	Hexachlorinated Dibenzofuran
IRIS	Integrated Risk Information System
K_{ow}	Octanol-Water Partition Coefficient
MGD	Million Gallons per Day
MW	Monitor Well
MWD	Monitor Well (deep)
MWS	Monitor Well (shallow)
NMED	New Mexico Environmental Department
OCDD	Octachlorinated Dibenzo-p-Dioxin
OCDF	Octachlorinated Dibenzofuran
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PnCB	Pentachlorinated Biphenyl
POL	Petroleum, Oil, and Lubricants
QA/QC	Quality Assurance and Quality Control
QCSR	Quality Control Summary Report
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RfC	Reference Concentration
RfD	Reference Dose
RFI	RCRA Facility Investigation
RL	Reporting Limit
SQCSR	Sampling and Quality Control Summary Report
2,4,5-T	2,4,5 - Trichlorophenoxyacetic Acid
TAC	Tactical Air Command

TCB	Tetrachlorinated Biphenyl
TCDD	Tetratchlorinated Dibenzo-p-Dioxin
TCDF	Tetrachlorinated Dibenzofuran
TDS	Total Dissolved Solids
USACE	United States Army Corp of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

EXECUTIVE SUMMARY

The sewage lagoons at HAFB are currently regulated as hazardous waste management units, because of discharge of listed wastes into the sewage lagoon wastewater treatment system; this practice was discontinued in 1984. Hazardous constituents have been detected in lagoon surface water, sludge, sediments, underlying soils, and in groundwater beneath the site. In addition, contaminants have been detected in Lakes Holloman and Stinky. Separate risk assessments for *each* of the seven lagoons (Ponds A, B, C, D, E, F, and G), the ditch from Pond G to Lake Holloman, and Lakes Holloman and Stinky were conducted to evaluate current and potential future impacts to human health and the environment, and to support closure of the lagoons as hazardous waste management units while allowing continued use for treatment of nonhazardous wastewater. In addition, separate ecological risk assessments were conducted for *each* site to evaluate potential impacts to the environment. Lakes Holloman and Stinky are of particular concern to the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) since these lakes are accessible to the general public and provide habitat for a variety of species from several trophic levels.

The human health risk assessments included all available analytical data for sludge, soil, and surface water. Biota samples were collected from each of the sewage lagoons and lakes, as well as from the ditch connecting Pond G and Lake Holloman to complement studies recently performed by the USFWS and will be used to write a Biological Assessment under the Endangered Species Act. Those data were used to conduct the ecological risk assessments presented in this document.

The risk assessments present an assessment of the carcinogenic risks and noncancer hazards to human health and the environment associated with current and potential future activities at the sewage lagoons and lakes. At the request of the New Mexico Environmental Department (NMED), a baseline risk assessment that assumed residential development and domestic water use over the entire contaminant source area (i.e., the lagoons) with little or no remedial activity, was conducted. Highly conservative worst-case exposure scenarios were evaluated as the baseline assessment. While these exposures are not likely to ever occur, they were used as a screening tool to determine whether risks/hazards are potentially present at the site. To ensure adequate characterization of the risk/hazard that may realistically be incurred at or near the sewage lagoons and lakes, site-specific risk assessments were also conducted for each impoundment. The site-specific risk assessments considered four populations in eight exposure scenarios: six chronic and two subchronic scenarios.

The purpose of this risk assessment was to provide closure recommendations for each of the sewage lagoons, individually. Each impoundment was considered as a potential source of contamination and all logical pathways and receptors were considered in the evaluation. Recommendations for the sites include four general categories: 1) continued current operation; 2) continued current operation with access control; 3) additional sampling suggested; and 4) closure suggested. Each of the ten sources evaluated in the risk assessment was recommended for one of these categories. Table ES-1 presents the risk assessment results and corresponding recommendations.

The USEPA proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered to be of negligible risk (*de minimis*) for risk management purposes. In addition, exposure levels that exceed appropriate noncancer toxicity values (i.e., the ratio of the exposure concentration to the toxicity value exceeds one) may warrant cause for concern regarding potential noncarcinogenic effects. These benchmark values are designed to protect human health and are considered to be *de minimis* for the purposes of this risk assessment.

The analyses conducted for the highly conservative baseline human health risk assessment indicated carcinogenic risks above the *de minimis* level of 10^{-6} established by the RCRA Subpart S rule for all of the lagoons. Noncancer hazards were elevated for all sites except Pond D. However, it should be noted that these exposures are not likely to ever occur. Site-specific risk assessments were also conducted for *each* of the lagoons as well as the ditch and Lakes Holloman and Stinky. The site-

Table ES-1

Summary of Risk Assessment Results

Site	Baseline Human Health Risk (Hypothetical Future)		Site-Specific Human Health Risk (Current)		Ecological Risk	Recommendation	Basis for Recommendation
	Average	Reasonable Maximum	Average	Reasonable Maximum			
Pond A	Excessive [1]	Excessive [1]	Excessive [2]	Excessive [2]	Insignificant [4]	Closure	Excessive risks/hazards associated with exposure of current on-site workers to heptachlor epoxide and PCBs in sludge/sediment.
Pond B	Excessive [1]	Excessive [1]	Insignificant [3]	Excessive [1]	Adverse effects possible [5]	Closure	Excessive reasonable maximum risk to current on-site workers, and insignificant risk to birds but high risk to fish.
Pond C	Excessive [2]	Excessive [2]	Insignificant [3]	Insignificant [3]	Insignificant [4]	Continued operation	Insignificant risks/hazards to current on-site workers and the environment.
Pond D	Excessive [2]	Excessive [2]	Insignificant [3]	Insignificant [3]	Insignificant [4]	Continued operation	Insignificant risks/hazards to on-site workers and the environment.
Pond E	Excessive [1]	Excessive [1]	Insignificant [3]	Excessive [2]	Adverse effects possible [6]	Continued operation	Insignificant risks to current on-site workers for average exposure, reasonable maximum risks that are only slightly above *de minimis* levels and limited risk to the environment (EQs for killdeer are between one and ten).
Pond F	Excessive [2]	Excessive [2]	Insignificant [3]	Insignificant [3]	Insignificant [4]	Continued operation	Insignificant risks/hazards to current on-site workers and the environment.
Pond G	Excessive [2]	Excessive [2]	Insignificant [3]	Excessive [2]	Insignificant [4]	Continued operation with access control	Insignificant average risk/hazard to current recreational users and on-site workers and reasonable maximum risk below 10^{-4}. Provided the fence is maintained, current site conditions are unlikely to result in excessive risk to human health. Birds using Pond G are not likely to be at significant risk. Risk to fish at Pond G is elevated based solely on pond water contaminant concentrations; however, there is a large fish population suggesting a lack of significant risk.

Table ES-1

(Continued)

Site	Baseline Human Health Risk (Hypothetical Future)		Site-Specific Human Health Risk (Current)		Ecological Risk	Recommendation	Basis for Recommendation
	Average	Reasonable Maximum	Average	Reasonable Maximum			
Ditch	N/A	N/A	Insignificant [3]	Excessive [2]	Insignificant [4]	Additional sampling for heptachlor epoxide in soil	Risks associated with recreational exposure are based primarily on a single soil sample in which heptachlor epoxide was detected. The result was not confirmed.
Lake Holloman	N/A	N/A	Excessive [2]	Excessive [2]	Adverse effects possible [6]	Additional sampling for organic lead in surface water	The primary source of the noncancer hazard associated with recreational and agricultural exposure is organic lead in surface water. The origin and continued presence of organic lead is uncertain. The EQ for mallards is slightly above one for reasonable maximum exposure.
Lake Stinky	N/A	N/A	Insignificant [3]	Excessive [2]	Adverse effects possible [6]	Additional sampling for arsenic and heptachlor epoxide in soil	Most arsenic results were within five times the reporting limit; therefore, there is uncertainty associated with these concentrations. The EQ for mallards is slightly above one for reasonable maximum exposure.

1 Risk exceeds 10^{-4}
2 Risk exceeds the 10^{-6} *de minimis* level but is less than 10^{-4}.
3 *De minimis* levels of risk (i.e., below 10^{-6}).
4 EQs less than 1.0 for birds and less than 10.0 for fish.
5 EQs less than 1.0 for birds but greater than 100 for fish.
6 EQs greater than 1.0 but less than 10.0 for birds.

specific human health risk assessments predicted carcinogenic risks that exceed *de minimis* levels for seven of the ten areas examined. However, for all but one site (Pond A), only the reasonable maximum risk exceeded 10^{-6} and no site posed a risk that exceeded the upper-bound risk goal of 10^{-4}. Noncancer hazard indices were in excess of one for seven of ten areas.

The ecological assessment estimated the potential risk to the environment using indicator species that are representative of other species in the area. Potential risk was estimated by calculating an ecological quotient (EQ) for each analyte detected in biota samples. This was done by comparing measured/modeled biota concentrations to a benchmark ("safe") concentration. Ideally, an EQ is considered acceptable if it is equal to or less than one. If an EQ is between one and ten, there is a possibility that adverse effects might occur. EQs greater than ten indicate that adverse effects are probable.

A summary of the results is presented in Table ES-1. The cumulative hazard indices, assuming that the birds spend a percentage of their time at each of the impoundments, were in excess of one for both mallards and killdeer but did not exceed ten in either case. The cumulative risk to mergansers was below *de minimis* levels. These results indicate that adverse effects are possible for mallards and killdeer but are not likely for mergansers. It was evident from the field effort that fish populations were low. This assessment concluded that adverse effects are possible in fish; however, their low numbers may be attributable to inadequate habitat as well as contamination.

Numerous uncertainties are associated with the results of this risk assessment. Human health risks/hazards associated with Pond A and E, as well as the ditch, were based primarily on a single sediment/soil sample (one at each site) in which heptachlor epoxide was detected. While the levels were high, they were not confirmed hits and do not necessarily represent site conditions. In fact, they may be due to analytical interference. Thus, the risks/hazards predicted at these sites may be overestimated.

Although polychlorinated biphenyls (PCBs) have only been detected in Ponds A and B, the carcinogenic risks associated with ingestion of waterfowl from Pond G, the ditch and the lakes are driven by PCB concentrations. This is because of the assumption that waterfowl spend a percentage of their time feeding at *each* of the impoundments. The elevated carcinogenic risks associated with ingestion of waterfowl are based solely on modeled contaminant concentrations, assuming that waterfowl feed on contaminated biota. Significant uncertainty is associated with these modeled results because the most toxic PCB congeners are generally present in biota at such low concentrations as to severely compromise their detection. Therefore, data were not generated for the most toxic PCB congeners. Instead, the most potent enzyme inducing congener in the "numerical PCB class" (i.e., hexachlorinated biphenyls, pentachlorinated biphenyls, etc.) was used as a proxy for the entire class. However, bird tissues have been collected and are currently being analyzed. It is expected that many of the contaminants modeled into waterfowl will not be detected in the bird tissue. Therefore, it is possible that the risks associated with waterfowl ingestion are overestimated because of the assumption that all contaminants detected in the lower trophic levels bioaccumulate in waterfowl.

The organic lead results that drive the recreational hazards and the agricultural hazards at Lake Holloman were obtained during a previously conducted surface water sampling investigation. The origin of the organic lead is uncertain and may not be related to past waste disposal practices at the lagoons. It is likely that the organic lead detected during the previous sampling event has volatilized. Assuming that the presence of organic lead is ruled out, all remaining noncancer hazard indices would be within acceptable levels. However, the continued presence of organic lead as a source of potentially hazardous exposure cannot be ruled out without further sampling.

A large portion of the potential ecological risk at each location was the result of metals contamination. Although 100% bioavailability of metals was assumed, a smaller percentage is likely to be absorbed following ingestion. Some uncertainty exists because bioaccumulation factors were not used to model contaminant concentrations in birds. However, as discussed previously, bird tissues have been collected and contaminant concentrations detected in them will be compared with the modeled

results presented in this assessment. The final conclusions will be altered accordingly when those data become available.

In this risk assessment, the concentration term in the intake equation for average exposure was defined as the arithmetic average of the contaminant concentration. Although this concentration does not reflect the maximum concentration that could be contacted at any one time, it is regarded as a reasonable estimate of the concentration likely to be contacted over time. The exposure period was assumed to be an average of nine years, which is the national median time (50th percentile) at one residence. The 95% upper confidence limit (UCL) on the arithmetic mean concentration was considered the most representative concentration variable for reasonable maximum exposure. In instances where data were insufficient for calculation of a UCL, the maximum detected concentration was used. The exposure period was assumed to be a maximum of 25 years for workers, which is the national maximum time (95th percentile) spent working at one location or 30 years, which represents the upper-bound time (90th percentile) at one residence. Each of these variables is considered to be conservative. Each type of conservatism is compounded when more than one conservative factor is used in a particular situation. In most cases, this amounts to a conservative assessment that is protective of human health and the environment, even in the average case.

While regulatory agencies traditionally consider cancer risks below 10^{-6} to be *de minimis*, risks far in excess of 10^{-6} have been ruled acceptable based on site-related circumstances and the size of the exposed population. For small populations, regulatory action typically is not taken for risks less than 10^{-4}. In addition, although the risk to those exposed to particularly high levels of site-related contaminants needs to be understood, most remedial activities are dictated by theoretical risks associated with average exposure rather than the maximum exposure.

Based on the 1) small size of the current on-site worker population, 2) average risks below 10^{-6}, and 3) reasonable maximum risks below the upper-bound risk goal of 10^{-4}, continued operation of all lagoons, except Ponds A and B, is recommended. Additional sampling or access control is recommended for those sites with excessive current noncancer hazard indices. The recommendation that the ditch, Lake Holloman, and Lake Stinky be resampled is based on uncertainties associated with heptachlor epoxide and arsenic concentrations in sludge/soil as well uncertainties about the origin and of organic lead in surface water.

The work conducted at HAFB is on-going and part of an evolutionary process. Data used for this risk assessment were from the 1993 site investigation and previous investigations conducted at the lagoons and lakes from 1988 to 1992. This evolutionary process and the resultant data gathered during different sampling events has allowed the basic site characteristics, exposure pathways, and constituents posing potential human health and environmental risks to undergo substantial refinement over time. As a result of previous investigations, actions have been implemented to control access to the lagoons, thereby limiting exposure. This approach has also resulted in the identification and resampling of areas in need of further study. As a result of all of these activities, the chemicals of potential concern at the lagoons and lakes have been limited to a few specific chemicals.

Because this investigation is part of an on-going evolutionary process, the risk-related conclusions drawn from it are not definitive. In particular, the predicted carcinogenic risks associated with PCB contaminated waterfowl and the noncancer hazards associated with organic lead in surface water may need further refinement. At the time of this risk assessment, no waterfowl tissue data were available, necessitating the use of biological uptake models to estimate tissue concentration levels. Bird tissues have recently been collected from the lagoons and lakes and the results of the pending analyses will be compared to the current modeled results presented in this risk assessment. Based on the results of the bird tissue analyses, the conclusions presented in this risk assessment with regard to potential risk associated with ingestion of potentially contaminated waterfowl will be altered accordingly.

Due to uncertainty about the source and presence of organic lead in surface water, it is suggested that additional sampling be conducted at Lake Holloman. Assuming that the presence of

organic lead can be ruled out, all remaining noncancer hazards at Lake Holloman would be within acceptable limits. Upon analysis of the additional organic lead data to be collected, the potential noncancer hazards associated with exposure to organic lead in surface water will be reevaluated.

Section 1
INTRODUCTION

The purpose of this risk assessment is to identify the potential hazards posed to human health and the environment as a result of past, current, and future waste management activities associated with the lagoons and lakes wastewater treatment system at Holloman Air Force Base (HAFB or "the Base").

1.1 Background

Background Summary

HAFB

- Reported discharges of hazardous wastes to lagoons.
- Intends to close some/all lagoons.

Lagoons

- May have received hazardous waste prior to 1984.
- Contain contaminated media.
- Have contaminated groundwater.

Lakes

- Are contaminated with constituents that may have migrated from lagoons.

Exposures (on and offsite)

- Human and ecological.

Risks

- Determine contribution from each lagoon through risk assessment.

HAFB is currently regulated as a hazardous waste management facility because of the discharge of hazardous wastes into the sewage lagoon wastewater treatment system that was discontinued in 1984. Hazardous constituents have been detected in lagoon surface water, sludges, sediments, and groundwater beneath the site. In addition, contaminants have been detected in surface waters and sediments in Lakes Holloman and Stinky. In accordance with the United States Environmental Protection Agency (USEPA) Region VI and the New Mexico Environmental Department (NMED), HAFB is in the process of negotiating a closure plan for the sewage lagoons at the Base. Because no hazardous wastes have been disposed in the lagoons since 1984, the Base wishes to pursue closure of the lagoons as hazardous waste management units (HWMUs). Negotiation of a closure plan for the lagoons requires consideration of whether existing or future contamination may pose a significant risk to human health if the contaminants are left in place.

A quantitative risk assessment was conducted for the sewage lagoon system in February, 1991, to determine the health risk associated with exposure to existing contamination. The contaminants included in the risk assessment were those identified from environmental sampling conducted at the site, and for which toxicity data were available. The results of this risk assessment demonstrated that the scenarios by which humans (including on-Base occupational and residential populations) could be exposed to the contaminants in place did not result in excessive risk for carcinogenic or noncarcinogenic effects. The only scenario associated with excessive exposure was that of children living on the Base and playing at the lagoons.

To comply with the closure agreement, the Base prefers to pursue closure options that will allow administrative closure of the lagoons as HWMUs, and physical closure only for those lagoons that provide excess risk to human health and the environment. Therefore, this risk assessment attempts to identify the risks contributed by each lagoon individually. Finally, in anticipation of possible future activities, the assessment evaluates the potential risks associated with the removal of the entire treatment system from service.

1.2 Scope of Risk Assessment

This section provides an overview of conditions at HAFB and outlines the purpose of the

risk assessment report. Included in this section is a(n): 1) regulatory overview of activities associated with the lagoons and lakes; 2) discussion of risk assessment objectives and risk assessment process overview; 3) overview of the study design and data useability; 4) Base site description; and 5) organization outline for the risk assessment report.

1.2.1 Regulatory Overview

Regulation as a hazardous waste management facility was initiated in March, 1980, when HAFB submitted a report to NMED citing problems at the wastewater treatment facility associated with inflow of unknown industrial wastes. A Part A permit application was submitted by the Base to the USEPA in November, 1980, under the requirements of the Resource Conservation and Recovery Act (RCRA), identifying hazardous wastes suspected to have been discharged to the lagoons.

By virtue of this submission, the facility achieved interim status to operate the lagoons as hazardous waste management units (HWMUs). Significant regulatory events at HAFB include the two Notices of Noncompliance issued by USEPA Region VI, and the Federal Facilities Compliance Agreement between USEPA, NMED, and HAFB. The first Notice of Noncompliance (23 August 1985) cited HAFB for lack of a groundwater monitoring program and specified that a monitoring program needed to be in place by November 1985 to avoid closure requirements. The second Notice of Noncompliance (4 February 1987) cited HAFB for failure to install the monitoring system and required closure of the lagoons. Subsequent to these notices, HAFB, USEPA Region VI, and NMED signed a Federal Facilities Compliance Agreement (20 December 1988) specifying that HAFB would install a monitoring system and initiate lagoon closure. HAFB submitted a revised closure plan on 18 July 1990. Table 1-1 provides an overview of the regulatory history at HAFB. Figure 1-1 illustrates the current land ownership in the vicinity of the site. A more complete discussion of the regulatory events regarding the lagoons that have occurred at the Base can be found in the *Project Assessment Report of the Sewage Lagoons System March 1980 - July 1990* (Radian, August 1990).

1.2.2 Objectives of Risk Assessment

Negotiation of a closure plan for the lagoons requires consideration of whether existing or future contamination poses, or will pose, a serious risk to human health if the contaminants are left in place. The Base prefers to pursue closure options that will allow administrative closure of the lagoons as HWMUs. To meet this objective, the Base wants to physically close those lagoons that are too contaminated to remain in service, and administratively close those that do not present an unreasonable risk to human health and the environment.

Based on this management plan, the purpose of the risk assessment is to provide recommendations for closure of *each* of the sewage lagoons individually. However, the assessment also addresses the risks associated with removing the entire lagoon network (excluding Pond G) from service, assuming an alternative management plan entailing construction of a new wastewater treatment system.

The risk assessment for the wastewater system consists of separate risk assessments for each of the seven lagoons (Ponds A, B, C, D, E, F, and G), the ditch from Pond G to Lake Holloman, and Lakes Holloman and Stinky. The intent of these assessments is to evaluate individually the current and potential future impacts to human health and the environment. Each "unit" (i.e., lagoon, lake, or ditch) has been considered as a potential contaminant source for purposes of completing these individual assessments. Based on existing conditions for the lagoons and lakes, all migration pathways and logical receptors have been addressed, including potential use of surface water in Lake Holloman by cattle, and potential inhalation of wind-blown dust from Lake Stinky sediments.

Lakes Holloman and Stinky are of particular concern to the U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) since these lakes are accessible to the general public. A baseline risk assessment assuming future residential land use and domestic water use was also completed and is included in Appendix L. In completing these risk assessments, all available analytical data, including prior sampling of sludge, soil, and surface water, have been incorporated.

In completing this risk assessment, the procedures and requirements for Superfund risk assessments have been followed. Specifically, the

Table 1-1

Overview of Regulatory Activities

Date of Activity	Activity Summary
14 November 1980	HAFB submits Part A permit application to USEPA which authorizes operation of lagoons as interim status HWMUs.
1981-1985	USEPA/NMED inspections cite HAFB for failure to establish a groundwater monitoring program. HAFB contends that lagoons are not HWMUs; USEPA rejects this position based on listing and mixture rule theories.
23 August 1985	USEPA VI issues a Notice of Noncompliance for failure to install groundwater monitoring wells. Notice states that monitoring program must be in place by 8 November 1985 to avoid losing interim status.
8 November 1985	Interim status units lacking groundwater monitoring program certification lose authorization to operate as HWMUs, triggering closure.
23 November 1985	HAFB submits an administrative closure plan for the lagoons.
11 July 1986	USEPA VI informs HAFB that the administrative closure plan was considered an intent to seek delisting and is therefore unsatisfactory.
29 August 1986	HAFB presents USEPA HQ with a preliminary delisting petition proposal.
4 February 1987	USEPA VI issues a second Notice of Noncompliance for failure to install a groundwater monitoring system. Notice revokes interim status and requires closure of lagoons.
6 February 1987	USEPA HQ indicates that the delisting alternative does not appear feasible because of high concentrations of several waste constituents.
1981-1988	Five nonroutine sampling events conducted. PCBs are contaminant of concern.
20 December 1988	USEPA VI, NMED, and HAFB sign Federal Facilities Compliance Agreement to resolve all issues in second Notice of Noncompliance.
19 January 1989	HAFB submits closure plan to USEPA VI and NMED.
10 May 1989	USEPA HQ closes HAFB's delisting petition file.
July 1989	Groundwater monitoring wells installed in the lagoon area. Sampling for the detection monitoring program begins the following month.
13 November 1989	HAFB and NMED discuss comments on the January 1989 closure plan and address concerns while continuing to operate lagoons for nonhazardous waste streams.
8 March 1990	Removal of PCB-contaminated sludge from Pond B completed.
14 June 1990	USEPA VI rejects lagoon closure plan; requires revised plan within 30 days.

Table 1-1

(Continued)

Date of Activity	Activity Summary
18 July 1990	HAFB submits revised closure plan to USEPA VI and NMED.
19 July 1990	Removal of PCB-contaminated sludge from Pond A completed.
10 October 1990	Surface water sampling conducted.
June 1991	Post-Closure Care Permit application submitted to NMED.
September 1991	Groundwater Assessment Monitoring Plan submitted to NMED/USEPA VI.
September 1991	First round groundwater assessment monitoring conducted.
November 1991	Conceptual plan for sludge/soil sampling submitted to NMED/USEPA VI.
February 1992	Second round groundwater assessment monitoring conducted.
May 1992	Two wells added to groundwater monitoring network upgradient from lagoons.
February-March 1993	Sludge/soil sampling conducted - sewage lagoons and lakes.
March-April 1993	Phase 1 of Assessment Monitoring Program conducted; 5 new wells installed.
March-July 1993	Biological sampling conducted.

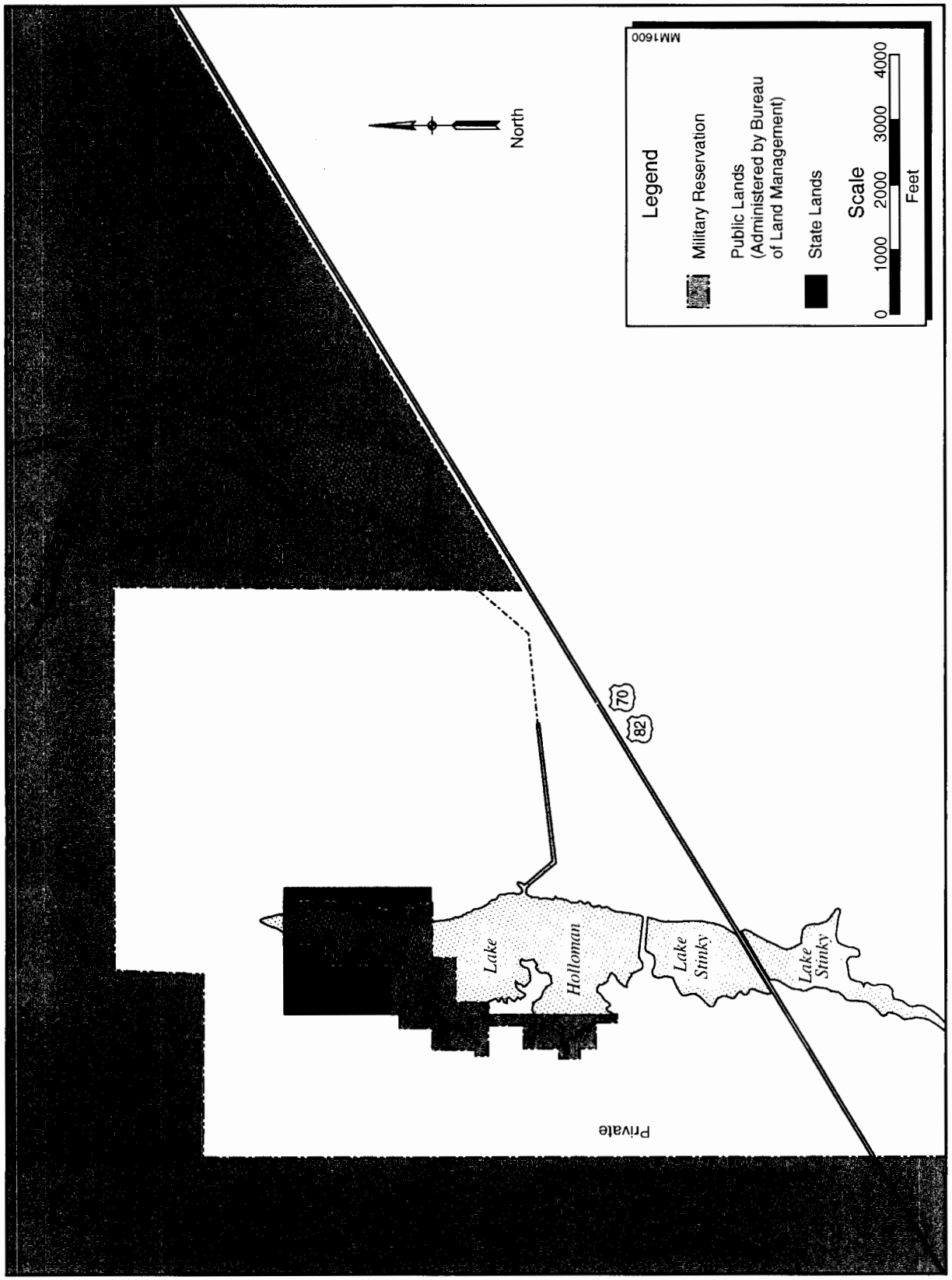


Figure 1-1. Current Ownership

methodology detailed in *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)* (RAGS) forms the basis of the risk assessment process. Figure 1-2 provides a schematic of this approach.

1.2.3 Data Sources

Data used for this risk assessment are from the 1993 site investigation and previous investigations conducted at the lagoons and lakes from 1988 to 1992. The current and historical data sets were evaluated for completeness, comparability, representativeness, precision and accuracy. A more detailed discussion of current and historical data is presented in Appendix A. The following is a list of reports from which data were compiled:

- *Sampling and Quality Control Summary Report (A-E SQCSR) Sewage Lagoons and Lakes Investigation Holloman Air Force Base, New Mexico (Radian, July 1993);*
- *Site Characterization Report, Sewage Lagoon Investigation, Holloman Air Force Base, New Mexico (Radian, August 1992);*
- *Assessment Monitoring Results: Appendix IX and Confirmation Sampling, Detection and Compliance Monitoring Program (Radian, April 1992);*
- *Sampling and Quality Control Summary Report (A-E SQCSR) for Field Investigations to Support Sewage Lagoon Closure, Holloman Air Force Base, New Mexico (Radian, June 1991);*
- *Quality Control Summary Report (A-E QCSR) for Sewage Lagoon Surface Water Sampling at Holloman Air Force Base, New Mexico (Radian, June 1991);*
- *Summary of Sampling Activities Conducted March 1990 for ponds B and C, letter report from Radian Corporation to Dr. Fred Fisher, Base Environmental Group, Holloman Air Force Base, New Mexico (USACE) (Radian, April 1990); and*
- *A-E Quality Control Summary Report (A-E QCSR) for Additional Sampling, Hazardous Waste Sewage Sludge Removal, Holloman Air Force Base, New Mexico (Radian, December 1988).*

1.2.4 Overview of Sampling Strategy and Data Useability

Sampling strategies for previously conducted investigations are discussed in the data sources listed in Section 1.2.3. The strategy for recent groundwater sampling is outlined in Section 1.3 of the *Phase I RCRA Groundwater Monitoring Assessment* (Radian, 1993a) and the *Phase 2 RCRA Facility Investigation (RFI) for Lakes Holloman and Stinky* (Radian, 1993b). The 1993 biota sampling event is described in Appendix M. During the investigation, near surface sediment samples from the pond periphery were collected in Ponds A and E. Sludge and underlying soil samples were collected during previous investigations. Figure 1-3 shows a schematic representation of the various strata from which samples have been collected.

Analytical laboratory analyses identified the constituents and concentrations present in all samples. For the purpose of identifying the chemicals of concern, these data were assessed in a three-step process, including: 1) QA/QC evaluation; 2) statistical background level comparison; and 3) a risk-based screening level comparison. QA/QC review assured that the data to be used were of the appropriate quality for risk assessment purposes. Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents in groundwater and soils were greater in the source areas under investigation than background levels. Constituents occurring in these media at concentrations that were not statistically different from background were eliminated from further risk assessment unless they exceeded health-based levels. For soils, statistical comparisons to background levels were only conducted for samples taken in the ditch and not for subsurface soil samples collected from beneath the lagoons and lakes. Difficulty in adequately differentiating and separating the sludge/soil matrix beneath the lagoons and lakes prevented this comparison. It was deemed inappropriate to make comparisons between contaminants detected in sludge/sediment and background soil levels for purposes of eliminating chemicals from quantitative risk assessment.

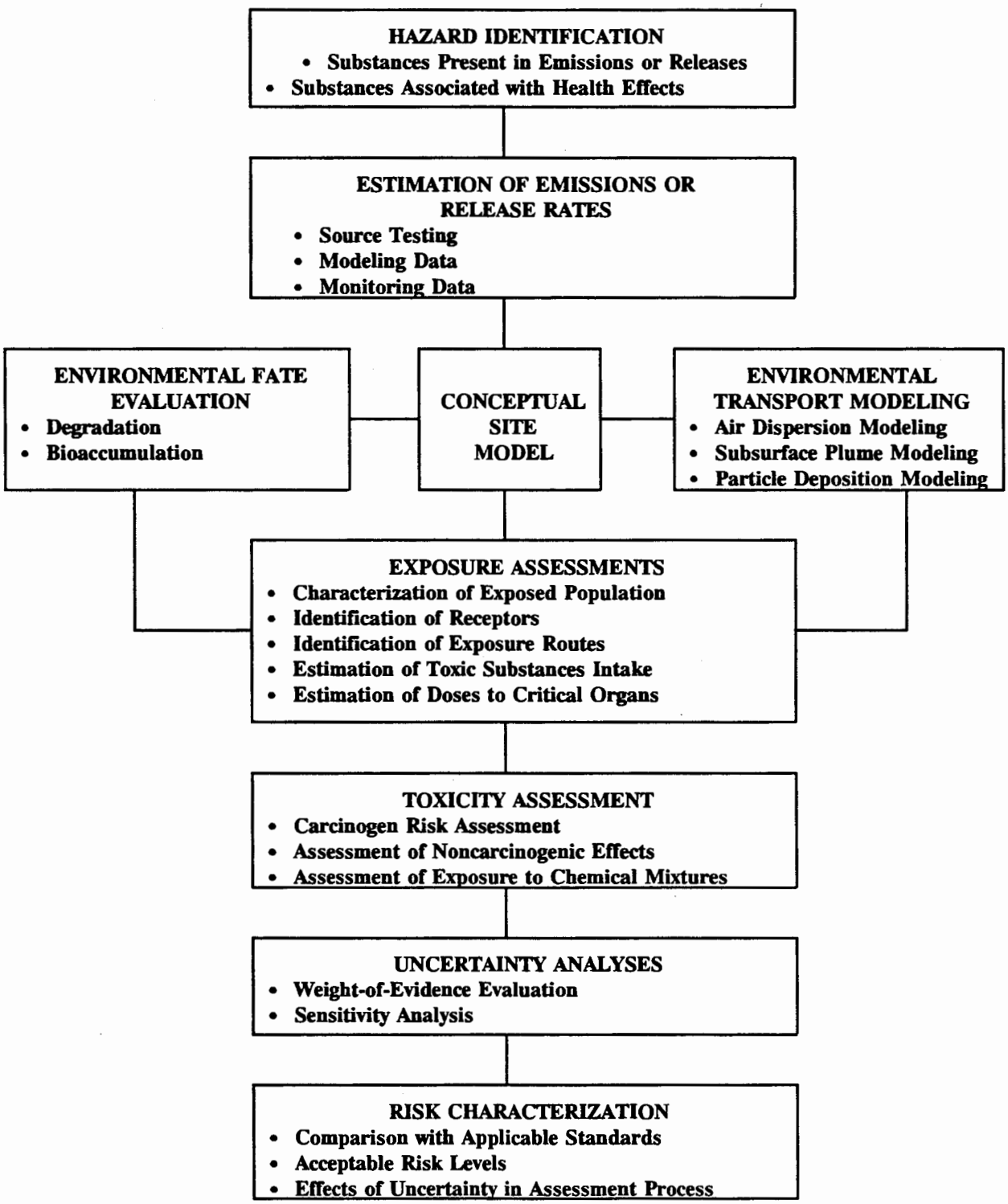


Figure 1-2. Overview of Health Risk Assessment

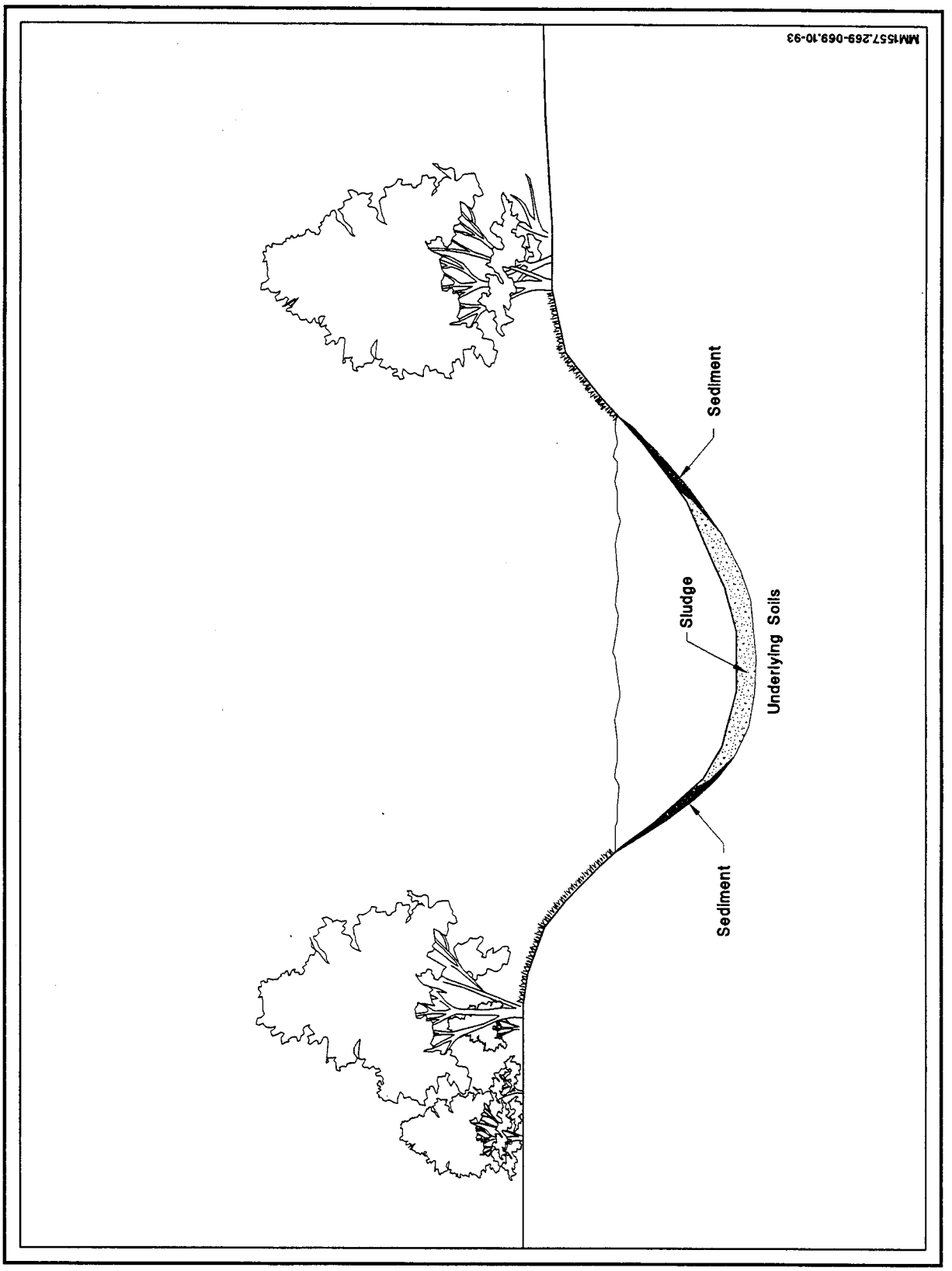


Figure 1-3. Sampling Strata

Likewise, background comparisons were not made for surface water contaminants.

For all media, a risk-based screening analysis developed by USEPA Region III was employed to further reduce the number of constituents carried through the risk assessments. The screen compared site data to conservative risk-based concentrations calculated using a target cancer risk of 10^{-6} and target non-cancer hazard quotient of 0.1. Constituents below the risk-based concentrations were eliminated unless historical evidence suggested that they should be retained (e.g., pesticides). All remaining constituents comprised the chemicals of concern and their associated data were used in these risk assessments.

1.3 Base Site Description

HAFB is located in Otero County, New Mexico, approximately 75 miles north-northeast of El Paso, Texas. A site map of the Base is presented in Figure 1-4. The base covers 50,700 acres of land in the northernmost reaches of the Chihuahuan desert in a trough area known as the Tularosa Basin. The basin is bounded to the east by the Sacramento Mountains and to the west by the San Andreas Mountains. The city of Alamogordo, population 30,600, is the nearest population center and is located approximately seven miles east of the Base boundary.

Table 1-2 presents a history of Base operations. HAFB was initially established during World War II as a temporary air field, known as Alamogordo Army Air Field. After the war, the field was inactive until March 1947, when it was reactivated by the Air Materiel Command. The Bases's primary mission was to develop and test pilotless aircraft, guided missiles, and related equipment. In January, 1971, HAFB was transferred to the U.S. Air Force Tactical Air Command (TAC).

Current industrial operations at the Base include aircraft and ground equipment maintenance and repair, medical research, and corrosion control facilities operation. These operations have generated varying amounts of wastes on a routine basis since the late 1960s. The types of wastes produced included paint-related materials, waste oils, hydraulic and transmission fluids, waste fuels, spent solvents, industrial cleaners, and radionuclides.

From the late 1970s until 1984, small quantities of hazardous wastes were intermittently discharged into the wastewater treatment system. The wastes consisted primarily of wash and rinse water from aircraft maintenance shops using descaling compounds and spray paint. The sewage lagoons have not received hazardous waste since October, 1984. Currently, all hazardous wastes are managed by the Defense Reutilization and Marketing Office and are disposed of or recycled off site in compliance with the RCRA.

1.3.1 Lagoons

The layout of the wastewater treatment system and sewage treatment lagoons, designated as Ponds A through G, is shown in Figure 1-4. The wastewater treatment system receives approximately 1.5 million gallons per day (MGD) of domestic and industrial wastewater. Domestic wastewater is generated from offices, shopping and eating facilities, and on-Base family housing. Industrial wastewater is generated from aircraft washing facilities, corrosion control facilities, machine and maintenance shops, and medical research and analytical laboratories.

Domestic and industrial wastewaters enter the treatment system through a headworks where the flow is screened through a bar rack or ground in comminutors, and degritted in a horizontal-flow grit chamber. Next, influent enters a Parshall flume and wet well where it is pumped to a splitter box. The splitter discharges in parallel to Ponds A and B, both of which are aerated facultative lagoons. The wastewater then flows through four lagoons operated in series. The first of the lagoons, Pond C, has one aerator located at the influent point. The following three lagoons, Ponds D, E, and G, are nonaerated. An additional impoundment, Pond F, is used to recirculate water from Pond E back to the headworks of the system.

1.3.2 Ditch

Discharge from the last lagoon in the series (Pond G) flows via an open ditch to Lake Holloman.

1.3.3 Lakes

Lake Holloman was formed by constructing a nonengineered dam across a natural playa. The 166-acre lake was intended to be the final impoundment for evaporation. However, because of seasonal low evaporation and an increased volume of

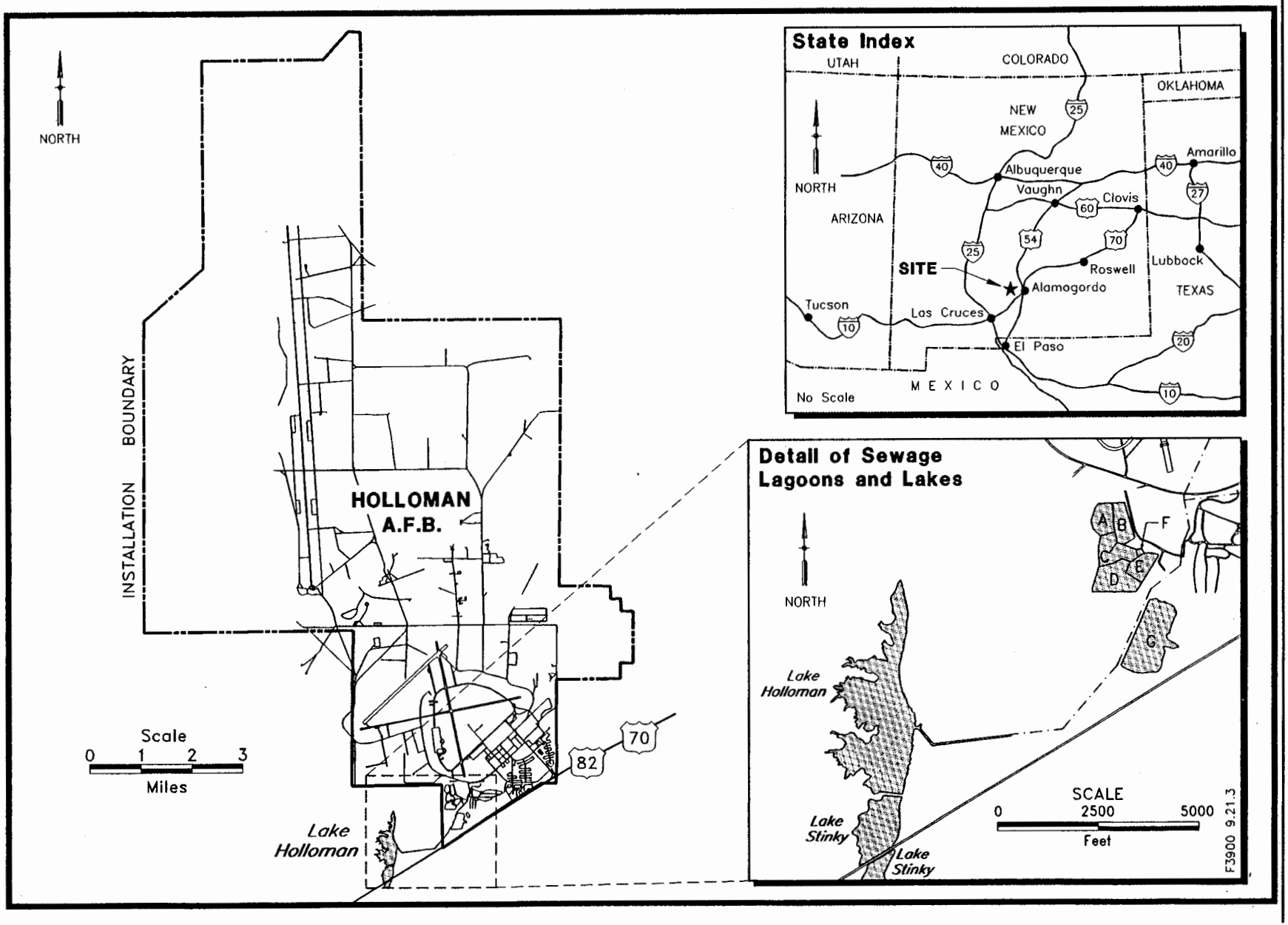


Figure 1-4. Base Map

Table 1-2

History of Base Operations

Period	Types of Operations	Activities	Hazardous Substance Activities
Pre-1942	Rangeland	None	None
1942-1945	Alamogordo Army Airfield	Unknown	Unknown
1945-1947	Inactive		
1947-1951	Air Material Command	Testing pilotless aircraft, guided missiles, and allied equipment	Petroleum, oil, and lubricants (POL), solvents, and protective coatings
1951-1952	Air Force Missile Testing Center	Testing pilotless aircraft, guided missiles, and allied equipment	POL, solvents, and protective coatings
1952-1957	Holloman Air Development Center	Testing pilotless aircraft, guided missiles, and allied equipment	POL, solvents, and protective coatings
1957-1971	Air Force Missile Development Center (AFDC)	Testing pilotless aircraft, guided missiles, and allied equipment	POL, solvents, and protective coatings
1971-1992	Tactical Air Command	49th Tactical Fighter Wing, 479th Tactical Training Wing, 833rd Air Division, and 4449th Mobile Support Squadron	POL, solvents, protective coatings, and radionuclides
1992-Present	Air Combat Command	49th Tactical Fighter Wing, 479th Tactical Training Wing, 833rd Air Division, and 4449th Mobile Support Squadron	POL, solvents, protective coatings, and radionuclides

wastewater generated from Base activities, water from Lake Holloman flows into Lake Stinky, a salina (dry lake bed encrusted with salt), during the winter months. Any overflow into Lake Stinky eventually dissipates through evaporation. Lakes Holloman and Stinky have capacities of approximately 379 million and 227 million gallons, respectively.

1.4 Organization of Report

In contrast to previous risk assessments completed for the lagoons and lakes, separate risk assessments specific to each of the ten units (Ponds A-G, the ditch from Pond G to Lake Holloman, and Lakes Holloman and Stinky) in the wastewater treatment system have been developed to characterize the risks associated with each individual component of the system. The remainder of this document (Sections 2.0 through 11.0) is organized around individual units of the lagoons and lakes wastewater treatment system. For each lagoon and lake and the ditch, information is presented in the following order:

- Conceptual site model;
- Identification of chemicals of concern;
- Contaminant fate and transport;
- Exposure assessment;
- Toxicity assessment;
- Risk characterization;
- Ecological assessment; and
- Conclusions.

Section 2
RISK ASSESSMENT FOR POND A

This section presents the unit-specific risk assessment for Pond A. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

2.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond A. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

2.1.1 Site Description

Pond A is one of two initial impoundments in the wastewater treatment system and is aerated but unlined. The lagoon covers 10.1 acres and has the capacity to hold 16.1 million gallons of water. The edges of the pond are lined to prevent bank erosion and are steeply sloped. Typically, the lagoon is operated in parallel with Pond B; however, occasionally they are operated in sequence to decrease residence time. During the most recent sampling of site media, Pond A was not receiving any Base effluent because of problems with the splitter box. Pond A is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed within the fence surrounding Ponds A through F.

2.1.2 Identification of Releases into Media

Figure 2-1 outlines the fate and transport of contaminant releases from Pond A, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soil; 3) leaching into groundwater; and 4) uptake by biota.

Release Summary

Contaminants in Pond A have:

- Dissolved into surface water;
- Infiltrated into underlying soils;
- Leached into groundwater; and
- Accumulated in biota.

2.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/sediment/sludge/soil;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge/ sediment/soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond A at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 2-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge/sediment; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge and/or sediments.

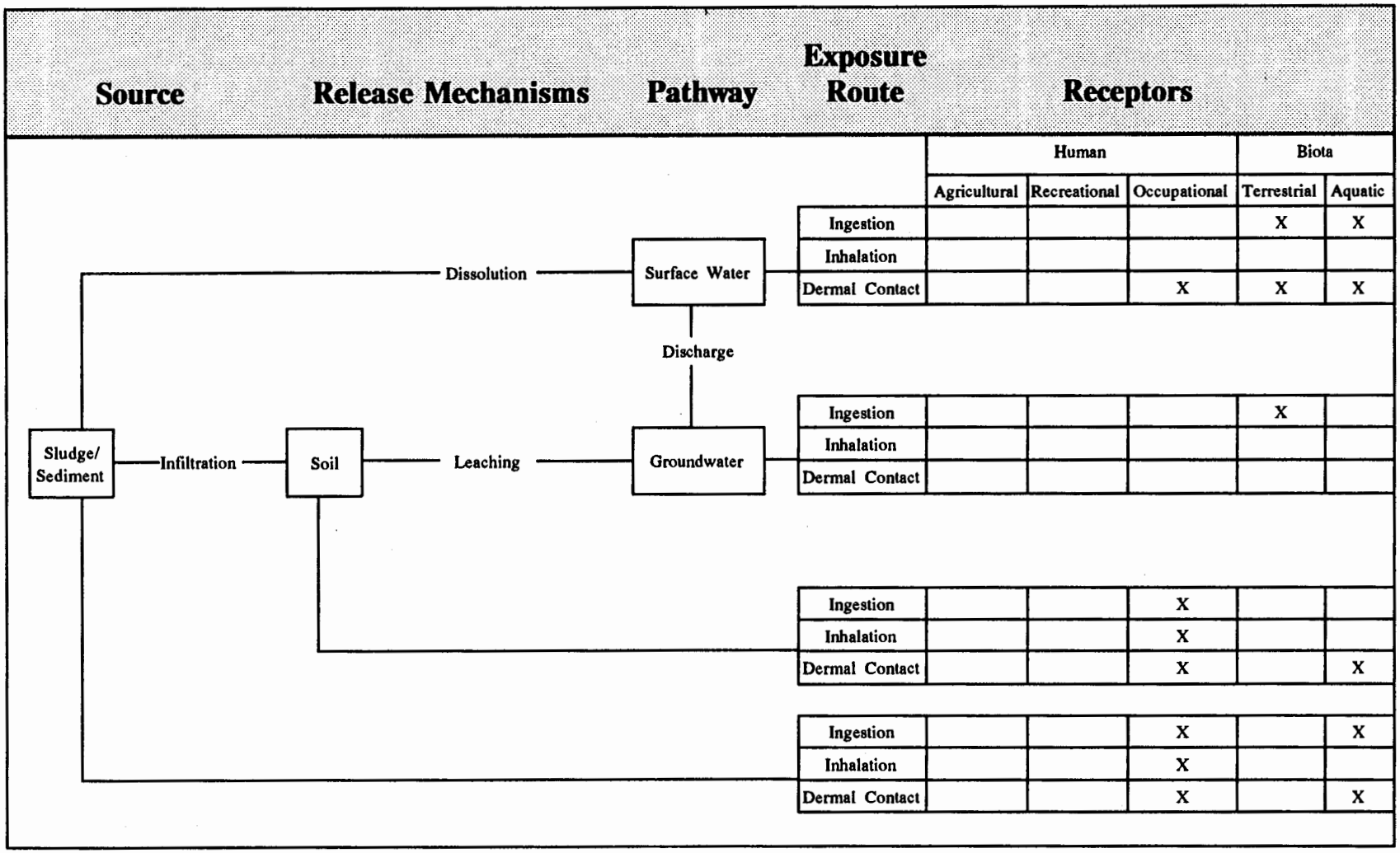


Figure 2-1. Fate and Transport Schematic for Pond A

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. Regarding future exposure, while groundwater in the vicinity of the Base is not potable, because of high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 2.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

2.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 2-1). These include: 1) current site workers who may have dermal contact with surface water, sludge/sediment, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock rearing. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

2.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was used to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond A are presented in Table 2-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by

Table 2-1
Chemicals of Concern for Pond A

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓			
Benzo(a)anthracene				✓
Benzo(b)fluoranthene				✓
Benzo(k)fluoranthene				✓
Benzo(a)pyrene				✓
Benzo(g,h,i)perylene				✓
α-BHC	✓			
β-BHC	✓			
δ-BHC	✓	✓		
γ-BHC	✓			
α-Chlordane	✓			
γ-Chlordane	✓			✓
Cyclohexene	✓			
4,4'-DDD	✓	✓		
4,4'-DDE	✓			✓
4,4'-DDT	✓	✓		
Dieldrin	✓	✓		
Endosulfan I	✓			✓
Endosulfan II	✓			✓
Endosulfan sulfate	✓	✓		✓
Endrin	✓			
Endrin aldehyde	✓			
Heptachlor	✓	✓		✓
Heptachlor epoxide	✓	✓		✓
Indeno(1,2,3-cd)pyrene				✓
Isodrin	✓			
Methoxychlor	✓			
2-Methylnaphthalene				✓
OCDD				✓
PCB-1254				✓
PCB-1260				✓
Phenanthrene				✓
Inorganics				
Aluminum			✓	
Antimony				✓
Arsenic			✓	✓
Beryllium				✓
Cadmium	✓			✓
Cobalt			✓	
Lead			✓	✓
Mercury				✓
Silicon			✓	
Silver				✓
Thallium			✓	

practical considerations in later stages of the risk assessment. For example, concentrations detected at the site may be statistically greater than background, but are less than health-based criteria. A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

2.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond A contaminants:

- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soils;
- Leach into groundwater; and
- May be entrained in air.

Critical assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and transport models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond A. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soils; 3) leaching from sludge/sediments and/or soils into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air; biologically and chemically degrade in the sludge, sediment, soil, and groundwater; and are physically flushed from the site. It was also assumed that no significant additional contaminant loading was occurring from current operation. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond A, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

2.3.1 Release from Sludge, Sediment, and Soil to Surface Water

Dissolution and suspension of contaminants from sludge, sediment, and soil into surface water is one of the primary contaminant transport mechanisms at Pond A. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge/sediment and soil.

2.3.2 Release from Sludge, Sediment and Soil to Groundwater

A second significant transport mechanism from the sludge/sediment and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 2.3.3 below).

2.3.3 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Pond A:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond A; and
- Periodically discharges to lakes.

Monitor wells associated with Pond A:

- MWs 5, 7, 8, 11, 12, 13, and MWD-05.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near Lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3 percent, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond A based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond A, monitor wells MW-5, MW-7, MW-8, MW-11, MW-12, MW-13, and MWD-05 were assigned since these wells are upgradient from all other lagoons except Pond B. (Thus, data from these wells also were associated with Pond B.)

2.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed contact between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

2.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond A contaminants:

- Waterfowl;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond A. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond A and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. No fish are present in Pond A. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such

parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

2.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soil can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical dewatering and backfilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

2.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 2.1 provides a brief description of the exposure setting for Pond A.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 2-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

2.4.1 Identification of Contaminant Releases

Sampling conducted at Pond A has identified releases of contaminants from sludge/ sediment to underlying soil, groundwater, surface

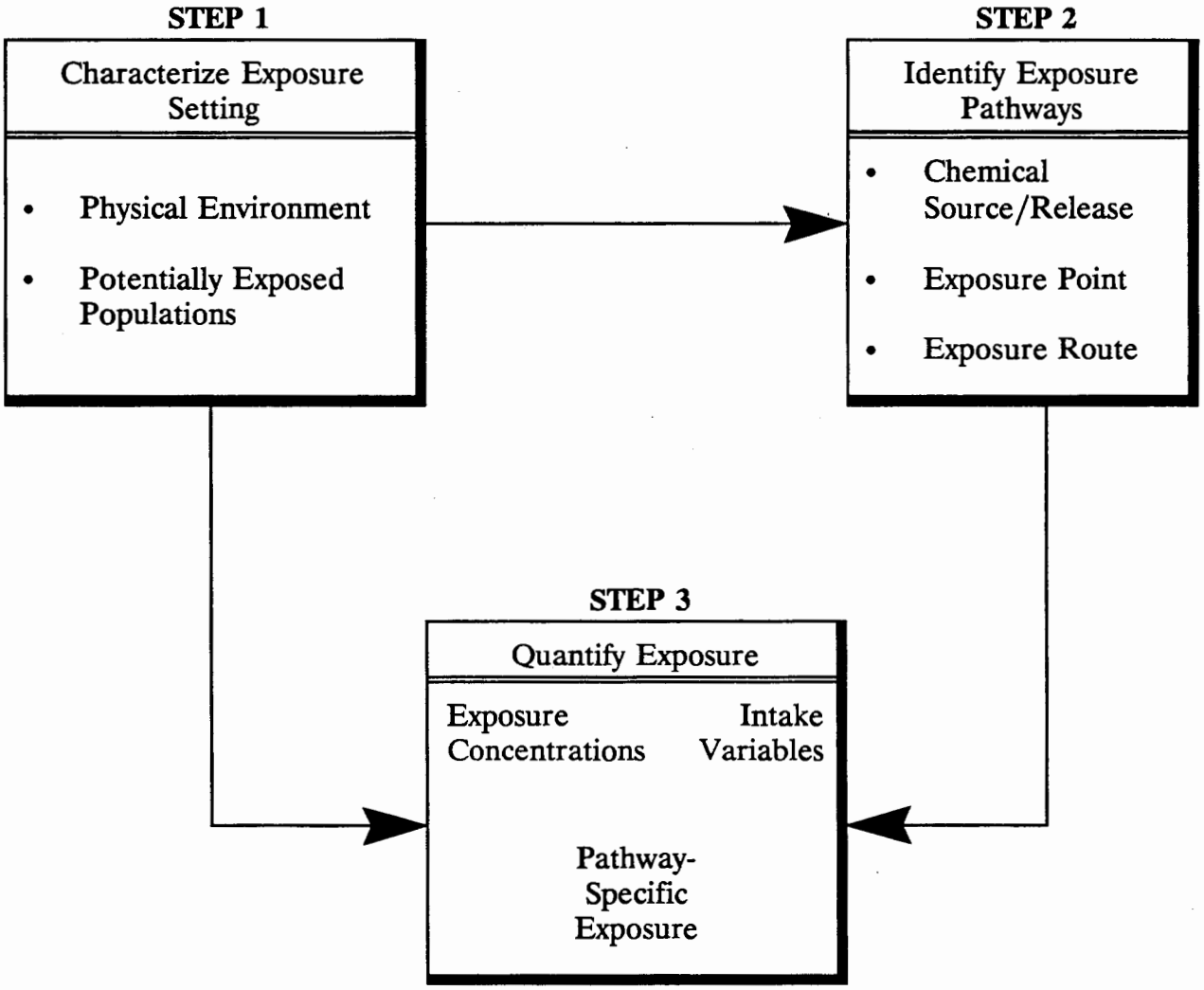


Figure 2-2. Flowchart of the Exposure Assessment Process

water, and biota. Sections 2.1.2 and 2.3 provide a more complete discussion of contaminant releases from Pond A.

2.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 2-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon, periodically repair the aeration unit, and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 2.1.3 and 2.1.4 also discuss these potentially exposed subgroups. Section 2.6 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

2.4.3 Identification of Potential Exposure Pathways

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;

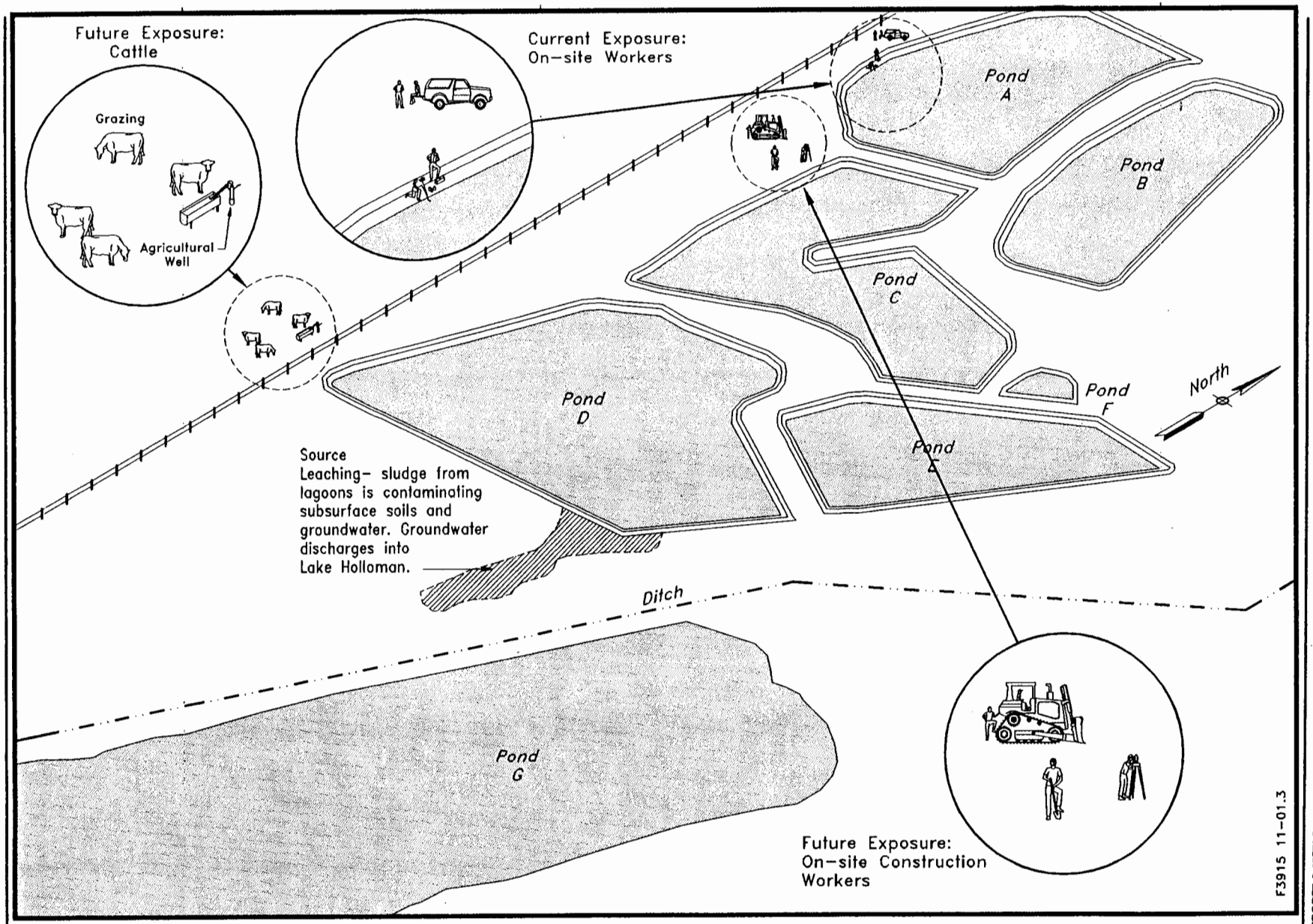


Figure 2-3. Exposure Scenario Diagram for Pond A

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge/sediment;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sediment/sludge or sediment (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge/sediment;
- Ingestion of soil; and
- Ingestion of groundwater.

- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 2-2 and 2-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge/sediment by site workers during lagoon maintenance activities; and 3) dermal contact with soil by site workers during lagoon maintenance activities. These path-ways are considered to be complete because of the routine maintenance activities, such as repair of the lagoon aerator and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F.

Exposure pathways that may be complete in the future have been included in the risk assessment and include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge/sediment and soil by construction workers during future lagoon closure; and 4) dermal contact with sludge/sediment and soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dermal contact with sludge/sediment or soil. Inhalation and incidental ingestion are likely since closeout of the system will require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or sediment; and 3) current ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

2.4.4 Identification of Exposed Populations

Analysis of Base activities in proximity to Pond A suggests that three human subpopulations may potentially be exposed to contaminants--current site workers, future consumers of local agriculture, and future construction workers.

Table 2-2

Potentially Complete Current Exposure Pathways: Pond A, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in sludge\sediment	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge\sediment	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 2-3

Potentially Complete Future Exposure Pathways: Pond A, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge/sediment and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in sludge/sediment	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/soil/sludge/sediment.
- Future consumers:
  - -- Ingestion of contaminated beef.
- Future construction workers:
  - -- Dermal contact with surface water/soil/sludge/sediment;
  - -- Inhalation of volatiles/dust; and
  - -- Incidental ingestion of sludge/ sediment/soil.

2.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater and plant concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge/sediment, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 2.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond A are provided in Table 2-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge/sediment and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 2.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor wells adjacent to the site and downgradient from Pond A (MW-5, MW-7, MW-8, MW-11, MW-12, MW-13, and MWD-05) provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the relatively low groundwater concentrations at the future point of withdrawal.

Table 2-4

Exposure Point Concentrations for Pond A

Chemical	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenarios						
4,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-05	2.80E-05
4,4'-DDE	0.00E+00	0.00E+00	6.30E-01	6.30E-01	0.00E+00	0.00E+00
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-05	2.00E-05
Aluminum	2.47E+04	5.89E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	5.70E+00	5.70E+00	0.00E+00	0.00E+00
Arsenic	4.34E+00	4.85E+00	1.07E+01	1.29E+01	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	0.00E+00	3.52E+00	4.38E+00	0.00E+00	0.00E+00
Benzo(a)pyrene	0.00E+00	0.00E+00	1.10E-01	1.10E-01	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	2.96E+00	4.04E+00	0.00E+00	0.00E+00
Benzo(g,h,i)perylene	0.00E+00	0.00E+00	1.71E+00	1.91E+00	0.00E+00	0.00E+00
Benzo(k)fluoranthene	0.00E+00	0.00E+00	1.87E+00	2.69E+00	0.00E+00	0.00E+00
Beryllium	6.41E-01	7.32E-01	6.30E-01	8.09E-01	0.00E+00	0.00E+00
Cadmium	0.00E+00	0.00E+00	6.68E+00	8.64E+00	0.00E+00	0.00E+00
Cobalt	3.08E+00	4.03E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.70E-05	3.70E-05
Dieldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-05	1.50E-05
Endosulfan I	0.00E+00	0.00E+00	5.30E-01	5.30E-01	0.00E+00	0.00E+00
Endosulfan II	0.00E+00	0.00E+00	1.10E+00	1.10E+00	0.00E+00	0.00E+00
Endosulfan sulfate	0.00E+00	0.00E+00	4.20E-01	4.20E-01	1.30E-05	1.30E-05
gamma-Chlordane	0.00E+00	0.00E+00	4.90E-01	4.90E-01	0.00E+00	0.00E+00
Heptachlor	0.00E+00	0.00E+00	2.30E-01	2.30E-01	1.20E-05	1.20E-05
Heptachlor epoxide	0.00E+00	0.00E+00	1.80E+02	1.80E+02	1.00E-05	1.00E-05
Indeno(1,2,3-cd)pyrene	1.78E+00	1.94E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	2.11E+01	3.07E+01	1.20E+01	1.20E+01	0.00E+00	0.00E+00
2-Methylnaphthalene	0.00E+00	0.00E+00	4.30E+00	5.77E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	2.21E+00	3.01E+00	0.00E+00	0.00E+00
OCDD	0.00E+00	0.00E+00	7.60E-04	7.60E-04	0.00E+00	0.00E+00
PCB 1254	7.44E+00	9.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PCB 1260	2.41E+00	2.77E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	2.68E+00	3.58E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silicon	2.06E+02	2.90E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	1.44E+02	1.83E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	5.94E+01	7.35E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 2-4

(Continued)

Chemical	Groundwater (mg/L)		Air (mg/kg)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
4,4'-DDD	6.30E-06	8.10E-06	0.00E+00	0.00E+00	2.51E-05	3.23E-05
4,4'-DDE	8.30E-06	1.15E-05	0.00E+00	0.00E+00	2.08E-04	2.89E-04
4,4'-DDT	1.51E-05	2.03E-05	0.00E+00	0.00E+00	5.88E-05	7.90E-05
Aldrin	6.20E-06	7.90E-06	0.00E+00	0.00E+00	3.11E-06	3.96E-06
alpha-BHC	1.65E-05	2.27E-05	0.00E+00	0.00E+00	3.30E-07	4.55E-07
alpha-Chlordane	1.16E-05	1.98E-05	0.00E+00	0.00E+00	6.14E-08	1.05E-07
Aluminum	0.00E+00	0.00E+00	4.26E+02	1.01E+03	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.02E-02	5.02E-02
Arsenic	0.00E+00	0.00E+00	1.95E-01	2.31E-01	0.00E+00	0.00E+00
Benzo(a)pyrene	0.00E+00	0.00E+00	3.20E-02	4.53E-02	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	1.17E-02	1.47E-02	0.00E+00	0.00E+00
beta-BHC	1.05E-05	1.50E-05	0.00E+00	0.00E+00	3.33E-07	4.76E-07
Cadmium	1.30E-02	1.47E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium (dust)	0.00E+00	0.00E+00	1.27E-01	1.56E-01	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	5.31E-02	6.96E-02	0.00E+00	0.00E+00
Cyclohexene	8.00E-03	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	1.08E-05	1.58E-05	0.00E+00	0.00E+00	3.43E-07	5.01E-07
Dieldrin	7.90E-06	1.14E-05	0.00E+00	0.00E+00	6.32E-08	9.11E-08
Endosulfan I	7.20E-06	1.00E-05	0.00E+00	0.00E+00	1.23E-07	1.71E-07
Endosulfan II	1.74E-05	2.09E-05	0.00E+00	0.00E+00	2.97E-07	3.56E-07
Endosulfan sulfate	2.27E-05	2.55E-05	0.00E+00	0.00E+00	3.87E-07	4.35E-07
Endrin	1.96E-05	2.90E-05	0.00E+00	0.00E+00	1.08E-05	1.59E-05
Endrin aldehyde	5.30E-06	7.30E-06	0.00E+00	0.00E+00	2.91E-06	4.01E-06
gamma-BHC	1.61E-05	2.77E-05	0.00E+00	0.00E+00	3.22E-07	5.55E-07
gamma-Chlordane	6.52E-04	1.22E-03	0.00E+00	0.00E+00	3.45E-06	6.47E-06
Heptachlor	8.50E-06	1.13E-05	0.00E+00	0.00E+00	5.37E-07	7.14E-07
Heptachlor epoxide	5.60E-06	6.60E-06	0.00E+00	0.00E+00	7.18E-09	8.46E-09
Isodrin	1.58E-05	2.61E-05	0.00E+00	0.00E+00	8.69E-06	1.44E-05
Lead	0.00E+00	0.00E+00	1.76E+00	2.24E+00	0.00E+00	0.00E+00
Methoxychlor	4.60E-06	4.60E-06	0.00E+00	0.00E+00	6.06E-05	6.06E-05
Silicon	0.00E+00	0.00E+00	3.55E+00	5.01E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	1.02E+00	1.26E+00	0.00E+00	0.00E+00

2.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 2-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

2.4.7 Uncertainties

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

2.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

2.5.1 Toxicity Values Used in the Risk Assessment

Table 2-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a database search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

Table 2-5

Toxicity Values for Pond A

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Aluminum	--	--	--	--	--	--	--	--
Antimony	--	4.00E-04 [I]	4.00E-04 [H]	4.00E-04	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
Benzo(a)anthracene	B2	--	--	--	--	--	1.06E+00 [C]	2.50E-04 [C]
Benzo(a)pyrene	B2	--	--	--	--	--	7.30E+00 [I]	1.70E-03 [H]
Benzo(b)fluoranthene	B2	--	--	--	--	--	1.02E+00 [C]	2.40E-04 [C]
Benzo(g,h,i)perylene	D	--	--	--	--	--	--	--
Benzo(k)fluoranthene	B2	--	--	--	--	--	4.82E-01 [C]	1.10E-04 [C]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
ß-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [H]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC (Lindane)	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Cadmium (dust)	B1	--	--	--	--	--	--	1.80E-03 [I]
Cadmium (water)	B1	5.00E-04 [I]	--	5.00E-04	--	--	--	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
Cobalt	D	--	--	--	--	--	--	--
Cyclohexene	--	--	--	--	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan I	--	2.53E-02 [S]	--	2.53E-02	--	--	--	--
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--

Table 2-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Endosulfan sulfate	--	6.00E-03 S	--	2.47E-02 S	--	--	--	--
Endrin	D	3.00E-04 I	3.00E-04 H	6.00E-04 S	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 I	5.00E-04 H	9.75E-04 S	--	--	4.50E+00 I	1.30E-03 I
Heptachlor Epoxide	B2	1.30E-05 I	1.30E-05 H	1.30E-05	--	--	9.10E+00 I	2.60E-03 I
Indeno(1,2,3-cd)pyrene	B2	--	--	--	--	--	1.69E+00 C	3.91E-04 C
Isodrin	--	3.00E-04 S	--	3.00E-04	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Mercury	D	3.00E-04 H	3.00E-04 4	3.00E-04	3.00E-01 H	3.00E-01 H	--	--
Methoxychlor	D	5.00E-03 I	5.00E-03 H	7.60E-02 S	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--	--	--	--
OCDD	--	1.00E-06 C	--	1.00E-06	--	--	1.50E+02 C	3.30E-11 C
PCB 1254	B2	--	--	--	--	--	7.70E+00 I	--
PCB 1260	B2	--	--	--	--	--	7.70E+00 I	--
Phenanthrene	D	--	--	--	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 I	5.00E-03 H	5.00E-03	--	--	--	--
Thallium	D	8.00E-05 I	8.00E-04 H	8.00E-05	--	--	--	--
Tin	--	6.00E-01 H	6.00E-01 H	6.00E-01	--	--	--	--
Vanadium	--	7.00E-03 H	7.00E-03 H	7.00E-03	--	--	--	--

C Calculated based on the comparative potency factors for individual dioxins or PAHs.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.

2.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

2.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

2.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 44 Chemicals of potential concern;
- 29 oral RfDs available:
  - -- 1 calculated value;
  - -- 11 surrogate values;
  - -- 3 values from HEAST; and
  - -- 14 USEPA-verified RfDs:
    2 - high confidence;
    6 - medium confidence; and
    6 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Eleven of the 29 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Fourteen values were obtained from IRIS and have levels of confidence that range from high (two chemicals) to low (six chemicals). One value was calculated based on comparative potency factors for

dioxins and three values were from HEAST, which does not provide information regarding level of confidence. Oral RfDs were not available for 17 of the chemicals of potential concern. Qualitative assessments were conducted for these chemicals (refer to Appendix G).

Carcinogen Toxicity Information

- 20 oral slope factors available:
  - -- 11 USEPA-verified slope factors: Group B2 - 11 chemicals;
  - -- 5 calculated value;
  - -- 2 surrogate values; and
  - -- 2 values from HEAST.
- 17 inhalation unit risks available:
  - -- 9 USEPA-verified unit risks;
  - -- 5 calculated value;
  - -- 2 surrogate values; and
  - -- 1 value from HEAST.

Thirty-one of the 44 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Nine chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Sixteen chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and one chemical was classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for 11 of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane, one value was calculated based on comparative potency factors for dioxins and PAHs, and two values were obtained from HEAST. Inhalation unit risk factors were available for 17 chemicals. Nine values were USEPA-verified, five were calculated based on comparative potency factors for dioxins and PAHs, two values were derived surrogates, and one value was obtained from HEAST.

2.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond A, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intakes and were compared to chemical-specific toxicity information.

2.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake × Slope Factor = Risk.
- A cancer risk of 10^6 (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond A, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected

intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's goal set forth in the proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure *de minimis* for risk management purposes. This range is designed to be protective of human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

2.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the HQ is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQ is presented in Appendix I.

2.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond A presently or in the future, two chronic and two subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The two *subchronic* scenarios were: 1) current on-site occupational exposure; and 2) future on-site occupational exposure.

2.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

Carcinogenic risk:

- Dermal contact with heptachlor epoxide in sludge sediment/sediment by on-site workers.
- Dermal contact with PCBs in sludge/ sediment by on-site workers.

Noncarcinogenic hazard:

- Dermal contact with heptachlor epoxide in sludge/sediment by on-site workers.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond A.

Current on-site workers were assumed to be exposed to contaminants in Pond A via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge/sediment; and 3) dermal contact with soils underneath the sludge.

Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk:

- Total average = 2E-6
- Total reasonable maximum = 8E-5

Noncarcinogenic hazard:

- Total average HI = 0.13
- Total reasonable maximum HI = 1.8

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-6 and 8E-5, respectively. Both risk values exceed the lower-bound risk range goal and may indicate cause for concern. As shown in Figure 2-4, heptachlor epoxide contributed the majority of the risk for the reasonable maximum exposure. Heptachlor epoxide was also the major risk contributor (94.7%) for the average exposure (refer to Appendix I). Dermal contact with sediment/sludge contributed virtually all of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated noncancer hazard indices, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.13 and 1.8, respectively. The reasonable maximum hazard exceeds unity and may indicate cause for concern regarding noncancer health effects for on-site workers. As shown in Figure 2-5, heptachlor epoxide was the major contributor to total hazard for the reasonable maximum exposure. Heptachlor epoxide was also responsible for the majority of the hazard associated with average exposure. Again, dermal contact with sediment/sludge was responsible for virtually all of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

The subchronic scenario addresses the same pathways of exposure as the chronic occupational scenario but assesses risk for military personnel who may work at the site for an average (3 years) tour-of-duty. Carcinogenic risk was not modeled for the subchronic occupational scenario since carcinogenic risks are estimated as the probability of developing cancer over a lifetime. In addition, USEPA's approach to toxicity assessment for carcinogens was developed for assessing risk associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risk associated with subchronic exposure is not appropriate. Calculated noncancer HIs are presented in Appendix I. The risks associated with the subchronic scenario were identical to those predicted for the chronic scenario and may indicate a potential for adverse noncancer health effects in those exposed to site-related contaminants on a subchronic basis.

2.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

Noncarcinogenic hazard:

- Dermal contact with heptachlor epoxide in sludge by on-site workers; and
- Incidental ingestion of heptachlor epoxide in sludge by on-site workers.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base is developed for residential and/or agricultural purposes. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, also was considered as a contaminant source for the introduction of chemicals into edible portions of beef.

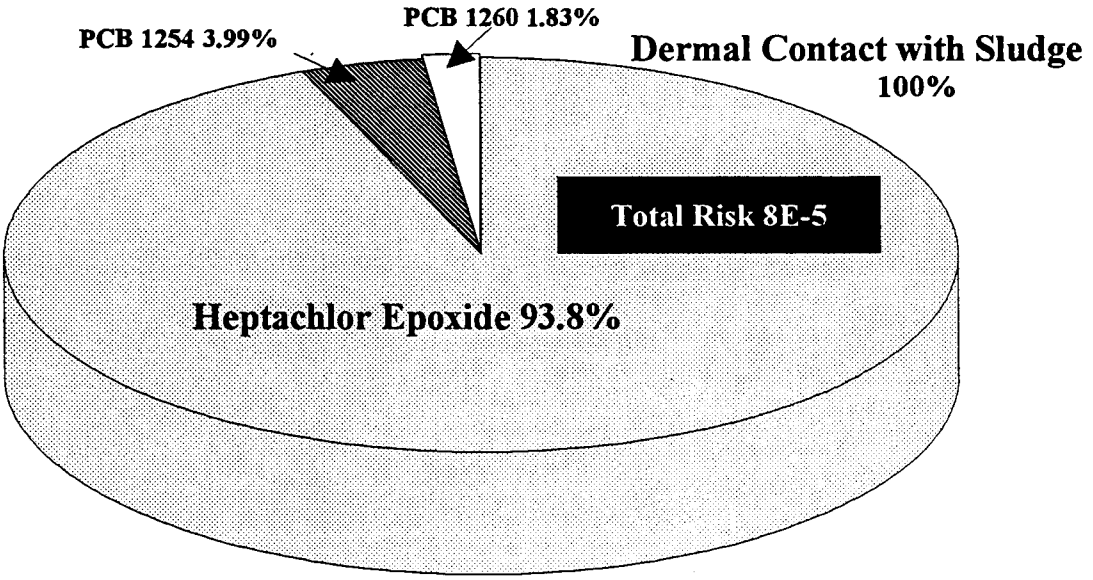


Figure 2-4. Reasonable Maximum Carcinogenic Risk--Current Occupational Scenario

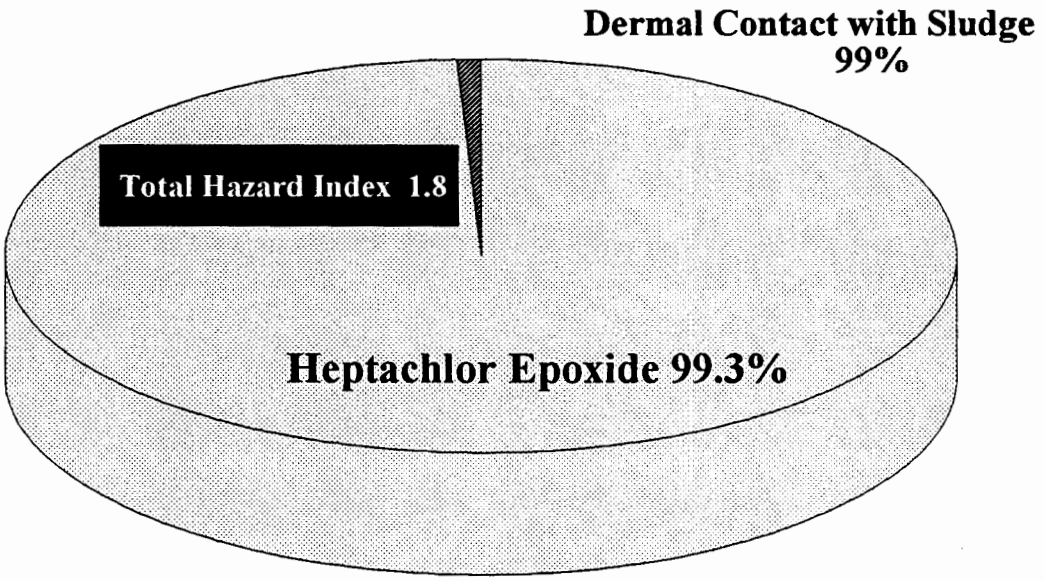


Figure 2-5. Reasonable Maximum Noncancer Hazard Index--Current Occupational Scenario

Future Agricultural Adult Risk

Carcinogenic risk:

- Total average = 1E-8
- Total reasonable maximum = 3E-7

Noncarcinogenic hazard:

- Total average HI = 0.08
- Total reasonable maximum HI = 0.36

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 1E-8 and 3E-7, respectively. Both risk values are below the goal of 1E-6 and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.08 and 0.36, respectively. Both HIs are less than unity and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Child Risk

Carcinogenic risk:

- Not determined for children

Noncarcinogenic hazard:

- Total average HI = 0.20
- Total reasonable maximum HI = 0.85

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.20 and 0.85, respectively. Both HIs are less than one and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Carcinogenic risk:

- Not assessed for subchronic exposure

Noncarcinogenic hazard:

- Total average HI = 39
- Total reasonable maximum HI = 147

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated soil, sediments, and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated soil/sediment/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed

for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 39 and 147, respectively. Both the average and reasonable maximum hazard exceed unity and may indicate cause for concern regarding noncancer health effects for future on-site workers. As shown in Figures 2-6 and 2-7, heptachlor epoxide was the major contributor to total hazard for both average and reasonable maximum exposure. Dermal contact with sludge contributed the majority (83% average; 55% reasonable maximum) of the pathway-specific hazard in both cases, with incidental ingestion of sludge providing the remainder.

2.6.6 Uncertainties Associated with Risk Characterization

The current and future occupational risks/hazards at Pond A were based primarily on a single sediment sample in which heptachlor epoxide was detected. In addition, the result was flagged with an X, indicating that it was not a confirmed hit. In fact, the result could be due to interference in the analytical method. Therefore, the presence of this analyte is questionable, as are the associated risks/hazards. However, risks associated with current on-site worker exposure to PCBs in sludge were elevated as well. The lack of inhalation slope factors for PCBs adds additional uncertainty to the risk characterization results for Pond A.

2.6.7 Summary

Risk Characterization Results

Risks above *de minimis* levels include:

- Carcinogenic and noncancer hazard risk to current on-site workers; and
- Noncancer hazard to current and future on-site workers.

The results of this risk assessment indicate that elevated carcinogenic risks are associated with average and reasonable maximum exposure to current on-site workers at Pond A. Both the current (reasonable maximum exposure) and future occupational (average and reasonable maximum exposure) scenarios have unacceptable noncancer HIs. All risks/hazards associated with the future agricultural scenario were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Pond A. Conservative assumptions that may impact the risk characterization include: 1) use of oral RfDs and slope factors to assess risk/hazard associated with dermal exposure to contaminants in sediments and sludge; 2) exposure frequency; 3) exposure duration; and 4) surface area available for dermal contact.

2.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method "... can provide some qualitative information on the likelihood and severity of impacts" resulting from chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. EQ values of greater than ten indicate that

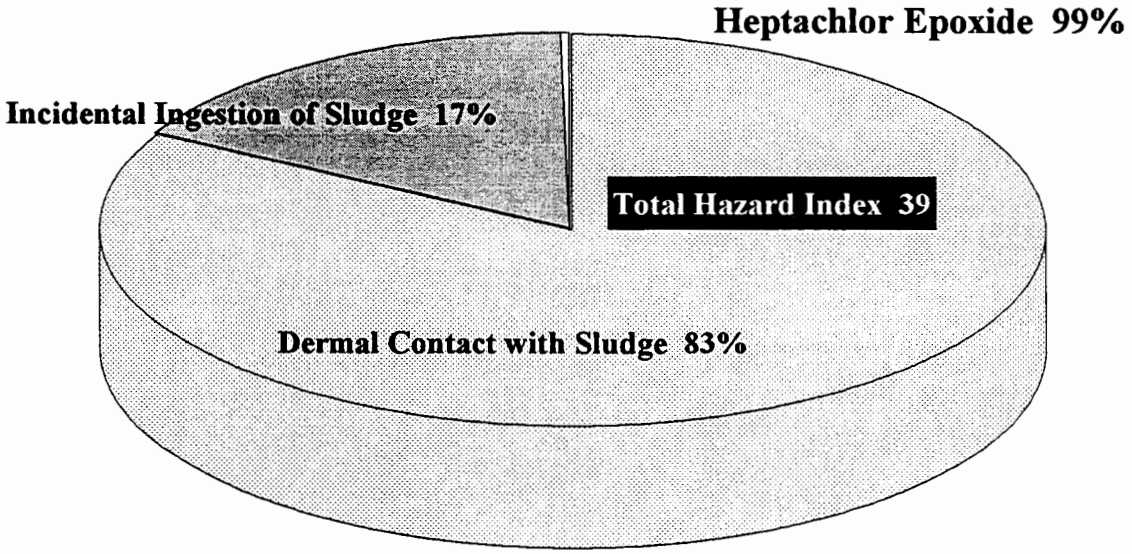


Figure 2-6. Average Noncancer Hazard Index--Future Occupational Scenario

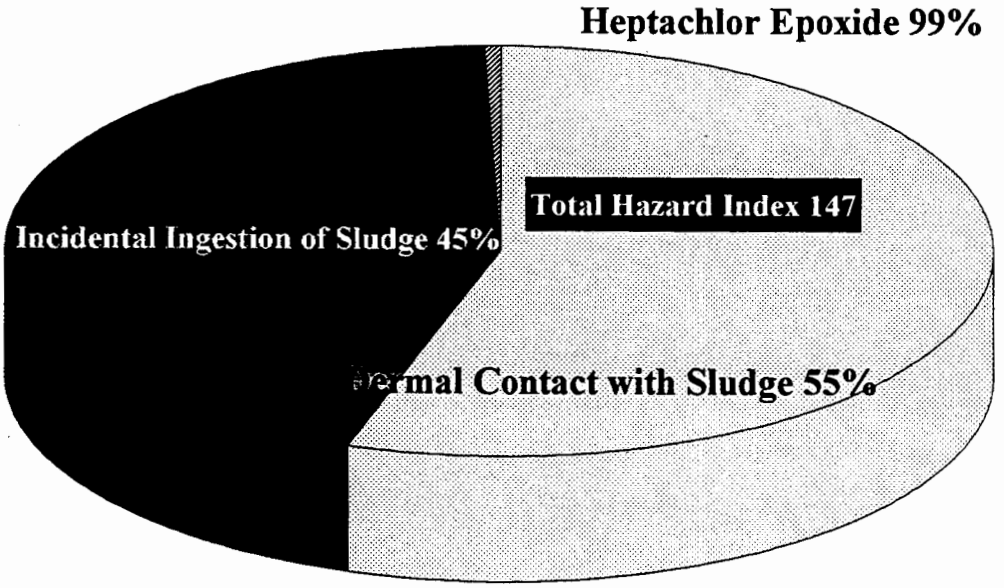


Figure 2-7. Reasonable Maximum Noncancer Hazard Index--Future Occupational Scenario

adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond A and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K. A discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section.

2.7.1 Background

Pond A is 10.1 acres and has the capacity to hold 16.1 million gallons of water. It is an aerated facultative lagoon. Plankton, benthic invertebrates, near surface sediments, sludge and surface water were collected at Pond A. The pH was approximately 8.56, and the alkalinity was measured at 164 mg/L. The water depth was 1.2 meters in the center of the pond, secchi depth was 0.25 meters. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made and is presented in Table 2-6.

The edges of the pond are lined to prevent bank erosion and slope steeply. The liner is devoid of sediments until a depth of 18 to 24 inches is reached, where a sandy layer (apparently erosion deposits from the road/dike around the pond) begins. Sludge deposits are also mixed into this sandy layer. Benthic organisms were found in relative abundance (about 10 to 20 organisms per 6× 6 × 6 inch sample) in the near surface sediments, and the sediments washed through the 1000 μm sieve leaving a concentrated sample of benthos/sludge/bacteria. Benthos were not present in samples taken in deeper water where there was a thick bacterial layer covering the sludge.

Ducks were observed occasionally in Pond A. Killdeer, black-necked stilts, and sanderlings were observed feeding around the edges of the pond. Bats and barn swallows were seen in early April over the lagoon system. Algae and surface water were collected as discussed in Appendix M. There were no fish present in Pond A.

2.7.2 Exposure Assessment

Indicator species selected for Pond A:

- Mallards;
- Killdeer; and
- Fish.

Figure 2-8 is a conceptual site model of Pond A. Fish were not present in Pond A, probably because of the lack of suitable cover for the fish. There were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards and killdeer which feed on the plankton and invertebrates, respectively. Although fish were not present, they were selected as indicator species for the aquatic environment.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond A makes up about 3% of the system; therefore, 3% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably in the area for, at the most, 6 months. The average ingestion fraction, which was 1.5%, was calculated by dividing the reasonable maximum by two (for half a year exposure).

For killdeer, the average ingestion fraction was assumed to be 33%, since benthic organisms could only be collected at Pond A, Pond E, and the ditch and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. It is probable that the other ponds and the lakes support populations of benthic organisms which were not collected due to substrate interference. Ponds A and E and the ditch were assumed to be representative of the other ponds and lakes, and the shorebirds were assumed to spend the entire year in the area.

Table 2-6

Water Quality Parameters - Pond A

1:30 pm 3/8/93	Southeast Corner			Center		
Depth (m)	C (μmhos)	Temp (°C)	DO (mg/L)	C (μmhos)	Temp (°C)	DO (mg/L)
Surface	6700	20	11	6800	18	11.8-12
0.5	NC	NC	NC	NC	13.5	3.6
1.1	NC	NC	NC	6600	13	2.8

NC = Not Collected

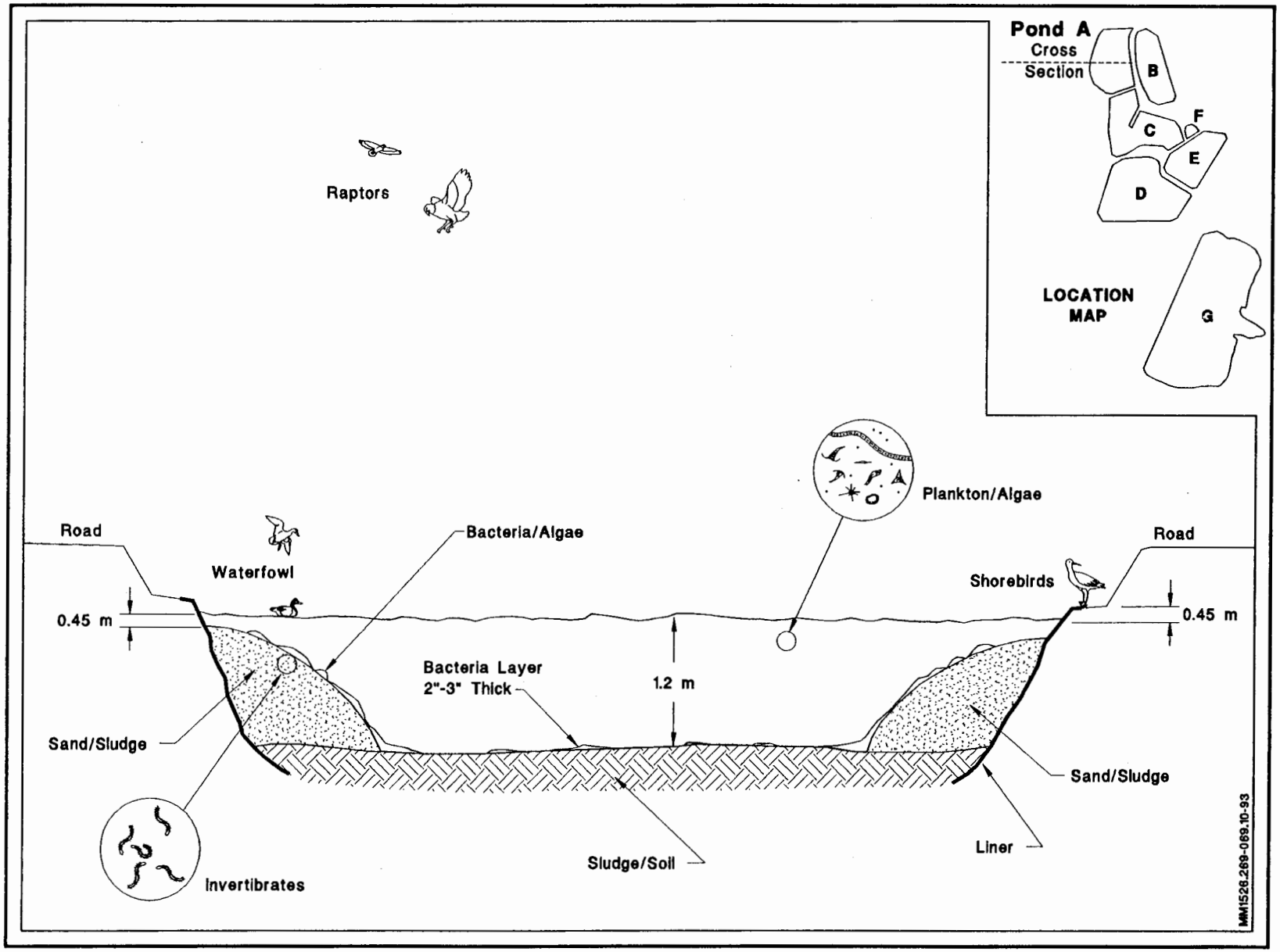


Figure 2-8. Ecological Conceptualization Model for Pond A

Risk Characterization Results

Birds:

- Adverse effects are not expected.

Fish:

- Adverse effects could be possible.

2.7.3 Risk Characterization

Table 2-7 lists the EQs for the indicator species. The potential risk to both mallards and killdeer was below 1.0 and therefore acceptable. The majority of the potential risk in Pond A was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to birds feeding at Pond A can be qualified based on the fraction ingested from this pond; however, the birds are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributed to Pond A alone is acceptable, the cumulative risk from the entire system needs to be taken into consideration. The EQs were summed for all ten assessments to determine a total EQ, or ecological hazard index, for ducks. A discussion of cumulative risks to birds is included in the conclusions in Section 13.

Fish were not present in Pond A, as discussed above; however, based strictly on the water contaminant concentrations, adverse effects are theoretically possible. The ecological HQ for fish in Pond A would be 3.19 for both average and reasonable maximum exposure. These values are the same because there was a single hit for each contaminant; therefore, only one concentration was available and an upper confidence level on the average could not be calculated. The EQ was based strictly on the contaminants detected in the surface water and does not account for contaminant exposure from other sources. Since fish are not present, it is assumed that pond conditions are not adequate for their survival. It is unknown whether this is because of lack of cover or presence of contamination. Survival may be limited because dissolved oxygen drops to zero in the deeper water at night. The presence of invertebrates in the pond indicates that conditions are not lethal, although the invertebrates may be stressed from contamination in sediments.

The ecological HI for killdeer feeding on invertebrates collected from Pond A indicate that adverse effects are not likely. Therefore, invertebrates are surviving in Pond A and, apparently, serving their purpose in the food chain without adverse effects. The low population density of invertebrates may not be an adverse effect. At worst, it may limit the number of birds that rely on these organisms for food.

2.8 Conclusions for Pond A

Maintenance activities at Pond A include inspecting the lagoon, periodically repairing the aeration units, and obtaining water samples. Potential occupational scenarios associated with Pond A include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario that assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond A to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing and this exposure could occur under future conditions. Ingestion of beef from cattle pastured on this land, and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond A suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The current predicted occupational risks/hazards (average and reasonable

Table 2-7

Ecological Quotients - Pond A

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.04	0.07
Killdeer	0.02	0.07
Fish	3.19	3.19

maximum exposure) are excessive and suggest that use of Pond A for evaporative treatment should cease. However, the predicted hazards (average and reasonable maximum exposure) associated with the future occupational scenario, which assumes that the Ponds will be dewatered and backfilled, are excessive as well. Therefore, dewatering and backfilling would have to be conducted as a hazardous waste remediation with the attendant expense. Significant uncertainty is associated with the results from Pond A because risks result primarily from heptachlor epoxide, which was only found in a single composite sediment sample. This result was flagged with an X, indicating that it was not a confirmed hit. Resampling Pond A for heptachlor epoxide would aid in interpreting the significance of these results. Risks associated with on-site worker exposure to PCBs in sludge were elevated as well.

It is unlikely that Pond A will ever be developed as a residential area. However, the baseline risk assessment of hypothetical future on-site residential development identified carcinogenic risks (average and reasonable maximum exposure) and average and reasonable maximum noncancer hazards (adult and child) that exceed *de minimis* levels. Dermal contact with heptachlor epoxide in sediment drives the carcinogenic risks as well as the noncancer hazards.

The ecological assessment indicated that birds (mallards and killdeer) using Pond A are not likely to be at risk. While fish are not found in Pond A, adverse effects are theoretically possible in fish based solely on water contaminant concentrations. Based on the risks/hazards associated with exposure of current on-site workers to heptachlor epoxide and PCBs in the sediments/ sludge, final closure of Pond A is recommended.

Section 3
RISK ASSESSMENT FOR POND B

This section presents the unit-specific risk assessment for Pond B. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

3.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond B. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

3.1.1 Site Description

Pond B is one of two initial impoundments in the wastewater treatment system and is aerated and lined. The lagoon covers 11.2 acres and has the capacity to hold 16.1 million gallons of water. The edges of the pond are lined to prevent bank erosion and are steeply sloped. Typically, the lagoon is operated in parallel with Pond A; however, occasionally they are operated in sequence to decrease residence time. During the most recent sampling of site media, Pond A was not receiving any Base effluent because of problems with the splitter box. Pond B is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed within the fence surrounding Ponds A through E.

3.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond B have:

- Dissolved into surface water;
- Infiltrated into underlying soils;
- Leached into groundwater; and
- Accumulated in biota.

Figure 3-1 outlines the fate and transport of contaminant releases from Pond B, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soil; 3) leaching into groundwater; and 4) uptake by biota.

3.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/soil/sludge;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge and/or soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond B at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 3-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge and/or soil.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely

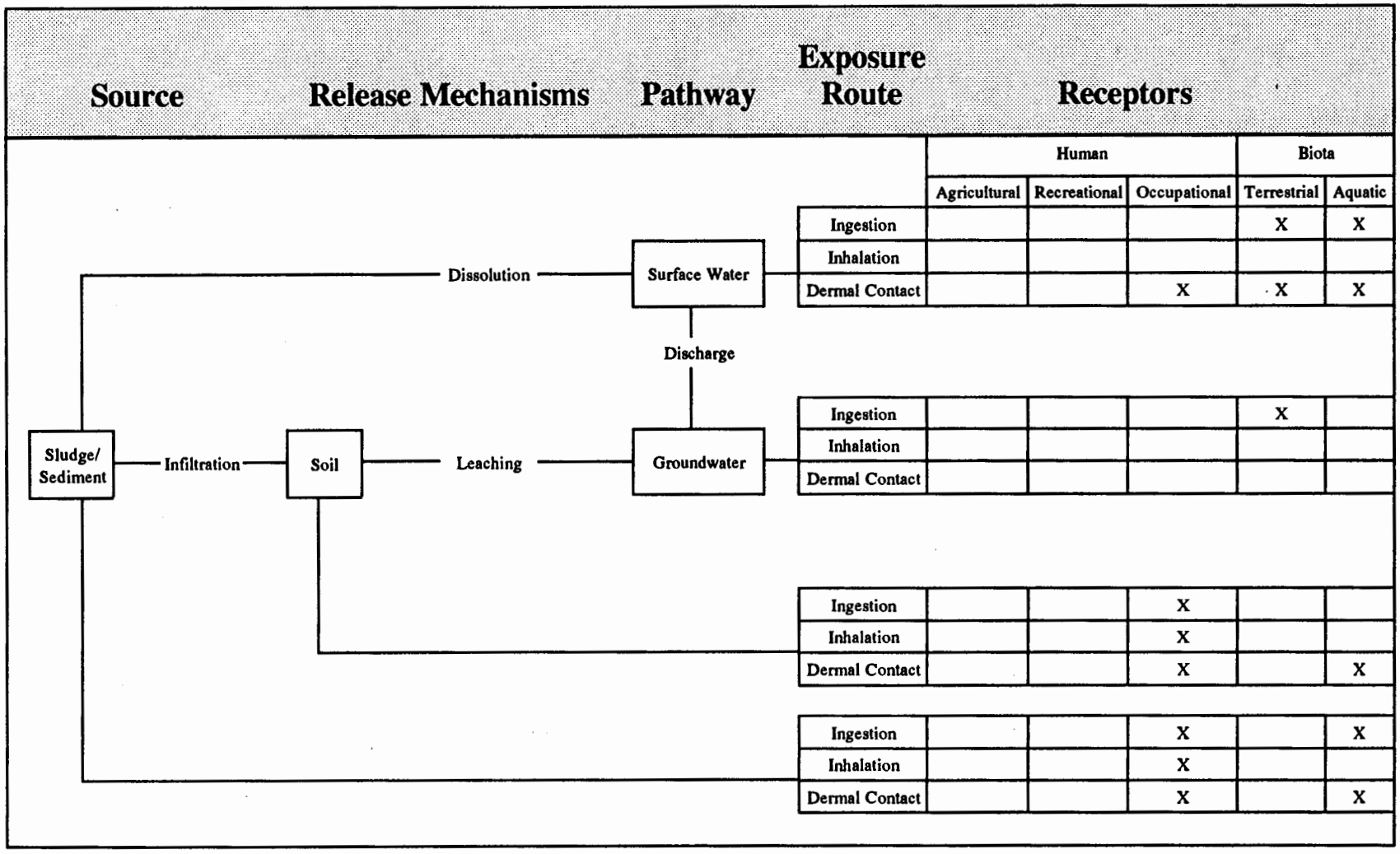


Figure 3-1. Fate and Transport Schematic for Pond B

low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. Regarding future exposure, while groundwater in the vicinity of the Base is not potable, because of high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 3.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

3.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 3-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock rearing. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

3.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed description of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond B are presented in Table 3-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment. For example, concentrations detected at the site may be statistically greater than background, but are less than health-based criteria. A brief

Table 3-1

Chemicals of Concern for Pond B

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓			
Benzo(a)pyrene				✓
Benzo(b)fluoroanthene				✓
Bis(2-ethylhexyl)phthalate		✓		✓
α-BHC	✓	✓		
β-BHC	✓			
δ-BHC	✓	✓		
γ-BHC	✓	✓		
Chlordane		✓		
α-Chlordane	✓	✓		
γ-Chlordane	✓			
Cyclohexene	✓			
4,4'-DDD	✓	✓	✓	
4,4'-DDE	✓	✓	✓	
4,4'-DDT	✓	✓	✓	
Dieldrin	✓	✓		
Endosulfan I	✓		✓	
Endosulfan II	✓			
Endosulfan sulfate	✓	✓		
Endrin	✓			
Endrin aldehyde	✓			
Heptachlor	✓			
Heptachlor epoxide	✓	✓		
Isodrin	✓			
Isophorone				✓
Methoxychlor	✓			
2-Methylnapthalene				✓
PCB 1254				✓
PCB 1260				✓
Phenanthrene				✓

Table 3-1

(Continued)

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Inorganics				
Aluminum		✓	✓	
Antimony		✓		
Arsenic		✓	✓	✓
Boron		✓		
Beryllium			✓	✓
Cadmium	✓			✓
Chromium VI		✓		
Cobalt			✓	
Lead		✓	✓	✓
Lead (Organic)		✓		
Manganese		✓		
Mercury		✓		✓
Silicon		✓	✓	
Silver		✓		✓
Vanadium		✓		

description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

3.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond B contaminants:

- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soils;
- Leach into groundwater; and
- May be entrained in air.

Critical assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond B. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soils; 3) leaching from sludge and/or soils into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond B, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

3.3.1 Release from Sludge and Soils to Surface Water

Dissolution and suspension of contaminants from sludge and soils into surface water is one of the primary contaminant transport mechanisms at Pond B. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge and soil.

3.3.2 Release from Sludge and Soils to Groundwater

A second significant transport mechanism from the sludge and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 3.3.3 below).

3.3.3 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Pond B:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond B; and
- Periodically discharges to lakes.

Monitor wells associated with Pond B:

- MWs 5, 7, 8, 11, 12, 13, and MWD-05.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3% the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond B based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond B, monitoring wells MW-5, MW-7, MW-8, MW-11, MW-12, MW-13, and MWD-05 were assigned since these wells are upgradient from all other lagoons except Pond A. (Thus, data from these wells also were associated with Pond A.)

3.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed contact between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

3.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond B contaminants:

- Waterfowl;
- Plankton;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond B. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond B and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. No fish are present in Pond B. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition co-efficients (K_{ow} values). Several of the contaminants

detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 3.7 and Appendices F and K contain more information on uptake by biota.

3.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soils can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical/ dewatering and backtilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

3.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 3.1 provides a brief description of the exposure setting for Pond B.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 3-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

3.4.1 Identification of Contaminant Releases

Sampling conducted at Pond B has identified releases of contaminants from sludge to underlying soil, groundwater, and surface water. Sections 3.1.2 and 3.3 provide a more complete discussion of contaminant releases from Pond B.

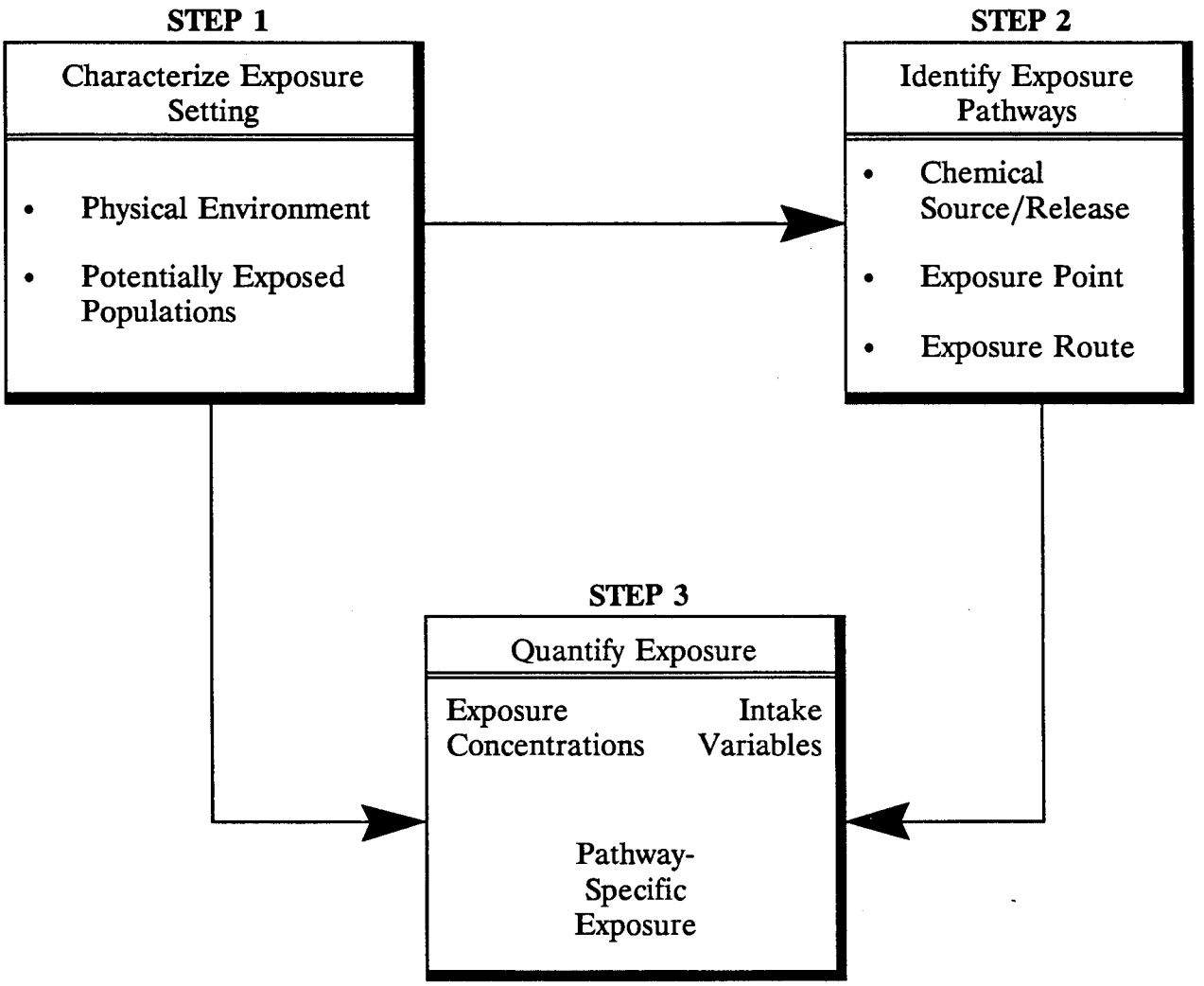


Figure 3-2. Flowchart of the Exposure Assessment Process

3.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 3-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon, periodically repair the aeration units, and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 3.1.3 and 3.1.4 also discuss these potentially exposed subgroups. Section 3.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

3.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sludge/soil (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

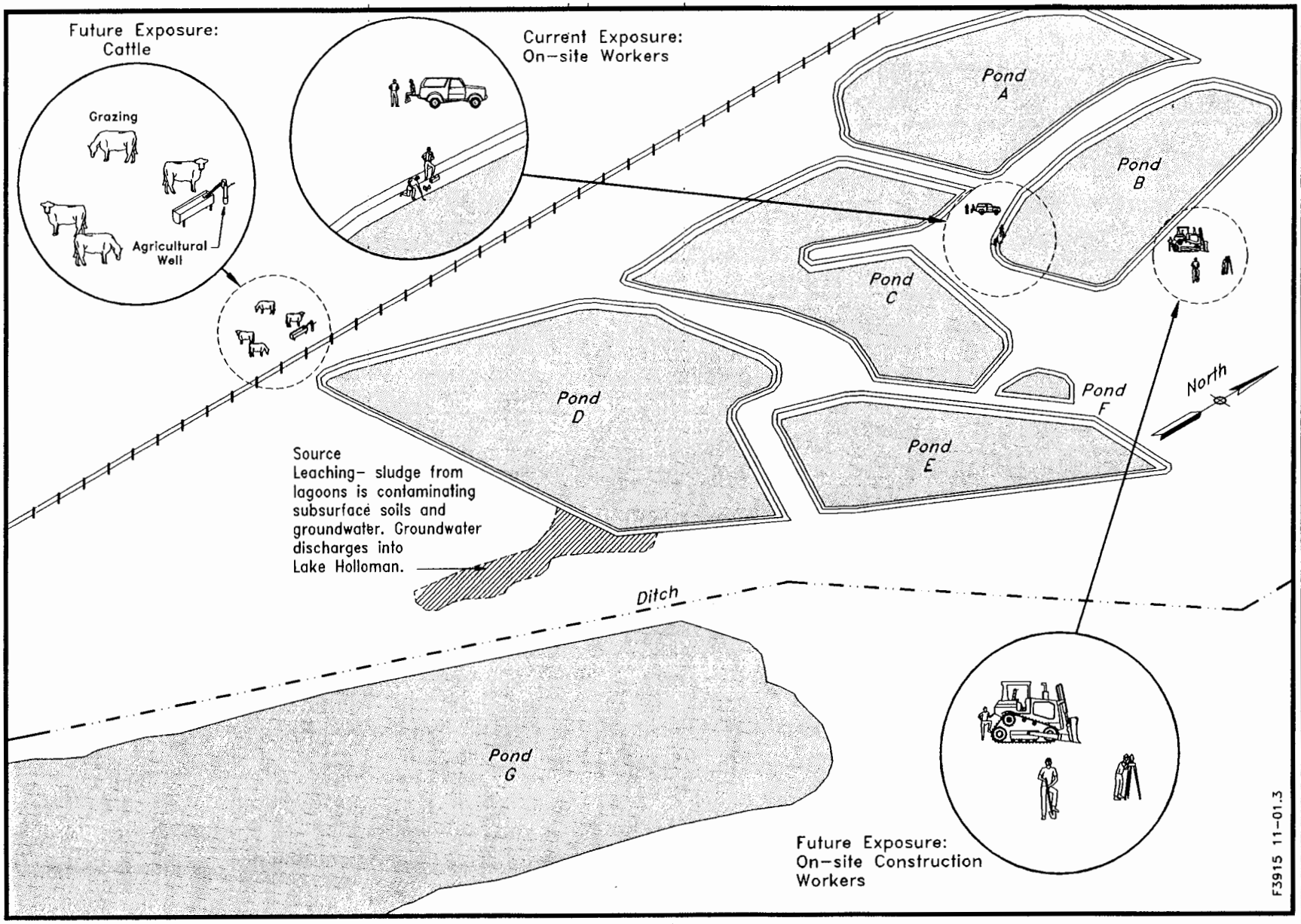


Figure 3-3. Exposure Scenario Diagram for Pond B

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 3-2 and 3-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge by site workers during lagoon maintenance activities; and 3) dermal contact with soils by site workers during lagoon maintenance activities. These pathways are considered to be complete because of the routine maintenance activities, such as repair of the lagoon aerators and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F.

Exposure pathways that may be complete in the future have been included in the risk assessment and include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge and soil by construction workers during future lagoon closure; 4) dermal contact with sludge by construction workers during future lagoon closure; and 5) dermal contact with soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dust inhalation, dermal contact, and incidental ingestion of sludge or soil. Inhalation and incidental ingestion are likely, since closeout of the system will require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or soil; and 3) direct ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

3.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - Dermal contact with surface water/soil/sludge.
- Future consumers:
  - Ingestion of contaminated beef.
- Future construction workers:
  - Dermal contact with surface water/soil/sludge;
  - Inhalation of volatiles/dust; and
  - Incidental ingestion of sludge/soil.

Analysis of Base activities in proximity to Pond B suggests that three human subpopulations may potentially be exposed to contaminants: current site workers, future consumers of local agriculture, and future construction workers.

Table 3-2

Potentially Complete Current Exposure Pathways: Pond B, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in sludge	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 3-3

Potentially Complete Future Exposure Pathways: Pond B, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in sludge	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.

3.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 3.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond B are provided in Table 3-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 3.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor wells adjacent to the site and downgradient from Pond B (MW-5, MW-7, MW-8, MW-11, MW-12, MW-13, and MWD-05) provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100%. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the relatively low groundwater concentrations at the future point of withdrawal.

3.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the

Table 3-4

Exposure Point Concentrations for Pond B

Chemical	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenarios						
4,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-05	4.30E-05
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-04	5.75E-04
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-05	1.80E-05
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-05	4.00E-05
alpha-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-06	3.40E-06
Aluminum	1.18E+04	1.48E+04	0.00E+00	0.00E+00	3.86E-02	6.48E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-02	3.72E-02
Arsenic	3.48E+00	4.98E+00	1.38E+01	1.48E+01	3.19E-03	3.42E-03
Benzo(a)pyrene	0.00E+00	0.00E+00	1.05E+00	1.23E+00	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	1.85E+00	2.18E+00	0.00E+00	0.00E+00
Beryllium	5.42E-01	6.86E-01	9.43E-01	1.20E+00	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.05E+01	4.03E+01	8.50E-03	1.14E-02
Boron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.90E-01	5.07E-01
Cadmium (food)	0.00E+00	0.00E+00	1.40E+01	1.78E+01	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.75E-05	1.76E-04
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-04	4.92E-04
Cobalt	4.03E+00	4.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-05	1.70E-05
Dieldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-05	2.20E-05
Endosulfan I	9.98E-04	1.43E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-05	1.20E-05
gamma-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-05	1.00E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-05	1.00E-05
Isophorone	0.00E+00	0.00E+00	1.29E+00	1.85E+00	0.00E+00	0.00E+00
Lead	3.92E+00	5.40E+00	2.23E+02	2.79E+02	3.89E-03	5.38E-03
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-02	1.06E-01
Manganese (water)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.94E-02	7.60E-02
Mercury	0.00E+00	0.00E+00	4.91E+00	5.82E+00	3.58E-04	5.10E-04
2-Methynaphthalene	0.00E+00	0.00E+00	3.89E+00	4.91E+00	0.00E+00	0.00E+00
PCB-1254	0.00E+00	0.00E+00	5.97E+00	7.34E+00	0.00E+00	0.00E+00
PCB-1260	0.00E+00	0.00E+00	1.60E+00	1.86E+00	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	1.99E+00	2.32E+00	0.00E+00	0.00E+00
Silicon	2.10E+03	3.91E+03	0.00E+00	0.00E+00	1.40E+01	1.60E+01
Silver	0.00E+00	0.00E+00	9.54E+01	1.52E+02	1.68E-02	2.60E-02
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.68E-03	9.76E-03

Table 3-4

(Continued)

Chemical	Groundwater		Air ($\mu g/m^3$)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
4,4'-DDD	6.30E-06	8.10E-06	0.00E+00	0.00E+00	2.51E-05	3.23E-05
4,4'-DDE	8.30E-06	1.15E-05	0.00E+00	0.00E+00	2.08E-04	2.89E-04
4,4'-DDT	1.51E-05	2.03E-05	0.00E+00	0.00E+00	5.88E-05	7.90E-05
Aldrin	6.20E-06	7.90E-06	0.00E+00	0.00E+00	3.11E-06	3.96E-06
alpha-BHC	1.65E-05	2.27E-05	0.00E+00	0.00E+00	3.30E-07	4.55E-07
alpha-Chlordane	1.16E-05	1.98E-05	0.00E+00	0.00E+00	6.14E-08	1.05E-07
Aluminum	0.00E+00	0.00E+00	2.03E+02	2.54E+02	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.02E-02	5.02E-02
Arsenic	0.00E+00	0.00E+00	2.39E-01	2.54E-01	0.00E+00	0.00E+00
Benzo(a)pyrene	0.00E+00	0.00E+00	1.81E-02	2.12E-02	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	3.20E-02	3.76E-02	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	1.62E-02	2.06E-02	0.00E+00	0.00E+00
beta-BHC	1.05E-05	1.50E-05	0.00E+00	0.00E+00	3.33E-07	4.76E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	1.53E-02	1.16E-02	0.00E+00	0.00E+00
Cadmium	1.30E-02	1.47E-02	2.40E-01	3.06E-01	0.00E+00	0.00E+00
Chromium VI	0.00E+00	0.00E+00	3.89E+00	4.56E+00	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	6.96E-02	8.37E-02	0.00E+00	0.00E+00
Cyclohexene	8.00E-03	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	1.08E-05	1.58E-05	0.00E+00	0.00E+00	3.43E-07	5.01E-07
Dieldrin	7.90E-06	1.14E-05	0.00E+00	0.00E+00	6.32E-08	9.11E-08
Endosulfan I	7.20E-06	1.00E-05	1.72E-05	2.41E-05	1.23E-07	1.71E-07
Endosulfan II	1.74E-05	2.09E-05	0.00E+00	0.00E+00	2.97E-07	3.56E-07
Endosulfan sulfate	2.27E-05	2.55E-05	0.00E+00	0.00E+00	3.87E-07	4.35E-07
Endrin	1.96E-05	2.90E-05	0.00E+00	0.00E+00	1.08E-05	1.59E-05
Endrin aldehyde	5.30E-06	7.30E-06	0.00E+00	0.00E+00	2.91e-06	4.01E-06
gamma-BHC	1.61E-05	2.77E-05	0.00E+00	0.00E+00	3.22E-07	5.55E-07
gamma-Chlordane	6.52E-04	1.22E-03	0.00E+00	0.00E+00	3.45E-06	6.47E-06
Heptachlor	8.50E-06	1.13E-05	0.00E+00	0.00E+00	5.37E-07	7.14E-07
Heptachlor epoxide	5.60E-06	6.60E-06	0.00E+00	0.00E+00	7.18e-09	8.46E-09
Isodrin	1.58E-05	2.61E-05	0.00E+00	0.00E+00	8.69E-06	1.44E-05
Isophorone	0.00E+00	0.00E+00	3.43E-02	4.92E-02	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	3.84E+00	4.81E+00	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	2.04E+00	3.01E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	2.21E-03	1.86E-03	0.00E+00	0.00E+00
Methoxychlor	4.60E-06	4.60E-06	0.00E+00	0.00E+00	1.79E-05	1.79E-05
PCB-1254	0.00E+00	0.00E+00	1.03E-01	1.26E-01	0.00E+00	0.00E+00
PCB-1260	0.00E+00	0.00E+00	2.76E-02	3.20E-02	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	3.62E+01	6.75E+01	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	6.37E+00	7.53E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	5.12E-01	6.02E-01	0.00E+00	0.00E+00

exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 3-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

3.4.7 Uncertainties

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

3.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

3.5.1 Toxicity Values Used in the Risk Assessment

Table 3-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

3.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

Table 3-5

Toxicity Values for Pond B

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Sub-Chronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Sub-Chronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 I	3.00E-05 H	7.54E-05 S	--	--	1.70E+01 I	4.90E-03 I
Aluminum	--	--	--	--	--	--	--	--
Antimony	--	4.00E-04 I	4.00E-04 H	4.00E-04	--	--	--	--
Arsenic	A	3.00E-04 I	3.00E-04 H	3.00E-04	--	--	--	4.30E-03 I
Benzo(a)pyrene	B2	--	--	--	--	--	7.30E+00 I	1.70E-03 H
Benzo(b)fluoranthene	B2	--	--	--	--	--	1.02E+00 C	2.40E-04 C
Beryllium	B2	5.00E-03 I	5.00E-03 H	5.00E-04	--	--	4.30E+00 I	2.40E-03 I
α-BHC	B2	4.16E-04 S	4.16E-03 S	1.17E-03 S	--	--	6.30E+00 I	1.80E-03 I
ß-BHC	C	3.33E-04 S	3.33E-03 S	3.33E-04	--	--	1.80E+00 I	5.30E-04 I
δ-BHC	D	2.00E-04 S	2.00E-03 S	2.00E-04	--	--	--	--
γ-BHC (Lindane)	B2/C	3.00E-04 I	3.00E-03 H	3.00E-03 S	--	--	1.30E+00 H	--
Bis(2-ethylhexyl)phthalate	B2	2.00E-02 I	2.00E-02 H	--	--	--	1.40E-02 I	--
Boron	--	9.00E-02 I	9.00E-02 H	9.00E-02	2.00E-02 H	2.00E-02 H	--	--
Cadmium (dust)	B1	--	--	6.10E+00 H	--	--	--	1.80E-03 I
Cadmium (food)	B1	1.00E-03 I	--	--	--	--	--	--
Chlordane	B2	6.00E-05 I	6.00E-05 H	1.24E-04 S	--	--	1.30E+00 I	3.70E-04 I
α-Chlordane	--	1.48E-05 S	6.00E-05 S	1.48E-05	--	--	1.30E+00 S	3.70E-04 S
γ-Chlordane	--	6.00E-05 S	6.00E-05 S	6.00E-05 S	--	--	1.30E+00 S	3.70E-04 S
Chromium VI	A	5.00E-03 I	2.00E-02 H	5.00E-03	--	--	--	1.20E-02 I
Cobalt	--	--	--	--	--	--	--	--
Cyclohexene	--	--	--	--	--	--	--	--
4,4'-DDD	B2	5.00E-04 S	--	5.00E-04	--	--	2.40E-01 I	--
4,4'-DDE	B2	3.89E-03 S	--	3.89E-03	--	--	3.40E-01 I	--
4,4'-DDT	B2	5.00E-04 I	5.00E-04 H	1.12E-02 S	--	--	3.40E-01 I	9.70E-05 I
Dieldrin	B2	5.00E-05 I	5.00E-05 H	6.52E-05 S	--	--	1.60E+01 I	4.60E-03 I
Endosulfan I	--	2.53E-02 S	--	2.53E-02	--	--	--	--

Table 3-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Sub-Chronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Sub-Chronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Endosulfan II	--	8.00E+01 S	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 S	--	2.47E-02 S	--	--	--	--
Endrin	D	3.00E-04 I	3.00E-04 H	6.00E-04 S	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 I	5.00E-04 H	9.75E-04 S	--	--	4.50E+00 I	1.30E-03 I
Heptachlor epoxide	B2	1.30E-05 I	1.30E-05 H	1.30E-05	--	--	9.10E+00 I	2.60E-03 I
Isodrin	--	3.00E-04 S	--	3.00E-04	--	--	--	--
Isophorone	C	2.00E-01 I	2.00E+00 H	2.00E-01	--	--	9.50E-04 I	--
Lead	B2	--	--	--	--	--	--	--
Organic Lead	--	1.00E-07 I	1.00E-07 H	1.00E-07	1.50E+00 N	--	--	--
Manganese (dust)	D	--	--	--	4.00E-04 I	4.00E-04 H	--	--
Manganese (water)	D	5.00E-03 I	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 H	3.00E-04 H	3.00E-04	3.00E-04 H	3.00E-04 H	--	--
Methoxychlor	D	5.00E-03 I	5.00E-03 H	7.60E-02 S	--	--	--	--
2-Methylnaphthalene	--	--	--	--	--	--	--	--
PCB 1254	B2	--	--	--	--	--	7.70E+00 I	--
PCB 1260	B2	--	--	--	--	--	7.70E+00 I	--
Phenanthrene	D	--	--	--	--	--	--	--
Silver	D	5.00E-03 I	5.00E-03 H	5.00E-03	--	--	--	--
Tin	--	6.00E-01 H	6.00E-01 H	6.00E-01	--	--	--	--
Vanadium	--	7.00E-03 H	7.00E-03 H	7.00E-03	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.
N National Ambient Air Quality Standard.

3.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

3.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 45 chemicals of potential concern;
- 34 oral RfDs available:
  - -- 11 calculated values;
  - -- 3 values from HEAST; and
  - -- 20 USEPA-verified RfDs:
    1 - high confidence;
    10 - medium confidence; and
    9 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Eleven of the 34 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Twenty-two values were obtained from IRIS and have levels of confidence that range from high (two chemicals) to low (nine chemicals). Three values were obtained from HEAST, which does not provide information regarding level of confidence. Oral RfDs were not available for 13 of the chemicals of potential concern. A qualitative assessment was conducted for these 13 chemicals (see Appendix G).

Twenty-nine of the 45 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Seven chemicals were classified as Group D (not classifiable as a human carcinogen), indicating inadequate or no evidence of carcinogenicity. Two chemicals were classified as Group C (possible

Carcinogen Toxicity Information

- 20 oral slope factors available:
  - -- 16 USEPA-verified slope factors: Group B2 - 14 chemicals;
  - -- 1 calculated value;
  - -- 2 surrogate values; and
  - -- 1 value from HEAST.
- 16 inhalation unit risks available:
  - -- 12 USEPA-verified unit risks;
  - -- 1 calculated value;
  - -- 2 surrogate values; and
  - -- 1 value from HEAST.

human carcinogen). One chemical (γ-BHC) was classified as Group B2/C (probable human carcinogen/possible human carcinogen), indicating that its classification is uncertain. Sixteen chemicals were classified as Group B2 (probable human carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (probable human carcinogen), indicating that there is limited evidence of carcinogenicity in humans, and two chemicals (arsenic and chromium) were classified as Group A (human carcinogen).

USEPA-verified oral slope factors were available for 16 of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. However, surrogate oral slope factors were assigned to alpha- and gamma-chlordane, one value was calculated based on comparative potency factors for PAHs, and one value was obtained from HEAST. Inhalation unit risk factors were available for 16 chemicals. Twelve values were USEPA-verified, one was calculated based on comparative potency factors for PAHs, two values were derived surrogates, and one value was obtained from HEAST.

3.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond B, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intakes and were compared to chemical-specific toxicity information.

3.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake × Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond B, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^4 (one in 10,000) and 10^6 (one in 1,000,000). A cancer risk of 10^6 is considered the point of departure *de minimis* for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

3.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the HQ is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

3.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond B presently or in the future, two chronic and two subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The two *subchronic* scenarios were: 1) current on-site occupational exposure; and 2) future on-site occupational exposure.

3.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

Carcinogenic risk:

- Dermal contact with PCBs in sludge by on-site workers.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond B.

Current on-site workers were assumed to be exposed to contaminants in Pond B via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge; and 3) dermal contact with soils underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 8E-8
- Total reasonable maximum = 4E-6

Noncarcinogenic hazard

- Total average HI = 0.02
- Total reasonable maximum HI = 0.83

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 8E-8 and 4E-6, respectively. The reasonable maximum risk value exceeds the lower-bound risk range goal defined by Subpart S and may indicate cause for concern. As shown in Figure 3-4, PCB-1254 contributed the majority (65%) of the risk for the reasonable maximum exposure. PCB-1254 was also the major risk contributor (67%) for the average exposure (refer to Appendix I). PCB-1260 contributed most of the remaining chemical-specific risk (27% and 25% of the reasonable maximum and average risks, respectively). Dermal contact with sludge contributed virtually all of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.02 and 0.83, respectively. Both HIs are less than one, indicating that exposure to site related contaminants while working at Pond B is not likely to cause noncancer health effects in adults. Organic lead was the major contributor to total hazard for both average and reasonable maximum exposure. Dermal contact with surface water was responsible for virtually all of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

The subchronic scenario addresses the same pathways of exposure as the chronic occupational scenario but assesses risk for military personnel who may work at the site for an average (3 years) tour-of-duty. Carcinogenic risk was not modeled for the subchronic occupational scenario since carcinogenic risks are estimated as the probability of developing cancer over a lifetime. In addition, the approach to toxicity assessment for carcinogens was developed for assessing risk associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risk associated with subchronic exposure is not appropriate. The noncarcinogenic hazard associated with the subchronic scenario were identical to those predicted for the chronic scenario (below the goal defined Subpart S) and are not presented.

3.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

Noncarcinogenic hazard:

- Inhalation of manganese by on-site workers.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base is developed for residential and/or agricultural purposes. The future subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, was also considered as a contaminant source for the introduction of chemicals into edible portions of beef. The agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle.

Future Agricultural Adult Risk

Carcinogenic risk

- Total average = 1E-8
- Total reasonable maximum = 3E-7

Noncarcinogenic hazard

- Total average HI = 0.08
- Total reasonable maximum HI = 0.36

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 1E-8 and 3E-7, respectively. Both risk values are below the Superfund site remediation goals and suggest that contaminants migrating off site via groundwater are

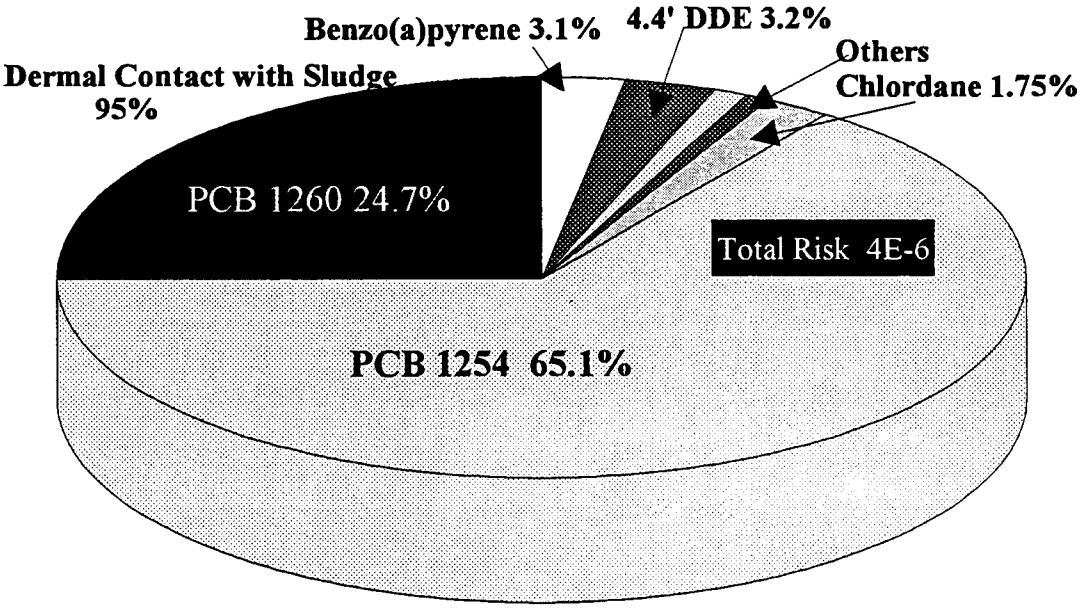


**Figure 3-4. Reasonable Maximum Carcinogenic Risk--
Current Occupational Scenario**

not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated noncancer HIs grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.08 and 0.36, respectively. Both HIs are less than unity and suggest that contaminants migrating off-site via groundwater are not likely to cause adverse noncancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 0.20
- Total reasonable maximum HI = 0.85

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Hazard--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a life-time.

Noncarcinogenic Hazard--Calculated noncancer HIs grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.20 and 0.85, respectively. Both HIs are less than one and suggest that contaminants migrating offsite via groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Carcinogenic risk

- Not assessed for subchronic exposure

Noncarcinogenic hazard

- Total average HI = 0.35
- Total reasonable maximum HI = 6.8

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated soils and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated soil/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risk associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risk associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.35 and 6.8, respectively. The reasonable maximum hazard exceeds unity and may indicate cause for concern regarding noncancer health effects for future on-site workers. As shown in Figure 3-5, manganese was the major contributor to total hazard for reasonable maximum exposure. Manganese was also the major contributor for average exposure (refer to Appendix I). Inhalation of fugitive dust contributed the majority (84% average; 91%

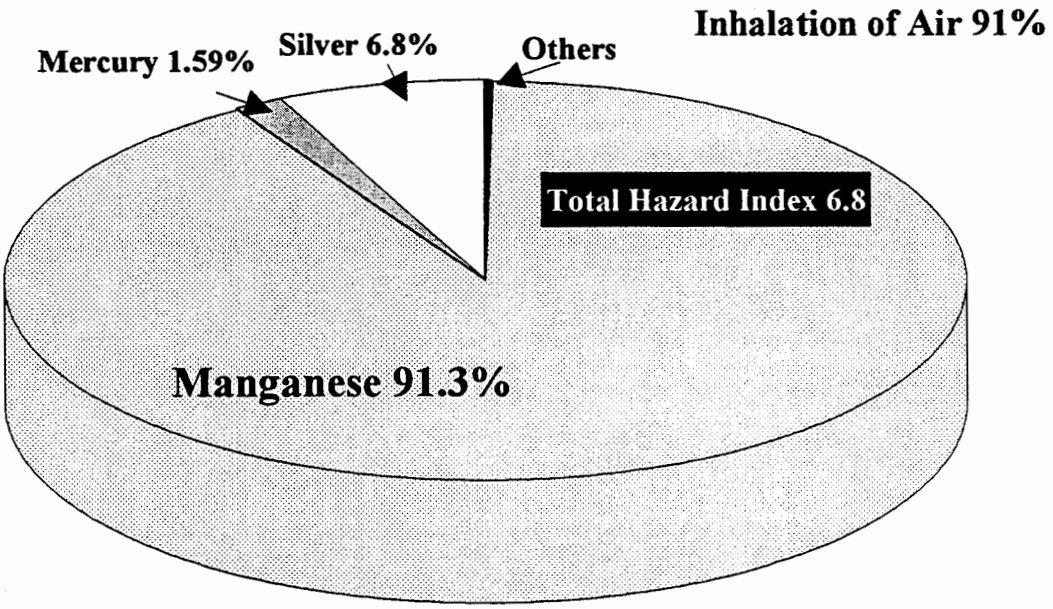


**Figure 3-5. Reasonable Maximum Noncancer Hazard Index--
Future Occupational Scenario**

reasonable maximum) of the pathway-specific hazard in both cases.

3.6.6 Uncertainties Associated with Risk Characterization

The majority of the current occupational risk associated with Pond B resulted from PCB contaminated sludge. While PCB 1254 contributed the majority of the risk, PCB 1260 caused significant risk as well. The PCB 1254 hits appear to be legitimate. However, most of the PCB 1260 results were non-detects. As a result, the PCB 1260 average may be artificially high because of inclusion of one-half the reporting limit as a proxy concentration. The lack of inhalation slope factors for PCBs adds additional uncertainty to the risk characterization for Pond B.

3.6.7 Summary

Risk Characterization Results

Risks/hazards above *de minimis* levels include:

- Reasonable maximum carcinogenic risk to current on-site workers; and
- Noncancer hazard to future on-site workers.

The results of this risk assessment indicate that elevated carcinogenic risk is associated with reasonable maximum exposure to current on-site workers at Pond B. The reasonable maximum future occupational exposure has a noncancer HI exceeding one. All risks/hazards associated with the future agricultural scenario were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Pond B. Conservative assumptions that may impact the risk characterization include: 1) use of oral slope factors to assess risk/hazard associated with dermal exposure to PCBs; 2) exposure frequency; 3) exposure duration; and 4) surface area available for dermal contact.

3.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..." can provide some qualitative information on the likelihood and severity of impacts" resulting from chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond B and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K. A discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.

3.7.1 Background

Pond B is 11.2 acres and has the capacity to hold 16.1 million gallons of water. It is an aerated facultative lagoon. Sludge and surface water were collected at Pond B. The pH was approximately 8.76, and the alkalinity was measured at 186 mg/L. Water depth in the center was 0.85-0.9 meters;

secchi depth was 5-6 inches. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made and is presented in Table 3-6.

Pond B is lined and the sediment layer (sand from erosion of road/dike around pond) starting at about 9 inches deep is covered with a multi-colored sludge. In the center of the pond, the bottom is covered with a thick (more than 6 inches), gelatinous bacterial layer. This layer appeared to grow rapidly; it covered the bottom even at the inlet from the splitter box. No benthic organisms were encountered in Pond B. Plankton in Pond B was predominantly Chlamydomonas spp., a small (about 5 μm in diameter) green flagellate that was too small to be concentrated with equipment available at the site. Zooplankton were observed in Pond B; however, no plankton sample was collected. Fish were not present in Pond B. Shorebirds were observed feeding around the edges; an occasional duck was seen on the pond. Bats and barn swallows were seen in early April over the lagoon system. Surface water was collected as discussed in Appendix M.

3.7.2 Exposure Assessment

Indicator Species Selected for Pond B

- Mallards; and
- Fish.

Figure 3-6 is a conceptual site model of Pond B. Sludge and surface water samples were collected at this pond. The indicator species selected for this pond were mallards, which feed on the plankton (a mixture of algae, plankton and mosquito larvae) and fish for the aquatic environment.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond B makes up about 3% of the system; therefore, 3% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 1.5%, was calculated by dividing the reasonable maximum by two (or half a year exposure). Because algae could not be collected from Pond B, contaminant concentrations were modeled into the algae using uptake factors developed from data from the other ponds, the lake and the ditch. In cases where a contaminant was in the other ponds, but not in the algae in those ponds, that contaminant was not considered a contaminant of concern in this particular food chain. In cases where a chemical was detected in several media and an independent uptake factor for that media could not be established, it was assumed that 100% of the concentration in algae could come from each media. This approach is expected to be conservative.

There were no fish in Pond B, perhaps because of the lack of suitable cover for fish or the low dissolved oxygen levels that occur at night. There were no significant differences in water quality parameters between the ponds that contain fish and Pond B.

3.7.3 Risk Characterization

Risk Characterization Results

Birds:

- Adverse effects not expected.

Fish:

- Adverse effects possible.

Table 3-7 lists the EQs for the indicator species. The potential risk to mallards was below 1.0 and, therefore, acceptable. The majority of the potential risk in Pond B was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to ducks feeding at Pond B can be quantified based on the fraction ingested from this pond; however, the ducks are expected to feed, to some

Table 3-6

Water Quality Parameters-Pond B

3:45 pm 3/8/93	Center			South Central		
Depth (m)	C (µmhos)	Temp (°C)	DO (mg/L)	C (µmhos)	Temp (°C)	DO (mg/L)
Surface	4900	17.0	>15	4900	17	>15
0.75	4900-5000	14	>10	NC	NC	NC

NC = Not Collected

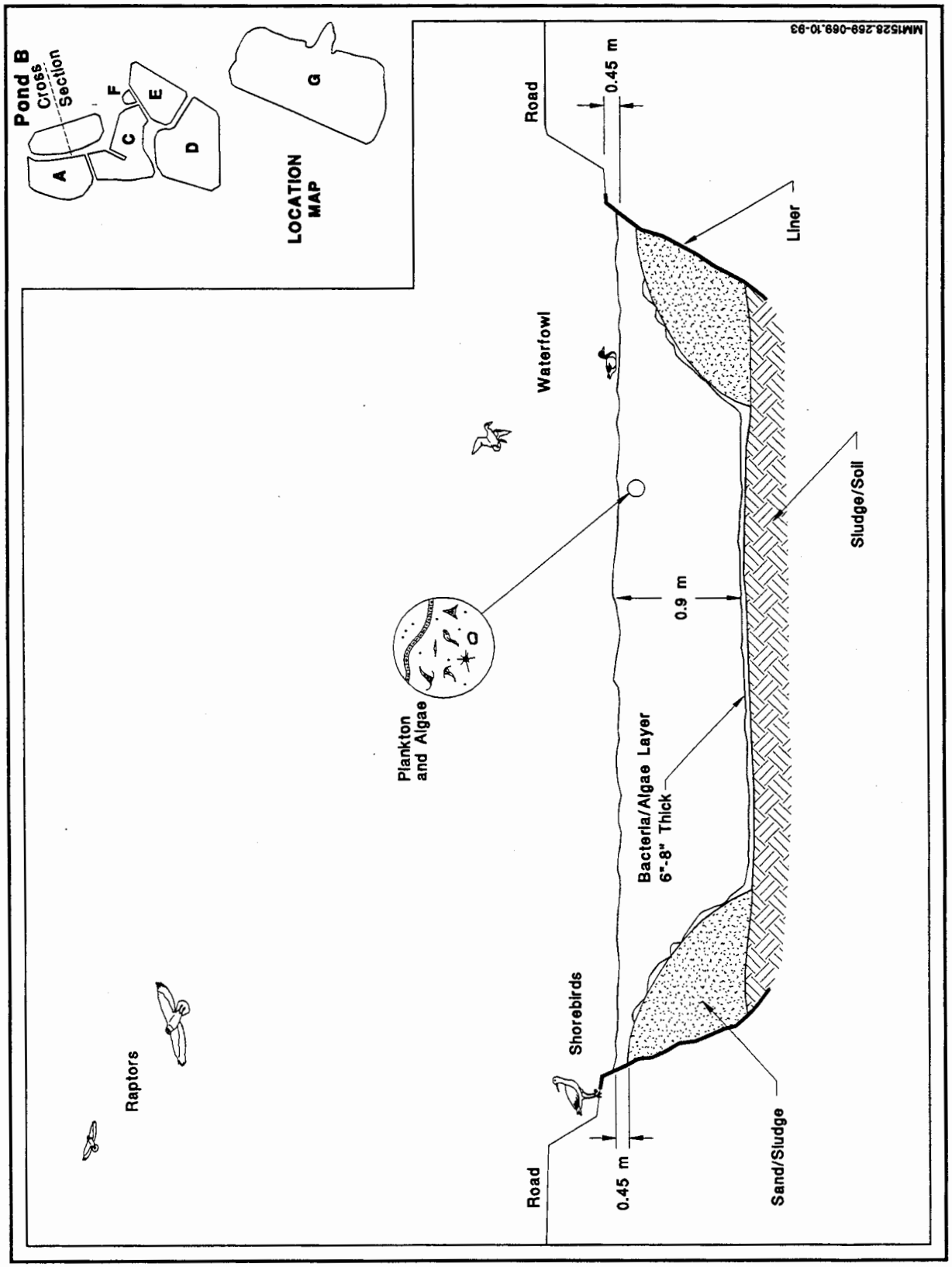


Figure 3-6. Ecological Conceptualization Model for Pond B

Table 3-7

Ecological Quotients - Pond B

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.06	0.13
Fish	301	488

extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributable to Pond B alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ for ducks. A discussion of cumulative risks to mallards is included in the conclusions in Section 13.

Fish were used as an indicator species for aquatic organisms in general. Since fish were not present in Pond B, as discussed above, and based strictly on the water contaminant concentrations, adverse affects on aquatic organisms could potentially be expected. The ecological HQ for fish in Pond B would be 301 and 488 for average and reasonable maximum exposures, respectively. This EQ is much higher than the acceptable limit. In addition, the EQ was based strictly on the contaminants detected in the surface water and does not account for contaminant exposure from other sources such as sediments; therefore, the EQs may be higher. The risk is being driven by metals (antimony, lead, mercury, and silver). The possibility exists that these metals are not bioavailable because of adsorption to particulates or that they are present in a less toxic form. Since fish are not present, it safe to assume that pond conditions are not adequate for their survival. This is probably a result of lack of cover, intermittent low dissolved oxygen concentrations in deeper water, and contamination.

Based on the EQ for fish, adverse effects are expected in benthic organisms. This appears to be supported by the lack of benthic organisms in Pond B.

3.8 Conclusions for Pond B

Maintenance activities at Pond B include inspecting the lagoon, periodically repairing the aeration units, and obtaining water samples. Potential occupational scenarios associated with Pond B include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario that assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond B to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing, and this exposure could occur under future conditions. Ingestion of beef from cattle pastured on this land, and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond B suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The current reasonable maximum occupational risk is above *de minimis* levels. The predicted reasonable maximum hazard for the future occupational scenario, which assumes that the lagoons will be dewatered and backfilled, are excessive as well. Therefore, dewatering and backfilling would have to be conducted as a hazardous waste remediation with the attendant expense.

Regulatory agencies have traditionally considered cancer risks in the range of 10^{-6} to 10^{-4} to be *de minimis*. However, risks far in excess of 10^{-6} (one in 1,000,000) have been ruled acceptable depending on circumstances and the size of exposed population. For small populations, regulatory action typically is not taken for risks less than 10^{-4}. Therefore, considering that the current average occupational risks/hazards are below the *de minimis* level of 10^{-6}, the reasonable maximum risk is below 10^{-4}, the potentially exposed population is small, and site remediation would be expensive and expose the remedial team to health hazards, the most prudent option may be to continue operation of Pond B. By allowing water to remain standing in the pond, human exposure to contami-nants in sludge, sediments and underlying soils would be minimized.

It is unlikely that Pond B will ever be developed as a residential area. However, the baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks (average and reasonable maximum exposure) and adult (reasonable maximum) and child (average and reasonable maximum) noncancer hazards that exceed *de minimis* levels. Ingestion of sludge, dermal contact with sludge, ingestion of

groundwater, and dermal contact with water while showering all contributed significantly to the risks/hazards.

The ecological assessment indicated that birds (mallards) using Pond B are not likely to be at risk. While fish are not found in Pond B, adverse effects are theoretically possible based strictly on water contaminant concentrations. EQ values for fish were elevated significantly. Because the reasonable maximum risk estimates for on-site workers exceed *de minimis* levels and EQ values for fish suggest possible adverse environmental effects, final closure of Pond B is recommended.

Section 4
RISK ASSESSMENT FOR POND C

This section presents the unit-specific risk assessment for Pond C. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

4.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond C. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

4.1.1 Site Description

Pond C is the third impoundment in the wastewater treatment system and is aerated but unlined. The edges of the pond are lined to prevent bank erosion and slope steeply to a depth of 1.1 meters. The lagoon covers 12.5 acres and has the capacity to hold 21.3 million gallons of water. Pond C is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed within the fence surrounding Ponds A through F.

4.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond C have:

- Dissolved into surface water;
- Infiltrated into underlying soil;
- Leached into groundwater; and
- Accumulated in biota.

Figure 4-1 outlines the fate and transport of contaminant releases from Pond C, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soil; 3) leaching into groundwater; and 4) uptake by biota.

4.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/soil/sludge;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge and/or soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond C at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 4-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge and/or soil.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. Regarding future exposure, while groundwater in the vicinity of the Base is not

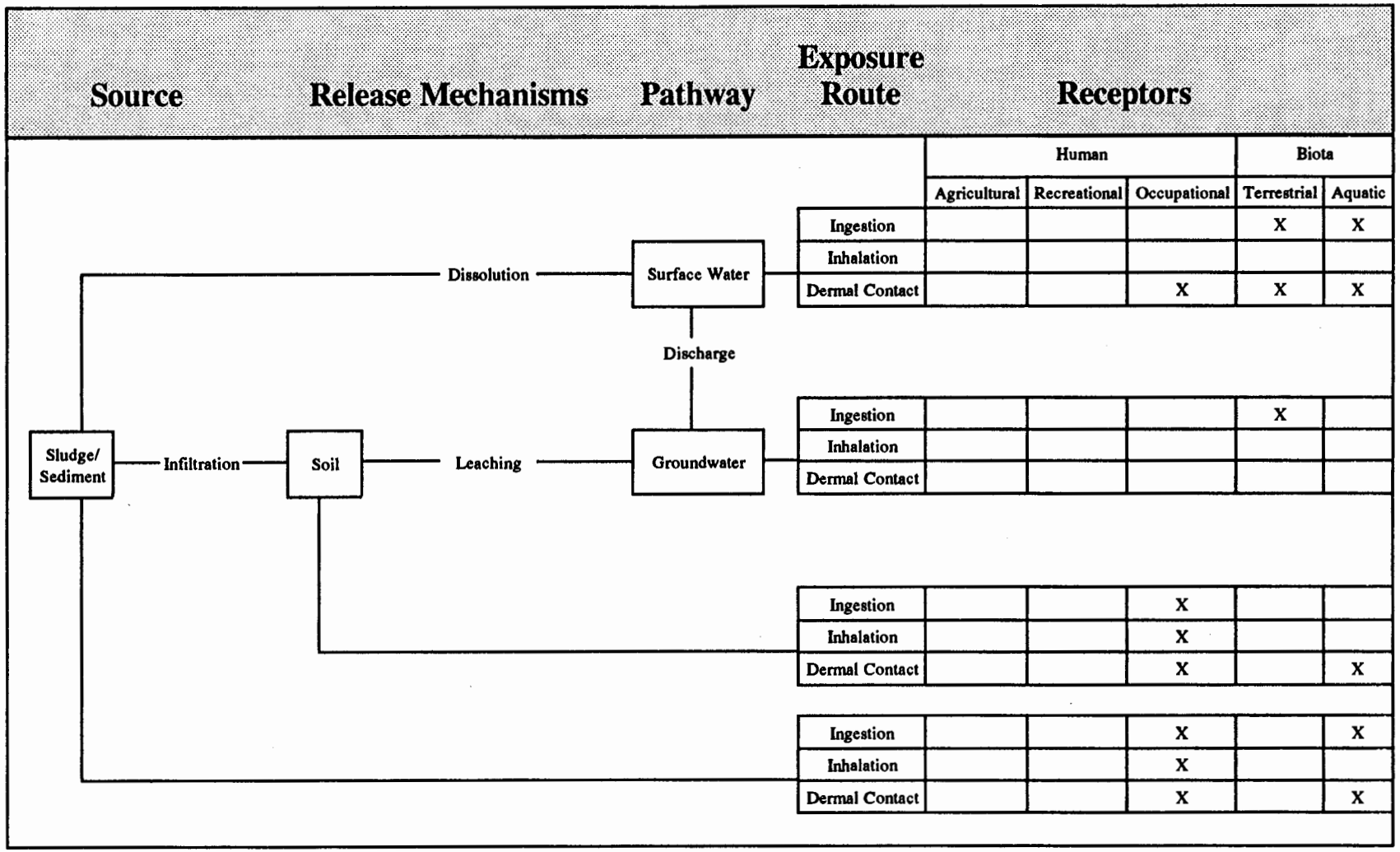


Figure 4-1. Fate and Transport Schematic for Pond C

potable, because of high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 4.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

4.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 4-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock raising. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

4.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at Holloman AFB and the lakes, which are located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond C are presented in Table 4-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief

Table 4-1
Chemicals of Concern for Pond C

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓		✓	
β-BHC		✓	✓	
δ-BHC	✓		✓	✓
γ-BHC	✓			
α-Chlordane	✓			✓
γ-Chlordane	✓			✓
4,4'-DDD			✓	✓
4,4'-DDE	✓		✓	✓
4,4'-DDT	✓		✓	✓
Dibenzofuran				✓
Dichloroprop			✓	
Dieldrin	✓			
Endosulfan I			✓	✓
Endosulfan II	✓			✓
Endosulfan sulfate	✓		✓	
Endrin	✓			
Endrin aldehyde	✓		✓	
Heptachlor epoxide			✓	
Isodrin	✓			
Kepone				✓
2-Methylnapthalene				✓
Phenanthrene			✓	✓
2,4,5-T				✓
Inorganics				
Aluminum		✓	✓	✓
Arsenic		✓	✓	
Beryllium			✓	✓
Boron		✓		
Chromium VI		✓		
Cobalt			✓	✓
Cyanide				✓
Lead		✓	✓	✓
Manganese		✓	✓	✓
Silicon		✓	✓	✓
Silver		✓		✓
Sulfide			✓	✓
Vanadium				✓

description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

4.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond C Contaminants:

- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soil;
- Leach into groundwater; and
- May be entrained in air.

Critical Assumptions:

- System is at steady state; and
- No significant additional contaminant binding from current operations.

Fate and Transport Models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond C. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soil; 3) leaching from sludge and/or soil into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond C, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

4.3.1 Release from Sludge and Soil to Surface Water

Dissolution and suspension of contaminants from sludge and soil into surface water is one of the primary contaminant transport mechanisms at Pond C. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge and soil.

4.3.2 Release from Sludge and Soil to Groundwater

A second significant transport mechanism from the sludge and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 4.3.3 below).

4.3.3 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Pond C:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond C; and
- Periodically discharges to lakes.

Monitor wells associated with Pond C:

- MW-2.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from a specific monitor well was associated with Pond C based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond C, monitor well MW-2 was assigned since this well is upgradient from lagoons D-G, and is out of the flow path of groundwater migrating beneath Ponds A and B.

4.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

4.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond C contaminants:

- Waterfowl;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond C. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond C and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. No fish are present in Pond C. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such

parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

4.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soil can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical/ dewatering and backfilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

4.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 4.1 provides a brief description of the exposure setting for Pond C.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 4-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

4.4.1 Identification of Contaminant Releases

Sampling conducted at Pond C has identified releases of contaminants from sludge to

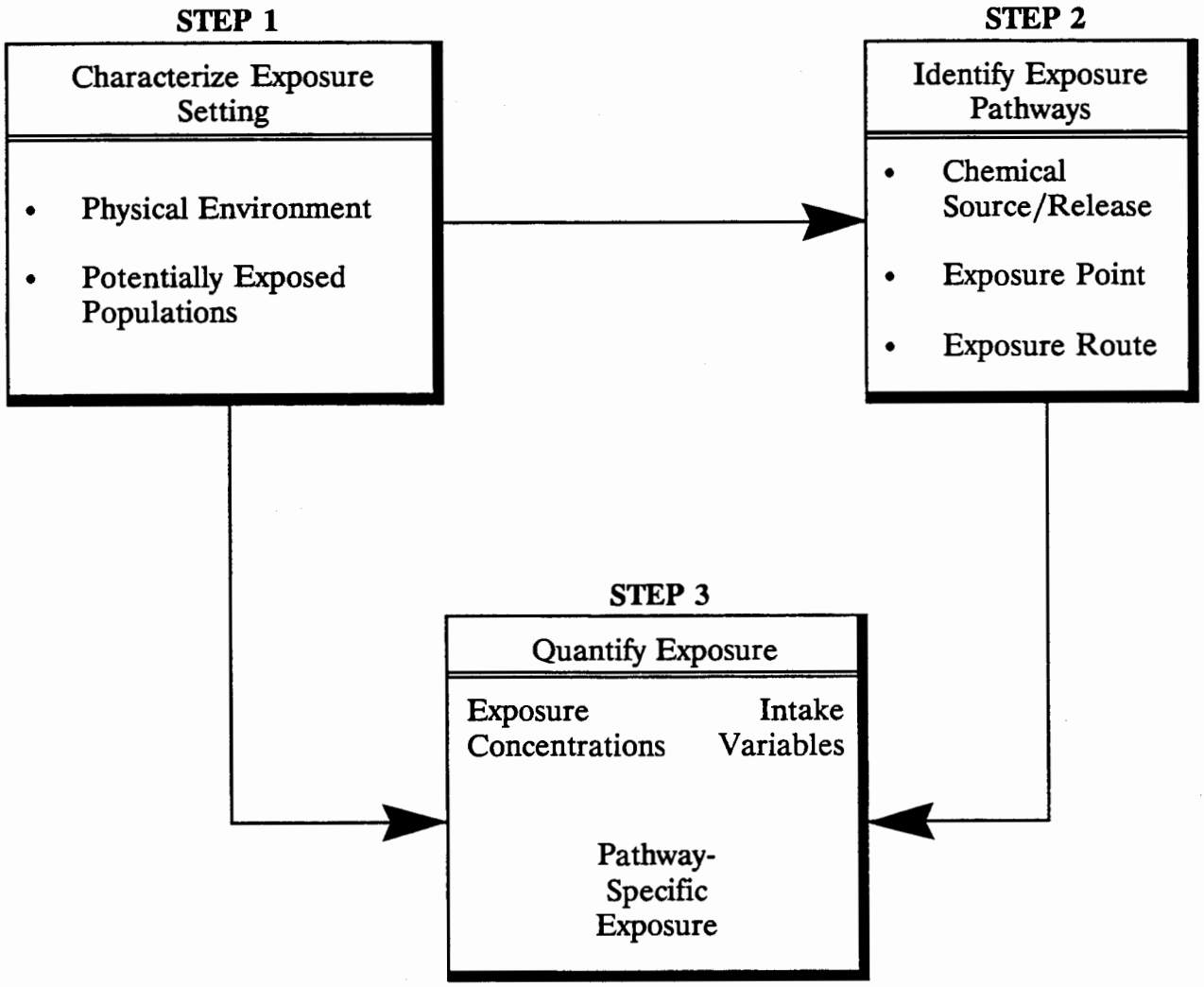


Figure 4-2. Flowchart of the Exposure Assessment Process

underlying soil, groundwater, surface water, and biota. Sections 4.1.2 and 4.3 provide a more complete discussion of contaminant releases from Pond C.

4.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 4-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon, periodically repair the aeration units, and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 4.1.3 and 4.1.4 also discuss these potentially exposed subgroups. Section 4.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

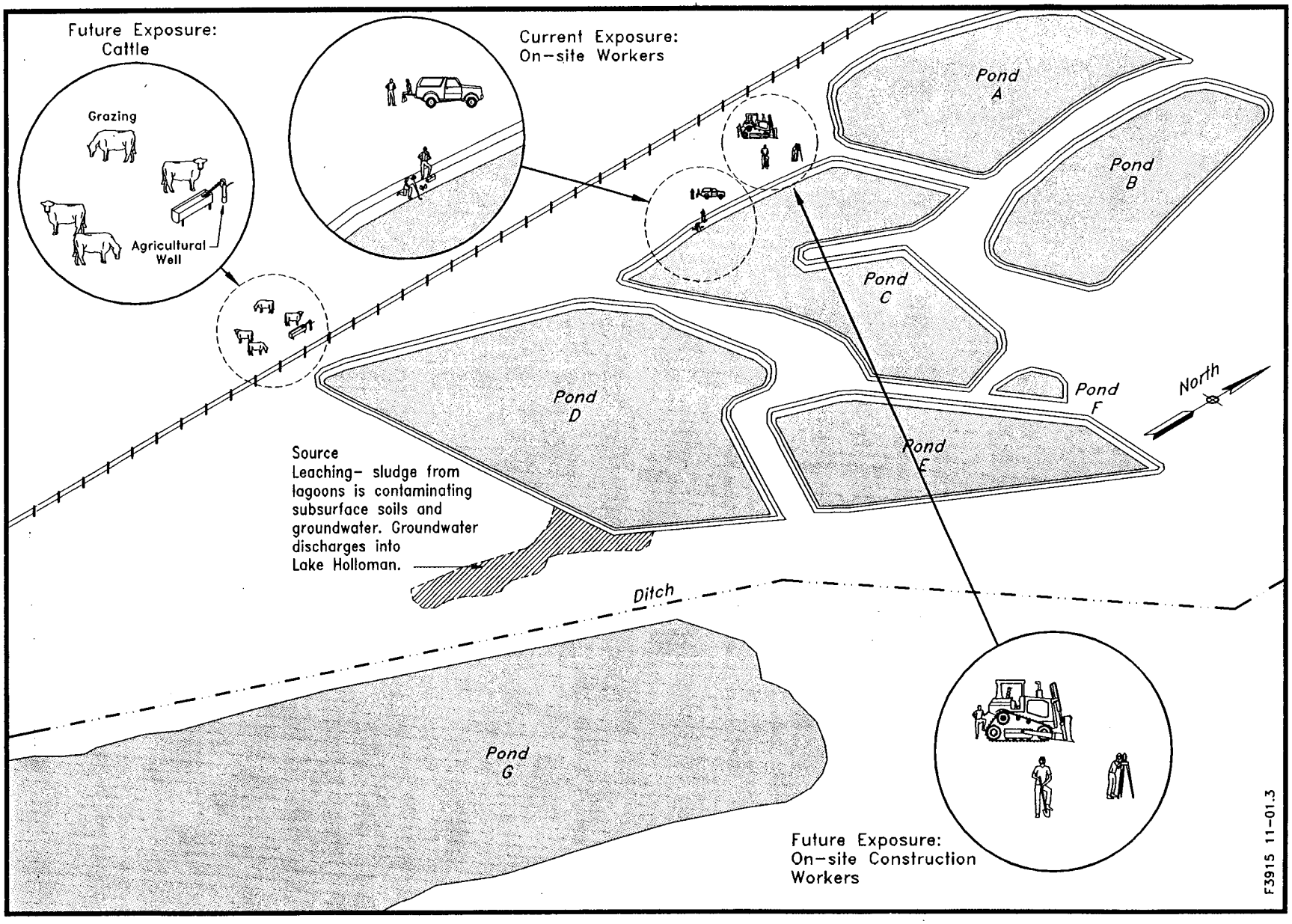


Figure 4-3. Exposure Scenario Diagram for Pond C

4.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sludge or soil (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 4-2 and 4-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge by site workers during lagoon maintenance activities; and 3) dermal contact with soil by site workers during lagoon maintenance activities. These pathways are considered to be complete because of the routine maintenance activities, such as repair of the lagoon aerators and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F.

Exposure pathways that may be complete in the future have been included in the risk assessment and include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge and soil by construction workers during future lagoon closure; 4) dermal contact with sludge by construction workers future lagoon closure; and 5) dermal contact with soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dust inhalation, dermal contact, and incidental ingestion of sludge or soil. Inhalation and incidental ingestion also are likely, as such activities require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or sediment; and 3) direct ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

Table 4-2

Potentially Complete Current Exposure Pathways: Pond C, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in sludge	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve handling floating aerators exposed to contaminants and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 4-3

Potentially Complete Future Exposure Pathways: Pond C, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in sludge	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.

4.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/soil/sludge.
- Future consumers:
  - -- Ingestion of contaminated beef.
- Future construction workers:
  - -- Dermal contact with surface water/soil/sludge;
  - -- Inhalation of volatiles/dust; and
  - -- Incidental ingestion of sludge/soil.

Analysis of Base activities in proximity to Pond C suggests that three human subpopulations may potentially be exposed to contaminants: current site workers, future consumers of local agriculture, and future construction workers.

4.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 4.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond C are provided in Table 4-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 4.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor well MW-2 adjacent to the site and downgradient from Pond C provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the

Table 4-4

Exposure Point Concentrations for Pond C

Chemical	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenarios						
2,4,5-T	0.00E+00	0.00E+00	1.00E-01	1.51E-01	0.00E+00	0.00E+00
2-Methylnaphthalene	0.00E+00	0.00E+00	3.00E+00	5.14E+00	0.00E+00	0.00E+00
4,4'-DDD	6.90E-02	9.23E-02	2.32E+00	4.72E+00	0.00E+00	0.00E+00
4,4'-DDE	3.00E-02	5.96E-02	9.93E-01	2.17E+00	0.00E+00	0.00E+00
4,4'-DDT	7.91E-03	1.72E-02	1.69E-01	2.61E-01	0.00E+00	0.00E+00
Aldrin	4.19E-03	8.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
alpha-Chlordane	0.00E+00	0.00E+00	6.90E-02	9.82E-02	0.00E+00	0.00E+00
Aluminum	1.02E+04	1.10E+04	9.87E+03	1.16E+04	2.02E-02	3.77E-02
Arsenic	1.39E+00	1.73E+00	6.50E-01	2.15E+00	2.42E-03	3.64E-03
Beryllium	4.00E-01	4.18E-01	3.19E-01	4.15E-01	0.00E+00	0.00E+00
beta-BHC	9.30E-03	2.38E-02	0.00E+00	0.00E+00	3.00E-05	3.00E-05
Boron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-01	2.76E-01
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.56E-03	1.25E-02
Cobalt	4.03E+00	4.85E+00	5.25E+00	6.49E+00	0.00E+00	0.00E+00
Cyanide	0.00E+00	0.00E+00	5.73E+01	1.67E+02	0.00E+00	0.00E+00
delta-BHC	4.10E-03	8.69E-03	1.51E+00	3.03E+00	0.00E+00	0.00E+00
Dibenzofuran	0.00E+00	0.00E+00	1.40E-01	2.31E-01	0.00E+00	0.00E+00
Dichloroprop	6.08E-02	9.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan I	7.76E-02	1.53E-01	8.26E-01	1.71E+00	0.00E+00	0.00E+00
Endosulfan II	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan sulfate	5.43E-03	8.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endrin aldehyde	7.93E-03	1.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
gamma-Chlordane	0.00E+00	0.00E+00	1.07E-01	1.66E-01	0.00E+00	0.00E+00
Heptachlor epoxide	3.93E-03	8.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kepone	0.00E+00	0.00E+00	1.27E+01	3.52E+01	0.00E+00	0.00E+00
Lead	3.92E+00	5.40E+00	2.23E+01	3.19E+01	5.44E-03	6.56E-03
Manganese (dust)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Manganese (food)	1.05E+02	1.31E+02	1.47E+02	1.85E+02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E-02	7.56E-02
Phenanthrene	2.58E-01	3.05E-01	1.57E+00	3.13E+00	0.00E+00	0.00E+00
Silicon	2.10E+03	3.91E+03	2.77E+03	5.20E+03	1.34E+01	1.58E+01
Silver	0.00E+00	0.00E+00	9.54E+01	1.52E+02	1.34E+01	0.00E+00
Sulfide	4.85E+01	7.15E+01	1.53E+03	2.26E+03	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	3.22E+01	3.91E+01	0.00E+00	0.00E+00

Table 4-4

(Continued)

Chemical	Groundwater (mg/L)		Air (µg/m³)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
2,4,5-T	0.00E+00	0.00E+00	1.72E-03	2.61E-03	0.00E+00	0.00E+00
2-Methylnaphthalene	0.00E+00	0.00E+00	3.00E+00	5.14E+00	0.00E+00	0.00E+00
4,4'-DDD	0.00E+00	0.00E+00	4.01E-02	8.15E-02	0.00E+00	0.00E+00
4,4'-DDE	8.60E-06	1.94E-05	1.71E-02	3.74E-02	2.16E-04	4.87E-04
4,4'-DDT	1.12E-05	1.53E-05	2.91E-03	4.49E-03	4.36E-05	5.95E-05
Aldrin	8.20E-06	1.81E-05	7.25E-05	1.49E-04	4.11E-06	9.08E-06
alpha-Chlordane	8.30E-06	8.30E-06	1.19E-03	1.69E-03	4.39E-08	4.39E-08
Aluminum	0.00E+00	0.00E+00	1.76E+02	1.99E+02	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	2.84E-02	3.72E-02	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	6.90E-03	7.22E-03	0.00E+00	0.00E+00
beta-BHC	0.00E+00	0.00E+00	1.60E-04	4.11E-04	0.00E+00	0.00E+00
Chromium VI	0.00E+00	0.00E+00	8.68E-01	1.19E+00	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	1.12E-01	8.99E+00	0.00E+00	0.00E+00
Cyanide	0.00E+00	0.00E+00	9.87E-01	2.88E+00	0.00E+00	0.00E+00
delta-BHC	1.56E-05	3.75E-05	2.60E-02	5.23E-02	0.00E+00	0.00E+00
Dibenzofuran	0.00E+00	0.00E+00	1.65E-06	2.72E-06	0.00E+00	0.00E+00
Dichloroprop	0.00E+00	0.00E+00	1.94E-03	1.69E-03	0.00E+00	0.00E+00
Dieldrin	8.90E-06	2.07E-05	0.00E+00	0.00E+00	1.47E-08	3.41E-08
Endosulfan I	0.00E+00	0.00E+00	1.42E-02	2.95E-02	0.00E+00	0.00E+00
Endosulfan II	1.39E-05	2.02E-05	0.00E+00	0.00E+00	2.37E-07	3.44E-07
Endosulfan sulfate	1.20E-05	2.30E-05	9.26E-05	1.44E-04	2.05E-07	3.92E-07
Endrin	9.30E-06	2.20E-05	0.00E+00	0.00E+00	1.59E-07	3.75E-07
Endrin aldehyde	4.00E-06	4.40E-06	1.35E-04	2.97E-03	2.20E-06	2.42E-06
gamma-BHC	8.60E-06	1.94E-05	0.00E+00	0.00E+00	4.73E-06	1.07E-05
gamma-Chlordane	3.91E-04	7.40E-04	1.83E-03	2.87E-03	7.83E-06	1.48E-05
Heptachlor epoxide	0.00E+00	0.00E+00	6.73E-05	1.48E-04	0.00E+00	0.00E+00
Isodrin	5.00E-06	5.10E-06	0.00E+00	0.00E+00	6.41E-09	6.54E-09
Kepone	0.00E+00	0.00E+00	2.19E-01	6.08E-01	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	3.85E-01	5.51E-01	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	2.54E+00	3.19E+00	0.00E+00	0.00E+00
Manganese (food)	1.05E+02	1.31E+02	1.47E+02	1.85E+02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Phenanthrene	2.58E-01	3.05E-01	1.57E-01	3.13E+00	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	4.78E+01	8.90E+01	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	1.64E+00	2.62E+00	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	3.90E+01	2.64E+01	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	5.55E-01	6.75E-01	0.00E+00	0.00E+00

relatively low groundwater concentrations at the future point of withdrawal.

4.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 4-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

4.4.7 Uncertainties

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

4.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

4.5.1 Toxicity Values Used in the Risk Assessment

Table 4-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

Table 4-5

Toxicity Values for Pond C

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Aluminum	--	--	--	--	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC (Lindane)	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Beryllium	B2	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	4.30E+00 [I]	2.40E-03 [I]
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Chromium VI	A	5.00E-03 [I]	2.00E-02 [H]	5.00E-03	--	--	--	1.20E-02 [I]
Cobalt	--	--	--	--	--	--	--	--
Cyanide	--	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dibenzofuran	D	--	--	--	--	--	--	--
Dichloroprop	--	--	--	--	--	--	--	--
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan I	--	2.53E-02 [S]	--	2.53E-02	--	--	--	--
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--

Table 4-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (μg/m³)
Kepone	--	4.20E-05 [S]	--	6.72E-04 [S]	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Manganese (dust)	D	--	--	--	4.00E-04 [I]	4.00E-04 [H]	--	--
Manganese (food)	D	1.40E-01 [I]	1.00E-01 [H]	--	--	--	--	--
Manganese (water)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
2-Methylnapthalene	--	--	--	--	--	--	--	--
Phenanthrene	D	--	--	--	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--
2,4,5-T	--	1.00E-02 [I]	1.00E-01 [H]	1.00E-02	--	--	--	--
Vanadium	--	7.00E-03 [H]	7.00E-03 [H]	7.00E-03	--	--	--	--

[C] Calculated based on the comparative potency factors for individual PAHs or dioxins.

[E] Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.

[H] Health Effects Assessment Summary Tables (HEAST).

[I] Integrated Risk Information System (IRIS).

[S] Surrogate value. Refer to Appendix G for rationale.

4.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

4.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

4.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 38 Chemicals of potential concern;
- 27 oral RfDs available:
  - -- 11 surrogate values;
  - -- 15 USEPA-verified RfDs:
    11 - medium confidence;
    4 - low confidence; and
  - -- 1 value from HEAST.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Eleven of the 27 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values cannot be assigned. Fifteen values were obtained from IRIS and have levels of confidence that range from medium (11 chemicals) to low (four chemicals). Oral RfDs were not available for 11 of the chemicals of potential

concern. A qualitative assessment was conducted for these chemicals (see Appendix G).

Carcinogen Toxicity Information

- 11 oral slope factors available:
  - -- 8 USEPA-verified slope factors:
    Group A - 2 chemicals;
    Group B2 - 8 chemicals;
    Group B2/C - 1 chemical;
    Group C - 1 chemical;
    Group D - 8 chemicals;
  - -- 2 surrogate values; and
  - -- 1 value from HEAST.
- 10 inhalation unit risks available:
  - -- 8 USEPA-verified unit risks; and
  - -- 2 surrogate values.

Twenty of the 38 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Eight chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Eight chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. Two chemicals were classified as Group A (Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in humans.

A total of 11 oral slope factors were available for use in this risk assessment. USEPA-verified oral slope factors were available for most of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Inhalation unit risk factors were available for 10 chemicals, eight USEPA-verified values and two surrogate values.

4.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond C, measured contaminant exposure levels, as well as those predicted by fate and transport modeling were used to estimate contaminant intakes and were compared to chemical-specific toxicity information.

4.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake × Slope Factor = Risk.
- A cancer risk of 10^6 (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond C, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A

detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^4 (one in 10,000) and 10^6 (one in 1,000,000). A cancer risk of 10^6 is considered the point of departure *(de minimis)* for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

4.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

4.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond C presently or in the future, two chronic and one subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The *subchronic* scenario was future on-site occupational exposure.

4.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

No risks/hazards exceed *de minimis* levels.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond C.

Current on-site workers were assumed to be exposed to contaminants in Pond C via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge; and 3) dermal contact with soil underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 2E-9
- Total Reasonable maximum = 1E-7

Noncarcinogenic hazard

- Total average HI = 2.5E-4
- Total reasonable maximum HI = 6.2E-3

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average

and reasonable maximum exposure is 2E-9 and 1E-7, respectively. Neither value exceeds the *de minimis* level. 4,4-DDD contributed the majority of the risk for the both the average and reasonable maximum exposure. 4,4-DDE also contributed substantially to the risk (refer to Appendix I). Dermal contact with sludge contributed most (87%) of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.5E-4 and 6.3E-3, respectively. Neither value exceeds unity. Delta-BHC contributed 27% and 32% of the average and reasonable maximum hazard, respectively. Other substantial contributors to hazard included 4,4-DDD, alpha-chlordane, beta-BHC, cyanide, and silver. Dermal contact with sludge was responsible for the majority of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

A subchronic scenario was not assessed for the current occupational scenario since none of the chronic hazards exceed the *de minimis* value of one.

4.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

Carcinogenic risk:

- No risks exceed *de minimis* levels.

Noncarcinogenic hazard:

- Inhalation of manganese by on-site workers.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base is developed for residential and/or agricultural purposes. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, was also considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Future Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 1E-8
- Total reasonable maximum = 5E-7

Noncarcinogenic hazard

- Total average HI = 2.9E-4
- Total reasonable maximum HI = 2.4E-3

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 1E-8 and 5E-7, respectively. Both risk values are below the RCRA Subpart S goals and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.9E-4 and 2.4E-3, respectively. Both HIs are less than unity and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Future Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 6.8E-4
- Total reasonable maximum HI = 5.6E-3

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 6.8E-4 and 5.6E-3, respectively. Both HIs are less than one and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Carcinogenic risk

- Not assessed for subchronic exposure

Noncarcinogenic hazard

- Total average HI = 0.44
- Total reasonable maximum HI = 7.2

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated soils and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated soil/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.44 and 7.2, respectively. The reasonable maximum hazard exceeds unity and may indicate cause for concern regarding noncancer health effects for future on-site workers. As shown in Figure 4-4, manganese was the major contributor to total hazard for both average and reasonable maximum exposure. Inhalation of fugitive dust contributed the majority (82% average; 92% reasonable maximum) of the pathway-specific hazard in both cases.

4.6.6 Uncertainties Associated with Risk Characterization

The majority of the predicted future occupational hazard associated with Pond C is due to inhalation of particulate contaminated with manganese by future site workers involved in site remediation. These hazards are based on modeled concentrations in air, which are most likely overestimated due to the conservations built into the modeling approach.

4.6.7 Summary

The results of this risk assessment indicate that noncancer hazards exceeding *de minimis* levels are associated with reasonable maximum exposure to future on-site workers at Pond C. All risks/hazards associated with the future agricultural and current occupational scenarios were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Pond C. Conservative assumptions that may affect risk characterization results include:

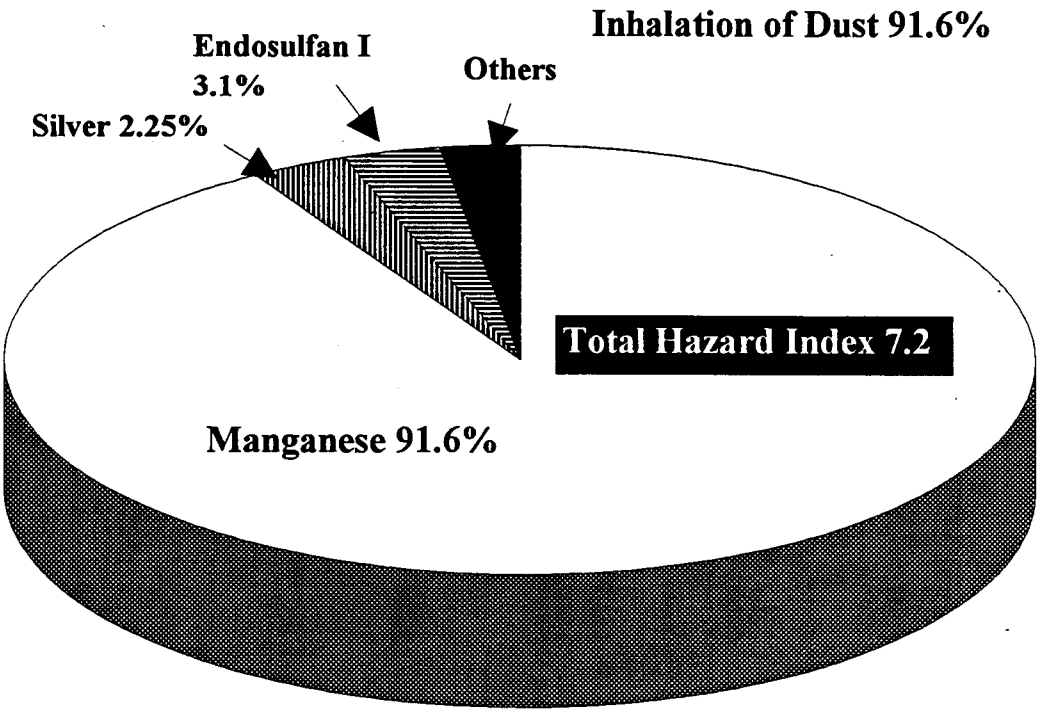


Figure 4-4. Reasonable Maximum Noncancer Hazard Index - Future Occupational Scenario

Risk Characterization Results

Risks/hazards above *de minimis* levels include:

- Noncancer hazard to future on-site workers.

1) conservative inhalation rates; 2) exposure frequency; and 3) exposure durations.

4.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur because of exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..."can provide some qualitative information on the likelihood and severity of impacts" because of chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than 10 indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond C and discusses the ecological quotient calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties can be found in Appendix K, and will not be repeated here. In addition, a discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

4.7.1 Background

Pond C is 12.5 acres and has the capacity to hold 21.3 million gallons of water. It is an aerated facultative lagoon. Plankton, sludge and surface water were collected at Pond C. The pH was approximately 7.99, and the alkalinity was measured at 210 mg/L. Water depth was 1.25 m, secchi depth was 0.15-0.2 m. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made, and is presented in Table 4-6.

The edges of the pond are lined to prevent bank erosion and slope steeply to a depth of 1.1 m. The liner is free of sediments except for a gravelly deposit on the west side of the point. Benthos (chironomid larvae) were found in this deposit as well as along the south and western shores. Since the skid dredge filled quickly with algal/bacterial ooze which would not wash through the screen, concentration of benthic organisms was not feasible in this pond, and a benthic sample was not collected. The bottom of the pond at depth was covered with a bacterial layer over sludge, and no benthos were present at depth. Dense mats of algae formed on the downwind surface at times. At the time of the plankton sample collection (3/8/93), the algae changed in color from green in the north end to brown in the southeast end of the pond. By March 22, there was very little zooplankton visible in Pond C, and it looked very similar to Pond B. Fish were not present in Pond C. Shorebirds were observed feeding around the edges; and ducks were seen on the pond. Bats and barn swallows were seen in early April over the lagoon system. Algae and surface water samples were collected as discussed in Appendix M.

4.7.2 Exposure Assessment

Figure 4-5 is a conceptual site model of Pond C. Sludge and surface water samples were collected at this pond. There were no fish, perhaps because of the lack of suitable cover. There were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards which feed on the plankton. Plankton, in this case, is a mixture of algae, plankton and

Table 4-6

Water Quality Parameters - Pond C

9:35 am 3/8/93	Northwest Leg			Southeast Leg		
Depth (m)	C (μmhos)	Temp (°C)	DO (mg/L)	C (μmhos)	Temp (°C)	DO (mg/L)
Surface	5400-5800	14	6.4-8.4	5200	14	5.5
0.5	NC	NC	NC	5200	13.5	2.1
1.1	NC	NC	NC	5200	12	1.3

NC = Not Collected

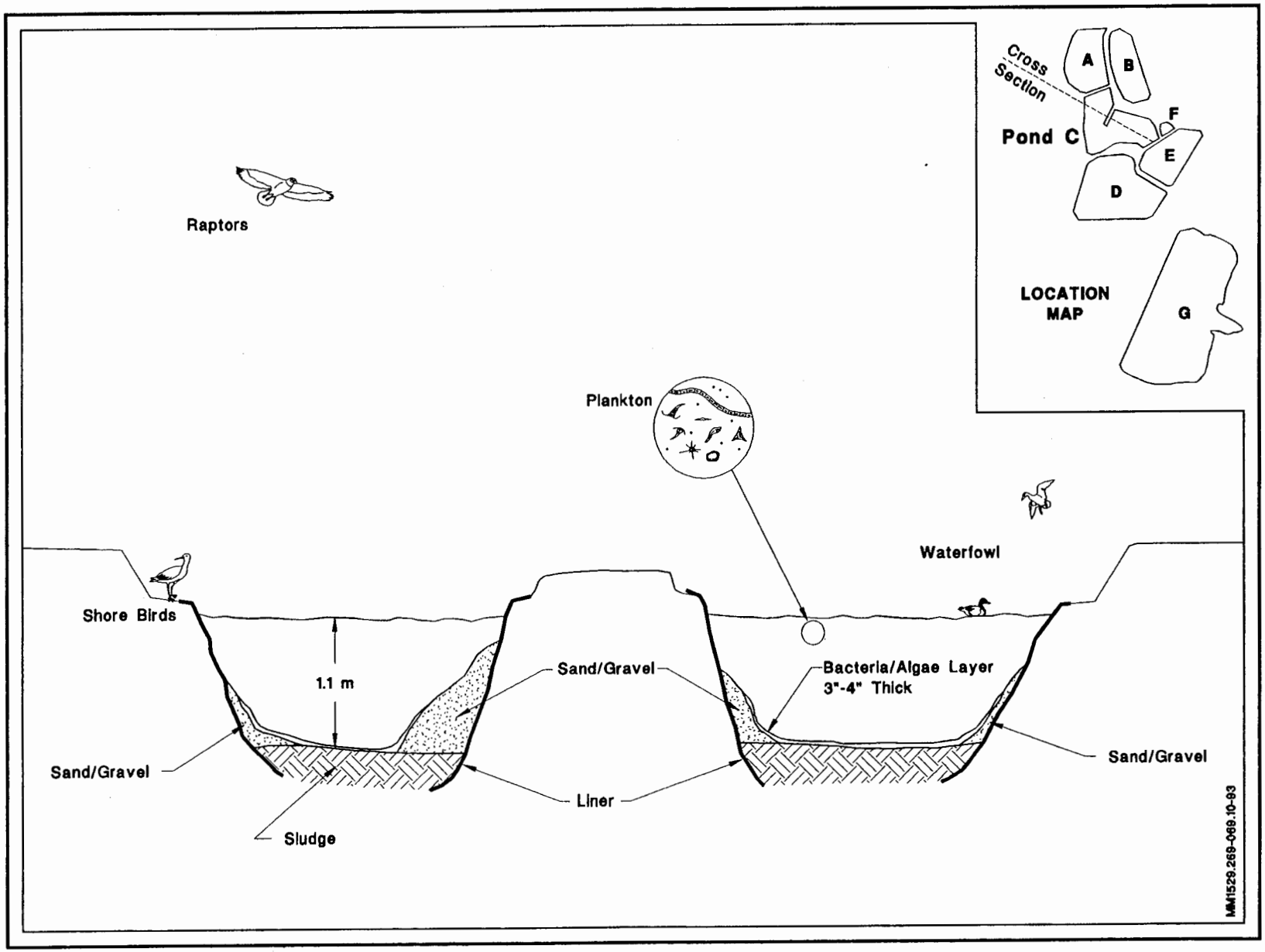


Figure 4-5. Ecological Conceptualization Model for Pond C

Indicator Species Selected for Pond C:

- Mallards
- Fish

mosquito larvae. Although fish are not currently present, fish were selected as indicator species for the aquatic environment.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond C makes up about 4% of the system; therefore, 4% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably in the area for, at the most, 6 months. The average ingestion fraction, which was 2%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

4.7.3 Risk Characterization

Risk Characterization

Mallards:

- Adverse effects are not expected; and

Fish:

- Adverse effects would be possible.

Table 4-7 lists the EQs for the indicator species. The potential risk to mallards was below one and therefore acceptable. The majority of the potential risk in Pond C was a result of metal toxicity. This may not be accurate since metals were not speciated, and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to ducks feeding at Pond C can be quantified based on the fraction ingested from this pond; however, the ducks are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributable to Pond C alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or the ecological hazard index, for ducks. A discussion of cumulative risks to mallards is included in the conclusions in Section 13.0.

Fish were used as an indicator species for aquatic organisms in general. Fish were not present in Pond C, as discussed above. Based strictly on the water contaminant concentrations, the EQs would be 1.5 and 1.8 for average and reasonable maximum exposures, respectively. These EQs are just above the acceptable limit of one, indicating that adverse effects are possible, though the potential is low. However, the EQs may be on the low side since they were based strictly on the contaminants detected in the surface water and do not account for contaminant exposure from other sources. Since fish are not present, it is assumed that pond conditions are not adequate for their survival. This may result from lack of adequate cover. Based on the EQ for fish, adverse effects are possible in benthic organisms, though the potential is very low.

4.8 Conclusion for Pond C

Maintenance activities at Pond C include inspecting the lagoon, periodically repairing the aeration units, and obtaining water samples. Potential occupational scenarios associated with Pond C include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario which assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond C to graze beef cattle. Although cattle are not currently on this land, adjacent lands are leased for grazing, and this exposure could occur

Table 4-7

Ecological Quotients - Pond C

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.03	0.05
Fish	1.6	1.9

under future conditions. Ingestion of beef from cattle pastured on this land and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond C suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The current occupational risks/hazards are below *de minimis* levels. The predicted reasonable maximum hazard for the future occupational scenario, which assumes that the lagoons will be dewatered and backfilled, are excessive. Therefore, dewatering and backfilling would have to be conducted as a hazardous waste remediation with the attendant expense. Considering that the current occupational risks/hazards are below *de minimis* levels and that site remediation would be expensive and expose the remedial team to health hazards, the most prudent option may be to continue operation of Pond C for evaporative purposes. By allowing water to remain standing in the pond, human exposure to contaminants in the sludge, sediments, and underlying soils will be minimized.

It is unlikely that Pond C will ever be developed as a residential area. However, the baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks (average and reasonable maximum exposure) and adult (reasonable maximum) and child (average and reasonable maximum) noncancer hazards that exceed *de minimis* levels. Ingestion of sludge, dermal contact with sludge, ingestion of groundwater, and dermal contact with water while showering all contributed significantly to the risks/hazards.

The ecological assessment indicated that birds (mallards) using Pond C are not likely to be at risk. While fish are not found in Pond C, adverse effects are theoretically possible based strictly on water contaminant concentrations. Based on insignificant risks/hazards to current on site workers and the environment, continued operation of Pond C is recommended.

Section 5
RISK ASSESSMENT FOR POND D

This section presents the unit-specific risk assessment for Pond D. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

5.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond D. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

5.1.1 Site Description

Pond D is the fourth impoundment in the wastewater treatment system and is unaerated. The edges of the pond are lined to prevent bank erosion and are steeply sloped to a depth of 1.5 to 1.6 meters. The lagoon covers 18.7 acres and has the capacity to hold 28.5 million gallons of water. Pond D is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed within the fence surrounding Ponds A through F.

5.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond D have:

- Dissolved into surface water;
- Infiltrated into underlying soils;
- Leached into groundwater; and
- Accumulated in biota.

Figure 5-1 outlines the fate and transport of contaminant releases from Pond D, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soil; 3) leaching into groundwater; and 4) uptake by biota.

5.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/soil/sludge;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge and/or soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond D at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 5-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge and/or soil.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. While groundwater in the vicinity of the Base is not potable because of high total dissolved solids (TDS) concentrations, this

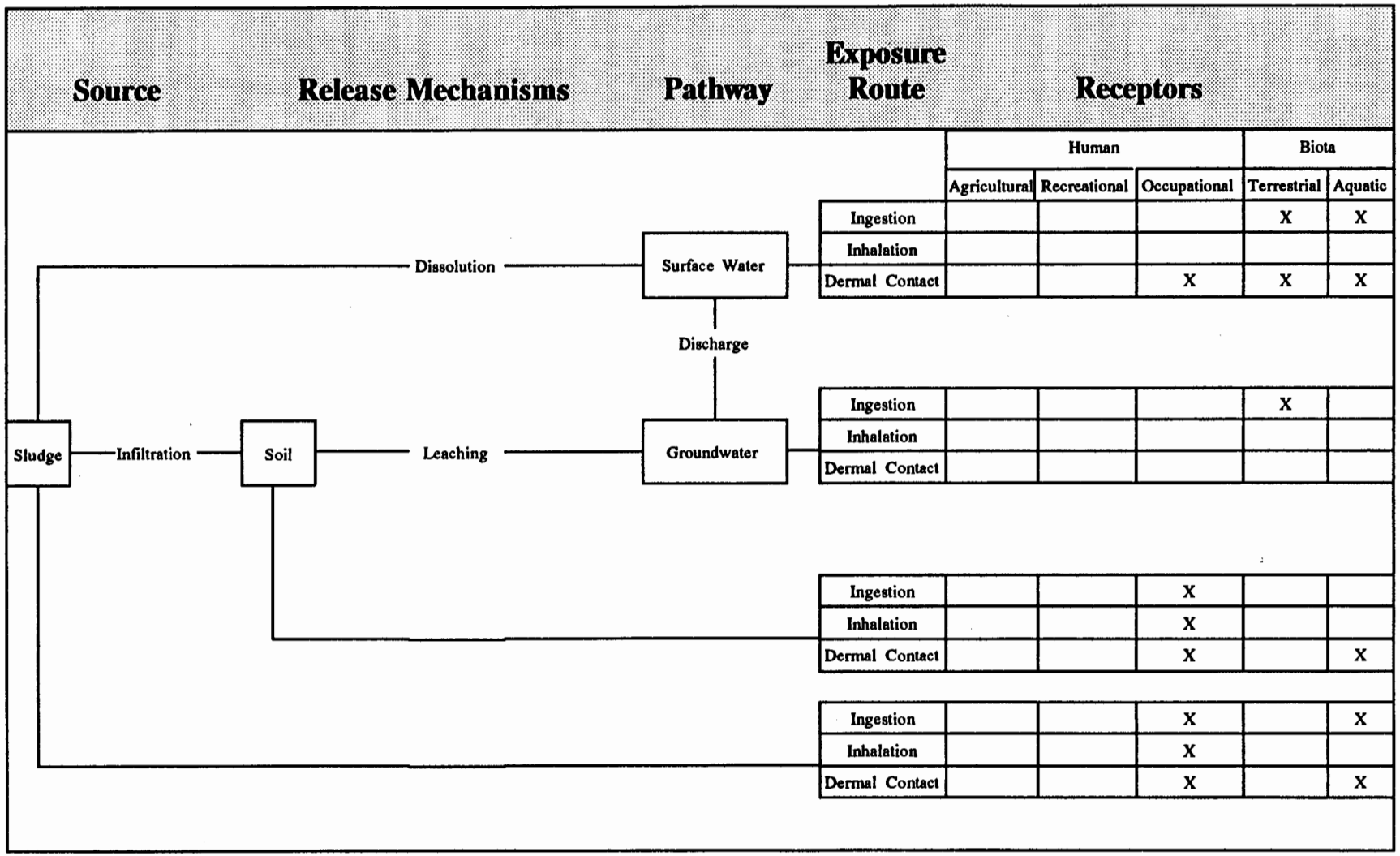


Figure 5-1. Fate and Transport Schematic for Pond D

risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 5.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

5.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 5-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock raising. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

5.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at Holloman AFB and the lakes, which are located downgradient, is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond D are presented in Table 5-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description

Table 5-1

Chemicals of Concern for Pond D

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓			
Bis(2-ethylhexyl)phthalate		✓		
α-BHC	✓			
β-BHC	✓		✓	
δ-BHC	✓	✓	✓	
γ-BHC	✓	✓	✓	
α-Chlordane	✓		✓	
γ-Chlordane	✓	✓		
4,4'-DDD		✓	✓	
4,4'-DDE			✓	
4,4'-DDT	✓		✓	
Dieldrin	✓	✓		
Endosulfan II	✓			
Endosulfan sulfate	✓	✓	✓	
Endrin	✓			
Endrin aldehyde	✓			
Heptachlor	✓		✓	
Heptachlor epoxide	✓	✓		
2-Hexanone			✓	
4-Hydroxy-4-methyl-2-pentanone			✓	
Isodrin	✓			
Methoxychlor	✓	✓		
3-Methyl pentane			✓	
Inogranics				
Arsenic		✓	✓	
Boron		✓		
Cadmium	✓			
Cobalt			✓	
Lead		✓	✓	
Lead (Organic)		✓		
Manganese		✓		
Mercury		✓		
Silicon		✓		
Sulfide	✓		✓	

of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

5.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond D Contaminants:

- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soil;
- Leach into groundwater; and
- May be entrained in air.

Critical Assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport Models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond D. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soil; 3) leaching from sludge and/or soil into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond D, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

5.3.1 Release from Sludge and Soil to Surface Water

Dissolution and suspension of contaminants from sludge and soil into surface water is one of the primary contaminant transport mechanisms at Pond D. Surface water samples taken from the lagoon indicate the presence of contaminants originating in the sludge and soil.

5.3.2 Release from Sludge and Soil to Groundwater

A second significant transport mechanism from the sludge and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 5.3.3 below).

5.3.3 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Pond D:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond D; and
- Periodically discharges to lakes.

Monitor wells associated with Pond D:

- MWs 3, 14, 15, MWD-04, MWS-04, and MWS-05.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond D based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond D, monitor wells MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05 were assigned since these wells are upgradient from Pond G and are out of the flow path of groundwater migrating beneath Ponds A, B, and C. (Data from these wells also were associated with Ponds E and F.)

5.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

5.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond D contaminants:

- Waterfowl;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond D. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond D and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. No fish are present in Pond D. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

5.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soil can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical dewatering and backfilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

5.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 5.1 provides a brief description of the exposure setting for Pond D.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 5-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

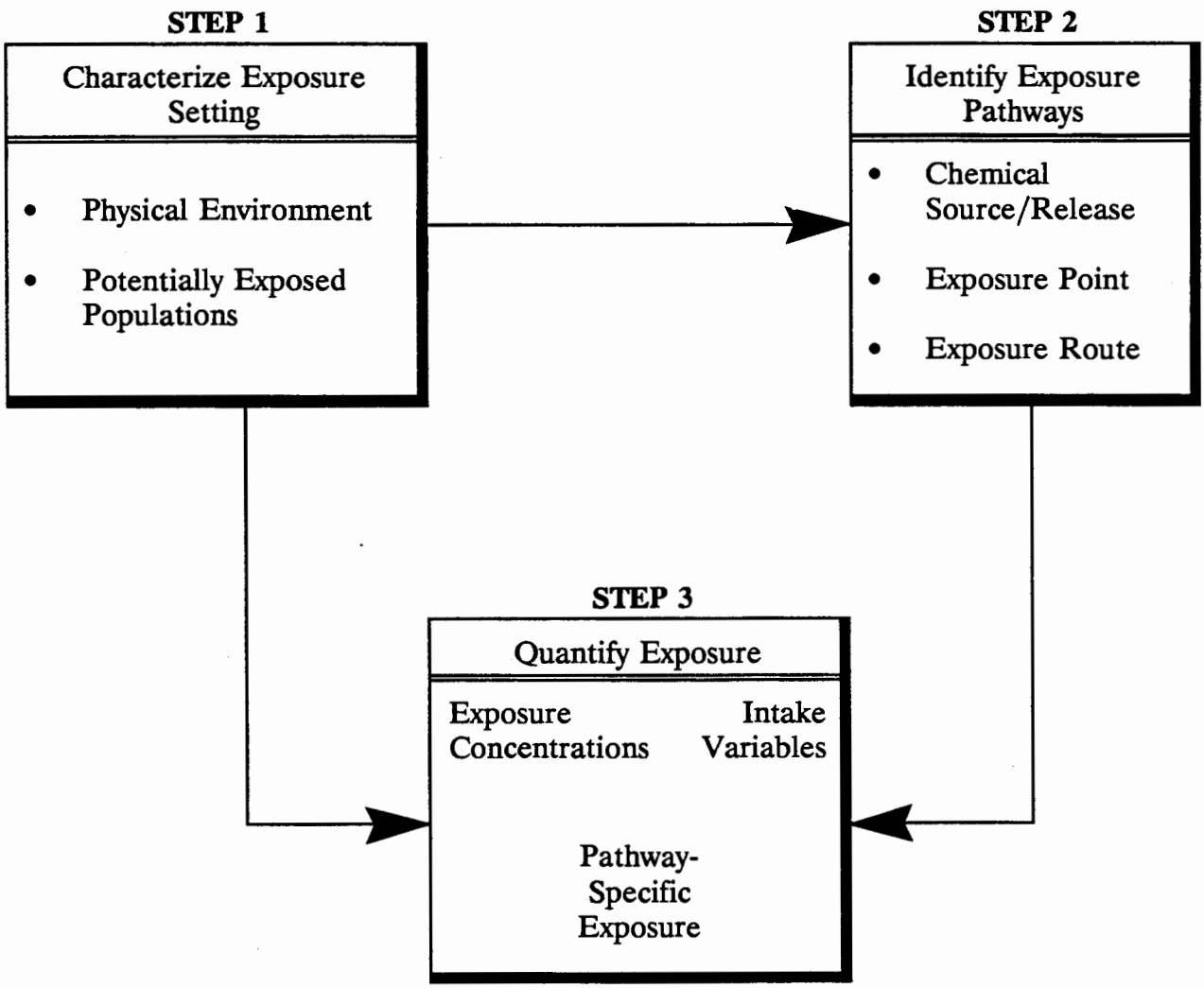


Figure 5-2. Flowchart of the Exposure Assessment Process

5.4.1 Identification of Contaminant Releases

Sampling conducted at Pond D has identified releases of contaminants from sludge to soil, groundwater, surface water, and biota. Sections 5.1.2 and 5.3 provide a more complete discussion of contaminant releases from Pond D.

5.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 5-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 5.1.3 and 5.1.4 also discuss these potentially exposed subgroups. Section 5.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

5.4.3 Identification of Potential Exposure Pathways

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;

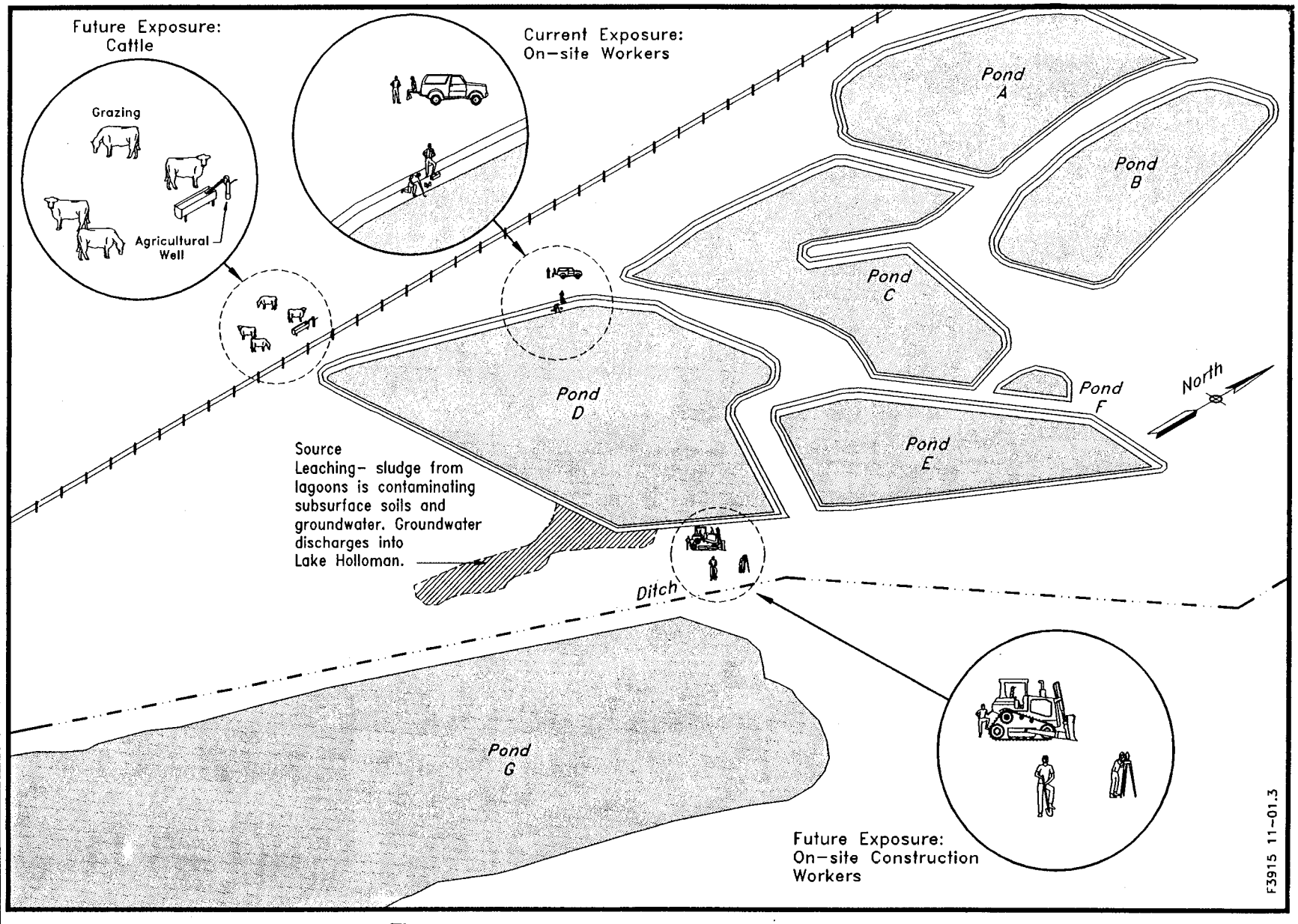


Figure 5-3. Exposure Scenario Diagram for Pond D

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sludge or soil (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 5-2 and 5-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge by site workers during lagoon maintenance activities; and 3) dermal contact with soil by site workers during lagoon maintenance activities. These pathways are considered to be complete because of the routine maintenance activities, such as inspection and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F. Dermal contact at Pond D should be less prevalent than at Ponds A, B, or C since Pond D is not aerated, negating the need for substantial maintenance activities.

Exposure pathways that may be complete in the future have been included in the risk assessment and include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge and soil construction workers during future lagoon closure; 4) dermal contact with sludge by construction workers during future lagoon closure; and 5) dermal contact with soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dermal contact with sludge or soil. Inhalation and incidental ingestion also are likely, as such activities require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or sediment; and 3) current ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

5.4.4 Identification of Exposed Populations

Analysis of Base activities in proximity to Pond D suggests that three human subpopulations may potentially be exposed to contaminants: current site workers, future consumers of local agricultural products, and future construction workers.

Table 5-2

Potentially Complete Current Exposure Pathways: Pond D, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Dermal contact with chemicals in sludge	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 5-3

Potentially Complete Future Exposure Pathways: Pond D Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in sludge	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/soil/sludge.
- Future consumers:
  - -- Ingestion of contaminated beef.
- Future construction workers:
  - -- Dermal contact with surface water/soil/sludge;
  - -- Inhalation of volatiles/dust; and
  - -- Incidental ingestion of sludge/soil.

5.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 5.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond D are provided in Table 5-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 5.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor wells adjacent to the site and downgradient from Pond D (MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05) provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the relatively low groundwater concentrations at the future point of withdrawal.

Table 5-4

Exposure Point Concentrations for Pond D

Chemical	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenarios						
2-Hexanone	4.0E-03	4.0E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3-Methyl pentane	2.0E-02	2.0E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4,4'-DDD	2.83E-02	7.75E-02	0.00E+00	0.00E+00	3.50E-05	3.50E-05
4,4'-DDE	5.11E-03	1.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4,4'-DDT	8.56E-03	1.87E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4-Hydroxy-4-methyl pentanone	1.30E+01	1.30E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	1.23E+00	1.68E+00	0.00E+00	0.00E+00	4.12E-03	5.30E-03
beta-BHC	6.36E-03	1.16E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-02	1.51E-02
Boron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.80E-01	3.00E-01
Cobalt	3.37E+00	3.66E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	4.41E-03	8.18E-03	0.00E+00	0.00E+00	2.10E-05	2.10E-05
Dieldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-05	1.50E-05
Endosulfan sulfate	1.09E-02	2.18E-02	0.00E+00	0.00E+00	1.30E-05	1.30E-05
gamma-BHC	3.76E-03	6.70E-03	0.00E+00	0.00E+00	1.00E-05	1.00E-05
alpha-Chlordane	4.50E-04	4.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
gamma-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06
Heptachlor	2.77E-03	5.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-05	1.00E-05
Lead	7.05E+00	2.83E+00	0.00E+00	0.00E+00	4.18E-03	4.93E-03
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.17E-02	9.94E-02
Manganese (water)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.65E-02	7.17E-02
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.62E-04	6.05E-04
Methoxychlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-05	2.00E-05
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E+01	1.66E+01
Sulfide	3.82E+01	4.84E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 5-4

(Continued)

Chemical	Groundwater (mg/L)		Air ($\mu g/m^3$)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
4,4'-DDD	0.00E+00	0.00E+00	4.88E-04	1.33E-02	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	8.81E-05	2.09E-04	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	1.48E-04	3.22E-04	1.51E-04	2.88E-04
Aldrin	1.38E-05	2.66E-05	0.00E+00	0.00E+00	6.92E-06	1.33E-05
alpha-BHC	1.50E-05	2.47E-05	0.00E+00	0.00E+00	3.00E-07	4.95E-07
alpha-Chlordane	5.40E-06	7.50E-06	4.66E-05	8.81E-05	2.86E-08	3.97E-08
Arsenic	0.00E+00	0.00E+00	2.11E-02	2.89E-02	0.00E+00	0.00E+00
beta-BHC	6.70E-06	9.00E-06	0.00E+00	0.00E+00	2.12E-07	2.85E-07
Cadmium (water)	1.25E-02	1.4E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	5.81E-02	6.32E-02	0.00E+00	0.00E+00
delta-BHC	9.20E-06	1.45E-05	7.60E-05	1.41E-04	2.92E-07	4.60E-07
Dieldrin	2.54E-05	5.88E-05	0.00E+00	0.00E+00	2.03E-07	4.70E-07
Endosulfan II	1.92E-05	2.63E-05	0.00E+00	0.00E+00	3.27E-07	4.48E-07
Endosulfan sulfate	2.27E-05	2.61E-05	1.87E-04	3.76E-04	3.87E-07	4.45E-07
Endrin	5.32E-05	1.14E-04	0.00E+00	0.00E+00	2.93E-05	6.25E-05
Endrin aldehyde	1.41E-05	2.35E-05	0.00E+00	0.00E+00	7.75E-06	1.29E-05
gamma-BHC	2.52E-05	4.68E-05	6.56E-05	1.51E-04	5.05E-07	9.37E-07
gamma-Chlordane	2.04E-05	4.60E-05	0.00E+00	0.00E+00	1.08E-07	2.43E-07
Heptachlor	1.81E-05	2.96E-05	4.83E-05	8.81E-05	1.14E-06	1.87E-06
Heptachlor epoxide	5.50E-06	6.80E-06	0.00E+00	0.00E+00	7.05E-09	8.72E-09
Isodrin	1.06E-05	1.89E-05	0.00E+00	0.00E+00	5.83E-06	1.04E-05
Lead	0.00E+00	0.00E+00	3.53E-02	4.88E-02	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	0.00E+00	0.00E+00	1.50E-04	2.49E-04
Sulfide	9.15E-01	9.90E-01	6.60E-01	8.37E-01	0.00E+00	0.00E+00

5.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 5-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

5.4.7 Uncertainties

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

5.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

5.5.1 Toxicity Values Used in the Risk Assessment

Table 5-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

Table 5-5

Toxicity Values for Pond D

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis(2-ethylhexyl)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	--	--	--	--	--
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
Cadmium (water)	B1	5.00E-04 [I]	--	5.00E-04	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Cobalt	--	--	--	--	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
2-Hexanone	--	--	--	--	--	--	--	--
4-Hydroxy-4-methyl-2-pentanone	--	--	--	--	--	--	--	--
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--

Table 5-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-07 [I]	1.00E-07 [H]	1.00E-07	1.50E+00 [N]	--	--	--
Manganese (water)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Methoxychlor	D	5.00E-03 [I]	5.00E-03 [H]	7.60E-02 [S]	--	--	--	--
3 Methyl pentane	--	--	--	--	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.

E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.

H Health Effects Assessment Summary Tables (HEAST).

I Integrated Risk Information System (IRIS).

S Surrogate value. Refer to Appendix G for rationale.

N National Ambient Air Quality Standard.

5.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion of the potential health effects associated with exposures to the chemicals of potential concern is provided in Appendix G.

5.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

5.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 33 Chemicals of potential concern;
- 25 oral RfDs available:
  - -- 10 surrogate values derived;
  - -- 1 value from HEAST; and
  - -- 14 USEPA-verified RfDs:
    1 - high confidence;
    10 - medium confidence; and
    3 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Ten of the 25 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Fourteen values were obtained from IRIS and have levels of confidence that range from high (one chemical) to low (three chemicals). One value was from HEAST, which does not provide information regarding level of confidence. Oral RfDs were not available for eight of the chemicals of potential concern. A qualitative assessment was conducted for these eight chemicals (see Appendix G).

Carcinogen Toxicity Information

- 12 oral slope factors available:
  - -- 9 USEPA-verified slope factors: Group B2 - 9 chemicals;
  - -- 1 calculated value; and
  - -- 2 values from HEAST.
- 10 inhalation unit risks available:
  - -- 8 USEPA-verified unit risks; and
  - -- 2 surrogate values.

Nineteen of the 33 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Five chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Ten chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and one chemical (arsenic) was classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for nine of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Inhalation unit risk factors were available for 10 chemicals. Eight values were USEPA-verified, and two were derived surrogate values.

5.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond D, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intake and were compared to chemical-specific toxicity information.

5.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^6 (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond D, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure (*de minimis*) for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

5.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate hazard quotients is presented in Appendix I.

5.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond D presently or in the future, two chronic and two subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The two *subchronic* scenarios were: 1) current on-site occupational exposure; and 2) future on-site occupational exposure.

5.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

No risks/hazards exceed *de minimis* levels.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond D.

Current on-site workers were assumed to be exposed to contaminants in Pond D via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge; and 3) dermal contact with sediments (soils) underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-10 and 1E-8, respectively. Neither value exceeds the risk range goal defined by Subpart S. DDD and dieldrin contributed the majority of the risk for both average and reasonable maximum exposure. Dermal contact with surface water contributed most of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.02 and 0.78, respectively. Neither value exceeds unity. Organic lead was the major contributor to total hazard for both average and reasonable maximum exposure. Dermal contact with surface water was responsible for virtually all of the pathway-specific hazard.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 2E-10
- Total Reasonable maximum = 1E-8

Noncarcinogenic hazard

- Total average HI = 0.02
- Total reasonable maximum HI = 0.78

Current Occupational Scenario - Subchronic Exposure

Subchronic exposure was not assessed for the current occupational scenario since none of the chronic risks/hazards exceeded *de minimis* levels.

5.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

No risks/hazards exceed *de minimis* levels.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base is developed for residential and/or agricultural purposes at some time in the future. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, also was considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Future Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 2E-8
- Total reasonable maximum = 4E-7

Noncarcinogenic hazard

- Total average HI = 4.7E-4
- Total reasonable maximum HI = 3.9E-3

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-8 and 4E-7, respectively. Both risk values are below the Subpart S goals and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 4.7E-4 and 3.9E-3, respectively. Both HIs are less than unity and suggest that contaminants migrating off site via groundwater are not likely to cause adverse non-cancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 1.1E-3
- Total reasonable maximum HI = 9.0E-3

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 1.1E-3 and 9.0E-3, respectively. Both hazard indices are less than one and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Carcinogenic risk

- Not assessed for subchronic exposure

Noncarcinogenic hazard

- Total average HI = 2.1E-3
- Total reasonable maximum HI = 0.03

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated sediments and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated sediment/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.1E-3 and 3.2E-2, respectively. Neither value exceeds one, suggesting that future occupational exposure is not likely to cause adverse health effects in workers at Pond D. Arsenic was the major contributor to total hazard for both average and reasonable maximum exposure. Incidental ingestion of contaminated soil contributed the majority (92% average; 91% reasonable maximum) of the pathway-specific hazard in both cases.

5.6.6 Summary

Risk Characterization Results

All risks/hazards are below *de minimis* levels.

The results of this risk assessment indicate that no risks/hazards associated with exposure to contaminants at Pond D are above *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters. Conservative assumptions that may impact the risk characterization include: 1) conservative soil ingestion rates; 2) exposure frequency; 3) exposure duration; and 4) surface area available for dermal contact.

5.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed

(measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur because of exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..."can provide some qualitative information on the likelihood and severity of impacts" because of chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond D and discusses the ecological quotient calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties can be found in Appendix K, and will not be repeated here. In addition, a discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

5.7.1 Background

Pond D is 18.7 acres and has the capacity to hold 28.5 million gallons of water. It is not aerated. Plankton, sludge, and surface water samples were collected in Pond D. The pH was approximately 8.50, and the alkalinity was measured at 243 mg/L. Water depth was 1.6 meters, secchi depth was 0.35-0.4 meters in the center of the pond, and 0.2 meters in the east central portion of the pond. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made, and is presented in Table 5-6.

The edges of the pond are lined to prevent bank erosion and slope steeply to a depth of 1.5-1.6 meters. The liner is free of sediments except for a thin layer of sand near the bottom. Algal mats and bacteria were well developed about 60 ft. off-shore, transition to sludge/sediment began about 40 ft. off-shore. A few chironomid larvae were encountered in the sandy sediments near the edge of the liner, but were not present in sufficient numbers to allow collection. No fish were present in Pond D.

During the sampling trip it was common to see more than 100 ducks feeding in Pond D. Shorebirds (killdeer and sanderlings) were feeding along the shore line, apparently feeding on flies and zooplankton that washed up along the shore. Black-necked stilts were observed picking at the water surface in 2-3 inches of water and along the water's edge. None of the shorebirds were probing the sediments for benthic organisms. The sediments were in deeper water than the birds were utilizing. Bats and barn swallows were observed feeding over the lagoons in early April. Plankton and surface water samples were collected as discussed in Appendix M.

5.7.2 Exposure Assessment

Indicator Species for Pond D are:

- Mallards
- Fish

Figure 5-4 is a conceptual site model of Pond D. Sludge, plankton, and surface water samples were collected at this pond. There were no fish in Pond D, probably because of the lack of suitable cover for the fish. There were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards, which feed on the plankton (in this case, a mixture of algae, plankton and mosquito larvae), and although fish are not present, they were selected as indicator species for the aquatic environment.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond D makes up about 6% of the system; therefore, 6% was used as

Table 5-6

Water Quality Parameters - Pond D

1:30 pm 3/6/93	Near Center			East Central		
Depth (m)	C (µmhos)	Temp (° C)	DO (mg/L)	C (µmhos)	Temp (° C)	DO (mg/L)
Surface	5600	16	>15	6000	15	>15
0.5	NC	NC	NC	6000	14	>15
1.0	NC	NC	NC	6000	13	>15
1.3	NC	NC	NC	6000	12	13.2

NC = Not Collected

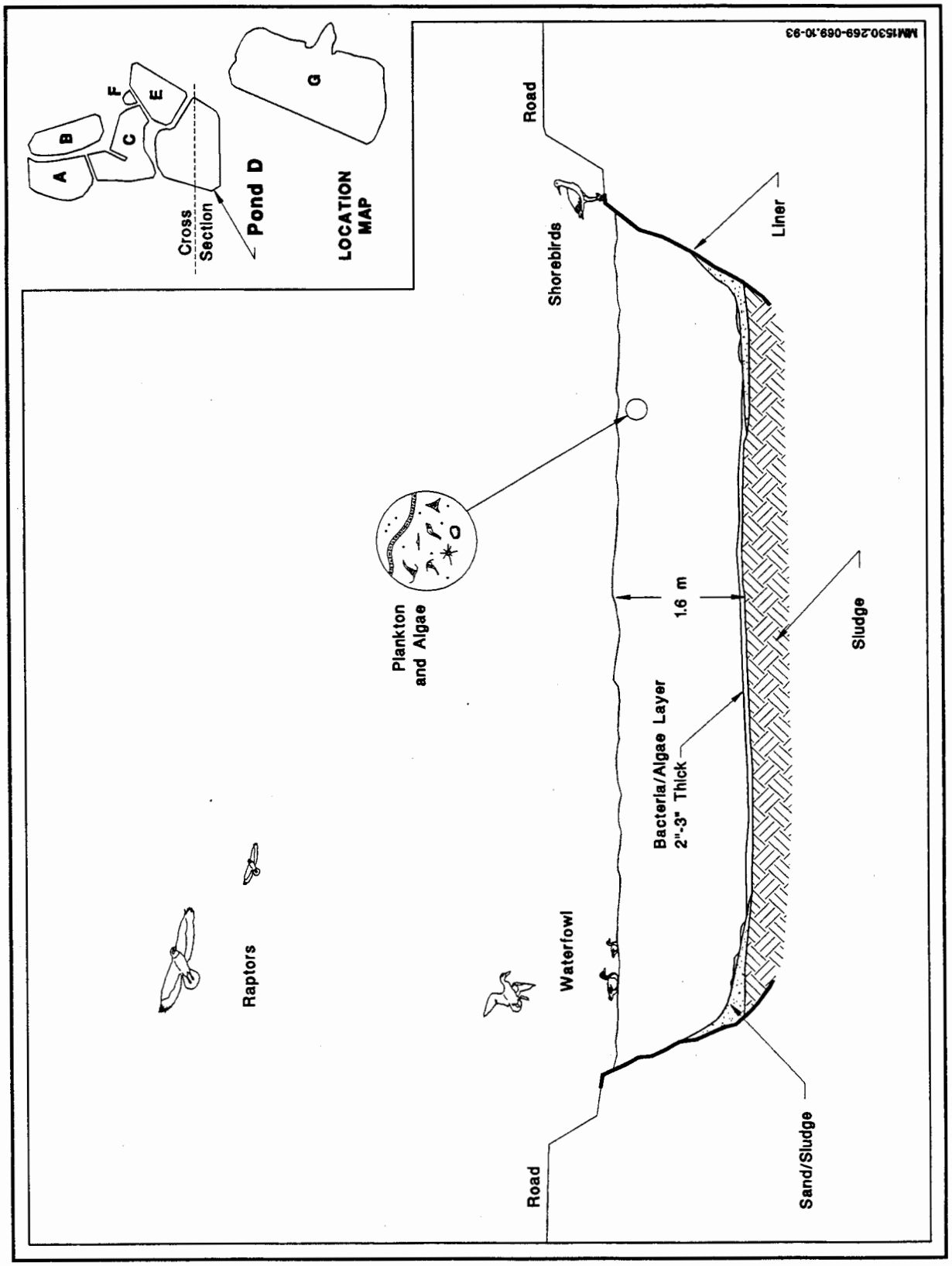


Figure 5-4. Ecological Conceptualization Model for Pond D

the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 3%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

5.7.3 Risk Characterization

Risk Characterization Results

Birds:

- Adverse effects not expected.

Fish:

- Adverse effects possible.

Table 5-7 lists the EQs for the indicator species. The potential risk to mallards was below one and therefore acceptable. The majority of the potential risk in Pond D was a result of metal toxicity. This may not be accurate since metals were not speciated, and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to ducks feeding at Pond D can be quantified based on the fraction ingested from this pond; however, the ducks are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributable to Pond D alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or the ecological HI, for mallards. A discussion of cumulative risks to mallards is included in the conclusions in Section 13.0.

Fish were used as an indicator species for aquatic organisms in genera. Fish were not present in Pond D, as discussed above, and based strictly on the water contaminant concentrations, adverse affects would be possible. The ecological HQs for fish in Pond D would be 3.4 and 4.8 for average and reasonable maximum exposures, respectively. This is above the acceptable limit of one. In addition, the EQs were based strictly on the contaminants detected in the surface water and do not account for contaminant exposure from other sources. Since fish are not present, it is assumed that pond conditions are not adequate for their survival. This may result from lack of cover as opposed to contamination.

Based on the EQ for fish, adverse effects are possible in benthic organisms, although benthic organisms were found in very low levels in this pond. Low numbers of benthic organisms may be an indication that the fish population has been affected by contamination.

5.8 Conclusions for Pond D

Maintenance activities at Pond D include inspecting the lagoon and periodically obtaining water samples. Potential occupational scenarios associated with Pond D include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario which assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond D to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing, and this exposure could occur under future conditions. Ingestion of beef from cattle pastured on this land, and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond D suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The current and future occupational risks/hazards are all below *de minimis* levels as well.

It is unlikely that Pond D will ever be developed as a residential area. However, the

Table 5-7

Ecological Quotients - Pond D

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.07	0.1
Fish	3.4	4.8

baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks (average and reasonable maximum exposure) that exceed *de minimis* levels. All of the noncancer hazards were below *de minimis* levels. Ingestion of groundwater and dermal contact with water while showering contributed most of the risks.

The ecological assessment indicated that birds (mallards) using Pond D are not likely to be at risk. While fish are not found in Pond D, adverse effects are theoretically possible based strictly on water contaminant concentrations. On the basis of insignificant risks to human health and the environment, it appears that Pond D can continue to be used as it is currently.

Section 6
RISK ASSESSMENT FOR POND E

This section presents the unit-specific risk assessment for Pond E. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

6.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond E. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

6.1.1 Site Description

Pond E is the fifth impoundment in the wastewater treatment system and is unaerated and unlined. The edges of the pond are lined to prevent bank erosion and are steeply sloped. The lagoon covers 7.8 acres and has the capacity to hold 12.5 million gallons of water. Pond E is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed within the fence surrounding Ponds A through F.

6.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond E have:

- Dissolved into surface water;
- Infiltrated into underlying soil;
- Leached into groundwater; and
- Accumulated in biota.

Figure 6-1 outlines the fate and transport of contaminant releases from Pond E, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soils; 3) leaching into groundwater; and 4) uptake by biota.

6.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/sediment/sludge/soil;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge, sediments, and/or soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond E at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 6-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge/sediment; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge, sediments, and/or soil.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, sediment, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. While groundwater in the vicinity of the Base is not

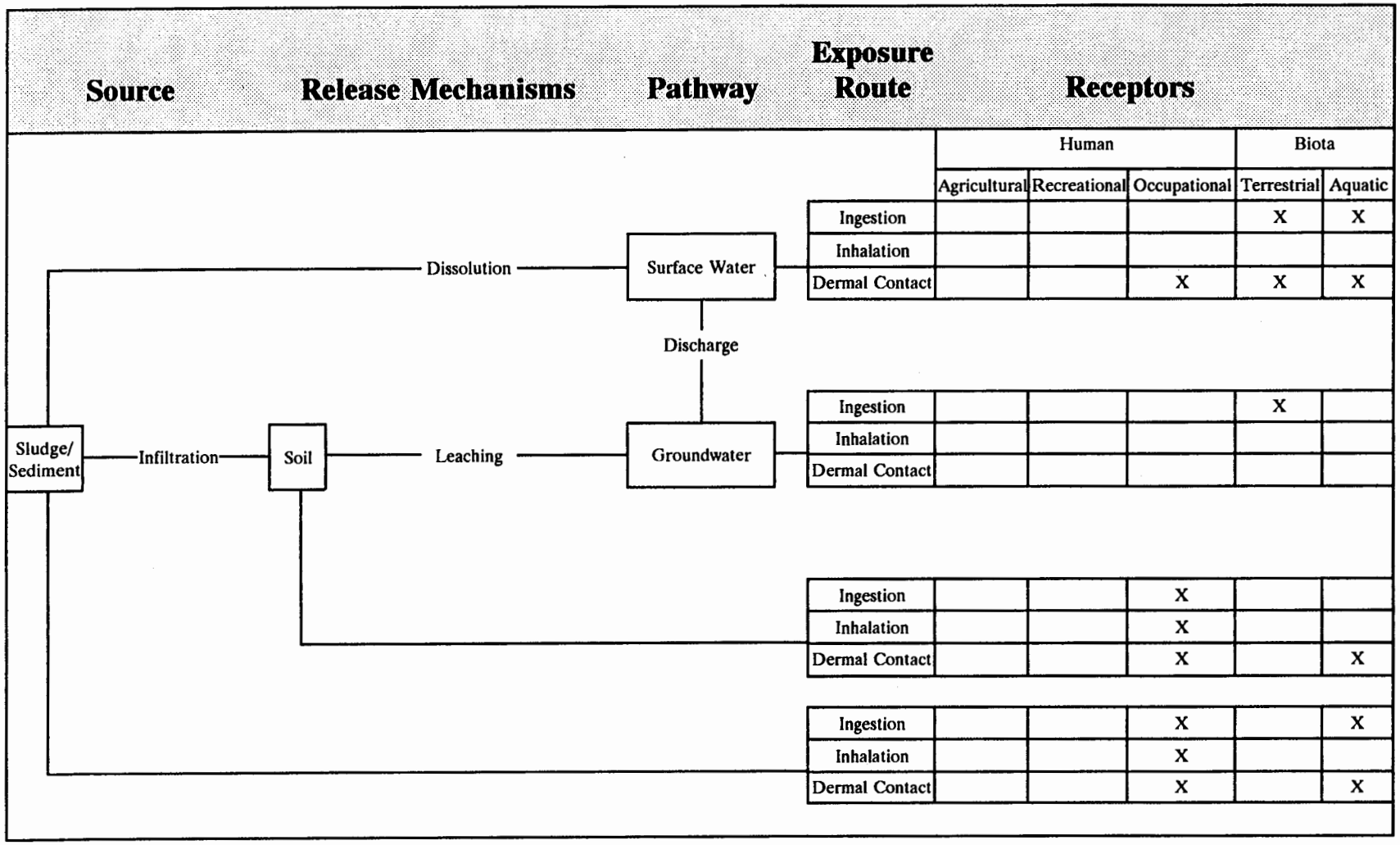


Figure 6-1. Fate and Transport Schematic for Pond E

potable, because of high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 6.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

6.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 6-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, sediment, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock raising. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

6.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, which are located downgradient, is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond E are presented in Table 6-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are

Table 6-1

Chemicals of Concern for Pond E

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓		✓	
Bis(2-ethylhexyl)phthalate		✓		
α-BHC	✓		✓	
β-BHC	✓		✓	
δ-BHC	✓		✓	
γ-BHC	✓	✓		
α-Chlordane	✓		✓	
γ-Chlordane	✓	✓	✓	✓
4,4'-DDD		✓	✓	✓
4,4'-DDE		✓	✓	✓
4,4'-DDT	✓		✓	✓
Dieldrin	✓	✓		
Endosulfan II	✓		✓	
Endosulfan sulfate	✓		✓	
Endrin	✓			
Endrin aldehyde	✓			
Heptachlor	✓		✓	✓
Heptachlor epoxide	✓	✓		✓
Isodrin	✓			
Lead (organic)		✓		
Methoxychlor	✓			
Phenanthrene				✓
Inorganics				
Antimony				✓
Arsenic			✓	✓
Boron		✓		
Cadmium	✓			✓
Cobalt			✓	
Lead		✓	✓	✓
Manganese		✓		
Mercury		✓		
Silicon		✓		
Sulfide	✓		✓	✓

less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

6.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond E Contaminants:

- Originate in lagoon sludge/sediment;
- Migrate into surface water;
- Infiltrate into soil;
- Leach into groundwater; and
- May be entrained in air.

Critical Assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport Models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond E. These include: 1) migration (dissolution and suspension) from sludge/sediments into surface water; 2) infiltration from sludge/sediments into underlying soil; 3) leaching from sludge/sediment and/or soil into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge/sediment, soil and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contamination loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond E, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

6.3.1 Release from Sludge/Sediments and Soil to Surface Water

Dissolution and suspension of contaminants from sludge/sediments and soil into surface water is one of the primary contaminant transport mechanisms at Pond E. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge/sediments and soil.

6.3.2 Release from Sludge/Sediments and Soil to Groundwater

A second significant transport mechanism from the sludge/sediment and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 6.3.3 below).

6.3.3 Groundwater Migration

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of

Fate and Transport - Groundwater

Groundwater beneath Pond E:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond E; and
- Periodically discharges to lakes.

Monitor wells associated with Pond E:

- MWs 3, 14, 15, MWD-04, MWS-04, and MWS-05.

0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond E based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond E, monitor wells MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05 were assigned since these wells are upgradient from Pond G and are out of the flow path of groundwater migrating beneath Ponds A, B, and C. (Data from these wells also were associated with Pond D and F.)

6.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

6.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond E contaminants:

- Waterfowl;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these eco-receptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond E. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond E and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. No fish are present in Pond E. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and

may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

6.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soil can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical dewatering and backfilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

6.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 6.1 provides a brief description of the exposure setting for Pond E.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 6-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

6.4.1 Identification of Contaminant Releases

Sampling conducted at Pond E has identified releases of contaminants from sludge/sediment to underlying soil, groundwater, surface water, and biota. Sections 6.1.2 and 6.3

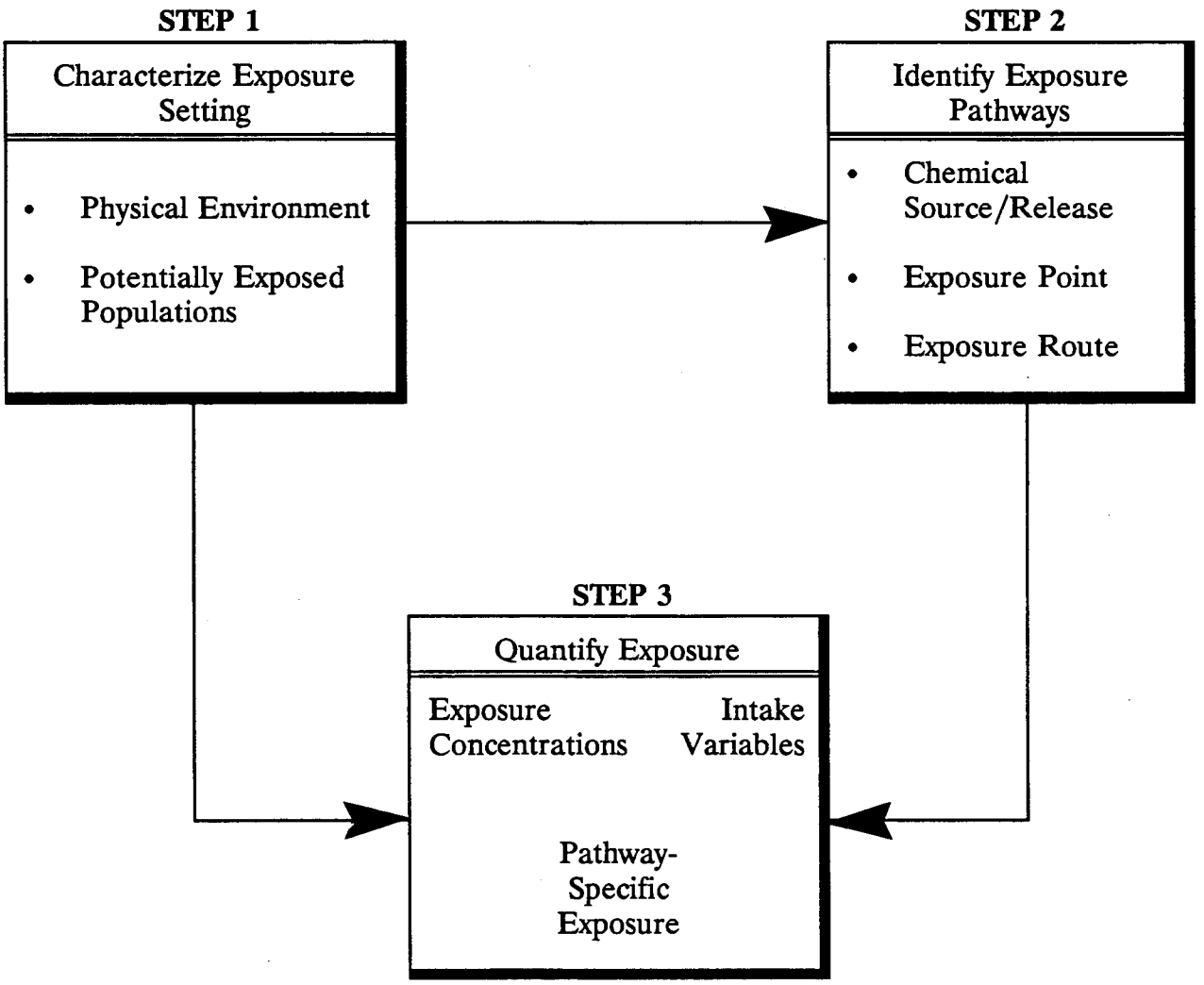


Figure 6-2. Flowchart of the Exposure Assessment Process

provide a more complete discussion of contaminant releases from Pond E.

6.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 6-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 6.1.3 and 6.1.4 also discuss these potentially exposed subgroups. Section 6.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

6.4.3 Identification of Potential Exposure Pathways

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

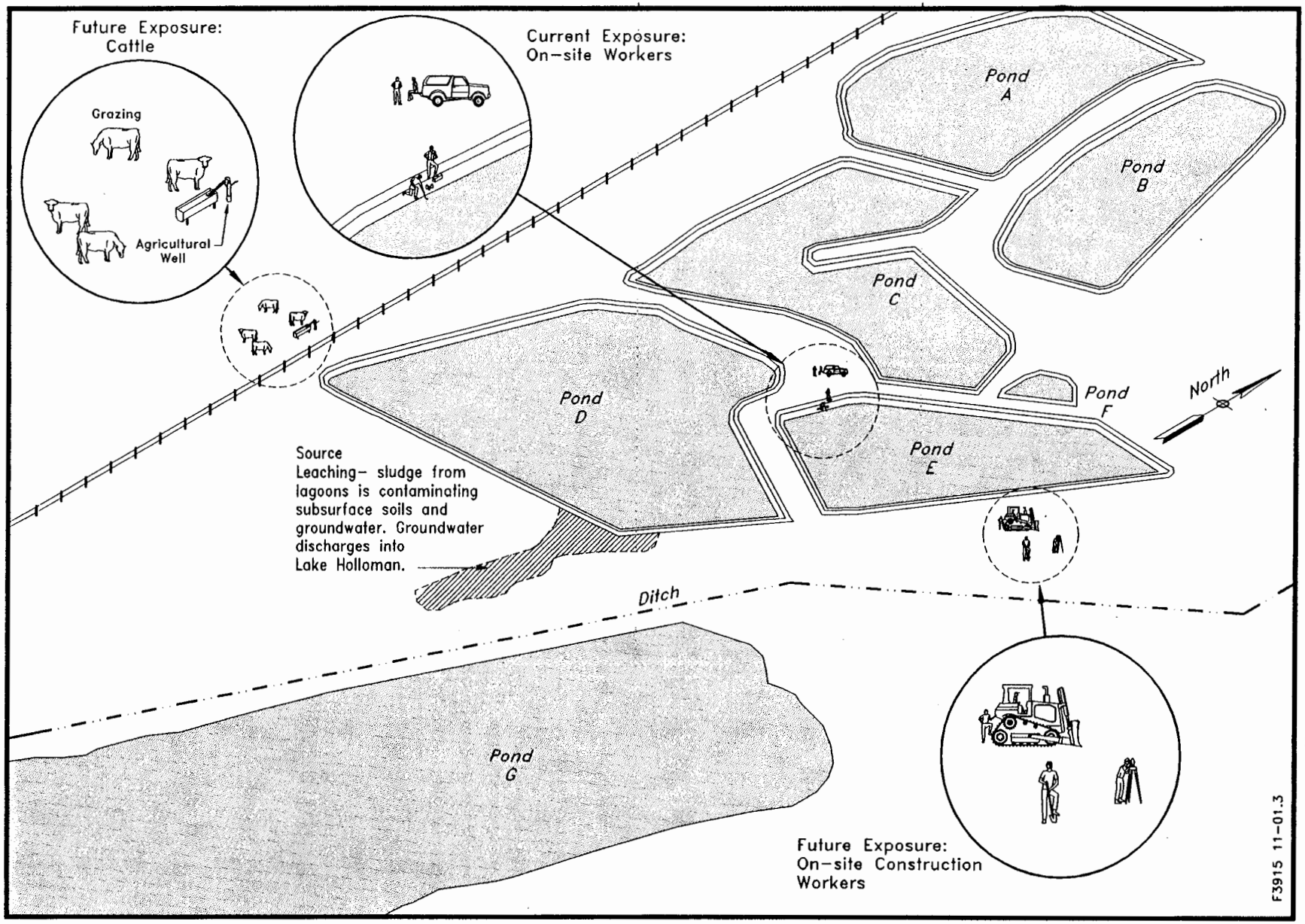


Figure 6-3. Exposure Scenario Diagram for Pond E

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge/ sediments;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sludge/sediment or soil (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge/sediments;
- Ingestion of soil; and
- Ingestion of groundwater.

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 6-2 and 6-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge/sediments by site workers during lagoon maintenance activities; and 3) dermal contact with soil by site workers during lagoon maintenance activities. These pathways are considered to be complete because of the routine maintenance activities, such as inspection and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F. The level of dermal contact at Pond E is expected to be less than at Ponds A, B, or C because the lagoon is not aerated, negating the need for aerator repair.

Exposure pathways that may be complete in the future and have been included in the risk assessment include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge/sediment and soil by construction workers during future lagoon closure; 4) dermal contact with sludge/sediment by construction workers during future lagoon closure; and 5) dermal contact with soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dust inhalation, dermal contact, and incidental ingestion of sludge/sediments or soil with contaminants. Inhalation and incidental ingestion also are likely, as such activities require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or sediment; and 3) current ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

Table 6-2

Potentially Complete Current Exposure Pathways: Pond E, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Dermal contact with chemicals in sludge/sediment	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge/sediment	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 6-3

Potentially Complete Future Exposure Pathways: Pond E Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge/sediment and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in sludge/sediment	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requiring close, physical proximity to contaminants.

6.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/sediment/sludge/soil.
- Future consumers:
  - -- Ingestion of contaminated beef.
- Future construction workers:
  - -- Dermal contact with surface water/sediment/sludge/soil;
  - -- Inhalation of volatiles/dust; and
  - -- Incidental ingestion of sludge/sediment/soil.

Analysis of Base activities in proximity to Pond E suggests that three human subpopulations may potentially be exposed to contaminants: current site workers, future consumers of local agricultural products, and future construction workers.

6.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge/sediment, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 6.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond E are provided in Table 6-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge/sediment, and soil samples taken during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 6.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitoring wells adjacent to the site and downgradient from Pond E (MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05) provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. Significant accumulation in beef is not expected because of the relatively low groundwater

Table 6-4

Exposure Point Concentrations for Pond E

Chemical	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenrios						
4,4'-DDD	1.28E-02	2.93E-02	1.00E+00	2.65E+00	2.60E-05	2.60E-05
4,4'-DDE	2.44E-03	3.78E-03	3.67E-01	8.19E-01	2.51E-04	4.52E-04
4,4'-DDT	2.91E-03	3.19E-03	1.01E-01	1.26E-01	0.00E+00	0.00E+00
Aldrin	1.47E-03	1.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
alpha-BHC	1.47E-03	1.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
alpha-Chlordane	1.26E-03	1.44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	6.60E+00	6.60E+00	0.00E+00	0.00E+00
Arsenic	1.64E+00	2.12E+00	2.70E+00	2.70E+00	0.00E+00	0.00E+00
beta-BHC	5.06E-03	8.78E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.67E-03	1.14E-02
Boron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-01	3.20E-01
Cobalt	3.62E+00	4.42E+00	4.49E+00	5.00E+00	0.00E+00	0.00E+00
delta-BHC	2.87E-03	4.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dieldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-05	1.45E-05
Endosulfan II	3.40E-03	4.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan sulfate	3.42E-03	5.15E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
gamma-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-05	1.45E-05
gamma-Chlordane	1.85E-03	2.73E-03	5.40E-01	5.40E-01	5.20E-06	5.20E-06
Heptachlor	1.40E-03	1.60E-03	5.90E-01	5.90E-01	0.00E+00	0.00E+00
Heptachlor epoxide	0.00E+00	0.00E+00	7.80E+01	7.80E+01	1.00E-05	1.00E-05
Lead	1.74E+00	2.48E+00	2.10E+01	2.10E+01	2.25E-03	3.52E-03
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.83E-02	7.51E-02
Manganese (water)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.37E-02	3.91E-02
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-04	5.60E-04
Phenanthrene	0.00E+00	0.00E+00	1.25E+00	2.26E+00	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E+01	1.52E+01
Sulfide	5.03E+01	6.45E+01	4.90E+02	8.03E+02	0.00E+00	0.00E+00

Table 6-4

(Continued)

Chemical	Groundwater (mg/L)		Air ($\mu g/m^3$)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
4,4'-DDD	0.00E+00	0.00E+00	1.72E-02	4.56E-02	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	6.36E-03	1.41E-02	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	1.74E-03	2.17E-03	1.51E-04	2.88E-04
Aldrin	1.38E-05	2.66E-05	2.58E-05	2.93E-05	6.92E-06	1.33E-05
alpha-BHC	1.50E-05	2.47E-05	2.58E-05	2.76E-05	3.00E-07	4.95E-07
alpha-Chlordane	5.40E-06	7.50E-06	2.24E-05	2.41E-05	2.86E-08	3.97E-08
Arsenic	0.00E+00	0.00E+00	2.83E-02	3.65E-02	0.00E+00	0.00E+00
beta-BHC	6.70E-06	9.00E-06	8.81E-05	1.51E-04	2.12E-07	2.85E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.94E-04	7.77E-04
Cadmium (water)	1.25E-02	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	7.75E-02	8.63E-02	0.00E+00	0.00E+00
delta-BHC	9.20E-06	1.45E-05	5.01E-05	8.46E-05	2.92E-07	4.60E-07
Dieldrin	2.54E-05	5.88E-05	0.00E+00	0.00E+00	2.03E-07	4.70E-07
Endosulfan II	1.92E-05	2.63E-05	5.87E-05	7.25E-05	3.27E-07	4.48E-07
Endosulfan sulfate	2.27E-05	2.61E-05	5.87E-05	8.81E-05	3.87E-07	4.45E-07
Endrin	5.32E-05	1.14E-04	0.00E+00	0.00E+00	2.93E-05	6.25E-05
Endrin aldehyde	1.41E-05	2.35E-05	0.00E+00	0.00E+00	7.75E-06	1.29E-05
gamma-BHC	2.52E-05	4.68E-05	1.16E-03	1.64E-03	5.05E-07	9.37E-07
gamma-Chlordane	2.04E-05	4.60E-05	1.34E-03	2.10E-03	1.08E-07	2.43E-07
Heptachlor	1.81E-05	2.96E-05	2.41E-05	2.76E-05	1.14E-06	1.87E-06
Heptachlor epoxide	5.50E-06	6.80E-06	0.00E+00	0.00E+00	7.05E-09	8.72E-09
Isodrin	1.06E-05	1.89E-05	0.00E+00	0.00E+00	5.83E-06	1.04E-05
Lead	0.00E+00	0.00E+00	1.80E-01	2.09E-01	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	0.00E+00	0.00E+00	1.50E-04	2.49E-04
Sulfide	0.00E+00	0.00E+00	8.46E+00	1.38E+01	0.00E+00	0.00E+00

concentrations at the future point of withdrawal. Table 6-4 presents the estimated average and reasonable maximum concentrations in beef.

6.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 6-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100 percent bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

6.4.7 Uncertainties

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

6.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation;
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

6.5.1 Toxicity Values Used in the Risk Assessment

Table 6-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit

Table 6-5

Toxicity Values for Pond E

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Sub-Chronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Sub-Chronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Antimony	--	4.00E-04 [I]	4.00E-04 [H]	4.00E-04	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis(2-ethylhexyl)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	1.40E-02 [I]	--
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
Cadmium (water)	B1	5.00E-04 [I]	--	5.00E-04	--	--	--	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Cobalt	--	--	--	--	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--

Table 6-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Sub-Chronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Sub-Chronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-01 [I]	1.00E-07 [H]	1.00E-07	1.50+00 [N]	--	--	--
Manganese (water)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Methoxychlor	D	5.00E-03 [I]	5.00E-03 [H]	7.60E-02 [S]	--	--	--	--
Phenanthrene	D	--	--	--	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--

[C] Calculated based on the comparative potency factors for individual PAHs or dioxins.

[E] Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.

[H] Health Effects Assessment Summary Tables (HEAST).

[I] Integrated Risk Information System (IRIS).

[S] Surrogate value. Refer to Appendix G for rationale.

[N] National Ambient Air Quality Standard.

risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

6.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

6.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

6.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 31 Chemicals of potential concern;
- 27 oral RfDs available:
  - -- 10 surrogate values derived;
  - -- 1 value from HEAST; and
  - -- 16 USEPA-verified RfDs:
    2 - high confidence;
    10 - medium confidence; and
    4 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Ten of the 31 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values cannot be assigned. Sixteen values were obtained from IRIS and have levels of confidence that range from high (two chemicals) to low (four chemicals). Oral RfDs were

not available for six of the chemicals of potential concern. A qualitative assessment was conducted for these seven chemicals (see Appendix G).

Carcinogen Toxicity Information

- 13 oral slope factors available:
  - -- 10 USEPA-verified slope factors: Group B2 - 9 chemicals; and Group C - 1 chemical;
  - -- 10 surrogate values; and
  - -- 1 value from HEAST.
- 10 inhalation unit risks available:
  - -- 8 USEPA-verified unit risks; and
  - -- 2 surrogate values.

Twenty of the 31 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Six chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Ten chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and one chemical was classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for ten of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane and one value was obtained from HEAST. Inhalation unit risk factors were available for 10 chemicals. Nine values were USEPA-verified and two were surrogate values.

6.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond E, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intakes and were compared to chemical-specific toxicity information.

6.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^6 (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond E, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure (*de minimis*) for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

6.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

6.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond E presently or in the future, two chronic and one subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The *subchronic* scenario was future on-site occupational exposure.

6.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

Carcinogenic risk:

- Dermal contact with heptachlor epoxide in sludge/sediment by on-site workers.

Noncarcinogenic hazard:

- Hazards do not exceed *de minimis* levels.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond E.

Current on-site workers were assumed to be exposed to contaminants in Pond E via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge/sediment; and 3) dermal contact with soils underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Carcinogenic Risk--The calculated cancer risks, broken down by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 4E-7 and 1E-6, respectively. The reasonable maximum risk value exceeds the lower-bound risk range goal defined by Subpart S and may indicate cause for concern. As shown in Figure 6-4, heptachlor epoxide contributed the majority of the risk for the reasonable maximum exposure. Heptachlor epoxide was also the major risk contributor (99.8%) for the

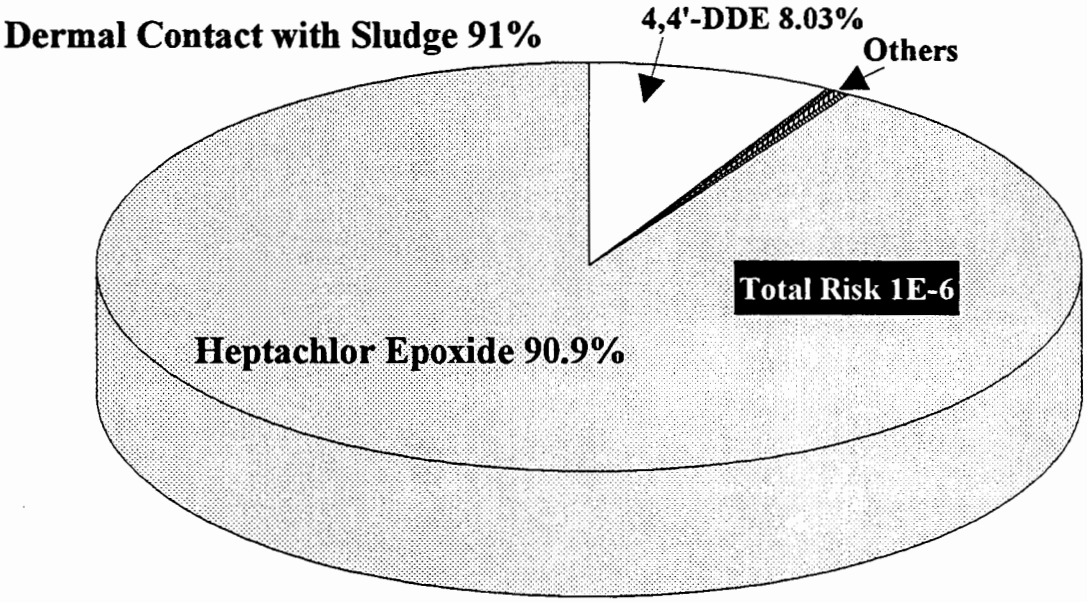


Figure 6-4. Reasonable Maximum Carcinogenic Risk--Current Occupational Scenario

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 4.2E-7
- Total Reasonable maximum = 1E-6

Noncarcinogenic hazard

- Total average HI = 0.04
- Reasonable maximum total HI = 0.61

average exposure (refer to Appendix I). Dermal contact with sludge contributed most of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.04 and 0.61, respectively. Neither value exceeds unity. Organic lead was the major contributor to total risk for the reasonable maximum exposure, while heptachlor epoxide was responsible for most of the hazard associated with average exposure. Dermal contact with sludge and surface water was responsible for most of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

A subchronic scenario was not assessed for current on-site workers since the chronic hazards were below the *de minimis* values set forth by Subpart S.

6.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

Carcinogenic risk:

- No risks exceed *de minimis* levels.

Noncarcinogenic hazard:

- Dermal contact with heptachlor epoxide in sludge/sediment by on-site workers; and
- Incidental ingestion of heptachlor epoxide in sludge/sediment by on-site workers.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base is developed for residential and/or agricultural purposes at some time in the future. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, also was considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-8 and 4E-7, respectively. Both risk values are below the Subpart S goals and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Future Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 2E-8
- Total reasonable maximum = 4E-7

Noncarcinogenic hazard

- Total average HI = 9.4E-4
- Total reasonable maximum HI = 6.1E-3

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 9.4E-4 and 6.1E-3, respectively. Both HIs are less than unity and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 2.2E-3
- Total reasonable maximum HI = 0.01

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.2E-3 and 0.01, respectively. Both HIs are less than one and suggest that contaminants migrating off site via groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Noncarcinogenic hazard

- Total average HI = 17
- Total reasonable maximum HI = 63

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated sediments and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated sediment/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HIs for average and reasonable maximum exposure is 17 and 63,

respectively. Both the average and reasonable maximum hazard exceed unity and may indicate cause for concern regarding noncancer health effects for future on-site workers. As shown in Figures 6-5 and 6-6, heptachlor epoxide was the major contributor to total risk for both average and reasonable maximum exposure. Dermal contact with sludge/sediment contributed the majority (83% average; 55% reasonable maximum) of the pathway-specific risk in both cases, with incidental ingestion of sludge/sediment causing most of the remaining hazard.

6.6.6 Uncertainties Associated with Risk Characterization

The current and future occupational risks/hazards at Pond E were based primarily on a single sediment sample in which heptachlor epoxide was detected. In addition, the result was flagged with an X, indicating that it was not a confirmed hit. Therefore, the presence of this analyte is questionable, as are the associated risks/hazards.

6.6.7 Summary

Risk Characterization Results

Risks/hazards above *de minimis* levels include:

- Reasonable maximum carcinogenic risk to current on-site workers; and
- Noncancer hazard to future on-site workers.

The results of this risk assessment indicate that carcinogenic risks exceeding *de minimis* levels are associated with reasonable maximum exposure to current on-site workers at Pond E. Both the average and reasonable maximum noncancer HIs for the future occupational scenario are unacceptable. All risks/hazards associated with the future agricultural scenario were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Pond E. Conservative assumptions that may impact the risk characterization include: 1) use of the oral RfD/slope factor to assess risk/hazard associated with dermal exposure to heptachlor epoxide; 2) exposure frequency; 3) exposure duration; and 4) surface area available for dermal contact.

6.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..." can provide some qualitative information on the likelihood and severity of impacts" resulting from chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond E and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K. A discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

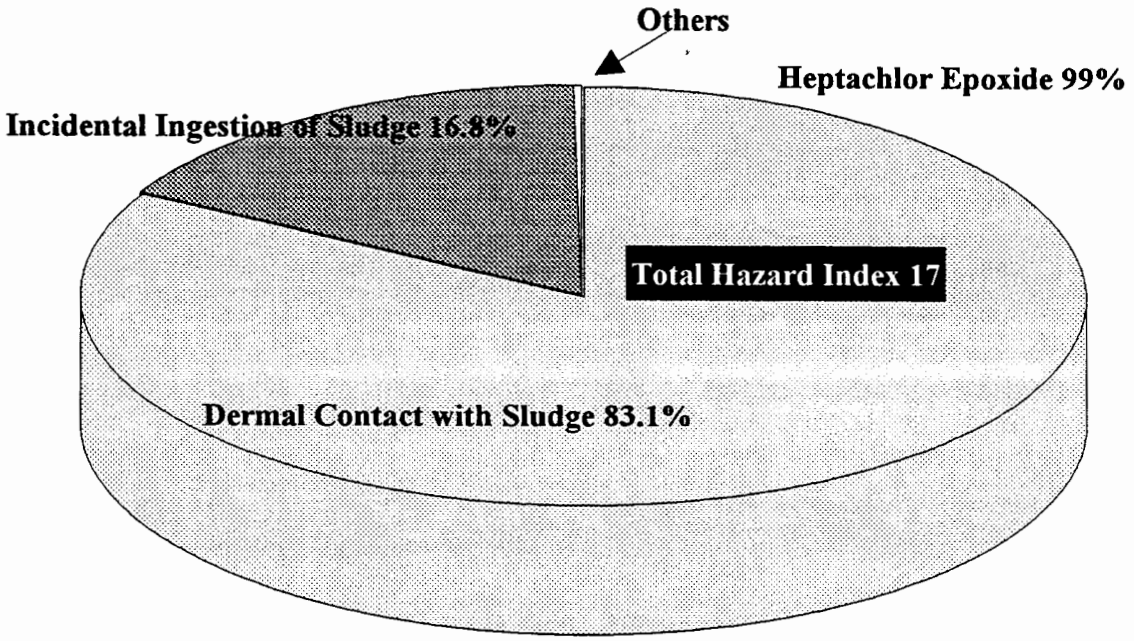


Figure 6-5. Average Noncancer Hazard Index--Future Occupational Scenario

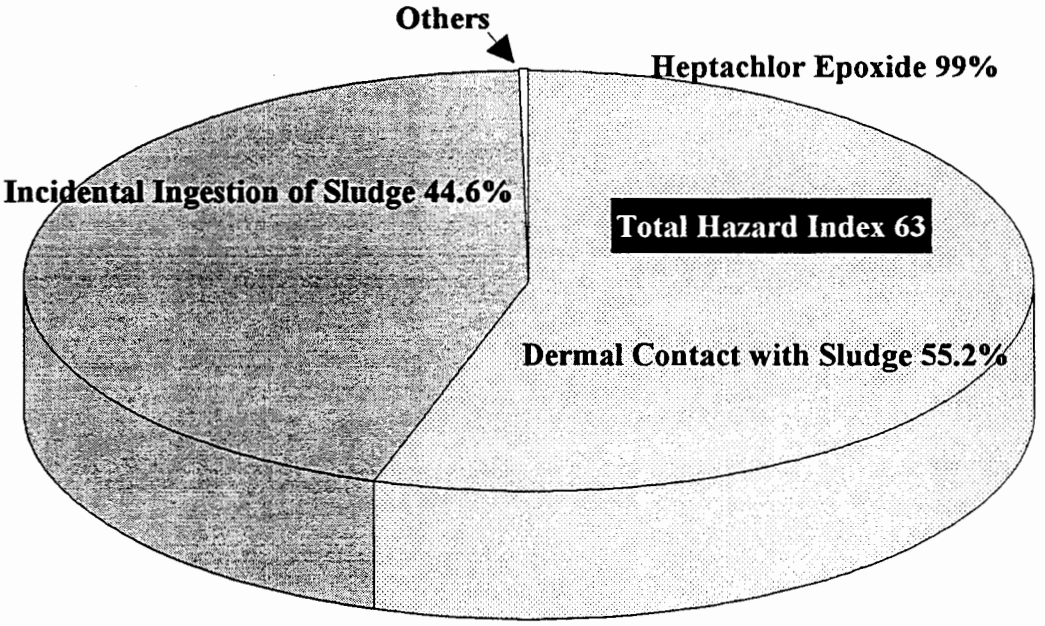


Figure 6-6. Reasonable Maximum Noncancer Hazard Index--Future Occupational Scenario

6.7.1 Background

Pond E is 7.8 acres and has the capacity to hold 12.5 million gallons of water. It is not aerated. Plankton, sludge, surface water, near-surface sediment and benthic samples were collected in Pond E. Plankton and surface water duplicate samples and MS/MSD samples were collected from Pond E (discussed in Appendix M). The pH was approximately 9.11, and the alkalinity was measured at 197 and 201 mg/L in duplicate samples. Water depth was 1.2 m, secchi depth was 0.25 m. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made and is presented in Table 6-6.

The edges of the pond are lined to prevent bank erosion and slope steeply. A sandy ledge about 30-40 feet wide (apparently erosion deposits from the road/dike around the pond) ringed the pond. On March 21, 1993, chironomid larvae were relatively abundant in this sandy ledge; ten to 11 per 6 inches x 6 inches x 6 inches hand dredge sample in 18 to 24 inches of water. Larvae were much less abundant in 6 inches of water (about 3 per hand dredge sample) and in deeper water (0 to 3 per hand dredge sample). Adult diving bugs (Corixidae) were abundant at this time (3/21/93). A skid dredge tow caught a limited number of beetles and bugs, a large quantity of egg masses, and a good number of chironomid larvae mixed with a residue of bacteria and algae.

On April 2, 1993, a chironomid larvae sample was collected from Pond E using the skid dredge in 18 to 24 inches of water where the population density was greatest. The large adult corixid population observed on March 21 was gone, replaced by a large population of very young instars, all about the same age. Zooplankton populations were greatly reduced at this time.

During the sampling trip it was common to see more than 100 ducks feeding in Pond E. Shorebirds (killdeer and sanderlings) were feeding along the shore line, apparently feeding on flies and zooplankton that washed up along the shore. Black-necked stilts were observed picking at the water surface in 2 to 3 inches of water and along the water's edge. Bats and barn swallows were observed feeding over the lagoons in early April. There were no fish in Pond E.

6.7.2 Exposure Assessment

Indicator Species Selected for Pond E:

- Mallards
- Killdeer
- Fish

Figure 6-7 is a conceptual site model of Pond E. Samples of plankton, benthic invertebrates, sediments, sludge, and surface water were collected at this pond. Fish were not present in Pond E, perhaps because of the lack of suitable cover for the fish. There were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards and killdeer which feed on the plankton and invertebrates, respectively. Although fish are not present, they were selected as indicator species for the aquatic environment.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond E makes up about 2% of the system; therefore, 2% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 1%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

For killdeer, the average ingestion fraction was assumed to be 33%, since benthic organisms were collectable only in Pond A, Pond E, and the ditch and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. It is probable that the other ponds and the lakes support populations of benthic organisms which were not collected because of substrate interference. Ponds A and E and the Ditch were assumed to be representative of the other ponds and lakes, and the shorebirds are assumed to spend the entire year in the area.

Table 6-6

Water Quality Parameters - Pond E

11:50 3/7/93	Near Center		
Depth (m)	C (µmhos)	Temp (°C)	DO (mg/L)
Surface	5800	13.5	>15
1.0	5800	11.5	10.4

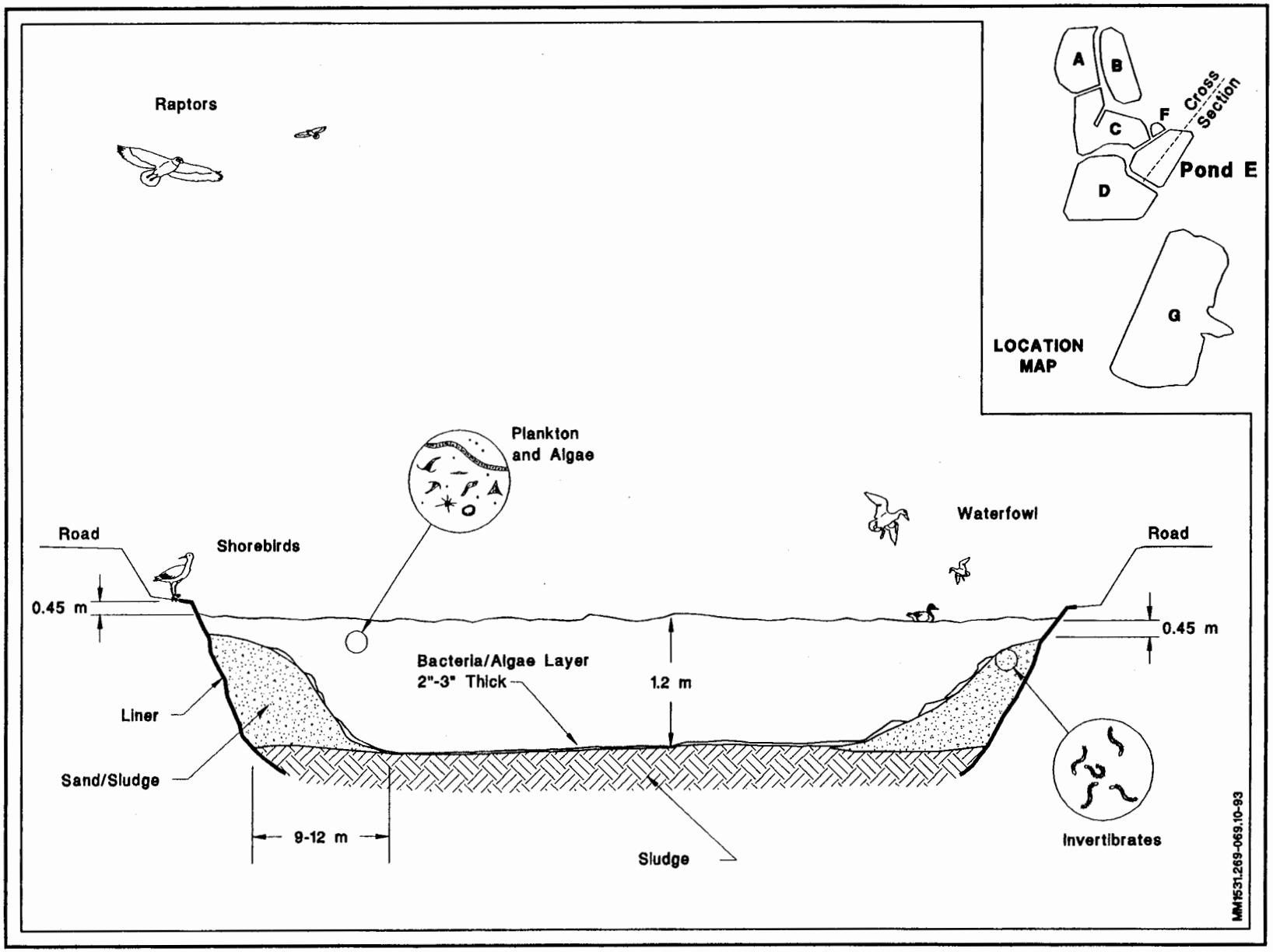


Figure 6-7. Ecological Conceptualization Model for Pond E

6.7.3 Risk Characterization

Risk Characterization Results

Mallards:

- Adverse effects are not expected; and

Fish and Killdeer:

- Adverse effects are possible.

Table 6-7 lists the EQs for the indicator species. The potential risk to mallards was below one and therefore acceptable. The potential risk to killdeer, however, was above the acceptable value of one. The majority of the potential risk in Pond E was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to birds feeding at Pond E can be quantified based on the fraction ingested from this pond; however, the birds are expected to feed, to some extent, in all of the ponds and lakes and in the ditch.

The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributed to Pond E alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or ecological hazard index, for mallards and killdeer. A discussion of cumulative risks to birds is included in the conclusions in Section 13.0.

Fish were not present in Pond E, as discussed above; however, based strictly on the water contaminant concentrations, adverse effects would be possible. Fish were, therefore, used as an indicator species for aquatic organisms in general. The ecological hazard quotients for fish in Pond E are 3.7 and 4.7 for average to reasonable maximum, respectively. This hazard quotient was based strictly on the contaminants detected in the surface water and does not account for contaminant exposure from other sources. Since fish are not present, it is assumed that pond conditions are not adequate for their survival. It is unknown whether this is because of lack of cover or contamination. The presence of invertebrates in the pond indicates that conditions are not lethal, although they may be stressed because of contamination in sediments.

6.8 Conclusions for Pond E

Maintenance activities at Pond E include inspecting the lagoon and periodically obtaining water samples. Potential occupational scenarios associated with Pond E include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario which assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond E to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing, and this exposure could occur under future conditions. Ingestion of beef from cattle pastured on this land, and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond E suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The reasonable maximum carcinogenic risk for current occupational exposure was slightly above *de minimis* levels. Both average and reasonable maximum noncancer hazards associated with the future occupational scenario are above *de minimis* levels. Therefore, dewatering and backfilling would have to be conducted as a hazardous waste remediation with the attendant expense. Significant uncertainty is associated with these results because risks result primarily from heptachlor epoxide, which was only found in a single composite sediment sample. In addition, this result was flagged with an X, indicating that it was not a confirmed hit. Resampling Pond E for heptachlor

Table 6-7

Ecological Quotients - Pond E

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.03	0.04
Killdeer	1.3	3.9
Fish	3.7	4.7

epoxide would aid in interpreting the significance of these results.

Regulatory agencies have traditionally considered cancer risks in the range of 10^{-6} to 10^{-4} to be *de minimis*. However, risks far in excess of 10^{-6} (one in 1,000,000) have been ruled acceptable depending on circumstances and the size of exposed population. For small populations, regulatory action typically is not taken for risks less than 10^{-4}. Since the current average occupational risk is below *de minimis* levels, the reasonable maximum risk is only slightly above *de minimis* levels, the potentially exposed population is small, and site remediation would be expensive and expose the remedial team to health hazards, the most prudent option may be to continue operation of Pond E. Allowing water to stand in the pond would minimize human exposure to contaminants in the sludge, sediments, and soils.

It is unlikely that Pond E will ever be developed as a residential area. However, the baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks and noncancer hazards (average and reasonable maximum exposure) that exceed *de minimis* levels. Dermal contact with sludge and ingestion of sludge are responsible for the majority of the risks/hazards.

The ecological assessment indicated that mallards using Pond E are not likely to be at risk. However, for killdeer using the Pond, adverse effects are possible. While fish are not found in Pond E, adverse effects are theoretically possible based strictly on water contaminant concentrations. Based on insignificant risks to current on site workers for average exposure, reasonable maximum risks that are only slightly above *de minimis* levels, and limited risk to the environment, continued use of Pond E may be possible.

Section 7
RISK ASSESSMENT FOR POND F

This section presents the unit-specific risk assessment for Pond F. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

7.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond F. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

7.1.1 Site Description

Pond F is used to recirculate water from Pond E to the headworks. The lagoon covers 0.5 acres and has the capacity to hold 1.6 million gallons of water. The edges of the pond are lined to prevent bank erosion and are steeply sloped. Pond F is diked to preclude the recurrence of overflows which occurred in the past during high water events. During the most recent sampling of site media, Base personnel were pumping silty water into the pond from an excavation of a leaky pipe. The lagoon is enclosed within the fence surrounding Ponds A through F.

7.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond F have:

- Dissolved into surface water;
- Infiltrated into underlying soil;
- Leached into groundwater; and
- Accumulated in biota.

Figure 7-1 outlines the fate and transport of contaminant releases from Pond F, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into underlying soil; 3) leaching into groundwater; and 4) uptake by biota.

7.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/soil/sludge;
- Ingestion of contaminated beef;
- Inhalation of volatiles and dust; and
- Incidental ingestion of sludge and/or soil.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond F at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 7-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge; 2) ingestion of beef from cattle exposed to contaminated groundwater; 3) inhalation of volatiles and fugitive dust; and 4) incidental ingestion of sludge and/or soil.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of contaminated surface water, sludge, and/or soil was not considered as the lagoon is securely fenced and only accessible to site workers. While groundwater in the vicinity of the Base is not potable, because of

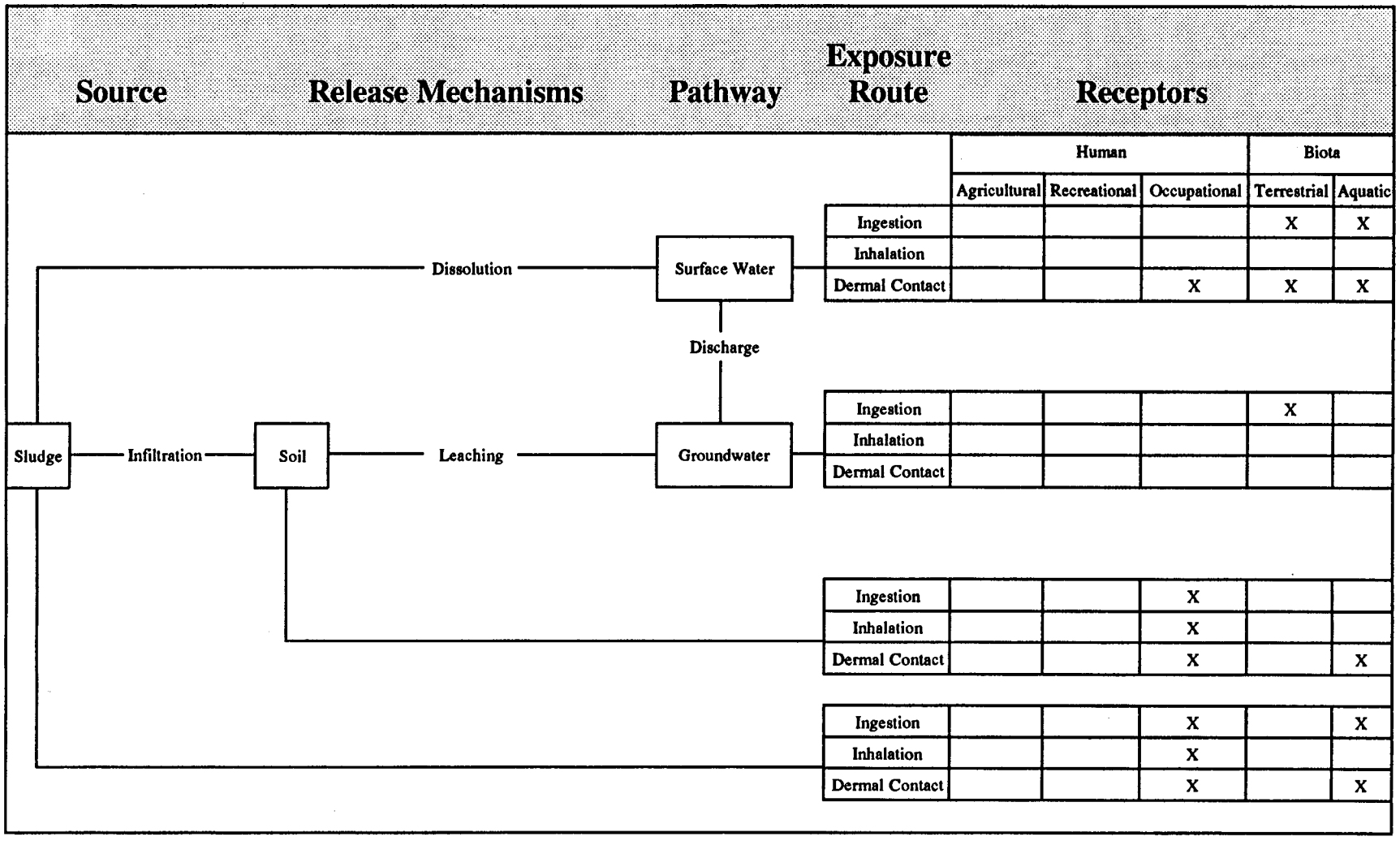


Figure 7-1. Fate and Transport Schematic for Pond F

high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to assess a worst-case scenario. Future dermal contact, inhalation, and incidental ingestion exposures also are assumed to occur during removal of the lagoons from service by construction workers. A discussion of ecological exposure is provided in Section 7.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

7.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Future consumers; and
- Future construction workers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 7-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, and/or soil during lagoon maintenance activities; 2) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage; and 3) future construction workers involved in removing the lagoons from service. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock raising. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

7.2 Identification of Chemicals of Potential Concern

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals;
- Establish a data set for risk assessment.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, which are located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond F are presented in Table 7-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

Table 7-1

Chemicals of Concern for Pond F

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓			
α-BHC	✓			
β-BHC	✓			
δ-BHC	✓		✓	✓
γ-BHC	✓	✓		✓
α-Chlordane	✓	✓		✓
γ-Chlordane	✓	✓	✓	✓
4,4'-DDD		✓	✓	✓
4,4'-DDE		✓	✓	✓
4,4'-DDT	✓		✓	✓
Dibenzofuran				✓
Dieldrin	✓			
Endosulfan II	✓			
Endosulfan sulfate	✓			
Endrin	✓			
Endrin aldehyde	✓			
Heptachlor	✓			✓
Heptachlor epoxide	✓			
Isodrin	✓			
Methoxychlor	✓			
Phenanthrene				✓
Inorganics				
Arsenic				✓
Cadmium	✓			
Lead			✓	✓
Silver				✓
Sulfide	✓		✓	✓

7.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond F Contaminants:

- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soil;
- Leach into groundwater; and
- May be entrained in air.

Critical Assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport Models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Pond F. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soil; 3) leaching from sludge and/or soil into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the surface water, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operating was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond F, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

7.3.1 Release from Sludge and Soil to Surface Water

Dissolution and suspension of contaminants from sludge and soil into surface water is one of the primary contaminant transport mechanisms at Pond F. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge and soil.

7.3.2 Release from Sludge and Soil to Groundwater

A second significant transport mechanism from the sludge and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 7.3.3 below).

7.3.3 Groundwater Migration

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction.

Fate and Transport - Groundwater

Groundwater beneath Pond F:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond F; and
- Periodically discharges to lakes.

Monitor wells associated with Pond F:

- MWs 3, 14, 15, MWD-04, MWS-04, and MWS-05.

Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond F based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond F, monitor wells MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05 were assigned since these wells are upgradient from Pond G and are out of the flow path of groundwater migrating beneath Ponds A, B, and C. (Data from these wells also were associated with Ponds D and E.)

7.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

7.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond F contaminants:

- Waterfowl;
- Plankton;
- Benthic invertebrates;
- Mosquito larvae;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond F. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond F and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, mosquito larvae, algae, and bacteria. No fish are present in Pond F. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

7.3.6 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Organic chemicals in the surficial soils and the subsurface beneath the lagoons have the potential to volatilize to the atmosphere. While the system currently is assumed to be in equilibrium, any disturbance (such as taking the treatment system out of service) would cause renewed volatilization of any remaining volatile organics. In addition, non-volatile organics and metals in soil can enter the atmosphere via wind entrainment. Air dispersion was considered a significant migration pathway for the future occupational scenario (hypothetical dewatering and backfilling of lagoons) only.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were then used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

7.4 Exposure Assessment

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 7.1 provides a brief description of the exposure setting for Pond F.

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways;
- Uncertainties.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 7-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

7.4.1 Identification of Contaminant Releases

Sampling conducted at Pond F has identified releases of contaminants from sludge to underlying soil, groundwater, surface water, and biota. Sections 7.1.2 and 7.3 provide a more complete discussion of contaminant releases from Pond F.

7.4.2 Exposure Scenarios

On-site workers (maintenance and future construction workers) and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 7-3 illustrates

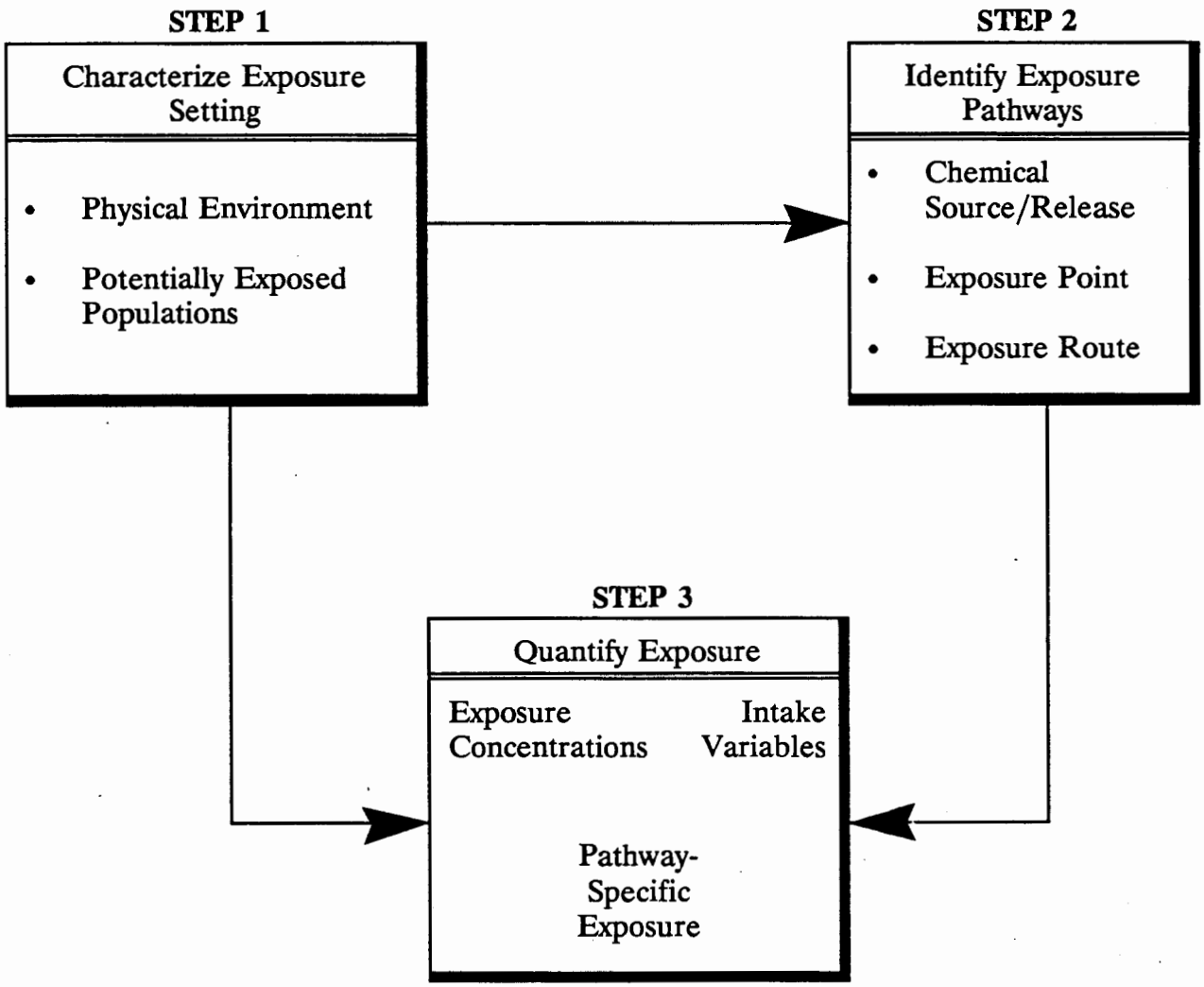


Figure 7-2. Flowchart of the Exposure Assessment Process

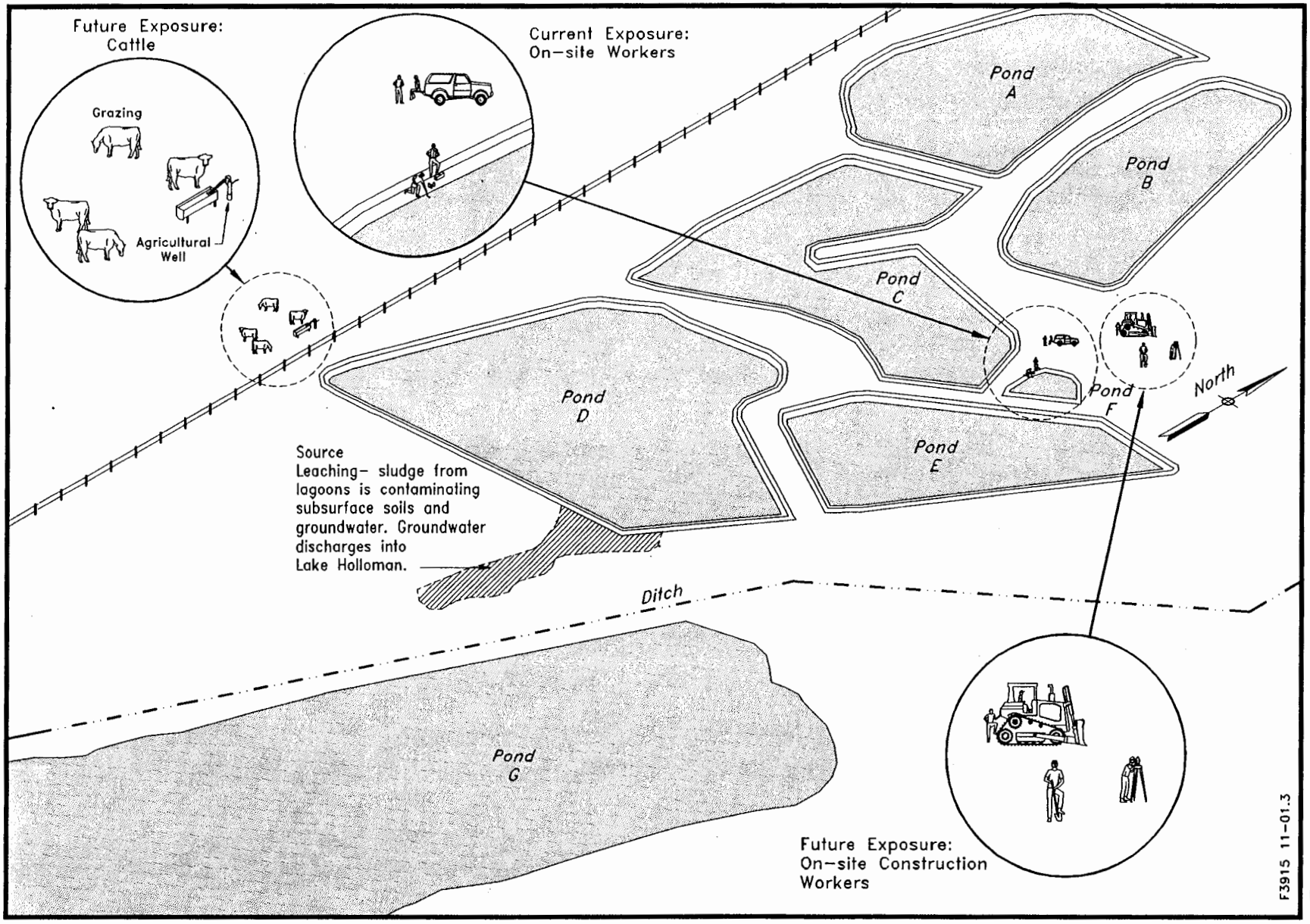


Figure 7-3. Exposure Scenario Diagram for Pond F

Exposure Scenario Summary

Workers (chronic):

- Worker, average; and
- Worker, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon and obtain water samples. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network could expose future construction workers during excavation and backfilling of the lagoons. Sections 7.1.3 and 7.1.4 also discuss these potentially exposed subgroups. Section 7.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

7.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Inhalation of volatiles/dust (future); and
- Incidental ingestion of sludge or soil (future).

Incomplete exposure pathways:

- Inhalation of volatiles/dust (current);
- Ingestion of surface water;
- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

An exposure pathway describes the movement or translocation of a chemical or physical

agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 7-2 and 7-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge by site workers during lagoon maintenance activities; and 3) dermal contact with soil by site workers during lagoon maintenance activities. These pathways are considered to be complete because of the routine maintenance activities, such as inspection and water sampling, which are likely to result in some level of dermal contact. The level of dermal contact is based on the pathway exposure assumptions presented in Appendix F.

Exposure pathways that may be complete in the future have been included in the risk assessment and include: 1) future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage; 2) inhalation of volatiles and fugitive dust by construction workers during future lagoon closure; 3) incidental ingestion of sludge and soil by construction workers during future lagoon closure; 4) dermal contact with sludge by construction workers during future lagoon closure; and 5) dermal contact with soil by construction workers during future lagoon closure. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef. Future construction workers conducting closure activities (such as lagoon excavation and backfilling) can be expected to incur some level of dermal contact with sludge or soil. Inhalation and incidental ingestion also are likely, as such activities require physical handling of the contaminated media and will disturb any remaining contaminants.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) current inhalation of volatile contaminants; 2) current ingestion of contaminated surface water, sludge, and/or sediment; and 3) direct ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

7.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/soil/sludge.
- Future consumers:
  - -- Ingestion of contaminated beef.
- Future construction workers:
  - -- Dermal contact with surface water/soil/sludge;
  - -- Inhalation of volatiles/dust; and
  - -- Incidental ingestion of sludge/soil.

Analysis of Base activities in proximity to Pond F suggests that three human subpopulations may potentially be exposed to contaminants: current site workers, future consumers of local agriculture, and future construction workers.

Table 7-2

Potentially Complete Current Exposure Pathways: Pond F, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Dermal contact with chemicals in sludge	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, floating aerators exposed to contaminants, and providing general lagoon upkeep.
Dermal contact with chemicals in soil	Maintenance workers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep.
Inhalation of chemicals in ambient air	Maintenance workers	No	Concentrations of remaining volatile compounds in all media are below health-based levels.
Ingestion of surface water	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of sludge	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of soil	Maintenance workers	No	Incidental ingestion is unlikely given limited extent and nature of maintenance activities.
Ingestion of groundwater	Off-base residences	No	Groundwater is not potable for human consumption due to high TDS concentrations.

Table 7-3

Potentially Complete Future Exposure Pathways: Pond F Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, disturbing any remaining volatile contaminants and entraining fugitive dust.
Incidental ingestion of sludge and/or soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requireing close, physical proximity to contaminants.
Dermal contact with chemicals in sludge	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requireing close, physical proximity to contaminants.
Dermal contact with chemicals in soil	Construction workers	Yes	Removal of lagoons from service will involve excavation and backfilling of lagoons, requireing close, physical proximity to contaminants.

7.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers:

- Concentrations in lagoon media.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge, soil, beef (exposed to contaminated groundwater and plant forage), and air. Section 7.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and air) exposure concentrations associated with Pond F are provided in Table 7-4. For the on-site occupational exposure of maintenance and construction workers via dermal contact with contaminants, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 7.3.6).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor wells adjacent to the site and downgradient from Pond F (MW-3, MW-14, MW-15, MWD-04, MWS-04, and MWS-05) provided the groundwater concentrations consumed by cattle and accumulated in plant forage. While the establishment of livestock adjacent to the Base is assumed to be completed in the future, the current groundwater concentrations are being used in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the relatively low groundwater concentrations at the future point of withdrawal.

7.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and

Table 7-4

Exposure Point Concentrations for Pond F

Chemical	Soil		Sludge		Surface Water	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Current Scenarios						
4,4'-DDD	3.70E-02	3.70E-02	6.20E+00	1.10E+01	3.50E-05	3.50E-05
4,4'-DDE	1.50E-02	1.50E-02	1.39E+00	1.90E+00	1.20E-04	1.20E-04
4,4'-DDT	5.80E-03	5.80E-03	1.35E-01	1.60E-01	0.00E+00	0.00E+00
alpha-Chlordane	0.00E+00	0.00E+00	1.52E-01	2.50E-01	3.00E-05	3.00E-05
Arsenic	0.00E+00	0.00E+00	3.15E+00	4.00E+00	0.00E+00	0.00E+00
delta-BHC	2.70E-03	2.70E-03	3.60E+00	5.00E+00	0.00E+00	0.00E+00
Dibenzofuran	0.00E+00	0.00E+00	2.38E+00	3.90E+00	0.00E+00	0.00E+00
gamma-BHC	0.00E+00	0.00E+00	7.05E-02	7.60E-02	1.20E-05	1.20E-05
gamma-Chlordane	4.50E-04	4.50E-04	5.60E-02	6.40E-02	1.00E-05	1.00E-05
Heptachlor	0.00E+00	0.00E+00	5.15E-02	5.30E-02	0.00E+00	0.00E+00
Lead	5.00E-01	5.00E-01	1.33E+01	1.70E+01	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	2.57E+00	4.60E+00	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	4.85E+01	5.90E+01	0.00E+00	0.00E+00
Sulfide	6.00E+01	6.00E+01	1.45E+03	1.80E+03	0.00E+00	0.00E+00

Table 7-4

(Continued)

Chemical	Groundwater (mg/L)		Air ($\mu g/m^3$)		Beef (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Future Scenarios						
4,4'-DDD	0.00E+00	0.00E+00	1.06E-01	1.89E-01	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	2.39E-02	3.28E-02	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	2.32E-03	2.76E-03	1.51E-04	2.88E-04
Aldrin	1.38E-05	2.66E-05	0.00E+00	0.00E+00	6.92E-06	1.33E-05
alpha-BHC	1.50E-05	2.47E-05	0.00E+00	0.00E+00	3.00E-07	4.95E-07
alpha-Chlordane	5.40E-06	7.50E-06	2.61E-03	4.31E-03	2.86E-08	3.97E-08
beta-BHC	6.70E-06	9.00E-06	0.00E+00	0.00E+00	2.12E-07	2.85E-07
Cadmium	1.25E-02	1.40E-02	0.00E+00	0.00E+00	6.94E-04	7.77E-04
delta-BHC	9.20E-06	1.45E-05	6.21E-02	8.63E-02	2.92E-07	4.60E-07
Dibenzofuran	0.00E+00	0.00E+00	1.27E-05	2.09E-05	0.00E+00	0.00E+00
Dieldrin	2.54E-05	5.88E-05	0.00E+00	0.00E+00	2.03E-07	4.70E-07
Endosulfan II	1.92E-05	2.63E-05	0.00E+00	0.00E+00	3.27E-07	4.48E-07
Endosulfan sulfate	2.27E-05	2.61E-05	0.00E+00	0.00E+00	3.87E-07	4.45E-07
Endrin	5.32E-05	1.14E-04	0.00E+00	0.00E+00	2.93E-05	6.25E-05
Endrin aldehyde	1.41E-05	2.35E-05	0.00E+00	0.00E+00	7.75E-06	1.29E-05
gamma-BHC	2.52E-05	4.68E-05	1.21E-03	1.30E-03	5.05E-07	9.37E-07
gamma-Chlordane	2.04E-05	4.60E-05	9.61E-04	1.10E-03	1.08E-07	2.43E-07
Heptachlor	1.81E-05	2.96E-05	8.82E-04	9.08E-04	1.14E-06	1.87E-06
Heptachlor epoxide	5.50E-06	6.80E-06	0.00E+00	0.00E+00	7.05E-09	8.72E-09
Isodrin	1.06E-05	1.89E-05	0.00E+00	0.00E+00	5.83E-06	1.04E-05
Lead	0.00E+00	0.00E+00	2.29E-01	2.93E-01	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	0.00E+00	0.00E+00	1.50E-04	2.49E-04
Phenanthrene	0.00E+00	0.00E+00	8.38E-01	1.01E+00	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	2.50E+01	3.10E+01	0.00E+00	0.00E+00

is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 7-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 4) feed (water)-to-beef transfer coefficients were used that do not account for metabolism and/or disposition; 5) 100% absorption of inhaled and ingested contaminants is assumed; and 6) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

7.4.7 Uncertainties

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

7.5 Toxicity Assessment

Toxicity assessment involves determining whether exposure to an agent can increase the

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

7.5.1 Toxicity Values Used in the Risk Assessment

Table 7-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a database search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

7.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

7.5.3 Uncertainties Associated with Toxicity Assessment

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available

Table 7-5

Toxicity Values for Pond F

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
ß-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dibenzofuran	D	--	--	--	--	--	--	--
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Methoxychlor	D	5.00E-03 [I]	5.00E-03 [H]	7.60E-02 [S]	--	--	--	--
Phenanthrene	D	--	--	--	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.
N National Ambient Air Quality Standard.

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

7.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 25 Chemicals of potential concern;
- 20 oral RfDs available:
  - -- 10 surrogate values derived; and
  - -- 10 USEPA-verified RfDs:
    1 - high confidence;
    6 - medium confidence; and
    3 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Ten of the 20 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values cannot be assigned. Ten values were obtained from IRIS and have levels of confidence that range from high (one chemicals) to low (three chemicals). Oral RfDs were not available for five of the chemicals of potential concern. Qualitative assessments were conducted for these chemicals (refer to Appendix G).

Carcinogen Toxicity Information

- 12 oral slope factors available:
  - -- 9 USEPA-verified slope factors:
    Group B2 - 9 chemicals;
    Group C - 1 chemical;
  - -- 2 surrogate values; and
  - -- 1 value from HEAST.
- 10 inhalation unit risks available:
  - -- 8 USEPA-verified unit risks; and
  - -- 2 surrogate values.

Eighteen of the 25 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Five chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Nine chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and one chemical (arsenic) was classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for some of the chemicals (9 of 13) of potential concern that have been classified as Group A, B, or C carcinogens. One slope factor was obtained from HEAST. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Inhalation unit risk factors were available for 10 chemicals. Eight values were USEPA-verified and two were surrogate values.

7.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond F, measured contaminant exposure levels, as well as those predicted by fate and transport modeling were used to estimate contaminant intake and were compared to chemical-specific toxicity information.

7.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond F, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure (*de minimis*) for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

7.6.2 Noncarcinogenic Hazard

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

7.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond F presently or in the future, two chronic and one subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) future off-site agricultural exposure. The two *subchronic* scenario was future on-site occupational exposure.

7.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

- No risks/hazards are above *de minimis* levels.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond F.

Current on-site workers were assumed to be exposed to contaminants in Pond F via three pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge; and 3) dermal contact with sediments (soils) underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 2E-9
- Total Reasonable maximum = 5E-8

Noncarcinogenic hazard

- Total average HI = 2.6E-4
- Total reasonable maximum HI = 2.4E-3

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-9 and 5E-8, respectively. 4,4-DDD and 4,4-DDE contributed the majority of the risk for both the average reasonable maximum exposure (refer to Appendix I). Dermal contact with sludge contributed most of the pathway-specific risk for the average exposure, while dermal contact with surface water caused most of the reasonable maximum risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.6E-4 and 2.4E-3, respectively. Neither hazard exceeds unity. Alpha-chlordane was the major contributor to total risk for the average (41%) and reasonable maximum exposure (78%). Delta BHC and 4,4-DDD also contributed significant hazard. Again, dermal contact with sludge and surface water were responsible for the majority of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

A subchronic exposure scenario was not assessed for on-site workers at Pond F since none of the chronic risks/hazards exceeded *de minimis* levels.

7.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

- No risks/hazards exceed *de minimis* levels.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base will be developed for residential and/or agricultural purposes. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

Future Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 2E-8
- Total reasonable maximum = 4E-7

Noncarcinogenic hazard

- Total average HI = 9.4E-4
- Total reasonable maximum HI = 6.1E-3

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, also was considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 2E-8 and 4E-7, respectively. Both risk values are below the Subpart S goals and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 9.4E-4 and 6.1E-3, respectively. Both HIs are less than unity and suggest that contaminants migrating offsite via groundwater are not likely to cause adverse noncancer health effects in adults.

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 2.2E-3
- Total reasonable maximum HI = 0.01

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.2E-3 and 0.01, respectively. Both HIs are less than one and suggest that contaminants migrating off site via

groundwater are not likely to cause adverse noncancer health effects in children.

Future Occupational Exposure Scenario - Subchronic Exposure

Future Occupational Subchronic Risk

Carcinogenic risk

- Not assessed for subchronic exposure

Noncarcinogenic hazard

- Total average HI = 0.02
- Total reasonable maximum HI = 0.13

This scenario addresses pathways of exposure considered to be complete for on-site workers in the future, assuming that the ponds are dewatered and backfilled with clean dirt. During backfilling operations, contaminated sediments and sludge will be disturbed creating a potential for volatilization and fugitive dust generation, incidental ingestion of contaminated sediment/sludge, and dermal contact with subsurface contamination.

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic future occupational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.02 and 0.13, respectively. Neither hazard exceeds unity. Alpha-chlordane was the major contributor for average hazard, while arsenic contributed most of the reasonable maximum hazard. Dermal contact with, and incidental ingestion of, sludge contributed the majority of the pathway-specific hazard for the average and reasonable maximum exposure, respectively.

7.6.6 Summary

Risk Characterization Results

- No risks/hazards are above *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters. Conservative assumptions that may impact risk characterization include: 1) conservative soil ingestion rates; 2) exposure frequency; 3) exposure duration; and 4) surface area available for dermal contact.

7.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..." can provide some qualitative information on the likelihood and severity of impacts" resulting from chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that

adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond F and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K. A discussion of potential cumulative risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions presented in Section 13.0.

7.7.1 Background

Pond F is 0.5 acres and has the capacity to hold 1.6 million gallons of water. It is used to recirculate water from Pond E to the headworks. Plankton, sludge, and surface water samples were collected in Pond F. The pH was approximately 8.25, and the alkalinity was measured at 87 mg/L. Water depth was 1.2 m, secchi depth was 0.1 m. Temperature, conductivity (C), and dissolved oxygen (DO) were measured at two surface locations; results are presented in Table 7-6.

When the water temperature rose to 11.5° C later in the morning, DO was at 10 mg/L and C was at 5350 μmhos. At the time of sampling, Air Force personnel were pumping silty water into the pond from an excavation of a leaky pipe east of the pump house on the north side of Pond F.

The edges of the pond are lined to prevent bank erosion and slope steeply. A sandy shelf containing chironomid larvae was present around the perimeter of the pond, but the thick algal/bacterial muck prevented concentration of benthos in the sampling equipment and collection of a sample was not feasible (3/23/93). No fish were present in Pond F. Mosquito larvae exoskeletons accumulated on the surface of the downwind side. Shorebirds were observed feeding along the edges of the pond. Ducks were very infrequent in Pond F. Bats and barn swallows were observed feeding over the lagoons in early April. Plankton and surface water samples were collected as discussed in Appendix M.

7.7.2 Exposure Assessment

Figure 7-4 is a conceptual site model of Pond F. Sludge and surface water samples were collected at this pond. There were no fish in Pond F probably because of the lack of suitable cover for the fish. There were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards and fish. Mallards feed on plankton, which, in this case, is a mixture of algae, plankton and mosquito larvae. Although fish are not present, they were selected as indicator species for the aquatic environment.

Indicator species selected for Pond F:

- Mallards; and
- Fish.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond F makes up about 0.15% of the system; therefore, 0.15% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 0.075%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

7.7.3 Risk Characterization

Risk Characterization Results

Birds

- Adverse effects not expected.

Fish

- Adverse effects not expected.

Table 7-7 lists the EQs for the indicator species. The potential risk to mallards was below one and therefore acceptable. The majority of the potential risk in Pond F was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are

Table 7-6

Water Quality Parameters - Pond F

9:40 am 3/7/93	Near Edge			Center		
Depth (m)	Temp (°C)	C (μ mhos)	DO (mg/L)	Temp (°C)	C (μ mhos)	DO (mg/L)
Surface	11	5200	7.8	11	5350	10.0

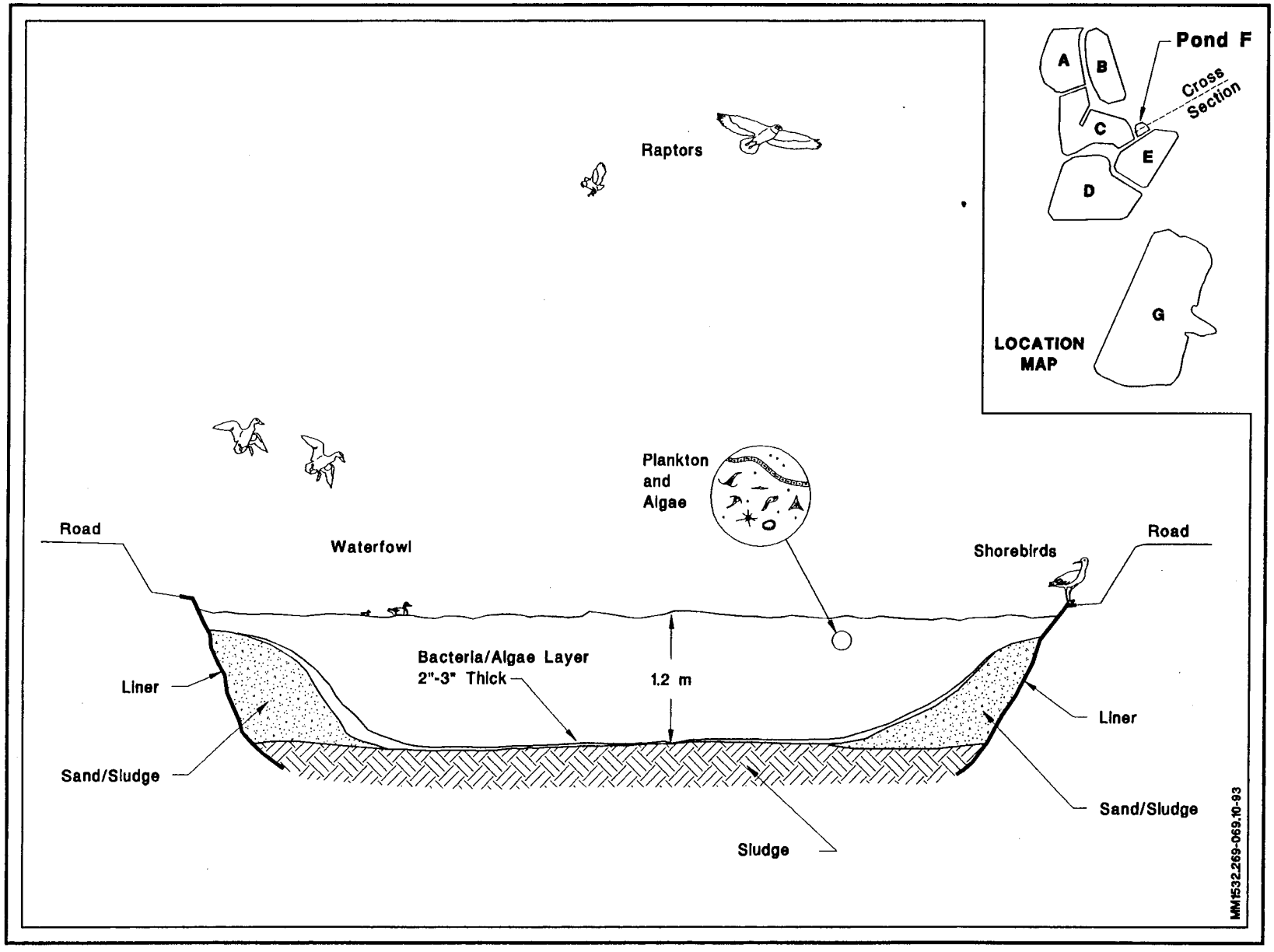


Figure 7-4. Ecological Conceptualization Model for Pond F

Table 7-7

Ecological Quotients - Pond F

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.09	0.14
Fish	0.36	0.36

uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to ducks feeding at Pond F can be quantified based on the fraction ingested from this pond; however, the ducks are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributable to Pond F alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or the ecological hazard index, for ducks. A discussion of cumulative risks to mallards is included in the conclusions in Section 13.0.

Fish were used as an indicator species for aquatic organisms in general. Fish were not present in Pond F, as discussed above. Based strictly on the water contaminant concentrations, adverse effects would not be expected. The EQ for Pond F would be 0.36 for both average and reasonable maximum exposure. This is below the acceptable value of one. However, the EQs were based strictly on the contaminants detected in the surface water and do not account for contaminant exposure from other sources. Since fish are not present, it is assumed that pond conditions are not adequate for their survival. This may result from lack of cover as opposed to contamination. Based on the EQ for fish, adverse effects are not expected in benthic organisms, and benthic organisms were found in this pond.

7.8 Conclusions for Pond F

Maintenance activities at Pond F include inspecting the lagoon and periodically obtaining water samples. Potential occupational scenarios associated with Pond F include dermal contact with contaminated surface water, dermal contact with sludge/sediments, and dermal contact with soils during lagoon maintenance activities. In addition, a future occupational scenario which assumed hypothetical dewatering and backfilling of the lagoons was assessed. Potential future occupational scenarios included inhalation of volatiles/fugitive dusts, dermal contact with soils/sediments/sludge, and incidental ingestion of soils/sediments/sludge. The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond F to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing and this exposure could occur under future conditions. Ingestion of beef from cattle pastured on this land, and watered with groundwater pumped to the surface by a stock well was evaluated.

The risk characterization results for Pond F suggest that future agricultural development of the land surrounding the Base will not pose adverse human health risks/hazards. The current and future occupational risks/hazards are all below *de minimis* levels as well.

It is unlikely that Pond F will ever be developed as a residential area. However, the baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks (average and reasonable maximum exposure) that exceed *de minimis* levels. The child noncancer hazards (average and reasonable maximum exposure) were also above *de minimis* levels. Dermal contact with sludge, ingestion of sludge, and ingestion of groundwater are responsible for the majority of the risks/hazards.

The ecological assessment indicated that birds (mallards) and fish using Pond F are not likely to be at risk. On the basis of insignificant risks to human health and the environment, it appears that Pond F can continue to be used.

Section 8
RISK ASSESSMENT FOR POND G

This section presents the unit-specific risk assessment for Pond G. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

8.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Pond G. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

8.1.1 Site Description

Pond G is an unlined pond bordered by salt grass, cattails, and tamarisk trees. The lagoon covers 39.8 acres and has the capacity to hold 64.6 million gallons of water. The south end of the pond is a rubble dam with little vegetation along the water line. The west bank of the lagoon is fairly steep. Pond G is diked to preclude the recurrence of overflows which occurred in the past during high water events. The lagoon is enclosed by a fence; however, holes exist in the fence and trespassers have been observed playing and fishing at the pond.

8.1.2 Identification of Releases into Media

Release Summary

Contaminants in Pond G have:

- Dissolved into surface water;
- Infiltrated into underlying soils;
- Leached into groundwater; and
- Accumulated in biota.

Figure 8-1 outlines the fate and transport of contaminant releases from Pond G, exposure pathways and routes, and potential receptors. As indicated by the figure, sludge in the lagoon serves as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) dissolution into surface water; 2) infiltration into soils; 3) leaching into groundwater; and 4) uptake by biota.

8.1.3 Evaluation of Exposure Points/Routes

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water/soil/sludge;
- Incidental ingestion of surface water;
- Ingestion of waterfowl; and
- Ingestion of beef.

Assessments of the lagoon, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Pond G at the lagoon and points hydraulically downgradient. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 8-1). These include: 1) dermal contact with contaminants in surface water, soil, and/or sludge; 2) incidental ingestion of surface water; 3) ingestion of waterfowl; and 4) ingestion of beef from cattle exposed to contaminated groundwater.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Regarding future exposure, while groundwater in the vicinity of the Base is not potable, because of high total dissolved solids (TDS) concentrations, this risk assessment assumes that agricultural livestock wells will draw from the aquifer, as will the roots of cattle forage, in order to

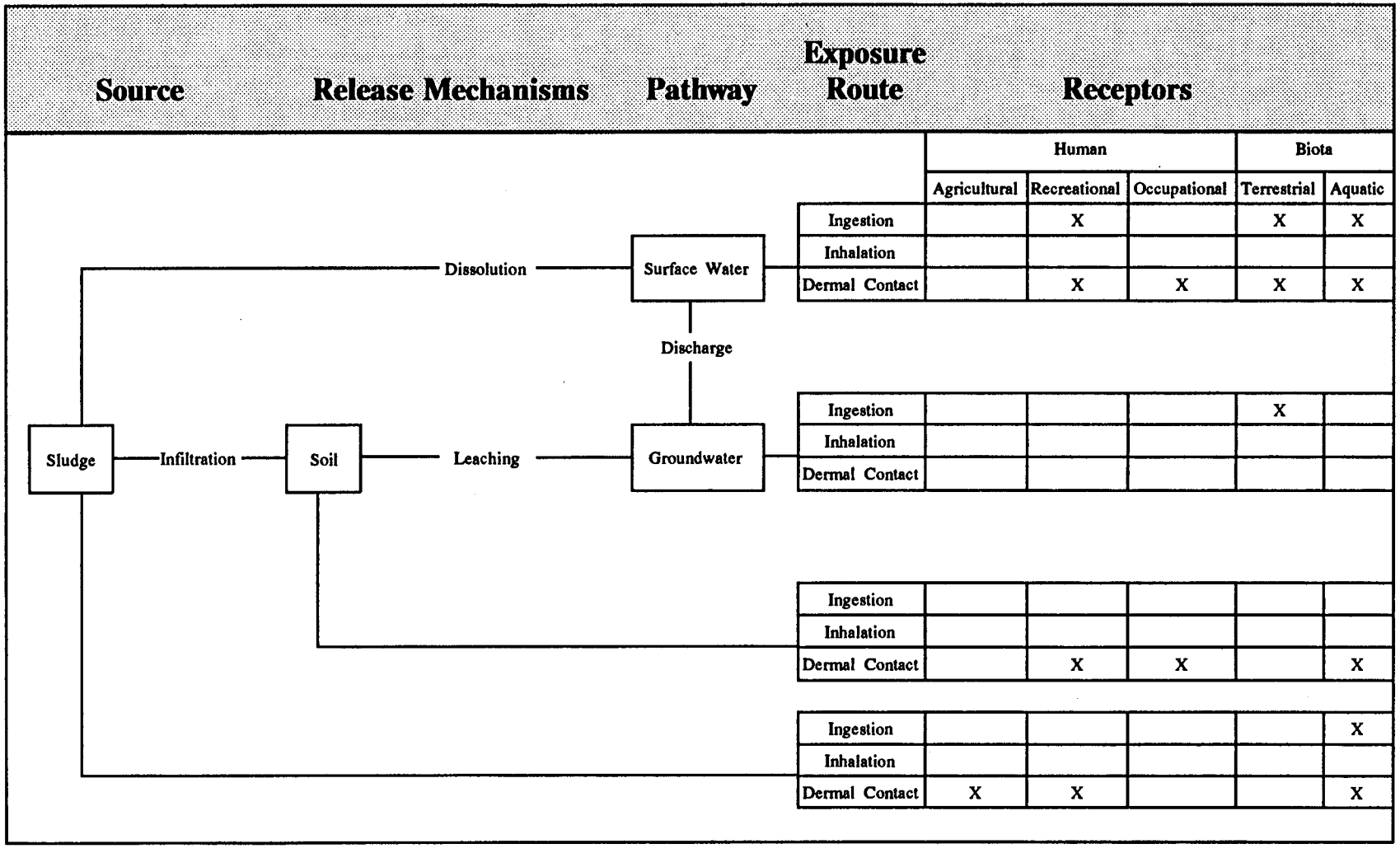


Figure 8-1. Fate and Transport Schematic for Pond G

assess a worst-case scenario. Unlike Ponds A through F, future dermal contact, inhalation, and incidental ingestion exposures by construction workers are not assumed to occur during removal of the lagoons from service, as Pond G will likely remain open as wildlife habitat. A discussion of ecological exposure is provided in Section 8.7. Other than the installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

8.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers;
- Teenage trespassers;
- Hunters; and
- Future agricultural consumers.

Four potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 8-1). These include: 1) current site workers who may have dermal contact with surface water, sludge, and/or soil during lagoon maintenance activities; 2) teenage trespassers playing by the lagoon; 3) hunters consuming waterfowl exposed to contaminants; and 4) local consumers who may ingest beef from cattle that have consumed contaminated groundwater and plant forage. Currently, there are no agricultural wells adjacent to the Base; however, the risk assessment assumes that wells will be located downgradient from the lagoon in the future, providing for livestock rearing. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

8.2 Identification of Chemicals of Potential Concern

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

The chemicals identified as contaminants of potential concern for Pond G are presented in Table 8-1.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, which are located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Pond G are presented in Table 8-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

Table 8-1

Chemicals of Concern for Pond G

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Bis(2-ethylhexyl)phthalate		✓		
α-BHC	✓	✓	✓	✓
β-BHC		✓	✓	
γ-BHC	✓	✓	✓	
α-Chlordane				✓
γ-Chlordane	✓			✓
4,4'-DDD	✓		✓	✓
4,4'-DDE			✓	✓
4,4'-DDT				✓
Dieldrin	✓			
Endosulfan I	✓			
Endosulfan II		✓		
Endrin	✓			
Endosulfan sulfate	✓		✓	
Endrin aldehyde	✓			
Heptachlor	✓		✓	
Heptachlor epoxide	✓			
Isodrin	✓		✓	
Kepone				✓
Methoxychlor	✓			
Inorganics				
Arsenic		✓		
Boron		✓		
Beryllium				✓
Cobalt			✓	✓
Lead		✓	✓	✓
Lead (Organic)		✓		
Manganese		✓		
Silicon		✓		
Sulfide			✓	✓

8.3 Contaminant Fate and Transport

Fate and Transport Summary

Pond G Contaminants:
- Originate in lagoon sludge;
- Migrate into surface water;
- Infiltrate into soil; and
- Leach into groundwater.

Critical Assumptions:
- System is at steady state.
- No significant additional contaminant loading from current operations.

Fate and Transport Models:
- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Three potentially significant contaminant fate and transport processes have been identified for Pond G. These include: 1) migration (dissolution and suspension) from sludge into surface water; 2) infiltration from sludge into underlying soil; and 3) leaching from sludge and/or soil into groundwater.

Release rates to surface water and groundwater were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Pond G, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

8.3.1 Release from Sludge and Soil to Surface Water

Dissolution and suspension of contaminants from sludge and soil into surface water is one of the primary contaminant transport mechanisms at Pond G. Surface water samples collected from the lagoon indicate the presence of contaminants originating in the sludge and soil.

8.3.2 Release from Sludge and Soil to Groundwater

A second significant transport mechanism from the sludge and soil is the leaching of chemicals into groundwater with subsequent groundwater migration. Results of chemical analyses of groundwater collected during site investigations show that releases to the groundwater have already occurred and that contaminants are present in the groundwater beneath and hydraulically downgradient from the lagoon (see Section 8.3.3 below).

8.3.3 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Pond G:

- Occurs 2 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants from Pond G; and
- Periodically discharges to lakes.

Monitor wells associated with Pond G:

- MW-4, MW-6, and MWD-04.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3 %, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Pond G based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Pond G, monitor wells MW-4, MW-6, and MWD-04 were assigned since these wells are upgradient from Lakes Holloman and Stinky and the Ditch, and are out of the flow path of groundwater migrating beneath Ponds A through F.

Groundwater flow and contaminant transport modeling was performed using the steady-state, two-dimensional, analytic modeling capabilities built into CPS-3®, a computer contouring and mapping package produced by Radian Corporation (see Appendix D). The modeling was conducted to estimate the off-site groundwater concentrations downgradient from Pond G to which future agricultural receptors could be exposed.

8.3.4 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

8.3.5 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Pond G contaminants:

- Waterfowl;
- Mosquito fish;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Pond G. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Pond G and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for

Mosquito fish, plankton, benthic invertebrates, algae, and bacteria. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

8.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 8.1 provides a brief description of the exposure setting for Pond G.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 8-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

8.4.1 Identification of Contaminant Releases

Sampling conducted at Pond G has identified releases of contaminants from sludge to underlying soil, groundwater, surface water, and biota. Sections 8.1.2 and 8.3 provide a more complete discussion of contaminant releases from Pond G.

8.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic and subchronic):

- Worker, average; and
- Worker, reasonable maximum.

Teenage (12-15) child trespassers (subchronic):

- Child, average; and
- Child, reasonable maximum.

Hunter (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

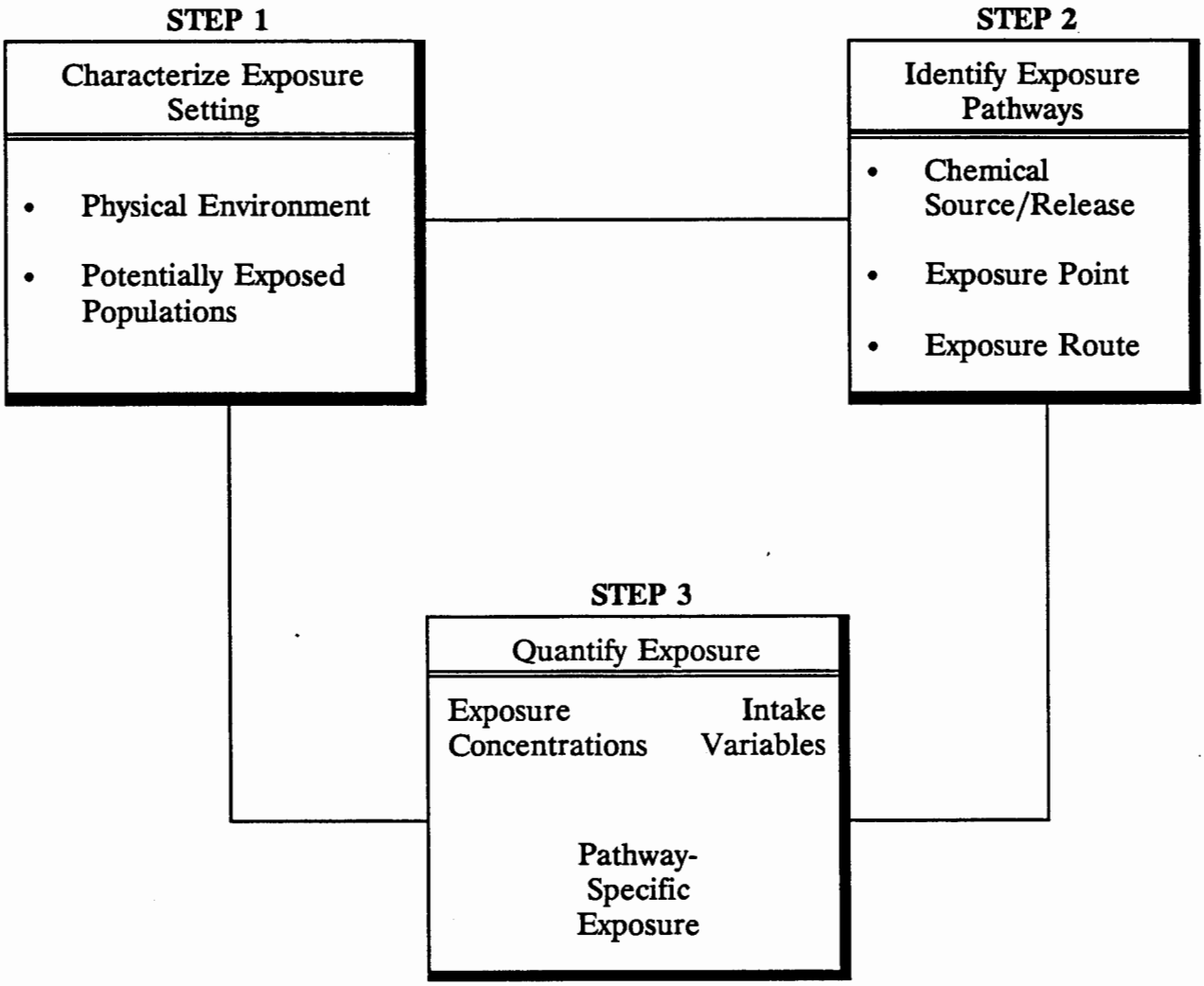


Figure 8-2. Flowchart of the Exposure Assessment Process

On-site workers (maintenance workers), teenage trespassers, hunters/bird watchers, and nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals on or originating from the lagoon. Figure 8-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lagoon itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated groundwater and plant forage.

Currently, site workers must routinely inspect the lagoon and obtain water samples. In addition, teenage trespassers have been observed playing by the lagoon and hunters may consume waterfowl exposed to contaminants. For future exposure scenarios, the risk assessment assumes that agricultural wells will draw from the contaminated aquifer to provide livestock drinking water. The livestock exposure will be augmented by the consumption of plant forage that also draws from the contaminated aquifer. Consumers, in turn, will consume beef from these livestock. Ultimate closure of the lagoon network will expose future construction workers during excavation and backfilling of the lagoons. Sections 8.1.3 and 8.1.4 also discuss these potentially exposed subgroups. Section 8.7 provides an assessment of the ecological exposure.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for maintenance worker exposure include both chronic and subchronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. Teenage trespassers were evaluated for average and reasonable maximum subchronic exposure. Hunter exposures included chronic adult and child exposure for both average and reasonable maximum levels of exposure. Future construction workers were evaluated for subchronic exposure, based on the anticipated duration of construction activities, including both average and reasonable maximum levels of exposure. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure.

Chronic exposure to adults and children in all scenarios was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for subchronic exposures or children.

8.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef (future);
- Incidental ingestion of surface water; and
- Ingestion of waterfowl.

Incomplete exposure pathways:

- Inhalation of volatiles/dust;
- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

An exposure pathway describes the movement or translocation of a chemical or physical

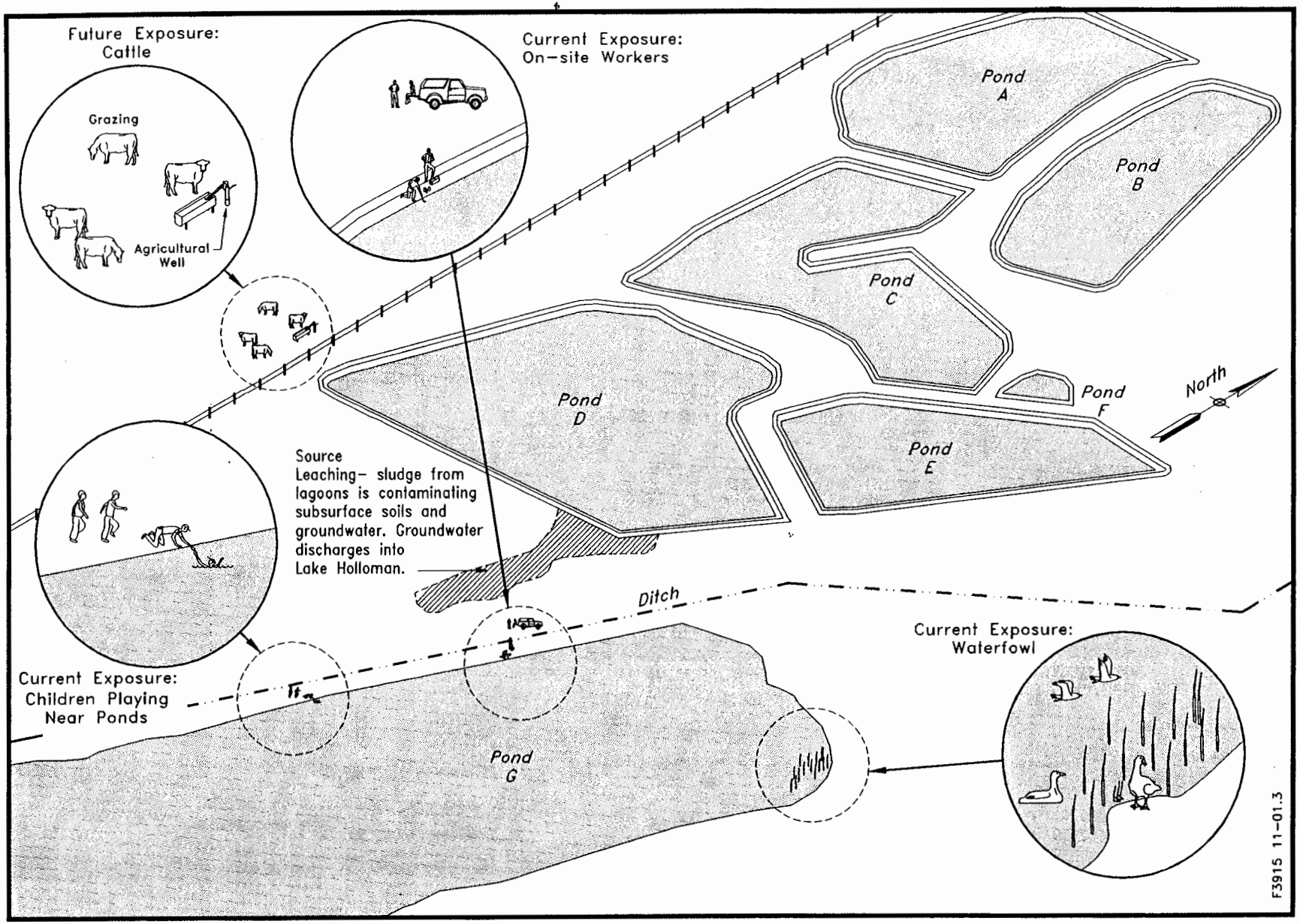


Figure 8-3. Exposure Scenario Diagram for Pond G

agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Tables 8-2 and 8-3 document the complete current and future exposure pathways, respectively. Current significant exposure pathways include: 1) dermal contact with contaminated surface water by site workers during lagoon maintenance activities; 2) dermal contact with sludge by site workers during lagoon maintenance activities; 3) dermal contact with soil by site workers during lagoon maintenance activities; 4) dermal contact with surface water by teenage trespassers playing by the lagoon; 5) dermal contact with sludge by teenage trespassers playing by the lagoon; 6) dermal contact with soil by teenage trespassers playing by the lagoon; 7) incidental ingestion of surface water by teenage trespassers playing by the lagoon; and 8) ingestion (by hunters) of waterfowl exposed to contaminants. These pathways are considered to be complete because of the routine maintenance activities that occur along with the known presence of teenage trespassers and hunters, which are likely to result in some level of contact with contaminants. The level of contact is based on the pathway exposure assumptions in Appendix F.

An exposure pathway that may be complete in the future is future ingestion of beef (by local consumers) from cattle that have consumed contaminated groundwater and plant forage. The future livestock scenario has been included for evaluation of a worst-case scenario. Currently, groundwater at the projected point of any future livestock wells contains low levels of several contaminants. The ingestion of contaminated water and plant forage by livestock can be expected to result in the accumulation of contaminants in beef.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) inhalation of volatile contaminants; 2) ingestion of contaminated sludge and/or soil; and 3) ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

8.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers:
  - -- Dermal contact with surface water/soil/sludge.
- Teenage trespassers:
  - -- Dermal contact with surface water/soil/sludge;
  - -- Incidental ingestion of surface water.
- Hunters:
  - -- Ingestion of waterfowl.
- Future consumers:
  - -- Ingestion of contaminated beef.

Analysis of Base activities in proximity to Pond G suggests that four human subpopulations may potentially be exposed to contaminants, including current site workers, teenage trespassers, hunters, and future consumers of local agriculture.

8.4.5 Estimating Exposure Point Concentrations

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sludge, soil, waterfowl, and beef (exposed to contaminated groundwater and plant forage). Section 8.3

Table 8-2

Potentially Complete Current Exposure Pathways: Pond G, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers Teenage trespassers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep; teenagers have been observed playing by Pond G.
Dermal contact with chemicals in soil	Maintenance workers Teenage trespassers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep; teenagers have been observed playing by Pond G.
Dermal contact with chemicals in soil	Maintenance workers Teenage trespassers	Yes	Maintenance activities involve inspection, water sampling, and providing general lagoon upkeep; teenagers have been observed playing by Pond G.
Inhalation of chemicals in ambient air	Maintenance workers Teenage trespassers	No	Any contribution from this pathway would be negligible given other highly conservative exposure pathways.
Ingestion of surface water	Teenage trespassers	Yes	Incidental ingestion is possible if teenagers fall into Pond G.
Ingestion of sludge	Maintenance workers Teenage trespassers	No	Incidental ingestion is unlikely given limited extent and nature of activities.
Ingestion of soil	Maintenance workers Teenage trespassers	No	Incidental ingestion is unlikely given limited extent and nature of activities.
Ingestion of groundwater	Off-base residents	No	Groundwater is not potable for human consumption because of high TDS concentrations.
Ingestion of waterfowl	Hunters (off-base) and families	Yes	Hunters may shoot and consume waterfowl exposed to contaminants

Table 8-3

Potentially Complete Future Exposure Pathways: Pond G Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of beef exposed to contaminated groundwater	Consumers of locally produced beef and farm families	Yes	Future agricultural livestock wells and cattle forage will draw from contaminated aquifer.
Inhalation of chemicals in ambient air	Construction workers	No	Pond G will likely remain open as wildlife habitat.
Incidental ingestion of sludge and/or soil	Construction workers	No	Pond G will likely remain open as wildlife habitat.

Exposure Concentrations Summary

Site workers and teenage trespassers:

- Concentrations in lagoon media.

Hunters:

- Waterfowl: media concentrations; and
- Humans: concentrations in waterfowl.

Agricultural consumers:

- Cattle: groundwater concentrations; and
- Humans: concentrations in beef.

(Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef and waterfowl) exposure concentrations associated with Pond G are provided in Table 8-4. For the on-site exposure of maintenance workers, teenage trespassers, and waterfowl, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples collected during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations. Hunters were exposed to modeled concentrations in the edible meat of waterfowl (see Appendix K for spreadsheet calculations).

Under the future consumption of beef exposure scenario, contaminated groundwater and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples taken from monitor wells adjacent to the site and downgradient from Pond G (MW-4, MW-6, and MWD-04) provided the groundwater concentrations modeled to determine off-site concentrations consumed by cattle and accumulated in plant forage. Establishment of livestock adjacent to the Base is assumed to be completed in the future and the current groundwater concentrations were modeled off site for use in the risk assessment. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in meat as a result of contaminated stock water and plant forage.

The fraction of feed from a contaminated source (groundwater and plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario and assess the basis for a no-action decision. Significant accumulation in beef is not expected because of the relatively low groundwater concentrations at the future point of withdrawal. A discussion on the estimation of concentrations in waterfowl is provided in Section 8.7 and Appendix K.

8.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake:

Table 8-4

Exposure Point Concentrations for Pond G

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.98E-08	9.05E-08	0.00E+00	0.00E+00
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-09	2.86E-09	0.00E+00	0.00E+00
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-10	3.56E-10	0.00E+00	0.00E+00
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-10	1.32E-09	0.00E+00	0.00E+00
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-09	9.53E-09	0.00E+00	0.00E+00
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-10	1.02E-09	0.00E+00	0.00E+00
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	2.85E-05	0.00E+00	0.00E+00
2,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.55E-06	1.94E-05	0.00E+00	0.00E+00
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-06	2.58E-06	0.00E+00	0.00E+00
4,4'-DDD	4.42E-06	1.04E-05	0.00E+00	0.00E+00	1.76E-05	4.14E-05	8.25E-01	1.78E+00	1.31E-04	2.99E-04	3.60E-03	5.32E-03
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-01	3.10E-01	1.06E-04	2.42E-04	1.83E-03	2.25E-03
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-02	1.17E-01	2.08E-06	4.74E-06	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-07	3.20E-07	0.00E+00	0.00E+00
alpha-BHC	1.34E-57	3.26E-57	1.04E-04	2.00E-04	2.68E-59	6.53E-59	4.74E-02	7.40E-02	5.17E-09	1.25E-08	2.00E-03	2.48E-03
alpha-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.60E-02	7.79E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-06	2.51E-06	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	4.48E-03	6.61E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-04	5.93E-04	1.81E+00	2.18E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.36E-06	1.76E-05	0.00E+00	0.00E+00
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74E-09	1.08E-08	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-01	7.66E-01	1.87E-08	4.24E-08	0.00E+00	0.00E+00
beta-BHC	0.00E+00	0.00E+00	3.02E-04	6.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-09	5.72E-09	3.09E-03	5.35E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	6.80E-03	8.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-05	4.00E-05	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	3.30E-01	3.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.08E-07	1.95E-06	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.49E-07	1.47E-06	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-08	4.86E-08	0.00E+00	0.00E+00
Chromium III	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E-05	9.45E-05	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.35E+00	5.45E+00	0.00E+00	0.00E+00	3.70E+00	4.09E+00
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.86E-05	1.56E-04	0.00E+00	0.00E+00
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-08	3.88E-08	0.00E+00	0.00E+00

Table 8-4

(Continued)

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Dibenzofuran	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-06	4.32E-06	0.00E+00	0.00E+00
Dieldrin	6.40E-07	1.00E-06	0.00E+00	0.00E+00	5.12E-09	7.99E-09	0.00E+00	0.00E+00	6.38E-09	1.46E-08	0.00E+00	0.00E+00
Diethylphthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-07	3.93E-07	0.00E+00	0.00E+00
Endosulfan I	5.59E-61	1.00E-60	0.00E+00	0.00E+00	9.53E-63	1.71E-62	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan II	0.00E+00	0.00E+00	9.00E-07	9.00E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan sulfate	1.58E-60	2.15E-60	0.00E+00	0.00E+00	2.69E-62	3.67E-62	0.00E+00	0.00E+00	8.02E-12	1.90E-11	1.03E-03	1.40E-03
Endrin	7.49E-13	1.31E-12	0.00E+00	0.00E+00	4.12E-13	7.20E-13	0.00E+00	0.00E+00	1.13E-07	2.56E-07	0.00E+00	0.00E+00
Endrin aldehyde	1.36E-12	2.47E-12	0.00E+00	0.00E+00	7.48E-13	1.36E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
gamma-BHC	5.43E-16	1.26E-15	9.90E-06	9.90E-06	1.09E-17	2.52E-17	0.00E+00	0.00E+00	2.62E-08	5.96E-08	2.01E-03	2.53E-03
gamma-Chlordane	1.64E-06	4.21E-06	0.00E+00	0.00E+00	8.68E-09	2.23E-08	8.83E-02	1.79E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heptachlor	1.20E-08	1.46E-08	0.00E+00	0.00E+00	7.59E-10	9.23E-10	0.00E+00	0.00E+00	1.49E-08	3.38E-08	1.70E-03	2.14E-03
Heptachlor epoxide	9.31E-09	2.39E-08	0.00E+00	0.00E+00	1.19E-11	3.07E-11	0.00E+00	0.00E+00	5.77E-12	1.32E-11	0.00E+00	0.00E+00
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-06	1.87E-05	0.00E+00	0.00E+00
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-05	3.77E-05	0.00E+00	0.00E+00
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-08	5.16E-08	0.00E+00	0.00E+00
Isodrin	1.33E-10	7.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03	2.63E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-02	3.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	2.88E-03	3.11E-03	0.00E+00	0.00E+00	6.49E+01	1.52E+02	2.97E-06	9.48E-06	1.89E+01	4.62E+01
Lead (organic)	0.00E+00	0.00E+00	1.82E-01	2.83E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-06	2.17E-06	0.00E+00	0.00E+00
Magnesium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E+00	3.83E+00	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.27E-05	2.11E-04	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	6.64E-02	7.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	2.20E-04	2.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-03	2.63E-03	0.00E+00	0.00E+00
Methoxychlor	5.74E-30	5.74E-30	0.00E+00	0.00E+00	6.89E-31	6.89E-31	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-12	4.95E-12	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-05	4.65E-05	0.00E+00	0.00E+00
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.13E-05	1.39E-04	0.00E+00	0.00E+00
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.71E-07	2.21E-06	0.00E+00	0.00E+00
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-09	5.98E-09	0.00E+00	0.00E+00

Table 8-4

(Continued)

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-09	2.89E-09	0.00E+00	0.00E+00
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.43E-05	1.23E-04	0.00E+00	0.00E+00
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E-09	1.16E-08	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03	3.73E-03	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	2.31E-05	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	1.52E+01	1.60E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-04	5.59E-04	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.89E+02	1.41E+03	0.00E+00	0.00E+00	6.20E+01	7.88E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E-06	9.21E-06	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-04	6.28E-04	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-05	1.82E-04	0.00E+00	0.00E+00

1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 8-4. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Conservative Exposure Assumptions

- Amount of media intake is constant;
- 25 year maximum worker exposure;
- 30 year maximum recreational exposure;
- Contaminants 100% bioavailable;
- Beef consumed 350 days/year;
- Waterfowl consumed 14 days/year;
- Water (Feed)-to-meat transfer coefficients do not consider metabolism/disposition; and
- 100% absorption of ingested contaminants.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all current occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) recreational exposures were assumed to occur over a 30-year period for reasonable maximum exposure; 4) exposure is assumed to occur 350 days/year for chronic agricultural exposures involving ingestion of beef; 5) feed-to-meat transfer coefficients were used that do not account for metabolism and/or disposition; 6) 100% absorption of ingested contaminants is assumed; and 7) 100% bioavailability is assumed for all ingested and dermally absorbed contaminants.

8.4.7 Uncertainties

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

8.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

8.5.1 Toxicity Values Used in the Risk Assessment

Table 8-5 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

Table 8-5

Toxicity Values for Pond G

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Aldrin	B2	3.00E-05 [I]	3.00E-05	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Antimony	--	4.00E-04 [H]	4.00E-04	--	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
Barium	--	7.00E-02 [I]	7.00E-02 [H]	7.00E-02	5.00E-04 [H]	5.00E-03 [H]	--	--
Benzyl alcohol	D	3.00E-01 [I]	1.00E+00 [H]	3.00E-01	--	--	--	--
Beryllium	B2	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	4.30E+00 [I]	2.40E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis(2-ethylhexyl)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	--	--	--	--	--
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E + 00 [S]	3.70 - 04 [S]
Chromium III	--	1.00E+00 [I]	1.00E+00 [H]	1.00E+00	--	--	--	--
Cobalt	--	--	--	--	--	--	--	--
Cyanide	--	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
Cyclohexenone	--	5.00E+00 [I]	--	5.00E+00	--	--	--	--
2,4'-DDD	--	2.26E-04 [S]	--	2.26E-04	--	--	--	--
2,4'-DDE	--	--	--	--	--	--	--	--
2,4'-DDT	--	3.48E-05 [S]	--	3.58E-05	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dibenzofuran	D	--	--	--	--	--	--	--

Table 8-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan I	--	2.53E-02 [S]	--	2.53E-02 [S]	--	--	--	--
Endosulfan II	--	8.0E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Hexachlorobenzene	B2	8.00E-04 [I]	--	--	--	--	--	--
HpCB	--	6.20E-07 [C]	--	6.20E-07	--	--	2.40E+00 [C]	5.30E-04 [C]
1,2,3,4,6,7,8 HpCDD	--	--	--	--	--	--	1.5E+03 [C]	3.3E-01 [C]
HxCB	--	6.00E-07 [C]	--	6.00E-07	--	--	2.40E+02 [C]	5.30E-02 [C]
1,2,3,4,7,8 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
1,2,3,7,8,9 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
2,3,4,6,7,8 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--
Kepone	--	4.20E-05 [S]	--	6.72E-04 [S]	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-07 [I]	1.00E-07 [H]	1.00E-07	1.50E+00 [N]	--	--	--
Magnesium	--	--	--	--	--	--	--	--
Manganese (food)	D	1.40E-01 [I]	1.00E-01 [H]	--	--	--	--	--
Manganese (water)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Methoxychlor	D	5.00E-03 [I]	5.00E-03 [H]	7.60E-02 [S]	--	--	--	--
Mirex	--	2.00E-04 [I]	--	--	--	--	--	--

Table 8-5

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Nickel	A	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
n-Nitroso-di-n-propylamine	B2	--	--	--	--	--	7.00E+00 [I]	--
n-Nitroso-di-methylamine	B2	--	--	--	--	--	5.10E+01 [I]	1.40E-02 [I]
OCDD	--	1.00E-06 [C]	--	1.00E-06		--	1.50E+02 [C]	3.30E-02 [C]
OCDF	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.30E-02 [C]
PnCB	--	2.50E-09 [C]	--	2.50E-09	--	--	6.00E+04 [C]	1.32E+01 [C]
Pyridine	--	1.00E-03 [I]	--	--	--	--	--	--
Selenium	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--
TCB	--	2.70E-07 [C]	--	2.70E-07	--	--	4.05E+02 [C]	8.91E-01 [C]
Thallium	D	8.00E-04 [I]	8.00E-04 [H]	8.00E-05	--	--	--	--
2,3,7,8-TCDD	B2	1.00E-09 [H]	--	--	--	--	1.5E+05 [H]	3.3E+01 [H]
2,3,7,8-TCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
Vanadium	--	7.00E-03 [H]	7.00E-03 [H]	7.00E-03	--	--	--	--

[C] Calculated based on the comparative potency factors for individual PAHs or dioxins.

[E] Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.

[H] Health Effects Assessment Summary Tables (HEAST).

[I] Integrated Risk Information System (IRIS).

[S] Surrogate value. Refer to Appendix G for rationale.

[N] National Ambient Air Quality Standard.

8.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

8.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

8.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 67 chemicals of potential concern.
- 52 oral RfDs available:
  - -- 14 surrogate values derived;
  - -- 4 values from HEAST; and
  - -- 6 calculated values.
  - -- 28 USEPA-verified RfDs:
    - 3 - high confidence;
    - 17 - medium confidence; and
    - 8 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Fourteen of the 48 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Twenty-eight values were obtained from IRIS and have levels of confidence that range from high (three chemicals) to low (eight chemicals). Six values were calculated based on comparative potency

factors for dioxins and four values were obtained from HEAST. Oral RfDs were not available for 15 of the chemicals of potential concern. A qualitative assessment was conducted for these 15 chemicals (see Appendix G).

Carcinogen Toxicity Information

- 27 oral slope factors available:
  - -- 12 USEPA-verified slope factors:
    Group B2 - 11 chemicals;
    Group C - 1 chemical;
  - -- 2 Surrogate values;
  - -- 11 calculated values; and
  - -- 2 values from HEAST.
- 24 Inhalation unit risks available:
  - -- 10 USEPA-verified unit risks;
  - -- 2 surrogate values;
  - -- 11 calculated values; and
  - -- 1 value from HEAST.

Thirty-one of the 67 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Ten chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Fifteen chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and two chemicals were classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for 12 of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Ten oral slope factors were calculated based on comparative potency factors for dioxins and two values were obtained from HEAST. Inhalation unit risk factors were available for 24 chemicals. Ten unit risks were USEPA-verified values, two values were surrogates, 11 values were calculated based on comparative potency factors for dioxins, and one value was obtained from HEAST.

8.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Pond G, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intake and were compared to chemical-specific toxicity information.

8.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake × Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Pond G, the probability of an individual developing cancer over

a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure (*de minimis*) for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

8.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

8.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Pond G presently or in the future, three chronic and two subchronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; 2) current off-site recreational exposure; and 3) future off-site agricultural exposure. The *subchronic* scenarios were: 1) current on-site occupational exposure; and 2) on-site recreational exposure (teenage trespassers).

8.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

Carcinogenic risk:

- Ingestion of waterfowl contaminated by PCBs (PnCB and HxCB) by hunters.

Noncarcinogenic hazard:

- Dermal contact with organic lead in surface water by on-site workers.
- Dermal contact with and incidental ingestion of organic lead in surface water by trespassers.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the lagoons. The scenario is based on current knowledge of maintenance activities that occur at Pond G.

Current on-site workers were assumed to be exposed to contaminants in Pond G via three pathways of exposure: 1) dermal contact with surface

water; 2) dermal contact with sludge; and 3) dermal contact with soil underneath the sludge. Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 5E-10
- Total Reasonable maximum = 9E-9

Noncarcinogenic hazard

- Total average HI = 5.0E-3
- Total reasonable maximum HI = 2.2

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 5E-10 and 9E-9, respectively. Neither value exceeds the lower-bound risk range goal defined by Subpart S. Alpha-BHC (38%), followed closely by 4,4'-DDD (24%) and gamma-chlordane (13%) caused the majority of the average risk. Beta-BHC caused the majority of the reasonable maximum risk (refer to Appendix I). Dermal contact with sludge contributed significant pathway-specific risk for both average (88%) and reasonable maximum exposures (26%). Dermal contact with surface water (73%) drives the risk for reasonable maximum exposure.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 5.0E-3 and 2.2, respectively. The reasonable maximum risk exceeds unity and may indicate cause for concern regarding noncancer health effects for on-site workers. As shown in Figure 8-4, organic lead was responsible for virtually all of the total hazard for the reasonable maximum exposure. Organic lead was also responsible for the hazard associated with average exposure. Dermal contact with surface water was responsible for virtually all of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

The subchronic scenario addresses the same pathways of exposure as the chronic occupational scenario but assesses risk for military personnel who may work at the site for an average tour-of-duty (three years). Carcinogenic risk was not modeled for the subchronic occupational scenario since carcinogenic risks are estimated as the probability of developing cancer over a lifetime. In addition, USEPA's approach to toxicity assessment for carcinogens was developed for assessing risk associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risk associated with subchronic exposure is not appropriate. Calculated noncancer HIs are presented in Appendix I. The risks associated with the subchronic scenario were identical to those predicted for the chronic scenario and may indicate a potential for adverse noncancer health effects in those exposed to site-related contaminants on a subchronic basis.

Current Off-Site Recreational Scenario - Adult Chronic Exposure

Contaminants may bioaccumulate in waterfowl that use the lagoons and lakes as habitat. As several of these waterfowl are game species, humans may be indirectly exposed as a result of hunting activities. This scenario addresses pathways considered to be complete for adult hunters, assuming that Pond G is accessible and that wild game duck are hunted on site and ingested off site by hunters. While hunting is prohibited on-Base, the integrity of the fence surrounding Pond G has been compromised and, therefore, the pond is accessible to local hunters. The current off-site recreational scenario assumes exposure to site-related contaminants via ingestion of waterfowl.

To assess this current scenario, it was assumed that waterfowl bioaccumulate site-related contaminants via ingestion of contaminated surface water, plankton, and algae. For waterfowl exposed to contaminants migrating through the lagoon system, exposure concentrations were based on: 1) measured surface water concentrations in each individual impoundments; 2) measured concentrations in algae and plankton; and 3) modeled uptake and accumulation in the edible portions of ducks (based on measured surface water concentrations and modeled biota concentrations).

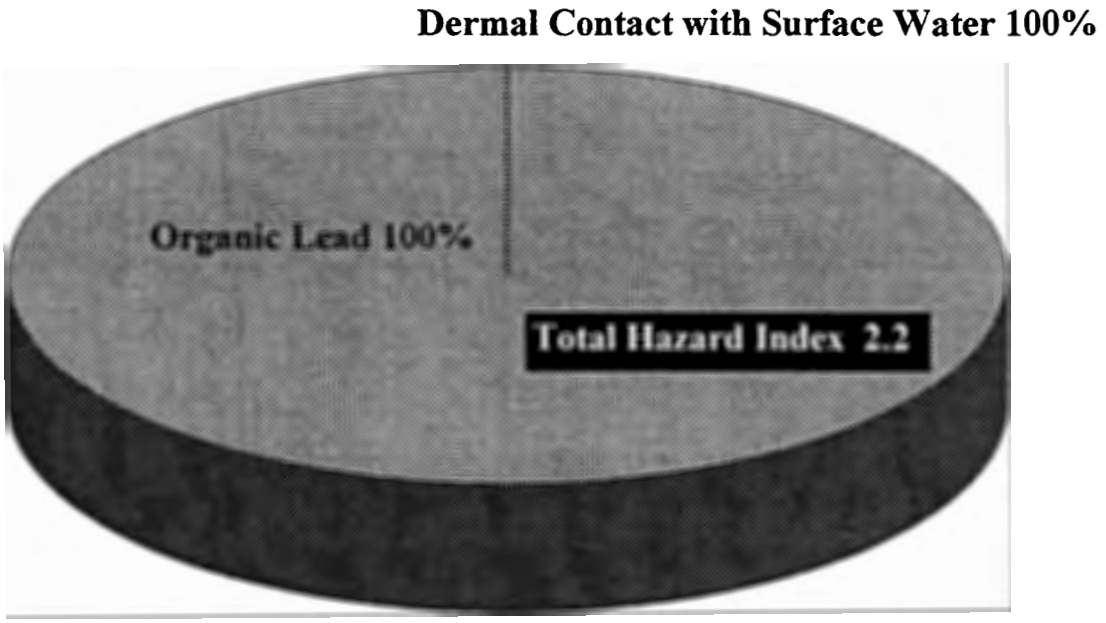


Figure 8-4. Reasonable Maximum Noncancer Hazard Index - Current On-Site Occupational Scenario

Current Off-Site Recreational Adult Risk

Carcinogenic risk:

- Total average = 1E-7
- Total reasonable maximum = 5E-6

Noncarcinogenic hazard:

- Total average = 5.5E-3
- Total reasonable maximum = 0.08

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 1E-7 and 5E-6, respectively. The reasonable maximum risk value exceeds the lower-bound Subpart S goal and may indicate cause for concern for local hunters. As shown in Figure 8-5, pentachlorinated biphenyls contributed the majority of the risk (64%) for the reasonable maximum exposure. Hexachlorinated biphenyls were responsible for 19% of the total reasonable maximum risk. These same constituents were responsible for driving the risk for average exposure. Ingestion of waterfowl is the only exposure pathway assessed and, therefore contributes 100% of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 5.5E-3 and 0.08, respectively. Neither value exceeds unity. Pentachlorinated biphenyls (45% and 47% of average and reasonable maximum hazard, respectively) and hexachlorinated biphenyls (21% and 22% of average and reasonable maximum hazard) caused the majority of the hazard. Ingestion of waterfowl is responsible for all of the pathway-specific hazard.

Current Off-Site Recreational Scenario-Child Chronic Exposure

This scenario addresses pathways considered to be complete for children of local hunters who ingest contaminated waterfowl.

Current Off-Site Recreational Child Risk

Carcinogenic risk:

- Not determined for children

Noncarcinogenic hazard:

- Total average HI = 0.02
- Total reasonable maximum HI = 0.22

Carcinogenic Risk-- Carcinogenic risk was not modeled for children since risks are estimated as the probability of developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.02 and 0.22, respectively. Neither value exceeds unity. Again, pentachlorinated biphenyls (45% and 47% of average and reasonable maximum hazard, respectively) and hexachlorinated biphenyls (21% and 22% of average and reasonable maximum hazard) caused the majority of the hazard. Ingestion of waterfowl is responsible for all of the pathway-specific hazard.

Current Off-Site Recreational Scenario - Subchronic Exposure

A subchronic scenario was not assessed for off-site recreational exposure since none of the chronic hazards exceeded *de minimis* levels.

Current On-Site Recreational Scenario - Teenage Subchronic Exposure

This scenario addresses pathways considered to be complete for teenage trespassers, assuming that accidental immersion in Pond G occurs. While access to most of the Base is restricted, the integrity of the fence surrounding Pond G has been compromised and, therefore, the pond is accessible to local teenagers. Teenage trespassers have been observed (i.e., fishing and playing) near Pond G in the past. The current on-site recreational scenario assumes exposure to site-related contaminants via four pathways of exposure: 1) dermal contact with surface water; 2) incidental ingestion of surface water; 3) dermal contact with sludge; and 4) dermal

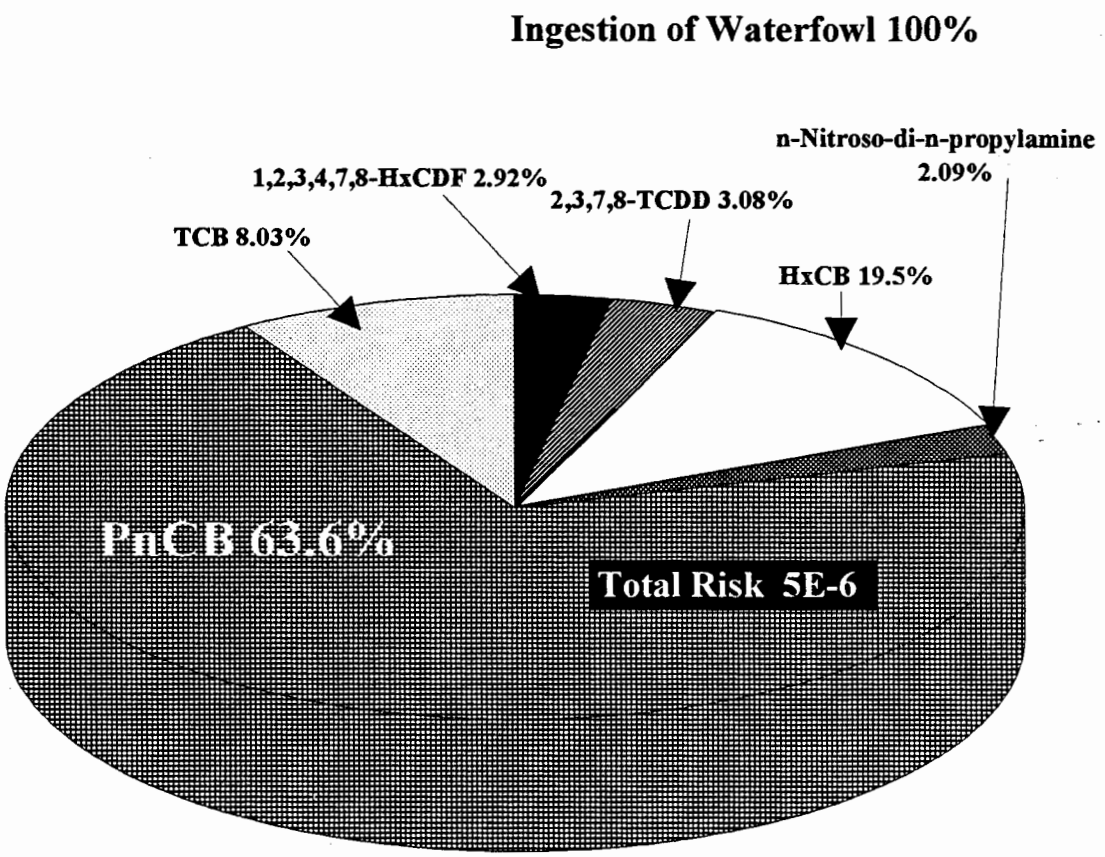


Figure 8-5. Reasonable Maximum Cancer Risk-Adult Off-site Recreational Scenario

contact with soil. Exposure concentrations are based on measured concentrations in the various media.

Carcinogenic Risk--Carcinogenic risk was not modeled for teenage children since risks are estimated as the probability of developing cancer over a lifetime.

Current On-Site Recreational Trespasser Risk

Carcinogenic risk:

- Not determined for teenage children

Noncarcinogenic hazard:

- Total average HI = 1.2
- Total reasonable maximum HI = 3.9

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 1.2 and 3.9, respectively. Both values exceed unity and may indicate for cause for concern regarding noncarcinogenic health effects in teenage trespassers. As shown in Figure 8-6, organic lead was responsible for virtually all of the chemical-specific hazard for reasonable maximum exposure. Organic lead was also the major risk contributor for average exposure. Dermal contact with surface water and incidental ingestion of surface water each caused 50% of the pathway-specific hazard for the average and reasonable maximum exposure.

8.6.5 Major Factors Driving Future Risks

Major Factors Driving Future Risks

- No risks/hazards exceed *de minimis* levels.

Future Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults in the future, assuming that land surrounding the Base will be developed for residential and/or agricultural purposes. The future agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this future exposure scenario, it was assumed that agricultural wells would be placed at the Base perimeter (downgradient of the lagoons) and would be used to provide stock water for cattle. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, also was considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Future Agricultural Chronic Adult Risk

Carcinogenic risk:

- Total average = 4E-10
- Total reasonable maximum = 1E-8

Noncarcinogenic hazard:

- Total average HI = 2.4E-5
- Total reasonable maximum HI = 2.4E-4

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 4E-10 and 1E-8, respectively. Both risk values are below the Subpart S goals and suggest that contaminants migrating off site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Risk--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.4E-5 and 2.4E-4, respectively. Both HIs are less than unity and suggest that contaminants migrating off site via groundwater are not likely to cause adverse non-cancer health effects in adults.

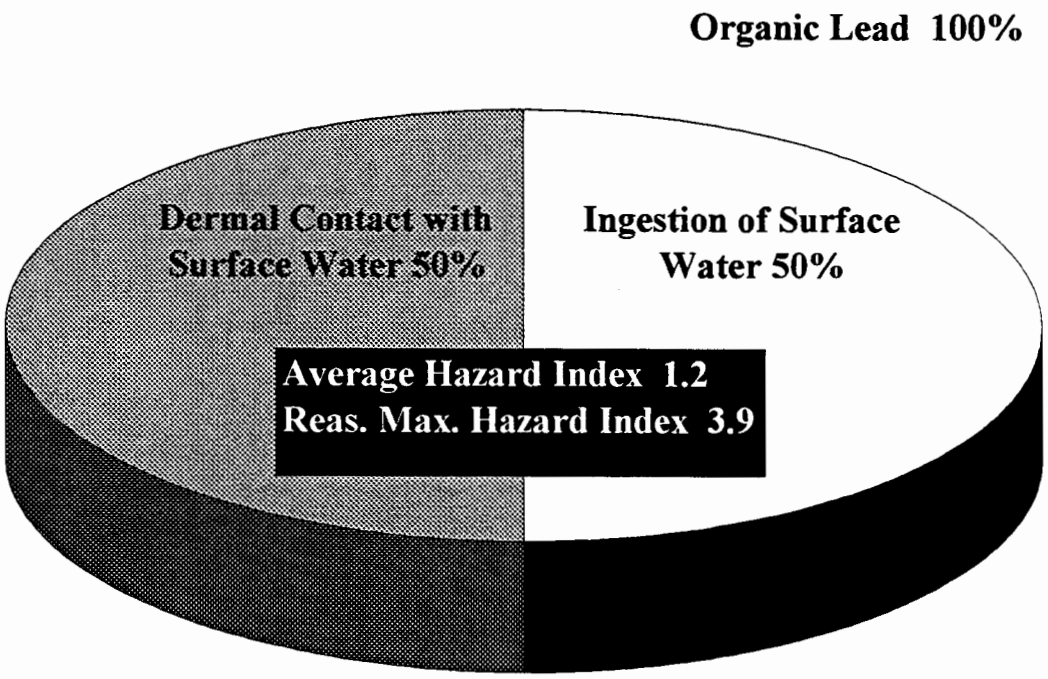


Figure 8-6. Average and Reasonable Maximum Noncancer Hazard Index-Current On-Site Recreational Scenario

Future Agricultural Exposure Scenario - Child Chronic Exposure

Future Agricultural Chronic Child Risk

Carcinogenic risk:

- Not determined for children

Noncarcinogenic hazard:

- Total average HI = 5.6E-5
- Total reasonable maximum HI = 5.6E-4

This scenario addresses pathways considered to be complete for children in the future, assuming that land surrounding the Base is developed for residential/agricultural purposes. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Risk--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 5.6E-5 and 5.6E-4, respectively. Both HIs are less than one and suggest that contaminants migrating off site via groundwater are not likely to cause adverse non-cancer health effects in children.

8.6.6 Lead Evaluation

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. The Lead5 Model was obtained for this risk assessment and used in conjunction with site-specific data to estimate blood lead levels as an indicator of risk. The results generated by the Lead5 Model are presented in Appendix H. All blood lead levels at this site were well below the 10 μg/dL (exposure level known to increase the risk of irreversible neurobehavioral deficits during infancy or childhood) cutoff point.

8.6.7 Uncertainties Associated with Risk Characterization

The off-site recreational risks are driven by ingestion of PCB-contaminated waterfowl. These risks are based solely on modeled results. There are many uncertainties associated with modeling contaminant uptake into waterfowl because of the conservatisms built into the modeling approach. The most toxic PCB congeners are generally present in biota at such low concentrations as to severely compromise their detection. Therefore, data were not generated for the most toxic PCB congeners. Instead, the most potent enzyme inducing congener in the "numerical PCB class" was used as a proxy for the entire class. The toxicity equivalence factor methodology described in Appendix G was then used to estimate the toxicity associated with these congeners. It is possible that the risks associated with waterfowl ingestion are overestimated due to the assumption that all contaminants detected in lower trophic levels bioaccumulate in waterfowl.

The current occupational and on site recreational hazards result from dermal contact with organic lead in surface water. The source of the organic lead that is driving the occupational and recreational hazards is uncertain as well. The organic lead driving these risks was detected in 1991 and have most likely volatilized. However, the presence of organic lead in Pond G cannot be ruled out without further sampling.

8.6.8 Summary

The results of this risk assessment indicate that increased noncarcinogenic hazards are associated with reasonable maximum exposure to current on-site workers at Pond G. Elevated carcinogenic risk is associated with reasonable maximum exposure to off-site recreational adults. The on-site recreational (trespasser) scenario has average and reasonable maximum hazard indices that exceed *de minimis* values. All risks/hazards associated with the future agricultural scenario were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Pond G. Conservative assumptions that may impact the risk characterization include: 1) use of

Risk Characterization Results

Risks hazards above *de minimis* levels include:

- Noncancer hazard to current on-site workers; and
- Carcinogenic risk to current off-site recreational users (hunters);
- Noncancer hazard to teenage trespassers.

the oral RfD to assess hazard associated with dermal exposure to organic lead; 2) use of a toxicity equivalence factor method to calculate oral slope factors for polychlorinated biphenyls (PCBs); 3) exposure frequency; 4) exposure duration; 5) surface area available for dermal contact; and 6) assumption that all contaminants detected in lower trophic levels bioaccumulate in waterfowl.

8.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological hazard index for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..." can provide some qualitative information on the likelihood and severity of impacts" because of chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Pond G and discusses the ecological quotient calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K. A discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions presented in Section 13.0.

8.7.1 Background

Pond G is 39.8 acres and has the capacity to hold 64.6 million gallons of water. Effluent from Pond G flows to Lake Holloman. Plankton, fish, sludge and surface water were collected from this lagoon. The pH was approximately 8.5, and the alkalinity was measured at 243 mg/L. Water depth was 1.1-1.2 meters, secchi depth was 0.4-0.5 meter. A profile of temperature, conductivity (C), and dissolved oxygen (DO) at various depths was made, and is presented in Table 8-6.

At 4:00 pm (March 5), the DO meter was recalibrated. Readings in saturated deionized water were 8.2-8.3 mg/L. Additional DO readings were taken near the outlet where water flows through a standpipe and is discharged through a pipe, flows about five feet down a waterfall over algae bearing gypsiferous encrustations into a splash pool. DO readings next to the outlet standpipe were 11.0-11.2 mg/L, inside the standpipe 10.8-11.0 mg/L, and just below the splash pool 10.0 mg/L. A Winkler titration on a sample taken near the standpipe confirmed the results with a DO reading of 11.1 mg/L.

Pond G is an unlined pond bordered by salt grass and tamarisk trees. Cattails grow along the shallow edges. The south end of the pond is a rubble dam with little vegetation along the waterline. The west bank is fairly steep and is overgrown with tamarisk. Muskrat holes were apparent in this bank.

Benthos were not collected in Pond G because of the difficulty of separating them from the

Table 8-6

Water Quality Parameters - Pond G

10:45 am 3/6/93	Near Center		
Depth (m)	C(μmhos)	Temp (°C)	DO (mg/L)
Surface	4500	13.5	10.6
1.0	4600	13	10.2

substrate. The deep part of the pond was covered with a layer 1 to 2 inch layer of bacterial/algal ooze and was devoid of macroscopic life. The south shore was too covered in concrete rubble to allow sampling; the west shore had too much tamarisk debris for sampling. Chironomids were present in the shallow water along the north and west banks, but at relatively low population densities (seven per hand dredge sample was the maximum concentration found). The skid dredge was attempted, but the substrate was too gluey to wash through, preventing collection of chironomids.

Large flocks of ducks were common at Pond G. Shorebirds fed along the shallower shores. Great blue herons were at the pond occasionally. A marsh hawk was observed over the wetlands west of Pond G. Fish (*Gambusia affinis*) were present in Pond G along all shores. A sample was taken along the north, northeast, and the east cove shorelines. Plankton and surface water samples were taken as discussed in Appendix M.

8.7.2 Exposure Assessment

Indicator Species Selected for Pond G

- Fish;
- Mallards; and
- Mergansers.

Figure 8-7 is a conceptual site model of Pond G. Plankton, benthic invertebrates, fish, sediments, sludge, and surface water were sampled at this pond. Fish were present in Pond G. The indicator species selected for this pond were mallards and mergansers which feed on the plankton and fish, respectively.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Pond G makes up about 12% of the system; therefore, 12% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 6%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

For mergansers, the average ingestion fraction was assumed to be 33%, since fish were only present in three locations (Pond G, Lake Holloman and the ditch) and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. The mergansers are migratory; therefore, the ingestion fraction was divided in half for average exposure (16.5 %) to represent 6 months in the area. The reasonable maximum was set at 33%, which is worst case, to cover those birds feeding on fish in this area year round.

8.7.3 Risk Characterization

Risk Characterization Results

Birds:

- Adverse effects not expected.

Fish:

- Fish adverse effects possible.

Table 8-7 lists the EQs for the indicator species. The potential risk to both mallards and mergansers was below one and therefore acceptable. It should be noted that the majority of the potential risk in Pond G was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to birds feeding at Pond G can be quantified based on the fraction ingested from this pond; however, the birds are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributed to

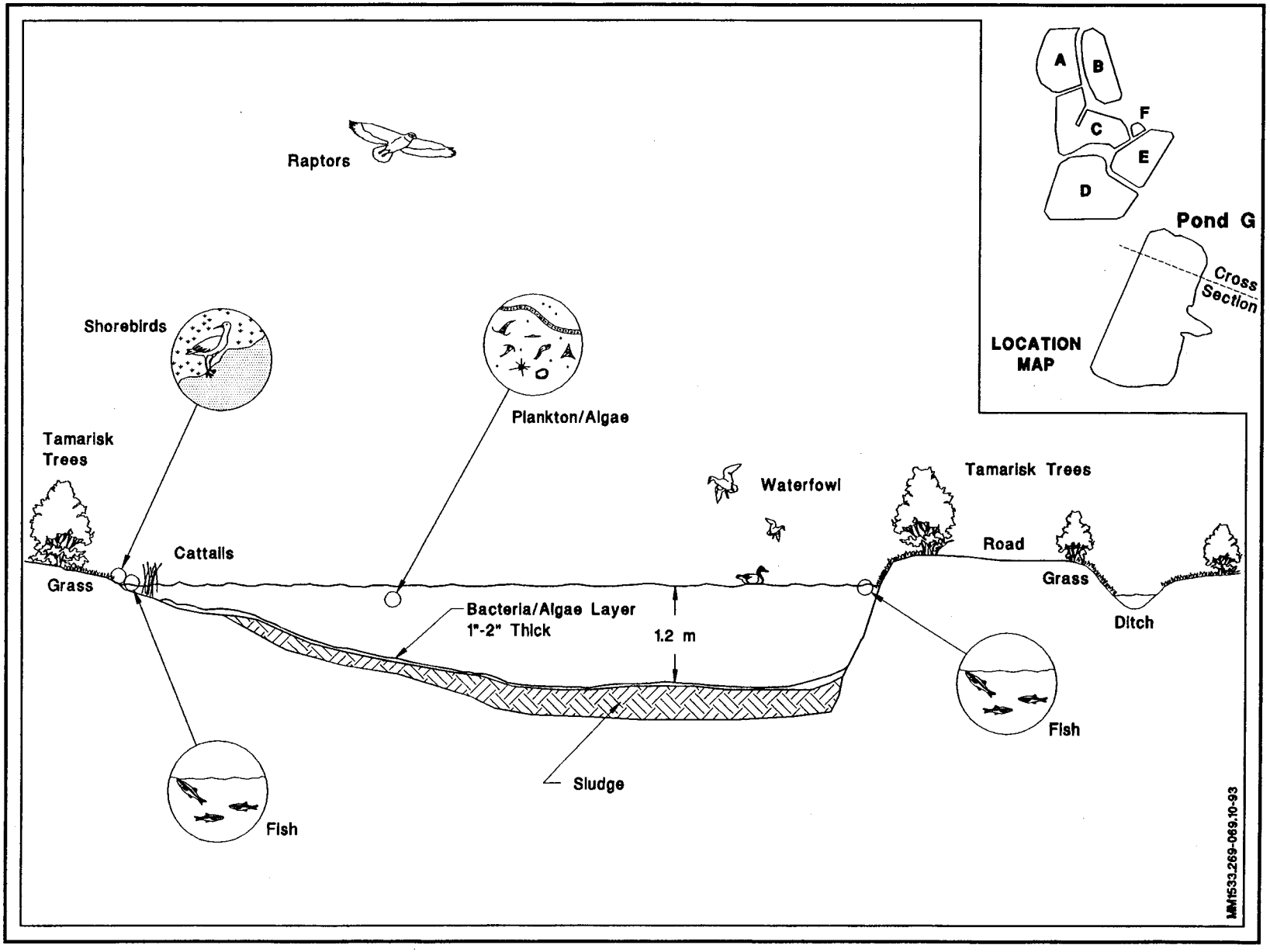


Figure 8-7. Ecological Conceptualization Model for Pond G

Table 8-7

Ecological Quotients - Pond G

Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.08	0.14
Mergansers	0.07	0.36
Fish	2.2	2.5

Pond G alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or ecological hazard index, for mallards and mergansers. A discussion of cumulative risks to birds is included in the conclusions in Section 13.0.

Based strictly on the water contaminant concentrations, adverse effects may be possible to the fish present in Pond G. The ecological HQ for fish in Pond G was 2.3 for average exposure and 2.5 for reasonable maximum exposure. These EQs are above one, indicating that adverse effects are possible, though the probability is low. In addition, the EQs were based strictly on the contaminants detected in the surface water and do not account for contaminant exposure from other sources. A large percentage of the risk is contributed by mercury. It was assumed that the mercury is present in a bioavailable and toxic form. Depending on the species of mercury, these results may be conservative. The presence of fish indicates that pond conditions are adequate for their survival. The presence of invertebrates in the pond indicates that conditions are not lethal; although the invertebrates may be stressed from contamination in sediments.

8.8 Conclusions for Pond G

Maintenance activities at Pond G are reduced compared to those occurring at the upper lagoons (particularly Ponds A and B). Carcinogenic risk for the current occupational scenario was within the acceptable range for both average and reasonable maximum exposures. Noncarcinogenic risk was acceptable for average exposures, but was elevated for reasonable maximum exposure (hazard index of 2.2) because of the presence of organic lead in surface water. Organic lead concentrations in Pond G were measured in 1991, and were found to be substantially higher than those in the upper lagoons. The origin of the organic lead is uncertain, and may not be related to past waste disposal practices. It is probable that the organic lead detected during the previous sampling event has volatilized. Assuming that the presence of organic lead is ruled out, all remaining noncancer hazard indices would be within acceptable limits. However, the presence of organic lead in Pond G cannot be ruled out as a source of potentially hazardous occupational exposure without additional surface water sampling and analysis.

Potential recreational exposures associated with Pond G include ingestion of waterfowl that may have ingested contaminants at the lakes and lagoons and accidental immersion of teenage trespassers. Although it is difficult to model these exposures because of the many uncertainties, both of these activities are known to occur at Pond G; the exposure assessment is likely to err on the conservative side. The carcinogenic risk associated with ingestion of waterfowl was found to be excessive for reasonable maximum exposure.

However, these risks are based solely on modeled concentrations in waterfowl. While PCBs have only been detected in Ponds A and B, risks associated with ingestion of waterfowl are caused by PCBs. This is because it was assumed that waterfowl spend a percentage of their time feeding at each impoundment in the lagoon system.

It was assumed that all contaminants detected in the lower trophic levels are bioaccumulated in waterfowl. However, bird tissues have been collected and are currently being analyzed. It is suspected that many of the chemicals modeled into waterfowl will not be detected and therefore, these risks are expected to be overestimated.

Noncarcinogenic effects for adults and children ingesting waterfowl are unlikely based on the low hazard index values. Noncarcinogenic risk for teenagers falling in the lagoon was found to be above *de minimis* levels for both the average and the reasonable maximum primarily from exposure to organic lead. Although the same uncertainties as discussed above about organic lead sources and significance apply for this scenario, there is added concern because of the known sensitivity of growing children to the toxic effects of lead. Resampling of the lagoon for organic lead would aid in interpreting the significance of these results; in the interim it is recommended that the fence around Pond G be repaired and inspected regularly to maintain its integrity.

The agricultural scenario examines the possible impact of groundwater contamination on the use of the land surrounding Pond G to graze beef cattle. Although cattle are not currently run on this land, adjacent lands are leased for grazing, and this exposure could occur under current conditions.

Ingestion of beef from cattle pastured on this land and watered with groundwater pumped to the surface by a stock well, resulted in carcinogenic and noncarcinogenic risks that were well below *de minimis* levels.

The baseline risk assessment of hypothetical future on-site residential development (Appendix L) identified carcinogenic risks (average and reasonable maximum exposure) and noncancer hazards (child reasonable maximum exposure) that exceed *de minimis* levels. Dermal contact with pesticides in sludge drives the carcinogenic risks as well as the noncancer hazards. It is unlikely that Pond G would ever be developed as a residential area; however, as a natural depression in ground elevation the area would act as a natural playa lake (although likely of reduced dimensions) even in the absence of wastewater discharge.

The current occupational, recreational, and agricultural scenarios represent site-specific risks associated with existing contamination. The reasonable maximum occupational exposure and the teenage trespasser exposure resulted in noncancer hazards that exceed *de minimis* levels, although there is substantial uncertainty associated with the organic lead results. Provided the fence is kept in good repair, site-specific current conditions are unlikely to result in unacceptable risks to human health.

The ecological assessment indicated that birds (mallards and mergansers) using Pond G are not likely to be at risk. EQ values for fish were slightly elevated; however Pond G has a large fish population, so these values are unlikely to represent a significant risk. On the basis of acceptable average risks to human health and the environment and with the understanding that the fence surrounding Pond G will be repaired, it appears that Pond G can continue to be used.

Section 9
RISK ASSESSMENT FOR THE DITCH

This section presents the unit-specific risk assessment for the ditch between Pond G and Lake Holloman. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the lagoon system.

9.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of the ditch. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

9.1.1 Site Description

The ditch receives effluent from Pond G and discharges into Lake Holloman. The ditch also receives stormwater drainage from the southern end of the runways and from the golf course northeast of the lagoons. Immediately below the outfall from Pond G, the ditch is approximately 2 feet wide and the width increases gradually to 10 feet at the entrance to Lake Holloman. The upper end of the ditch is enclosed within the fence surrounding the entire wastewater treatment system. The lower portion of the ditch from the HAFB property boundary to Lake Holloman is not fenced and is accessible, although vegetation along the banks precludes easy access to the water and sediments.

9.1.2 Identification of Releases into Media

Release Summary

Contaminants in the ditch have:

- Infiltrated into underlying soils; and
- Accumulated in biota.

Figure 9-1 outlines the fate and transport of contaminant releases from the ditch, exposure pathways and routes, and potential receptors. As indicated by the figure, surface water and algae in the ditch serve as the contaminant sources. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the surface water and algae to other media include: 1) infiltration into underlying soils; and 2) uptake by biota.

9.1.3 Evaluation of Exposure Points/Routes

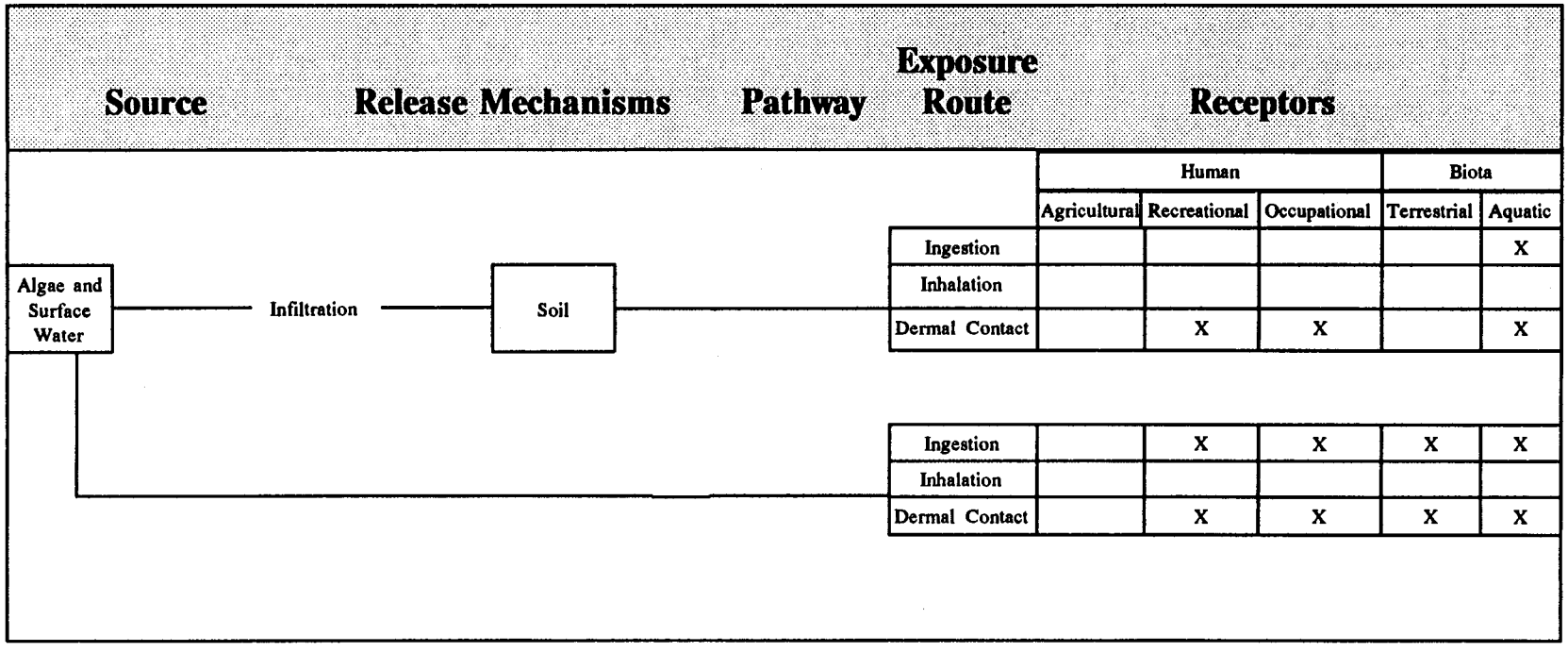
Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water and soil;
- Ingestion of waterfowl; and
- Incidental ingestion of surface water.

Assessments of the ditch, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in the ditch. Evaluation of these points of exposure suggests that four potential routes exist for human contact with contaminants (see Figure 9-1). These include: 1) dermal contact with contaminants in surface water; 2) dermal contact with soil; 3) incidental ingestion of surface water; and 4) ingestion of waterfowl.

Currently, inhalation of volatile contaminants is not considered to be a viable exposure route, as sampling results indicated only extremely low concentrations of volatile compounds remain in all media. Similarly, ingestion of groundwater also is not considered to be a viable exposure route, as groundwater is not considered potable for human consumption because of the high total dissolved solids concentration present. A discussion of ecological exposure is provided in



Pathway	Exposure Route	Human: Agricultural	Human: Recreational	Human: Occupational	Biota: Terrestrial	Biota: Aquatic
Algae and Surface Water — Infiltration — Soil	Ingestion					X
	Inhalation					
	Dermal Contact		X	X		X
Algae and Surface Water	Ingestion		X	X	X	X
	Inhalation					
	Dermal Contact		X	X	X	X

Figure 9-1. Fate and Transport - Ditch

Section 2.7. Although an increase in agricultural activities is possible, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes associated with the ditch.

9.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current site workers; and
- Hunters/bird watchers.

Three potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 9-1). These include: 1) current site workers who may have dermal contact with surface water or soil during maintenance activities; 2) hunters and bird watchers who may be exposed to surface water and soil during recreational activities; and 3) hunters who consume waterfowl exposed to contaminants. The size of these potentially exposed populations could fluctuate over time; however, it would likely increase for some exposure routes and decrease for others.

9.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, which are located downgradient, is presented in Appendix A.

The chemicals identified as contaminants of potential concern for the ditch are presented in Table 9-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

9.3 Contaminant Fate and Transport

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Two potentially significant contaminant fate and transport processes have been identified for the ditch. These include: 1) settling and infiltration from/by surface water and algae into soil; and 2) uptake by biota.

Release rates to soil were based on analytical data from current and previous

Table 9-1

Chemicals of Concern for Ditch

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin			✓	
Benzo(b)fluoranthene			✓	
Benzo(k)fluoranthene			✓	
α-BHC		✓	✓	
β-BHC			✓	
δ-BHC			✓	
γ-BHC			✓	
α-Chlordane			✓	
γ-Chlordane			✓	
4,4'-DDD			✓	
4,4'-DDE			✓	
4,4'-DDT			✓	
Dieldrin		✓		
Endrin aldehyde			✓	
Heptachlor epoxide			✓	
Isodrin		✓	✓	
Inorganics				
Antimony			✓	
Arsenic			✓	
Beryllium			✓	
Cobalt			✓	
Lead			✓	
Mercury			✓	
Sulfide			✓	

Fate and Transport Summary

Contaminants in the ditch:

- Originate in surface water and algae;
- Infiltrate into soil; and
- Accumulate in biota.

Critical Assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport Models:

- No models used at this site.

investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the sludge, soil, and surface water, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring.

To assess contaminant fate and transport for the risk assessment, analytical data were used. The following subsections discuss the contaminant fate and transport for each migration pathway at the ditch.

9.3.1 Release from Surface Water to Soil

Infiltration of contaminants from surface water and algae into soil is a significant pathway for the ditch. It acts as the single mechanism allowing contaminants to migrate from the source.

9.3.2 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to ditch contaminants:

- Mosquito fish;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria; and
- Semi-aquatic plants.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

A second fate and transport route is biological uptake. Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in the ditch. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed at the ditch and use several of the water bodies in the treatment system as either permanent or migratory habitat. The ditch also serves as habitat for fish, plankton, benthic invertebrates, algae, and bacteria. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 9.7 and Appendices F and K contain more information on uptake by biota.

9.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 9.1 provides a brief description of the exposure setting for the ditch.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 9-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

9.4.1 Identification of Contaminant Releases

Sampling conducted at the ditch has identified releases of contaminants from surface water and algae to soil and biota. Sections 9.1.2 and 9.3 provide a more complete discussion of contaminant releases from the ditch.

9.4.2 Exposure Scenarios

Exposure Scenario Summary

Workers (chronic):

- Worker, average; and
- Worker, reasonable maximum.

Hunters/bird watchers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

On-site workers (maintenance workers) and hunters/bird watchers represent the significant populations that may potentially be exposed to chemicals in or originating from the ditch. Figure 9-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the ditch itself.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for occupational (maintenance workers) exposure include chronic exposure to the potential chemicals of concern, for both average and reasonable maximum levels of exposure. For recreational exposures (hunters/bird watchers), the scenarios were analyzed for chronic exposures to adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

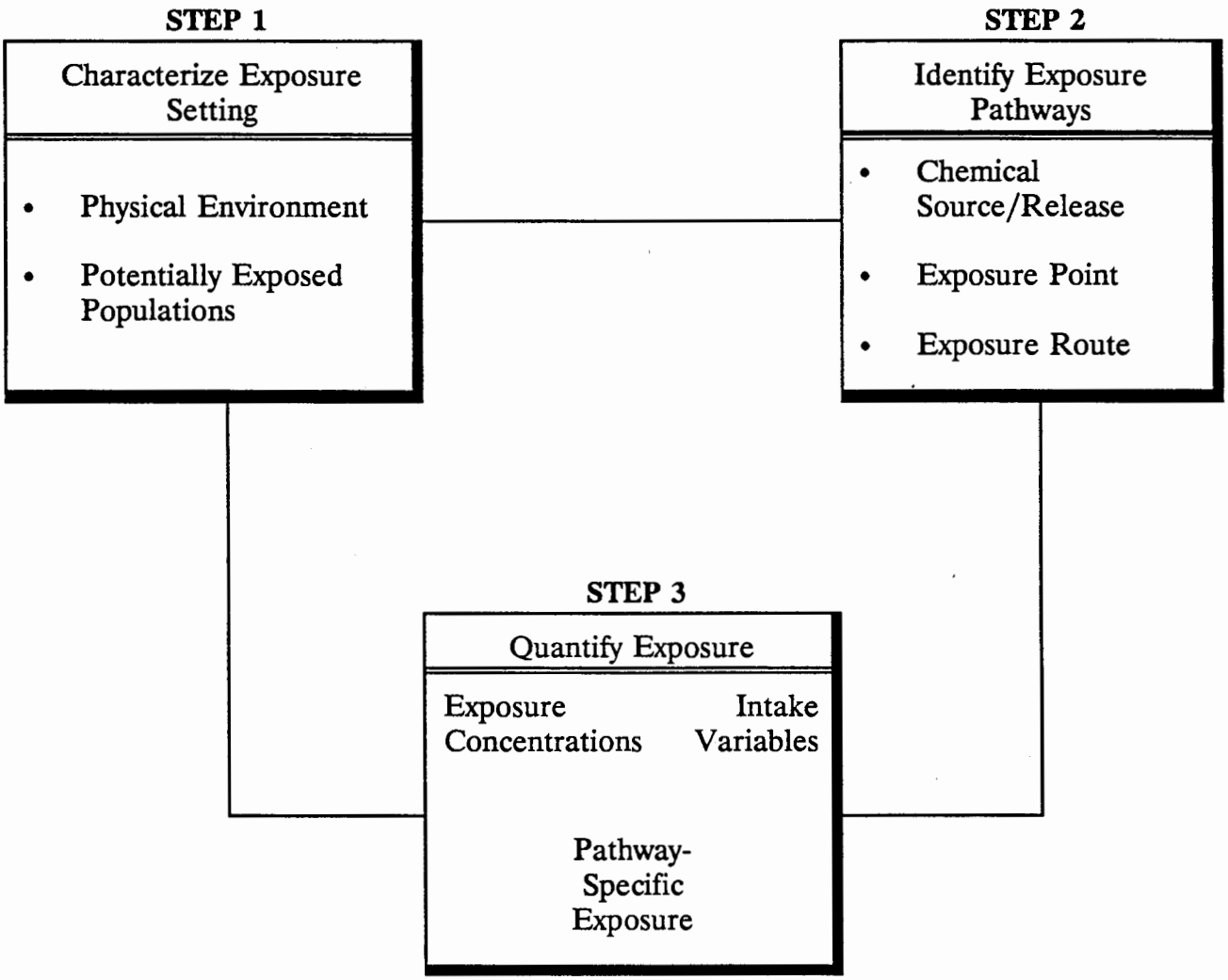


Figure 9-2. Flowchart of the Exposure Assessment Process

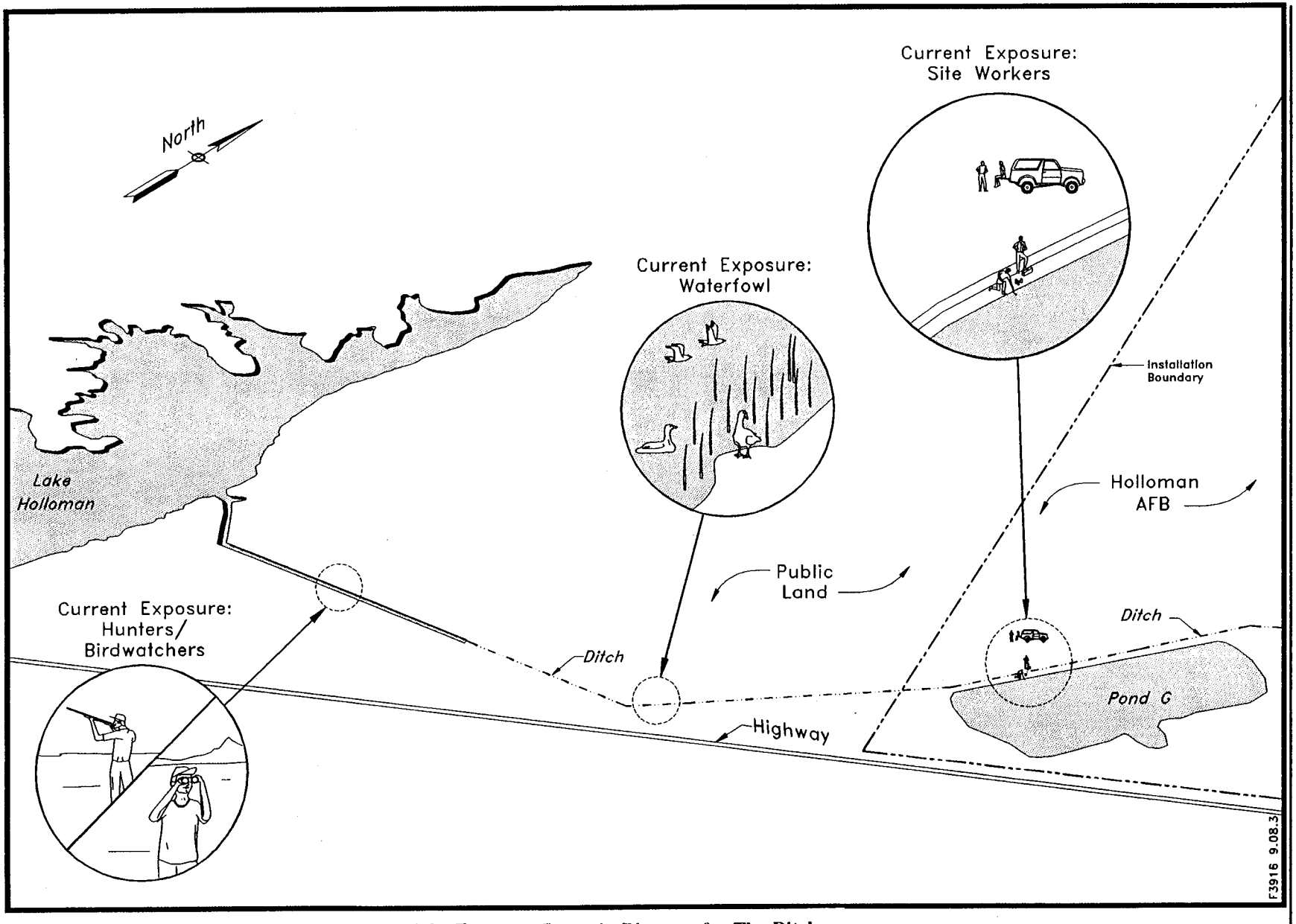


Figure 9-3. Exposure Scenario Diagram for The Ditch

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

9.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with soil;
- Incidental ingestion of surface water; and
- Ingestion of waterfowl.

Incomplete exposure pathways:

- Inhalation of volatiles/dust;
- Ingestion of soil; and
- Ingestion of groundwater.

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Table 9-2 documents the complete exposure pathways. These exposure pathways include: 1) dermal contact with contaminated surface water by site workers and hunters/bird watchers during maintenance and recreational activities; 2) dermal contact with soil by site workers and hunters/bird watchers during maintenance and recreational activities; 3) incidental ingestion of surface water by hunters/bird watchers during recreational activities; and 4) ingestion of waterfowl exposed to ditch contaminants by hunters. These pathways are considered to be complete because of the plausible maintenance and recreational activities, such as water sampling and bird watching/hunting, which are likely to result in some level of contaminant contact. The level of dermal contact is based on the pathway exposure assumptions in Appendix F.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) inhalation of volatile/particulate contaminants; 2) incidental ingestion of contaminated sediment; and 3) ingestion of contaminated groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

9.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Site workers:
  - Dermal contact with surface water and soil.
- Hunters/bird watchers:
  - Dermal contact with surface water and soil;
  - Incidental ingestion of surface water; and
  - Ingestion of waterfowl.

Analysis of activities in proximity to the ditch suggests that two human subpopulations may potentially be exposed to contaminants, including

Table 9-2

Potentially Complete Current/Future Exposure Pathways: The Ditch, Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Maintenance workers and recreational users.	Yes	Maintenance activities including water sampling and recreational activities may allow dermal contact with surface water.
Dermal contact with chemicals in sludge	Maintenance workers and recreational users.	No	Sludge is not associated with the ditch.
Dermal contact with chemicals in soil	Maintenance workers and recreational users	Yes	Maintenance activities including water sampling and recreational activities may allow dermal contact with soil.
Inhalation of chemicals in ambient air	Maintenance workers and recreational users	No	Any contribution from this pathway would be negligible given other highly conservative exposure pathways.
Ingestion of surface water	Recreational users	Yes	Incidental ingestion may be complete for recreational users.
Ingestion of sludge	Maintenance workers and recreational users	No	Sludge is not associated with the ditch.
Ingestion of soil	Maintenance workers and recreational users	No	Incidental ingestion is unlikely given limited extent and nature of maintenance and recreational activities.
Ingestion of groundwater	On-base/Off-base residents	No	Groundwater is not suitable for human consumption due to high TDS concentrations.
Ingestion of contaminated waterfowl	Recreational users	Yes	Hunters may shoot and consume wterfowl exposed to contaminants in the lagoon system.

current site workers and hunters/bird watchers.

Sections 9.1.3 and 9.1.4 also discuss these potentially exposed subgroups. Section 9.7 provides an assessment of the ecological exposure.

9.4.5 Estimating Exposure Point Concentrations

Exposure Concentrations Summary

Site workers and hunters/bird watchers:

- Concentrations in lagoon media; and
- Modeled concentrations in waterfowl.

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, sediment, and the edible meat in waterfowl. Section 9.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured, exposure concentrations associated with the ditch are provided in Table 9-3. These concentrations were obtained from the laboratory analyses performed for the surface water and soil samples taken during the RFI and previous investigations. Modeled waterfowl (duck) concentrations are also provided in Table 9-3. Because exposure is assumed to occur at the ditch, these concentrations represent valid exposure point concentrations. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current media concentrations should not differ significantly from those in the future.

In estimating human exposure, 100% of all contaminants in soil and water was assumed to be bioavailable. While this assumption is not necessarily realistic and tends to be conservative, it facilitates an assessment of a worst-case scenario. A discussion of the modeling approach for determining waterfowl concentrations is provided in Section 9.7 and Appendix K.

9.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 9-3. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data

Table 9-3

Exposure Point Concentrations for the Ditch

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.98E-09	9.05E-08	0.00E+00	0.00E+00
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-09	2.86E-09	0.00E+00	0.00E+00
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-10	3.56E-10	0.00E+00	0.00E+00
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-10	1.32E-09	0.00E+00	0.00E+00
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-09	9.53E-09	0.00E+00	0.00E+00
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.49E-10	1.02E-09	0.00E+00	0.00E+00
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	2.85E-05	0.00E+00	0.00E+00
2,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.55E-06	1.94E-05	0.00E+00	0.00E+00
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-06	2.58E-06	0.00E+00	0.00E+00
4,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-04	2.99E-04	5.58E-02	1.21E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-04	2.42E-04	1.32E-02	2.75E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-06	4.74E-06	1.96E-02	4.87E-02
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-07	3.20E-07	1.38E-03	1.53E-03
alpha-BHC	0.00E+00	0.00E+00	7.80E-06	7.80E-06	0.00E+00	0.00E+00	5.17E-09	1.25E-08	1.44E-03	1.54E-03
alpha-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.85E-03	1.16E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-06	2.51E-06	9.60E+01	9.60E+01
Arsenic	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.61E-04	5.93E-04	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.36E-06	1.76E-05	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+00	1.46E+00
Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+00	1.46E+00
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74E-09	1.08E-08	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.87E-08	4.24E-08	0.00E+00	0.00E+00
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-09	5.72E-09	1.89E-03	2.69E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E-05	4.00E-05	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.08E-07	1.95E-06	0.00E+00	0.00E+00

Table 9-3

(Continued)

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.49E-07	1.47E-06	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.14E-08	4.86E-08	0.00E+00	0.00E+00
Chromium III	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.59E-05	9.45E-05	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.43E+00	5.26E+00
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.86E-05	1.56E-04	0.00E+00	0.00E+00
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-08	3.88E-08	1.97E-01	3.54E-01
Dibenzofuran	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-06	4.32E-06	0.00E+00	0.00E+00
Dieldrin	0.00E+00	0.00E+00	1.10E-05	1.10E-05	0.00E+00	0.00E+00	6.38E-09	1.46E-08	0.00E+00	0.00E+00
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.02E-12	1.90E-11	0.00E+00	0.00E+00
Endrin aldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-03	3.13E-03
gamma-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-03	3.32E-03
gamma-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.45E-03	1.74E-02
Heptachlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-08	3.38E-08	0.00E+00	0.00E+00
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-12	1.32E-11	1.20E+01	1.20E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-08	5.16E-08	0.00E+00	0.00E+00
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.22E-06	1.87E-05	0.00E+00	0.00E+00
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E-05	3.77E-05	0.00E+00	0.00E+00
Isodrin	0.00E+00	0.00E+00	6.10E-06	6.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.68E-03	1.65E-02
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.97E-06	9.48E-06	1.98E+01	4.02E+01
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.48E-06	2.17E-06	0.00E+00	0.00E+00
Magnesium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.69E+00	3.83E+00	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.27E-05	2.11E-04	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-03	2.63E-03	1.48E-01	2.49E-01
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-12	4.95E-12	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-05	4.65E-05	0.00E+00	0.00E+00

Table 9-3

(Continued)

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Sludge (mg/kg)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.13E-05	1.39E-04	0.00E+00	0.00E+00
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.71E-07	2.21E-06	0.00E+00	0.00E+00
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-09	5.98E-09	0.00E+00	0.00E+00
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.27E-09	2.89E-09	0.00E+00	0.00E+00
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.43E-05	1.23E-04	0.00E+00	0.00E+00
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.10E-09	1.16E-08	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03	3.73E-03	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	2.31E-05	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.20E-04	5.59E-04	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E+02	1.85E+02
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.06E-06	9.21E-06	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-04	6.28E-04	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-05	1.82E-04	0.00E+00	0.00E+00

Conservative Exposure Assumptions

- Amount of media intake is constant;
- 25-year maximum worker exposure;
- 30-year maximum recreational exposure;
- Contaminants 100% bioavailable;
- 100% absorption of ingested contaminants;
- Waterfowl consumed a maximum of 14 days/year; and
- Water/algae-to-waterfowl transfer coefficients do not consider metabolism/disposition.

justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) all occupational exposures are assumed to occur over a 25-year (chronic) period for the reasonable maximum exposure scenario; 3) recreational exposures were assumed to occur over a 30-year (chronic) period for the reasonable maximum exposure scenario; 4) 100% absorption of ingested contaminants is assumed; and 5) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

9.4.7 Uncertainties

Uncertainties

Sources include:

- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

A major source of uncertainty associated with the exposure assessment includes the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

9.5 Toxicity Assessment

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

9.5.1 Toxicity Values Used in the Risk Assessment

Table 9-4 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight of evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

9.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

9.5.3 Uncertainties Associated with Toxicity Assessment

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Finally, development of surrogate toxicity values has associated uncertainties. The approach

Table 9-4

Toxicity Values for the Ditch

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (μg/m³)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Antimony	--	4.00E-04 [I]	4.00E-04 [H]	4.00E-04	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
Barium	--	7.00E-02 [I]	7.00E-02 [H]	7.00E-02	5.00E-04 [H]	5.00E-03 [H]	--	--
Benzo[b]fluoranthene	B2	--	--	--	--	--	1.02E+00 [C]	2.40E-04 [C]
Benzo[k]fluoranthene	B2	--	--	--	--	--	4.82E-01 [C]	1.10E-04 [C]
Benzyl alcohol	D	3.00E-01 [H]	1.00E+00 [H]	3.00E-01	--	--	--	--
Beryllium	B2	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	4.30E+00 [I]	2.40E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis(2-ethylhexy)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	1.40E-02 [I]	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Chromium III	--	1.00E+00 [I]	1.00E+00 [H]	1.00E+00	--	--	--	--
Cobalt	--	--	--	--	--	--	--	--
Cyanide	--	2.00E-02 [H]	2.00E-02 [H]	2.00E-02	--	--	--	--
Cyclohexanone	--	5.00E+00 [I]	--	--	--	--	--	--
2,4'-DDD	--	2.26E-04 [S]	--	2.26E-04	--	--	--	--
2,4'-DDE	--	--	--	--	--	--	--	--
2,4'-DDT	--	3.58E-05 [S]	--	3.58E-05	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]

Table 9-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Dibenzofuran	D	--	--	--	--	--	--	--
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan sulfate	--	6.00E-03 [S]	5.00E-05 [H]	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Hexachlor benzene	B2	8.00E-04 [I]	--	--	--	--	1.60E+00 [I]	4.60E-04 [I]
HpCB	--	6.00E-07 [C]	--	6.00E-07	--	--	2.40E+02 [C]	5.30E-02 [C]
1,2,3,4,6,7,8 HpCDD	--	--	--	--	--	--	1.50E+03 [C]	3.3E+01 [C]
HxCB	--	6.20E-07 [C]	--	6.20E-07	--	--	2.40E+00 [C]	5.30E-04 [C]
1,2,3,4,7,8 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
1,2,3,7,8,9 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
2,3,4,6,7,8 HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-07 [I]	1.00E-07 [H]	1.00E-07	1.50E+00 [N]	--	--	--
Manganese (food)	D	1.40E-01 [I]	1.00E-01 [H]	--	--	--	--	--
Magnesium	--	--	--	--	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Mirex	--	2.00E-04 [I]	--	--	--	--	--	--
Nickel	A	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
n-Nitroso-di-n-propylamine	B2	--	--	--	--	--	7.00E+00 [I]	--
n-Nitroso-de-methylamine	B2	--	--	--	--	--	5.10E+01 [I]	1.40E-02 [I]
OCDD	--	1.00E-06 [C]	--	1.00E-00	--	--	1.50E+02 [C]	3.30E-02 [C]
OCDF	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.30E-02 [C]

Table 9-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
PnCB	--	2.50E-09 [C]	--	2.50E-09	--	--	6.00E+04 [C]	1.32E+01 [C]
Pyridine	--	1.00E-03 [I]	--	--	--	--	--	--
Selenium	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--
TCB	--	2.70E-07 [C]	--	2.70E-07	--	--	4.05E+02 [C]	8.91E-01 [C]
2,3,7,8-TCDD	B2	1.00E-09 [H]	--	--	--	--	1.5E+05 [H]	3.3E+01 [H]
2,3,7,8-TCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
Thallium	D	8.00E-04 [I]	8.00E-04 [H]	8.00E-05	--	--	--	--
Vanadium	--	7.00E-03 [H]	7.00E-03 [H]	7.00E-03	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.
N National Ambient Air Quality Standard.

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

9.5.4 Summary of Toxicity Assessment

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Eleven of the 63 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values cannot be assigned. Forty-six values were obtained from IRIS and have levels of confidence that range from high (three chemicals) to low (seven chemicals). Six values were calculated based on comparative potency factors for dioxins and five values were obtained from HEAST. Oral RfDs were not available for 17 of the chemicals of potential concern. A qualitative assessment was conducted for these 17 chemicals (see Appendix G).

Thirty-two of the 63 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Nine chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. One chemical (β-BHC) was classified as Group C (Possible Human Carcinogen). One chemical (γ-BHC) was classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Seventeen chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One

Noncancer Toxicity Information

- 63 chemicals of potential concern;
- 46 oral RfDs available:
  - -- 11 surrogate values derived;
  - -- 6 calculated values; and
  - -- 5 values from HEAST.
  - -- 24 USEPA-verified RfDs:
    3 - high confidence;
    14 - medium confidence; and
    7 - low confidence.

Carcinogen Toxicity Information

- 31 oral slope factors available:
  - -- 14 USEPA-verified slope factors:
    Group B2 - 13 chemicals;
    Group C - 1 chemical;
  - -- 2 surrogate values;
  - -- 13 calculated values; and
  - -- 2 values from HEAST.
- 28 inhalation unit risks available:
  - -- 12 USEPA-verified unit risks;
  - -- 2 surrogate values;
  - -- 13 calculated values; and
  - -- 1 value from HEAST.

chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and three chemicals were classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for 14 of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Thirteen slope factors were calculated based on comparative potency factors for PAHs and dioxins. Two values were obtained from HEAST. Inhalation unit risk factors were available for 28 chemicals. Twelve values were USEPA-verified, two values were surrogates, 13 values were calculated based on comparative potency factors for PAHs and dioxins, and one value was obtained from HEAST.

9.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for the ditch, measured contaminant exposure levels were compared to chemical-specific toxicity information.

9.6.1 Carcinogenic Risk

For each carcinogen present in the ditch, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

Carcinogenic Risks

- Estimated the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure *(de minimis)* for risk management purposes. This range is designed to be protective of human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

9.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values (oral, dermal, and inhalation

reference doses (RfDs). A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the HQ is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

9.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at the ditch presently or in the future, two chronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) current on-site occupational exposure; and 2) current off-site recreational exposure.

9.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Risks

Carcinogenic risk:

- Dermal contact with heptachlor epoxide in soils by recreational adults.
- Ingestion of PCB contaminated waterfowl.

Noncarcinogenic hazard:

- No hazards exceed *de minimis* levels.

Current Occupational Exposure Scenario - Chronic Exposure

This scenario addresses pathways of exposure considered to be complete for on-site military and civilian personnel who work at the ditch. The scenario is based on current knowledge of maintenance activities that occur at the ditch.

Current on-site workers were assumed to be exposed to contaminants in the ditch via two pathways of exposure: 1) dermal contact with surface water; and 2) dermal contact with soils at the bottom of the ditch. Exposure concentrations are based on measured concentrations in the various media.

Current Chronic Occupational Risk

Carcinogenic risk

- Total average = 6E-8
- Total reasonable maximum = 2E-7

Noncarcinogenic hazard

- Total average HI = 4.2E-3
- Total reasonable maximum HI = 4.2E-3

Carcinogenic Risk--The calculated cancer risks, grouped by chemical and pathway, are presented in Appendix I. The total risk for average and reasonable maximum exposure is 6E-8 and 2E-7, respectively. Neither value exceeds the lower-bound risk range goal. Heptachlor epoxide contributed the majority of the risk for both average (99%) and reasonable maximum exposure (refer to Appendix I). Dermal contact with soil contributed virtually all of the pathway-specific risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 4.2E-3 and 4.2E-3, respectively. Neither value exceeds the *de minimis* value of one. Heptachlor epoxide was responsible for virtually all of the total hazard for both the average and reasonable maximum exposure. Dermal contact with sediments was responsible for virtually all of the pathway-specific hazard.

Current Occupational Scenario - Subchronic Exposure

Subchronic exposure for the occupational scenario was not assessed since none of the chronic hazards exceed *de minimis* values.

Current Off-Site Recreational Scenario - Adult Chronic Exposure

Current Off-Site Recreational Adult Risk

Carcinogenic risk

- Total average = 3E-7
- Total reasonable maximum = 7E-6

Noncarcinogenic hazard

- Total average HI = 0.02
- Total reasonable maximum HI = 0.10

Contaminants may bioaccumulate in waterfowl that use the lagoons and lakes as habitat. As several of these waterfowl are game species, humans may be indirectly exposed as a result of hunting activities. This scenario addresses pathways considered to be complete for adult hunters as well as bird watchers.

To assess this current scenario, it was assumed that waterfowl bioaccumulate site-related contaminants via ingestion of contaminated surface water, plankton, and algae. For waterfowl exposed to contaminants migrating through the lagoon system, exposure concentrations were based on: 1) measured surface water concentrations in each individual impoundments; 2) measured concentrations in algae and plankton; and 3) modeled uptake and accumulation in the edible portions of ducks (based on measured surface water and modeled biota concentrations).

The current on-site recreational scenario assumes exposure to site-related contaminants via four pathways of exposure: 1) dermal contact with surface water; 2) incidental ingestion of surface water; 3) dermal contact with soil; and 4) ingestion of waterfowl. Exposure concentrations are based on measured concentrations in the various media and modeled concentrations in water fowl.

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 3E-7 and 6E-6, respectively. The reasonable maximum risk exceeds the lower bound risk range goal and may indicate cause for concern regarding carcinogenic health effects in recreational adults. As shown in Figure 9-4, pentachlorinated biphenyl caused the majority (51%) of the reasonable maximum risk. Heptachlor epoxide was the major risk contributor for average exposure (65%). Dermal contact with soil contributed significantly (66% and 20% of average and reasonable maximum exposure, respectively) to the pathway-specific risk. Ingestion of waterfowl contributed most of the remaining risk (35% and 80% of average and reasonable maximum exposure, respectively).

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.02 and 0.10, respectively. Neither value exceeds the *de minimis* value of one. Heptachlor epoxide was responsible for the majority of the chemical-specific hazard for average (71%) exposure. Pentachlorinated biphenyl was the major contributor (35%) to the reasonable maximum hazard followed closely by heptachlor epoxide (25%) and hexachlorinated biphenyl (16%). Dermal contact with soil (71% and 29%) and ingestion of waterfowl (25% and 75%) caused most of the pathway-specific hazard for the average and reasonable maximum exposure.

Current Off-Site Recreational Scenario-Child Chronic Exposure

Current Off-Site Recreational Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 0.05
- Total reasonable maximum HI = 0.29

This scenario addresses pathways considered to be complete for children who use the ditch for recreational purposes. The pathways considered are the same as those considered for adults.

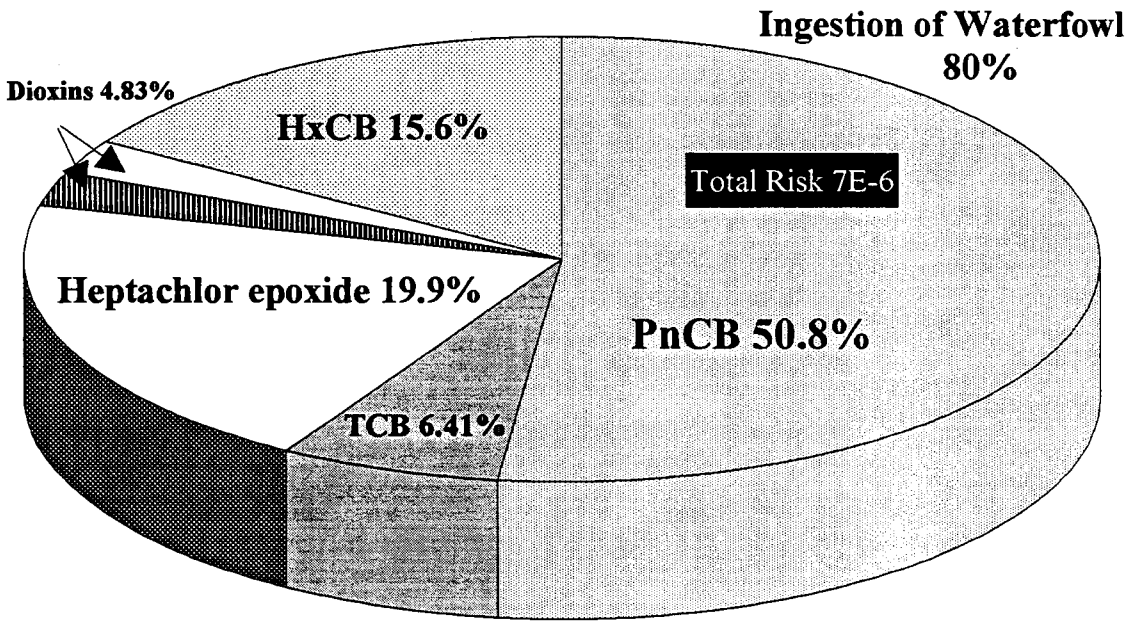


Figure 9-4. Reasonable maximum Carcinogenic Risk - Current Recreational Scenario

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated non-cancer HIs grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 0.05 and 0.29, respectively. Both HIs are below the *de minimis* value of one.

Current Off-Site Recreational-Subchronic Exposure

Subchronic exposure was not assessed for the off-site recreational scenario since none of the chronic hazards exceed *de minimis* levels.

9.6.5 Major Factors Driving Future Risks

Future changes in land use around the ditch are not expected to significantly affect exposure points/routes. Therefore, no future scenarios were assessed.

9.6.6 Lead Evaluation

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. The Lead5 Model was obtained for this risk assessment and used in conjunction with site-specific data to estimate blood lead levels as an indicator of risk. The results generated by the Lead5 Model are presented in Appendix H. All blood lead levels at this site were well below the 10 μg/dL (exposure level known to increase the risk of irreversible neurobehavioral deficits during infancy or childhood) cutoff point.

9.6.7 Uncertainties Associated with Risk Characterization

The risks associated with ingestion of PCB contaminated waterfowl are based solely on modeled results, assuming that waterfowl spend a percentage of their time feeding on contaminated biota from each impoundment. Significant uncertainty is associated with the modeled results because the most toxic PCB congeners are generally present in biota at such low concentrations as to severely compromise accurate detection. Therefore, data for the most toxic PCB congeners were not generated. Instead, the most potent enzyme inducing congener in the "numerical PCB class" (i.e., hexachlorinated biphenyls, pentachlorinated biphenyls, etc.) was used as a proxy for the entire class. It is possible that the risks associated with ingestion of waterfowl are overestimated because of the assumption that all contaminants detected in lower trophic levels bioaccumulate in waterfowl.

Risk associated with dermal contact with soils at the ditch during recreational activities is based primarily on a single soil sample in which heptachlor epoxide was detected. In addition, the result was flagged with an X, indicating that it was not a confirmed hit. In fact, the result could be due to analytical interference. Therefore, the presence of this analyte is questionable as are the associated hazards/risks.

9.6.8 Summary

Risk Characterization Results

Risks above *de minimis* levels include:

- Carcinogenic risk to current off-site recreational users (hunters/bird watchers).

The results of this risk assessment indicate that carcinogenic risks above *de minimis* threshold are associated with reasonable maximum exposure to current recreational adults at the ditch. All other risks/hazards were below *de minimis* levels.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with the ditch. Conservative assumptions that may impact the risk characterization include: 1) use of the oral RfD and slope factor to assess risk/hazard associated with dermal exposure to heptachlor epoxide; 2) exposure frequency; 3) exposure duration; 4) surface area available for dermal contact; 5) assumption that all contaminants detected in lower trophic levels are bioaccumulated in waterfowl; and 6) use of toxicity equivalence approach for estimating risks associated with PCB contaminated waterfowl.

9.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological hazard index for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur because of exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the EPA, the quotient method..."can provide some qualitative information on the likelihood and severity of impacts" because of chemical exposures (EPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences are seen for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of the ditch and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is provided in Appendix K, and will not be repeated here. In addition, a discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

9.7.1 Background

The ditch connecting Pond G with Lake Holloman was sampled for fish, benthic organisms, plankton, sludge and aquatic insects. In addition, two fish samples were taken upstream from the inlet from Pond G. The ditch immediately below the outfall is about 2 feet wide, and widens gradually to about 10 feet wide as it enters Lake Holloman. Distichiis spp. and filamentous green algae grows at the edge of the splash pool, along the edges of the ditch, and on debris in the bottom of the ditch. Soft, thick organic sediments make up the bottom of the ditch. The ditch is lined with tamarisk trees interspersed with salt grass. Tamarisk litter makes up a substantial portion of the sediments in the portions of the ditch lined by tamarisk; little or no fish and insects were observed in these areas. Fish and aquatic insects were caught in areas where the salt grass overhung the ditch. A conductivity (C), temperature, and dissolved oxygen (DO) profile was done at eleven stations along the ditch, at approximately 0.1 mile intervals starting with Station 1 immediately below the outfall from Pond G. Station 7 was at the culvert where the road crosses the ditch, and Station 12 was at the confluence with Lake Holloman. Water quality parameters and depth profiles for temperature, conductivity (C), and dissolved oxygen (DO) are presented in Table 9-5.

Ducks were common in the ditch. A great blue heron was seen there at times, and a marsh hawk was seen in the tamarisk along the ditch. The ditch immediately above the outfall from Pond G looked sterile with no algae or plankton. Productivity began about half way up the length of the ditch where some *Gambusia*, algae, and zooplankton were again observed. There were schools of *Gambusia* where the ditch flows under the fence at the north end of Pond G (a sample was collected here), and fish were present in the ditch all the way up to the golf course (where another sample was taken). Plankton and surface water samples were collected as discussed in Appendix M.

9.7.2 Exposure Assessment

Indicator Species Selected for the Ditch:

- Mallards;
- Killdeer;
- Mergansers; and
- Fish.

Figure 9-5 is a conceptual site model of the ditch. Plankton, benthic invertebrates, sediments, sludge, and surface water were sampled at this location. There were fish in the ditch. The indicator species selected for this pond were

Table 9-5

Water Quality Parameters in the Ditch

Ditch pH: 9.54 Alkalinity: 124 mg/L					
Station	Date	Time	C (µmhos)	Temp (° C)	DO (mg/L)
1	3/5/93	5:20 pm	7400	13.0	7.8
1	3/6/93	8:50 am	7500	12.0	8.2
2	3/5/93	5:30 pm	7400	13.0	7.8
2	3/6/93	9:00 am	7500	12.0	8.5
3	3/5/93	5:40 pm	7400	13.0	6.8
4	3/5/93	5:50 pm	7400	13.0	6.5
5	3/5/93	6:00 pm	7400	12.75	6.6
6	3/5/93	6:10 pm	7000	13.0	5.6
6	3/6/93	9:20 am	7200	11.0	6.2
7	3/6/93	9:30 am	7200	10.0	6.4
8	3/5/93	6:30 pm	7000	13.5	6.8
9	3/5/93	6:40 pm	7000	13.0	8.6
10	Inaccessible from both sides of ditch--No data.				
11	3/5/93	6:50 pm	7000	11	10
12 (surface)	3/5/93	7:00 pm	7800	12.5	10.2
12 (bottom)	3/5/93	7:00 pm	10000	12.5	10.2
12 (surface)	3/6/93	9:50 am	7800	12	8.5
12 (bottom)	3/6/93	9:50 pm	13300	12	10.2

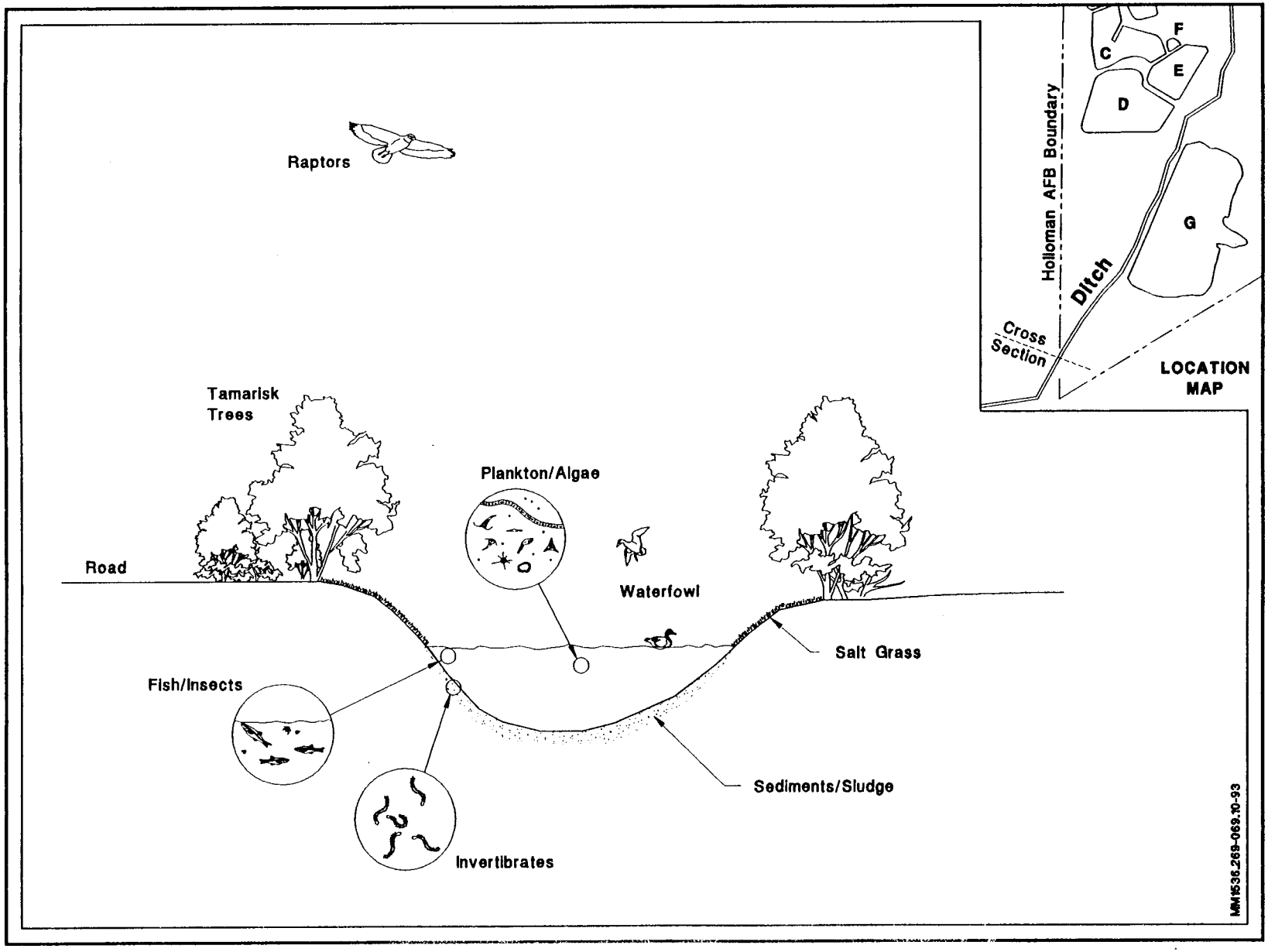


Figure 9-5. Ecological Conceptualization Model for the Ditch

mallards, killdeer and mergansers which feed on the plankton, invertebrates and fish, respectively; and mosquito fish.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. The ditch makes up about 0.2% of the system; therefore, 0.2% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 0.1%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

For killdeer, the average ingestion fraction was assumed to be 33%, since benthic organisms could only be collected at Pond A, Pond E, and the ditch and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. It is probable that the other ponds and the lakes support populations of benthic organisms which were not collected because of substrate interference. Ponds A and E, and the ditch were assumed to be representative of the other ponds and lakes and the shorebirds are assumed to spend the entire year in the area.

For mergansers, the average ingestion fraction was assumed to be 33%, since fish were only present in Pond G, Lake Holloman and the ditch and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. The mergansers are migratory; therefore, the ingestion fraction was divided in half for average exposure (16.5 %) to represent 6 months in the area. The reasonable maximum was set at 33%, which is worst case, to cover those birds feeding on fish in this area year round.

9.7.3 Risk Characterization

Table 9-6 lists the EQs for the indicator species. The potential risk to all three bird types was below one and therefore acceptable. It should be noted that the majority of the potential risk in the ditch was a result of metal toxicity. This may not be accurate since metals were not speciated and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to birds feeding at the ditch can be qualified based on the fraction ingested from this pond; however, the birds are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributed to the ditch alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or ecological hazard index, for mallards; and from the three locations for killdeer and mergansers. A discussion of cumulative risks to birds feeding at all of the locations is included in the conclusions in Section 13.0.

Risk Characterization Results

Birds:

- Adverse effects are not expected.

Fish:

- Adverse effects are not expected.

Fish were used as an indicator species for aquatic organisms in general. Fish are present in the ditch, as discussed above. Based strictly on contaminant concentrations in surface water, adverse effects are not expected. The ecological quotient for fish was 0.1 for both average and reasonable maximum exposure. These values are the same because the contaminants in surface water were only detected in one sample, making it impossible to calculate an upper confidence level on the mean. The EQ is below the acceptable level of one.

Therefore, based strictly on the water contaminant concentrations, adverse effects are not expected. This EQ may be on the low side, however, since it does not account for contaminant exposure from other sources. Since fish are present,

Table 9-6

Ecological Quotients - Ditch

Indicator	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.01	0.01
Killdeer	0.01	0.05
Mergansers	0.20	0.32
Fish	0.1	0.1

it is assumed that pond conditions are adequate for their survival. Based on the EQ for fish, adverse effects are not expected in benthic organisms.

9.8 Conclusions for the Ditch

Maintenance activities at the ditch are minimal compared to those occurring at the upper lagoons (particularly Ponds A and B). Carcinogenic risk and noncancer hazard for the current occupational scenario are below *de minimis* levels for both average and reasonable maximum exposures.

Potential recreational exposures associated with the ditch include ingestion of waterfowl that may have ingested contaminants at the lakes and lagoons and hunters or bird watchers that might fall into the ditch and be exposed to surface water and/or soils. The carcinogenic risk associated with ingestion of waterfowl was found to be excessive for reasonable maximum exposure. However, this risk is based solely on modeled concentrations, assuming that waterfowl spend a percentage of their time feeding at each impoundment in the lagoon system. It was assumed that all contaminants detected in lower trophic levels are bioaccumulated in waterfowl. Bird tissues have been collected and are currently being analyzed. It is suspected that many of the contaminants modeled into waterfowl will not be detected in these tissues. Therefore, these risks are expected to be overestimated. The risk of noncancer hazard for adults and children ingesting waterfowl is small based on the low hazard index values.

The carcinogenic risk associated with adults accidentally falling into the ditch was above *de minimis* levels primarily from exposure to heptachlor epoxide in soils. Significant uncertainty is associated with these results because they are based primarily on a single soil sample in which heptachlor epoxide was detected. In addition, this result was flagged with an X, indicating that it was not a confirmed hit. Resampling the ditch for heptachlor epoxide would aid in interpreting the significance of these results. The noncancer hazards for adults and children falling into the ditch were all below *de minimis* levels.

The ecological assessment indicated that birds (mallards, killdeer, and mergansers) and fish using the ditch are not likely to be at risk. Resampling the ditch for heptachlor epoxide is recommended.

Section 10
RISK ASSESSMENT FOR LAKE HOLLOMAN

This section presents the unit-specific risk assessment for Lake Holloman. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the wastewater treatment system.

10.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Lake Holloman. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

10.1.1 Site Description

Lake Holloman is a 166 acre, unlined, unaerated lake that was intended to be the final impoundment for the wastewater treatment system at HAFB. The lake is not on Base property and is not fenced. The lake has a capacity of approximately 379 million gallons of water. During times of high flow, the excess from Lake Holloman flows into Lake Stinky which has become the final impoundment for the system. The lake serves as migratory habitat ground for several bird species and provides recreational opportunities for the local hunters and bird watchers.

The land surrounding Lake Holloman consists of State- and public-owned land that is administered by the Bureau of Land Management, Las Cruces District for the U.S. Department of the Interior. Public access to the east side of the lake is provided by a dirt road from Highway 72/80. The exit from the highway has a sign designating the area as a wildlife habitat area, and warning that the water in the lake is untreated domestic wastewater that is not suitable for swimming. Land on the northwest side of the lake is privately owned; public land due west of the lake is leased for grazing cattle, although cattle have not been observed in the past four years. The area is known to be frequented by hunters, and spent shotgun shells are commonly observed on and near the road.

10.1.2 Identification of Releases into Media

Release Summary

Contaminants in Lake Holloman have:

- Partially remained in surface water;
- Infiltrated into underlying soils;
- Leached into groundwater; and
- Accumulated in biota.

Figure 10-1 outlines the fate and transport of contaminant releases from Lake Holloman, exposure pathways and routes, and potential receptors. As indicated by the figure, surface water and algae in the lake serve as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration from the sludge to other media include: 1) particulate entrainment; 2) infiltration into underlying sludge/soil; 3) surface water discharge into groundwater; 4) leaching into groundwater from soils; and 5) uptake by biota.

10.1.3 Evaluation of Exposure Points/Routes

Assessments of the lake, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity indicate that humans may be exposed to contaminants in/from Lake Holloman at the lake and points hydraulically downgradient. Evaluation of these points of exposure suggests that six potential routes exist for human contact with contaminants (see Figure 10-1). These include: 1) dermal contact with contaminants in surface water; 2) dermal contact with sludge/soil; 3) incidental ingestion of surface water; 4) inhalation of volatiles and fugitive dusts from Lake Stinky; 5) ingestion of waterfowl; and 6) ingestion of beef from cattle exposed to contaminated groundwater.

Currently, inhalation of volatile contaminants and fugitive dusts from Lake Stinky is considered to be a viable exposure route, since Lake Stinky is dry about six months out of the year and lies in close proximity to Lake Holloman. Ingestion

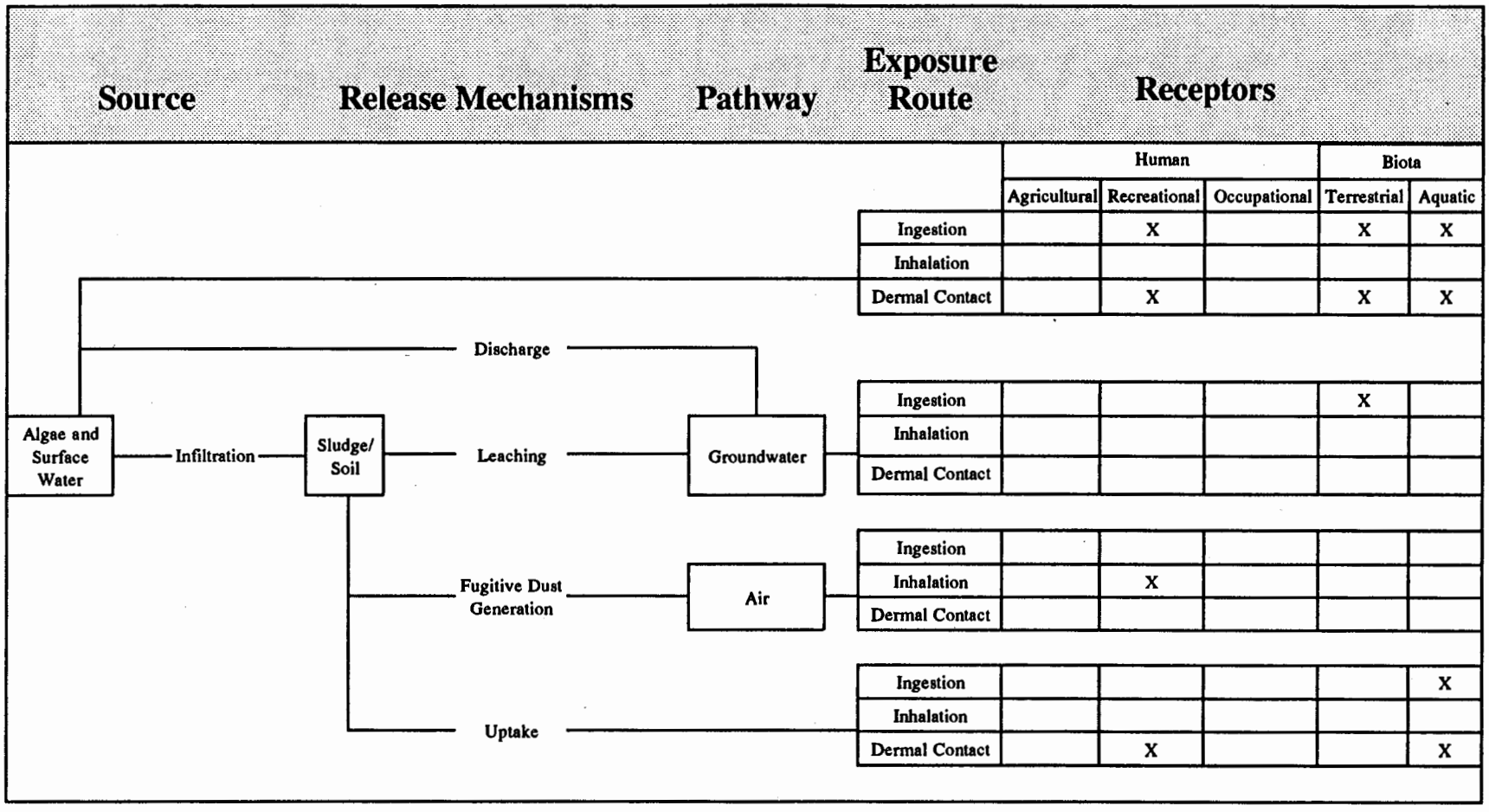


Figure 10-1. Fate and Transport - Lake Holloman

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water;
- Dermal contact with contaminated sludge/soil;
- Incidental ingestion of surface water;
- Inhalation of volatiles and dust from Lake Stinky;
- Ingestion of contaminated waterfowl; and
- Ingestion of beef from cattle exposed to contaminated surface water.

of contaminated sludge and/or soil was not considered as a viable exposure route for this assessment since soil is found only at the bottom of the lake. In addition, groundwater in the vicinity of the Base is not potable because of high total dissolved solids (TDS). Therefore, exposure pathways associated with domestic water use are not considered in this assessment. A discussion of ecological exposure is provided in Section 10.7. Other than the possible installation of agricultural wells near the Base perimeter, future land uses in the vicinity of the lakes are not anticipated to significantly alter the exposure points and exposure routes.

10.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current recreational users; and
- Current agricultural consumers.

Two potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 10-1). These include: 1) current bird watchers or hunters who may have dermal contact with surface water, sludge, and/or soil, incidentally ingest surface water, consume contaminated waterfowl, or inhale contaminants in the air during recreational activities; and 2) local consumers who may ingest beef from cattle exposed to contaminants. Cattle are assumed to be exposed to site-related contaminants by drinking water from the lake and ingesting forage that is subirrigated by contaminated groundwater. Waterfowl are assumed to be exposed by ingestion of contaminated surface water, algae, and plankton.

10.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (EPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and

the lakes, which are located downgradient is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Lake Holloman are presented in Table 10-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

10.3 Contaminant Fate and Transport

Fate and Transport Summary

Lake Holloman contaminants:

- Originate in surface water and algae;
- Discharge from surface water to groundwater;
- Infiltrate into soils;
- Leach into groundwater; and
- May be entrained in air.

Critical assumptions:

- System is at steady state; and
- No significant additional contaminant loading from current operations.

Fate and Transport Models:

- Used in absence of analytical data; and
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Lake Holloman. These include: 1) surface water discharge to groundwater; 2) infiltration from surface water into underlying soils; 3) leaching from soils into groundwater; and 4) volatilization and wind entrainment of fugitive dusts.

Release rates to the soils and groundwater were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the algae, surface water, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Lake Holloman, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

10.3.1 Release from Surface Water to Soils

Release of contaminants from infiltration of surface water and deposition of algae to soils is one of the primary transport mechanisms within Lake Holloman. This transport mechanism can lead to direct biotic uptake from soils or can lead to subsequent additional transport through secondary mechanisms, (i.e., groundwater).

Table 10-1

Chemicals of Concern for Lake Holloman

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin	✓			
Bis(2-ethylhexyl)phthalate		✓		✓
α-BHC	✓	✓	✓	✓
β-BHC	✓			
δ-BHC	✓		✓	✓
γ-BHC	✓	✓	✓	✓
α-Chlordane	✓			✓
γ-Chlordane	✓			✓
4,4'-DDD	✓	✓		✓
4,4'-DDE	✓		✓	✓
4,4'-DDT		✓		✓
Dieldrin	✓	✓		✓
Endosulfan I	✓			
Endosulfan II	✓			
Endosulfan sulfate	✓	✓		
Endrin aldehyde		✓	✓	
Endrin ketone		✓		
Heptachlor	✓		✓	✓
Isodrin	✓		✓	✓
Kepone	✓			
Lead (Organic)		✓		
Methoxychlor		✓		
Inorganics				
Arsenic		✓	✓	✓
Beryllium	✓			
Boron		✓		
Cadmium	✓			
Cobalt			✓	✓
Lead		✓	✓	✓
Manganese		✓		
Silicon		✓		
Sulfide			✓	✓

10.3.2 Release from Soil to Groundwater

Contaminants may be transported from soils to groundwater via leaching. This mechanism can transport both dissolved and suspended contaminants depending on immediate environmental conditions. Groundwater samples taken at the downgradient monitor wells associated with Lake Holloman (MW-16, MW-17, and MWS-16) indicate the transport of contaminants potentially from Lake Holloman.

10.3.3 Release from Surface Water to Groundwater

Discharge from surface water to groundwater is another transport mechanism for waterborne contaminants present in Lake Holloman. Results of chemical analyses indicate that contaminants similar to those originating in the surface water have been found in groundwater samples taken at the monitoring wells associated with Lake Holloman (MW-16, MW-17, and MWS-16).

10.3.4 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Lake Holloman:

- Occurs 13 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants similar to those from Lake Holloman; and
- Periodically discharges to lakes.

Monitor wells associated with Lake Holloman:

- MWs 16 and 17, and MWS-16.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from Lake Holloman have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Lake Holloman based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Lake Holloman, monitor wells MW-16, MW-17, and MWS-16 were assigned based on hydrogeologic data.

10.3.5 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed contact between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharges to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

10.3.6 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Lake Holloman contaminants:

- Waterfowl;
- Fish;
- Plankton;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Lake Holloman. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Lake Holloman and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. Fish are present in Lake Holloman. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 10.7 and Appendices F and K contain more information on uptake by biota.

10.3.7 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

During dry periods (six months of the year), when Lake Stinky is devoid of water, fugitive dust generation can be an important method of contaminant transport. Modeling results indicate that during dry periods, contaminants originating in surface water and algae from Lake Stinky may infiltrate into soils and ultimately result in the generation of fugitive dust. Because of Lake Stinky's proximity to Lake Holloman, inhalation of fugitive dusts from Lake Stinky may represent a significant exposure pathway at Lake Holloman.

Emission rates of chemical compounds due to volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

10.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 10.1 provides a brief description of the exposure setting for Lake Holloman.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant

releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 10-2 diagrams the exposure assessment process.

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

10.4.1 Identification of Contaminant Releases

Sampling conducted at Lake Holloman has identified releases of contaminants from surface water and algae to underlying soil, groundwater, and biota. Sections 10.1.2 and 10.3 provide a more complete discussion of contaminant releases from Lake Holloman.

10.4.2 Exposure Scenarios

Exposure Scenario Summary

Recreational users (chronic and subchronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

Recreational users (including bird watchers or hunters) and consumers of beef from nearby agricultural areas represent the significant populations that may potentially be exposed to chemicals at or originating from the lake. Figure 10-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lake itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated plant forage that is subirrigated with groundwater.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios analyzed for recreational exposure include both chronic and subchronic conditions for adults and children. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

10.4.3 Identification of Potential Exposure Pathways

An exposure pathway describes the movement or translocation of a chemical or physical agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;

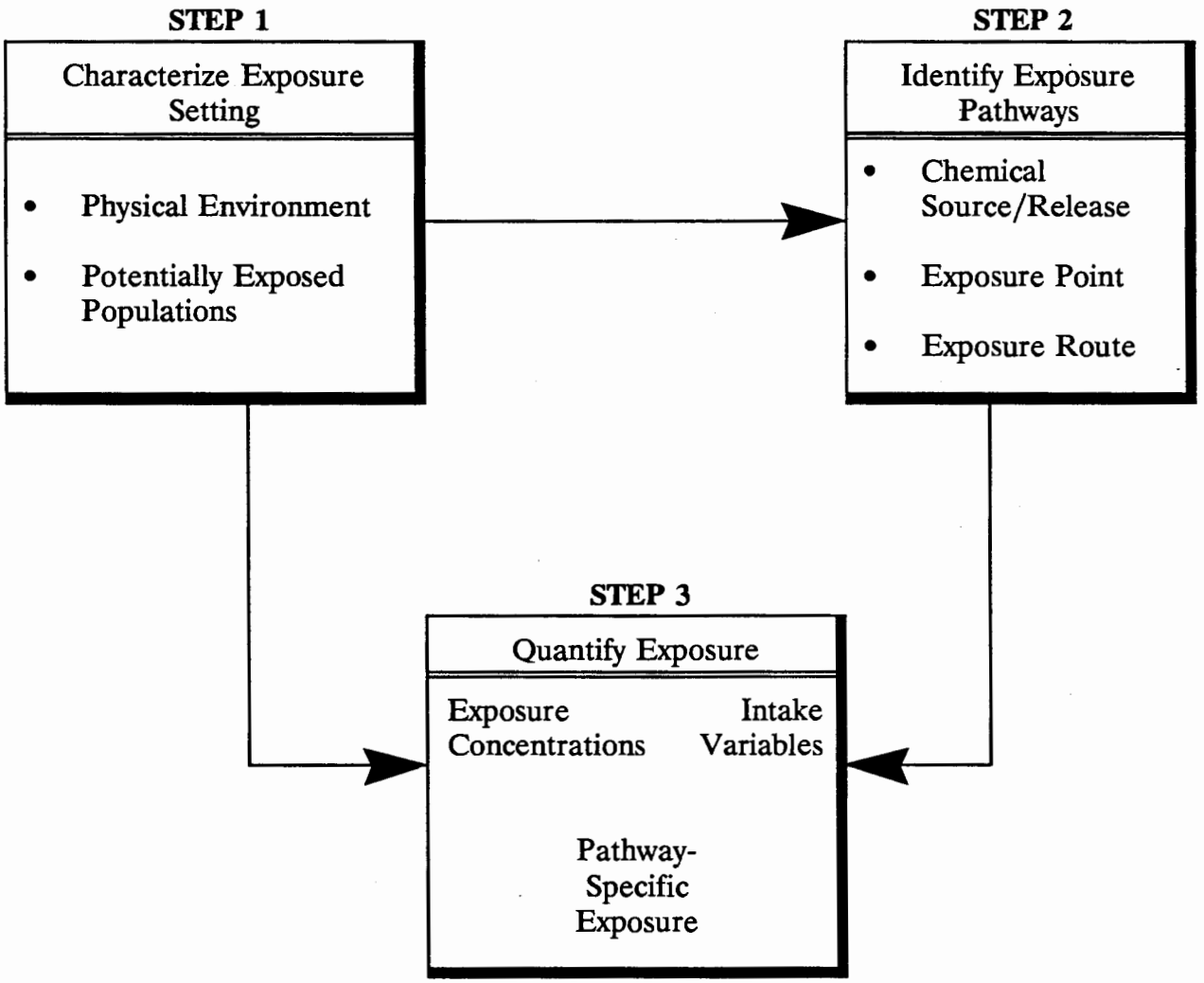


Figure 10-2. Flowchart of the Exposure Assessment Process

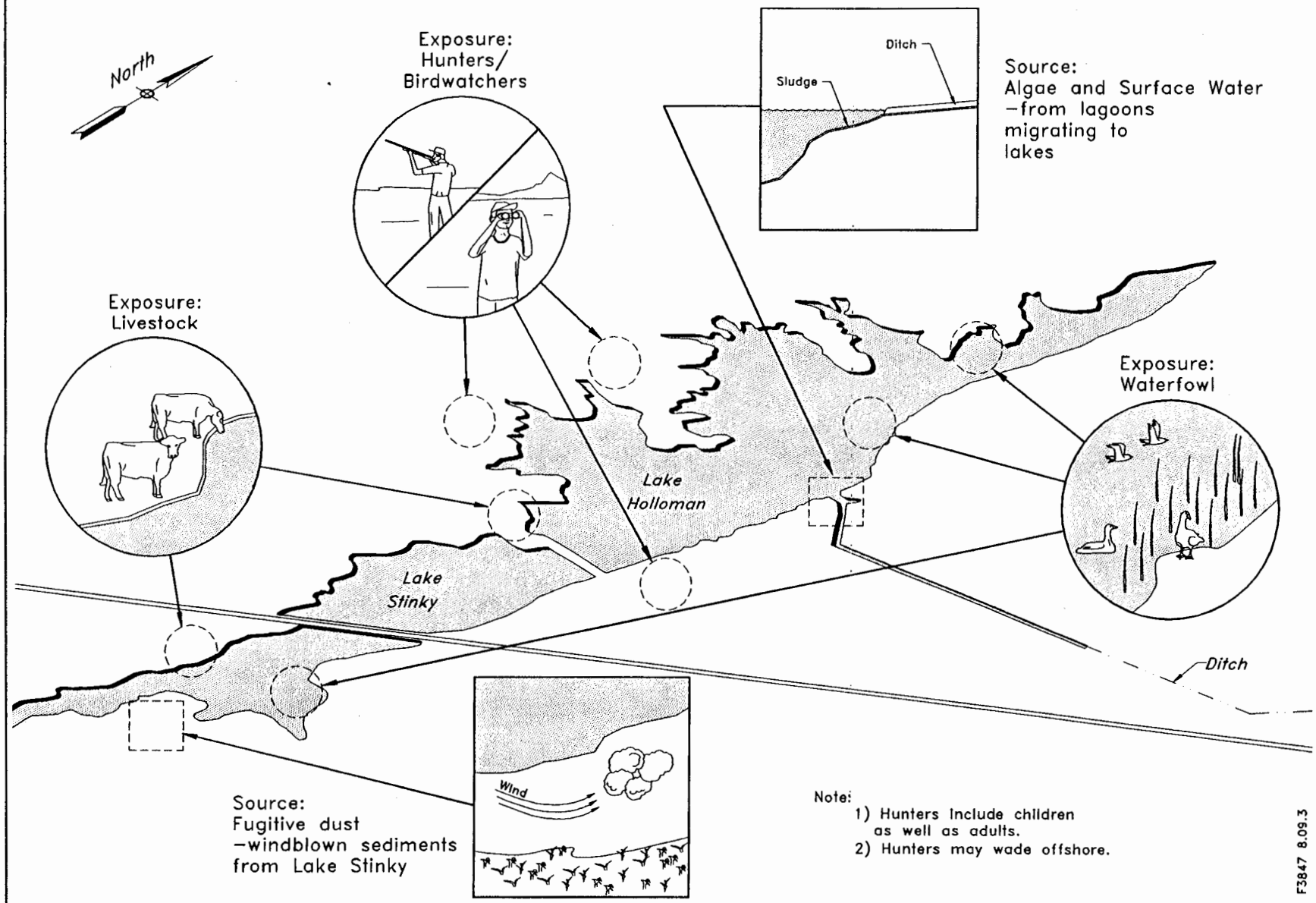


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Figure 10-3. Exposure Scenario Diagram for Lake Holloman

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with sludge;
- Dermal contact with soil;
- Ingestion of contaminated beef;
- Inhalation of volatiles/dust;
- Incidental ingestion of sludge or surface water.

Incomplete exposure pathways:

- Ingestion of sludge;
- Ingestion of soil; and
- Ingestion of groundwater.

- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Table 10-2 documents the complete current/future exposure pathways. Exposure pathways include: 1) dermal contact with contaminated surface water by recreational users during hunting or bird watching; 2) dermal contact with sludge during recreational activities; 3) dermal contact with soils during recreational activities; 4) incidental ingestion of surface water during recreational activities; 5) inhalation of contaminants in ambient air; and 6) ingestion of waterfowl by hunters and beef by local consumers. These pathways are considered to be complete because Lake Holloman is routinely frequented by recreational users. The level of intake for all pathways is based on the pathway exposure assumptions presented in Appendix F.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) ingestion of sludge/soil, and 2) ingestion of groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

There are no anticipated operational changes for Lake Holloman in the future. Future concentrations can be expected to remain constant over time since the system is assumed to be in equilibrium. Therefore, no additional scenarios were assessed for future exposure.

10.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current recreational users:
  - -- Dermal contact with surface water;
  - -- Dermal contact with sludge;
  - -- Dermal contact with soil;
  - -- Incidental ingestion of surface water;
  - -- Ingestion of contaminated waterfowl; and
  - -- Inhalation of contaminated air.
- Current agricultural consumers:
  - -- Ingestion of contaminated beef.

Analysis of Base activities in proximity to Lake Holloman suggests that two human subpopulations may potentially be exposed to contaminants, including recreational users and local agricultural consumers.

Recreational users are exposed to multiple media during hunting and bird watching activities. Agricultural consumers are indirectly exposed to site-related contaminants via ingestion of beef. Section 10.7 provides an assessment of the ecological exposure.

10.4.5 Estimating Exposure Point Concentrations

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk

Table 10-2

Potentially Complete Current/Future Exposure Pathways: Lake Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Recreational users	Yes	Recreational activities may include bird watching or hunting where contact with surface water is likely.
Dermal contact with chemicals in sludge	Recreational users	Yes	Recreational activities may involve submergence and contact with lake bottom.
Dermal contact with chemicals in soil	Recreational users	Yes	Soil at the bottom of the lake may be encountered assuming accidental immersion of hunters and bird watchers.
Inhalation of chemicals in ambient air	Recreational users	Yes	Lake Stinky is dry six months of the year and fugitive dust generation along with wind entrainment of particulates may be an important method for human exposure.
Ingestion of surface water	Recreational users	Yes	Incidental ingestion of surface water is a viable exposure pathway assuming accidental immersion of recreational users.
Ingestion of sludge	Recreational users	No	Incidental of sludge is not likely, since it is found at the bottom of the lake.
Ingestion of soil	Recreational users	No	Incidental ingestion of soil is not likely since it is found at the bottom of the lake.
Ingestion of groundwater	Recreational users	No	Groundwater is not potable due to high TDS concentrations.
Ingestion of beef exposed to contaminated forage and surface water	Agricultural consumers	Yes	A local rancher has grazing rights to BLM land, on which Lake Holloman sits. Although cattle have not been observed drinking from the lake, access is not restricted and, therefore, it is possible that cattle occasionally drink from Lake Holloman.
Ingestion of contaminated waterfowl	Recreational users	Yes	Hunters may shoot and consume waterfowl exposed to contaminants.

Exposure Concentrations Summary

Recreational users:

- Concentrations in air;
- Concentration in lake media (water, sediment, sludge)
- Concentrations in waterfowl; and
- Waterfowl: concentrations in surface water and algae.

Agricultural consumers:

- Concentrations in beef; and
- Cattle: concentrations in surface water, and plant forage.

assessment include surface water, sludge, sediment, beef, and waterfowl (exposed to contaminated surface water, plant forage, biota), and air. Section 10.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef, waterfowl, and air) exposure concentrations associated with Lake Holloman are provided in Table 10-3. For the recreational exposure of hunters and bird watchers via dermal contact with contaminants or incidental ingestion of surface water, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples taken during the RFI and previous investigations. Because exposure is assumed to occur at the lake, these concentrations represent valid exposure point concentrations. Air concentrations were modeled using a Box Model (see Section 10.3.6). Beef and waterfowl concentrations were modeled using the equations in Appendix F.

Under the agricultural exposure scenario, contaminated surface water and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples collected from monitor wells adjacent to the site and downgradient from Lake Holloman (MW-16, MW-17, and MWS-16) provided the groundwater concentrations accumulated in plant forage. Measured surface water concentrations in Lake Holloman provided the surface water concentrations consumed by cattle. Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater and surface water concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in beef as a result of contaminated stock water and plant forage. Appendix F also provides the algorithm for calculating concentrations in duck meat. The spreadsheet calculations are provided in Appendix K.

The fraction of water from the contaminated source (surface water) was assumed to be 100% although cattle have not actually been observed drinking from Lake Holloman. The fraction of feed from the contaminated source (plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. If cattle were run on the area surrounding Lake Holloman, drinking water would likely be provided from other sources due to the poor quality of water on the lake. These assumptions allow assessment of a worst-case scenario.

10.4.6 Estimating Contaminant Intakes for Specific Pathways

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) Assessment-related variables (averaging time).

Table 10-3
Exposure Point Concentrations for Lake Holloman

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
4,4'-DDD	1.43E-05	2.90E-05	4.20E-06	4.20E-06	1.67E-05	1.67E-05	9.03E-02	2.55E-01
4,4'-DDE	9.80E-06	1.83E-05	0.00E+00	0.00E+00	1.51E-08	2.82E-08	1.45E-02	2.53E-02
4,4'-DDT	0.00E+00	0.00E+00	1.17E-05	1.80E-05	4.55E-05	7.00E-05	9.39E-03	1.34E-02
Aldrin	1.06E-05	1.91E-05	0.00E+00	0.00E+00	3.13E-09	5.64E-09	0.00E+00	0.00E+00
alpha-BHC	2.02E-05	6.52E-05	8.80E-06	9.70E-06	1.77E-07	1.98E-07	5.29E-03	7.18E-03
alpha-Chlordane	6.00E-06	9.50E-06	0.00E+00	0.00E+00	2.59E-10	4.10E-10	1.30E-02	2.80E-02
Arsenic	0.00E+00	0.00E+00	7.32E-03	8.45E-03	1.46E-03	1.69E-03	0.00E+00	0.00E+00
beta-BHC	1.21E-05	3.39E-05	0.00E+00	0.00E+00	1.11E-09	3.12E-09	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	2.12E-02	4.67E-02	8.44E-04	1.86E-03	1.84E+01	4.14E+01
Boron	0.00E+00	0.00E+00	3.30E-01	3.65E-01	2.64E-02	2.92E-02	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-06	7.45E-06	0.00E+00	0.00E+00
Cadmium (water)	1.25E-02	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.61E+00	1.20E+01
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	2.69E-05	4.90E-05	0.00E+00	0.00E+00	2.47E-09	4.51E-09	1.09E+00	3.01E+00
Dieldrin	1.73E-05	3.77E-05	6.80E-06	1.29E-05	5.49E-08	1.04E-07	4.03E-02	6.76E-02
Endosulfan I	1.32E-05	3.77E-05	0.00E+00	0.00E+00	9.34E-10	2.67E-09	0.00E+00	0.00E+00
Endosulfan II	1.30E-05	1.30E-05	0.00E+00	0.00E+00	9.20E-10	9.20E-10	0.00E+00	0.00E+00
Endosulfan sulfate	1.04E-05	1.60E-05	7.00E-07	7.00E-07	1.26E-08	1.30E-08	0.00E+00	0.00E+00
Endrin aldehyde	0.00E+00	0.00E+00	4.50E-06	4.50E-06	2.47E-06	2.47E-06	0.00E+00	0.00E+00
Endrin ketone	0.00E+00	0.00E+00	3.00E-05	3.00E-05	1.65E-05	1.65E-05	0.00E+00	0.00E+00
gamma-BHC	1.24E-05	2.00E-05	6.50E-06	1.15E-05	1.31E-07	2.31E-07	6.49E-03	9.61E-03
gamma-Chlordane	9.20E-06	2.04E-05	0.00E+00	0.00E+00	3.97E-10	8.79E-10	1.62E-02	3.54E-02
Heptachlor	2.02E-05	3.60E-05	0.00E+00	0.00E+00	2.49E-09	4.43E-09	4.76E-03	6.63E-03
Isodrin	1.26E-05	2.42E-05	0.00E+00	0.00E+00	5.48E-09	1.05E-08	1.42E+00	4.17E+00
Kepone	3.55E-04	9.87E-04	0.00E+00	0.00E+00	7.06E-11	1.96E-10	0.00E+00	0.00E+00

Table 10-3

(Continued)

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Lead	0.00E+00	0.00E+00	3.22E-03	4.02E-03	9.66E-05	1.21E-04	1.31E+01	2.18E+01
Lead (organic)	0.00E+00	0.00E+00	2.06E-01	3.03E-01	2.90E-03	4.27E-03	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-03	2.31E-03	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.46E-02	5.77E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methoxychlor	0.00E+00	0.00E+00	1.97E-02	3.65E-02	7.66E-02	1.42E-01	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	1.28E+01	1.44E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E+03	1.68E+03

Table 10-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	3.98E-08	9.05E-08	0.00E+00	0.00E+00
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	1.26E-09	2.86E-09	0.00E+00	0.00E+00
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	1.57E-10	3.56E-10	0.00E+00	0.00E+00
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	5.81E-10	1.32E-09	0.00E+00	0.00E+00
2,3,7,8-TCDD	0.00E+00	0.00E+00	4.19E-09	9.53E-09	0.00E+00	0.00E+00
2,3,7,8-TCDF	0.00E+00	0.00E+00	4.49E-10	1.02E-09	0.00E+00	0.00E+00
2,4'-DDD	0.00E+00	0.00E+00	1.25E-05	2.85E-05	0.00E+00	0.00E+00
2,4'-DDE	0.00E+00	0.00E+00	8.55E-06	1.94E-05	0.00E+00	0.00E+00
2,4'-DDT	0.00E+00	0.00E+00	1.13E-06	2.58E-06	0.00E+00	0.00E+00
2,4,5-T	7.71E-04	1.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4,4'-DDD	0.00E+00	0.00E+00	1.31E-04	2.99E-04	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	1.06E-04	2.42E-04	3.10E-03	6.10E-03
4,4'-DDT	0.00E+00	0.00E+00	2.08E-06	4.74E-06	0.00E+00	0.00E+00
Aldrin	2.55E-04	4.49E-04	1.40E-07	3.20E-07	0.00E+00	0.00E+00
alpha-BHC	1.87E-04	3.37E-04	5.17E-09	1.25E-08	3.06E-03	6.07E-03
Antimony	0.00E+00	0.00E+00	1.10E-06	2.51E-06	0.00E+00	0.00E+00
Arsenic	9.15E-02	1.15E-01	2.61E-04	5.93E-04	2.41E+00	2.97E+00
Barium	4.52E-03	5.00E-03	8.36E-06	1.76E-05	0.00E+00	0.00E+00
Benzyl alcohol	0.00E+00	0.00E+00	4.74E-09	1.08E-08	0.00E+00	0.00E+00
Beryllium	4.01E-05	4.40E-05	1.87E-08	4.24E-08	0.00E+00	0.00E+00
beta-BHC	2.12E-04	3.56E-04	1.65E-09	5.72E-09	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	2.88E-02	5.83E-02	1.72E-05	4.00E-05	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	6.08E-07	1.95E-06	0.00E+00	0.00E+00
Cadmium (dust)	1.27E-04	1.60E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	6.49E-07	1.47E-06	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	2.14E-08	4.86E-08	0.00E+00	0.00E+00

Table 10-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Chromium III	0.00E+00	0.00E+00	3.59E-05	9.45E-05	0.00E+00	0.00E+00
Cobalt	1.19E-01	1.34E-01	0.00E+00	0.00E+00	3.39E+00	3.98E+00
Cyanide	0.00E+00	0.00E+00	6.86E-05	1.56E-04	0.00E+00	0.00E+00
delta-BHC	3.00E-02	6.24E-02	1.71E-08	8.92E-05	7.00E-01	1.53E+00
Dibenzofuran	0.00E+00	0.00E+00	1.90E-06	4.32E-06	0.00E+00	0.00E+00
Dieldrin	0.00E+00	0.00E+00	6.38E-09	1.46E-08	0.00E+00	0.00E+00
Endosulfan I	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan II	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Endosulfan sulfate	0.00E+00	0.00E+00	8.02E-12	1.90E-11	0.00E+00	0.00E+00
Endrin	2.16E-04	3.87E-04	1.13E-07	2.56E-07	0.00E+00	0.00E+00
Endrin aldehyde	3.64E-04	6.71E-04	0.00E+00	0.00E+00	6.00E-03	1.21E-02
Endrin ketone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
gamma-BHC	3.48E-04	6.43E-04	2.62E-08	3.88E-08	1.02E-02	1.52E-02
gamma-Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Heptachlor	0.00E+00	0.00E+00	1.49E-08	5.16E-08	3.16E-03	6.15E-03
Heptachlor epoxide	2.73E-02	7.77E-02	5.77E-12	1.32E-11	0.00E+00	0.00E+00
Hexachlorobenzene	0.00E+00	0.00E+00	2.27E-08	5.16E-08	0.00E+00	0.00E+00
HpCB	0.00E+00	0.00E+00	8.22E-06	1.87E-05	0.00E+00	0.00E+00
HxCB	0.00E+00	0.00E+00	1.66E-05	3.77E-05	0.00E+00	0.00E+00
Isodrin	2.29E-04	3.84E-04	0.00E+00	0.00E+00	5.97E-03	1.43e-02
Lead	1.08E-01	1.37E-01	2.97E-06	9.48E-06	2.52E+00	3.03E+00
Lead (organic)	0.00E+00	0.00E+00	1.48E-06	2.17E-06	0.00E+00	0.00E+00
Magnesium	0.00E+00	0.00E+00	1.69E+00	3.83E+00	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	9.27E-05	2.11E-04	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	1.16E-03	2.63E-03	0.00E+00	0.00E+00
Mirex	0.00E+00	0.00E+00	2.18E-12	4.95E-12	0.00E+00	0.00E+00

Table 10-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Nickel	0.00E+00	0.00E+00	2.04E-05	4.65E-05	0.00E+00	0.00E+00
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	6.13E-05	1.39E-04	0.00E+00	0.00E+00
n-Nitrosodimethylamine	0.00E+00	0.00E+00	9.71E-07	2.21E-06	0.00E+00	0.00E+00
OCDD	0.00E+00	0.00E+00	2.63E-09	5.98E-09	0.00E+00	0.00E+00
OCDF	0.00E+00	0.00E+00	1.27E-09	2.89E-09	0.00E+00	0.00E+00
PnCB	0.00E+00	0.00E+00	5.43E-05	1.23E-04	0.00E+00	0.00E+00
Parathion	3.39E-03	4.83E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pyridine	0.00E+00	0.00E+00	5.10E-09	1.16E-08	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	1.64E-03	3.73E-03	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	2.20E-04	5.59E-04	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	1.01E-05	2.31E-05	0.00E+00	0.00E+00
Sulfide	7.37E+00	1.25E+01	0.00E+00	0.00E+00	1.22E+02	1.86E+02
TCB	0.00E+00	0.00E+00	4.06E-06	9.21E-06	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	2.76E-04	6.28E-04	0.00E+00	0.00E+00
Trichloroethene	6.39E-01	1.33E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	5.86E-05	1.82E-04	0.00E+00	0.00E+00

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - -- Contact rate;
  - -- Exposure frequency and duration;
  - -- Body weight; and
- Period of exposure.

The chemical-related variables (exposure concentrations) are presented in Table 10-3. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Conservative Exposure Assumptions

- Amount of media intake is constant;
- 30-year maximum recreational exposure;
- Contaminants 100% bioavailable;
- Beef consumed 350 days/year;
- Waterfowl consumed a maximum of 14 days/year;
- Water-to-beef and water/algae-to-waterfowl transfer coefficients do not consider metabolism/disposition; and
- 100% absorption of inhaled/ingested contaminants.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) exposure is assumed to occur 350 days/year for 30 years for chronic agricultural exposures involving ingestion of beef; 3) the use of feed water-to-beef and water/algae-to-waterfowl transfer coefficients that do not account for metabolism and/or disposition; 4) 100% absorption of inhaled and ingested contaminants is assumed; and 5) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

10.4.7 Uncertainties

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

10.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation; and
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

10.5.1 Toxicity Values Used in the Risk Assessment

Table 10-4 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment in order to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a data base search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Table 10-4

Toxicity Values for Lake Holloman

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Antimony	--	4.00E-04 [H,I]	4.00E-04 [H]	--	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04	--	--	--	4.30E-03 [I]
Barium	--	7.00E-02 [I]	7.00E-02 [H]	7.00E-02	5.00E-04 [H]	5.00E-03 [H]	--	--
Benzyl alcohol	D	3.00E-01 [H]	1.00E+00 [H]	3.00E-01	--	--	--	--
Beryllium	B2	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	4.30E+00 [I]	2.40E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
ß-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis(2-ethylhexyl)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	1.40E-02 [I]	--
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
Cadmium (dust)	B1	--	--	--	--	--	--	1.80E-03 [I]
Cadmium (water)	B1	5.00E-04 [I]	--	5.00E-04	--	--	--	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
α-Chlordane	--	1.48E-05 [S]	6.00E-05 [S]	1.48E-05	--	--	1.30E+00 [S]	3.70E-04 [S]
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Chromium III	--	1.00E+00 [I]	1.00E+00 [H]	1.00E+00	--	--	--	--
Cobalt	D	--	--	--	--	--	--	--
Cyanide	--	2.00E-02 [H]	2.00E-02 [H]	2.00E-02	--	--	--	--
Cyclohexanone	--	5.00E+00 [I]	--	--	--	--	--	--
2,4'-DDD	--	2.26E-04 [S]	--	2.26E-04	--	--	--	--
2,4'-DDE	--	--	--	--	--	--	--	--
2,4'-DDT	--	3.58E-05 [S]	--	3.58E-05	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dibenzofuran	D	--	--	--	--	--	--	--

Table 10-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]
Endosulfan I	--	2.53E-02 [S]	--	2.53E-02	--	--	--	--
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Endrin ketone	--	3.20E-05 [S]	--	3.20E-05	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [I]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Hexachlorobenzene	B2	8.00E-04 [I]	--	--	--	--	1.60E+00 [I]	4.60E-04 [I]
1,2,3,4,6,7,8-HpCDD	--	--	--	--	--	--	1.5E+03 [C]	3.30E-01 [C]
1,2,3,4,7,8-HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.30E+00 [C]
1,2,3,7,8,9-HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.30E+00 [C]
2,3,4,6,7,8-HxCDF	--	--	--	--	--	--	1.5E+04 [C]	3.30E+00 [C]
HpCB	--	6.20E-07 [C]	--	6.20E-07	--	--	2.40E+00 [C]	5.30E-04 [C]
HxCB	--	6.00E-07 [C]	--	6.00E-07	--	--	2.40E+02 [C]	5.30E-02 [C]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--
Kepone	--	4.20E-05 [S]	--	6.72E-04 [S]	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-07 [I]	1.00E-07 [H]	1.00E-07	1.50E+00 [N]	--	--	--
Magnesium	--	--	--	--	--	--	--	--
Manganese (food)	D	1.40E-01 [I]	1.00E-01 [H]	--	--	--	--	--
Manganese (water)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Methoxychlor	D	5.00E-03 [I]	5.00E-03 [H]	7.60E-02 [S]	--	--	--	--
Mirex	--	2.00E-04 [I]	--	--	--	--	--	--
Nickel	A	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
n-Nitroso-di-methylamine	B2	--	--	--	--	--	5.10E+01 [I]	1.40E-02 [I]

Table 10-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RFD (mg/kg-day)	Chronic Inhalation RfC (mg/m^3)	Subchronic Inhalation RfC (mg/m^3)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m^3)
n-Nitroso-di-n-propylamine	B2	--	--	--	--	--	7.0E+00 [I]	--
OCDD	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.30E-01 [C]
OCDF	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.3E-01 [C]
Parathion	C	6.00E-03 [H]	6.00E-03 [H]	--	--	--	--	--
PnCB	--	2.50E-09 [C]	--	2.50E-09	--	--	6.00E+04 [C]	1.32E+01 [C]
Pyridine	--	1.00E-03 [I]	--	--	--	--	--	--
Selenium	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--
2,4,5-T	--	1.00E-02 [I]	1.00E-01 [H]	1.00E-02	--	--	--	--
TCB	--	2.70E-07 [C]	--	2.70E-07	--	--	4.05E+02 [C]	8.91E-01 [C]
2,3,7,8-TCDD	B2	1.00E-09 [H]	--	--	--	--	1.5E+05 [H]	3.3E+01 [H]
2,3,7,8-TCDF	--	--	--	--	--	--	1.5E+04 [C]	3.3E+00 [C]
Thallium	D	8.00E-05 [I]	8.00E-04 [H]	8.00E-05	--	--	--	--
Trichloroethene	B2/C	--	--	--	--	--	1.00E-02 [I]	1.70E-06 [I]
Vanadium	--	7.00E-03 [H]	7.00E-03 [H]	7.00E-03	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.
N National Ambient Air Quality Standard.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

10.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

10.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Lastly, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

10.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 70 Chemicals of potential concern;
- 56 oral RfDs available:
  - -- 15 surrogate values derived;
  - -- 6 values from HEAST; and
  - -- 6 calculated values.
  - -- 29 USEPA-verified RfDs:
    - 3 - high confidence;
    - 18 - medium confidence; and
    - 8 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Fifteen of the 52 RfDs

available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Thirty values were obtained from IRIS and have levels of confidence that range from high (three chemicals) to low (eight chemicals). Six values were obtained from HEAST and six were calculated based on comparative potency factors for dioxins. Oral RfDs were not available for 17 of the chemicals of potential concern. A qualitative assessment was conducted for these 17 chemicals (see Appendix G).

Carcinogen Toxicity Information

- 30 oral slope factors available:
  - -- 15 USEPA-verified slope factors:
    Group B2 - 12 chemicals;
    Group B2/C - 2 chemicals;
    Group C - 1 chemical;
  - -- 2 surrogate values;
  - -- 2 values from HEAST; and
  - -- 11 calculated values.
- 27 Inhalation unit risks available:
  - -- 13 USEPA-verified unit risks;
  - -- 2 surrogate values;
  - -- 1 value from HEAST; and
  - -- 11 calculated values.

Thirty-six of the 70 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Twelve chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. Two chemicals were classified as Group C (Possible Human Carcinogen). Two chemicals were classified as Group B2/C (Probable Human Carcinogen/ Possible Human Carcinogen), indicating that its classification is uncertain. Fifteen chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans and two chemicals were classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for 15 of 36 of the chemicals of potential concern that have been classified as Group A, B, or C carcinogens. Surrogate oral slope factors were assigned to alpha- and gamma-chlordane. Two values were obtained from HEAST and 11 were calculated based on comparative potency factors for dioxins. Inhalation unit risk factors were available for 27 chemicals. Thirteen values were USEPA-verified, two values were surrogates, two were obtained from HEAST, and 11 were calculated based on comparative potency factors for dioxins.

10.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Lake Holloman, measured contaminant exposure levels, as well as those predicted by fate and transport modeling were used to estimate contaminant intakes and were compared to chemical-specific toxicity information.

10.6.1 Carcinogenic Risk

For each carcinogen present in Lake Holloman, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's proposed Subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure *(de minimis)* for risk management purposes. This range is designed to protect human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

10.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [(oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

10.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Lake Holloman presently or in the future, two chronic and one subchronic scenario were identified for human exposure. The *chronic* exposure scenarios included: 1) current off-site recreational exposure; and 2) current off-site agricultural exposure. The only *subchronic* scenario was: 1) current off-site recreational exposure.

10.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Recreational Risks

Carcinogenic risk:

- Inhalation of arsenic and heptachlor epoxide by recreational adults.
- Ingestion of contaminated waterfowl.

Noncarcinogenic hazard:

- Dermal contact and incidental ingestion of organic lead in surface water by recreational adults and children.

Current Off-Site Recreational Scenario - Adult Chronic Exposure

Lake Holloman is routinely frequented by hunters and bird watchers. Contaminants may bioaccumulate in waterfowl that use the lagoons and lakes as habitat. As several of these waterfowl are game species, humans may be indirectly exposed as a result of hunting activities. The off-site

recreational scenario addresses pathways considered to be complete for hunters and bird watchers, assuming that wild game duck are hunted and ingested and that recreational users occasionally fall into the lake.

The current off-site recreational scenario assumes exposure to site-related contaminants via six pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with sludge; 3) dermal contact with soil; 4) incidental ingestion of surface water; 5) inhalation of fugitive dust and volatiles; and 6) ingestion of waterfowl. To assess this current scenario, it was assumed that waterfowl bioaccumulate site-related contaminants via ingestion of contaminated surface water, plankton, and algae. For waterfowl exposed to contaminants migrating through the lagoon system, exposure concentrations were based on: 1) measured surface water concentrations in the individual impoundments; 2) measured and modeled concentrations in algae and plankton; and 3) modeled uptake and accumulation in the edible portions of ducks (based on measured surface water concentrations and measured and modeled biota concentrations). Exposure concentrations in surface water, sludge, and soil were based on measured concentrations. Ambient air concentrations were based on modeled results, using the soils at the bottom of Lake Stinky as the source during dry periods.

Current Off-Site Chronic Recreational Adult Risk

Carcinogenic risk

- Total average = 4E-7
- Total reasonable maximum = 1E-5

Noncarcinogenic hazard

- Total average HI = 2.4
- Total reasonable maximum HI = 7.2

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 4E-7 and 1E-5, respectively. The reasonable maximum risk value exceeds the lower-bound goal and may indicate cause for concern for local hunters and bird watchers. As shown in Figure 10-4, arsenic contributed the majority (48%) of the risk for reasonable maximum exposure. Pentachlorinated biphenyls contributed significantly to the risk (26%) as well. These same constituents were risk drivers for average exposure. Inhalation of fugitive dusts/volatiles contributed 58% of the reasonable maximum pathway-specific risk, while ingestion of waterfowl was responsible for 41% of the risk.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 2.4 and 7.2, respectively. Both values exceed one and may indicate cause for concern for recreational users of Lake Holloman. Organic lead was responsible for the majority of the average (97%) and reasonable maximum (95%) hazards. As shown in Figure 10-5, dermal contact with surface water caused 54% of the reasonable maximum pathway-specific risk, while incidental ingestion of surface water caused 41% of the risk.

Current Off-Site Recreational Scenario - Adult Subchronic Exposure

The subchronic recreational scenario addresses the same pathways of exposure as the chronic recreational scenario but assesses hazards for military personnel who may reside in the area for an average (3 years) tour-of-duty. Calculated noncancer HIs are presented in Appendix I.

Current Off-Site Subchronic Recreational Adult Risk

Carcinogenic risk

- Not assessed for subchronic exposure

Noncarcinogenic hazard

- Total average HI = 2.3
- Total reasonable maximum HI = 6.9

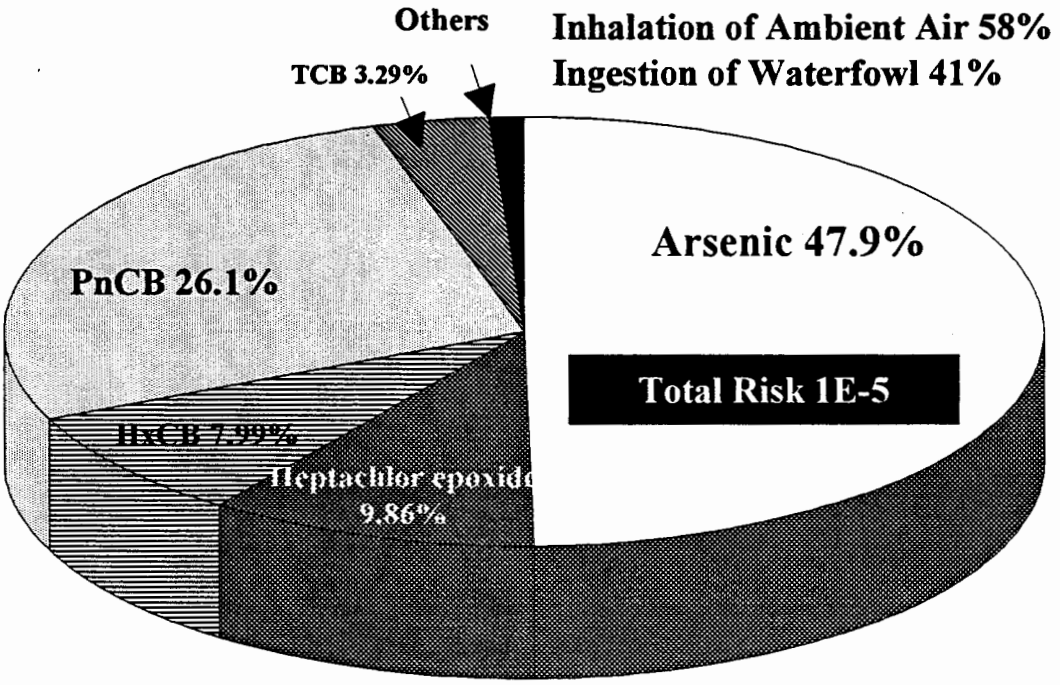

Figure 10-4. Reasonable Maximum Carcinogenic Risk--Current Off-site Adult Recreational Scenario

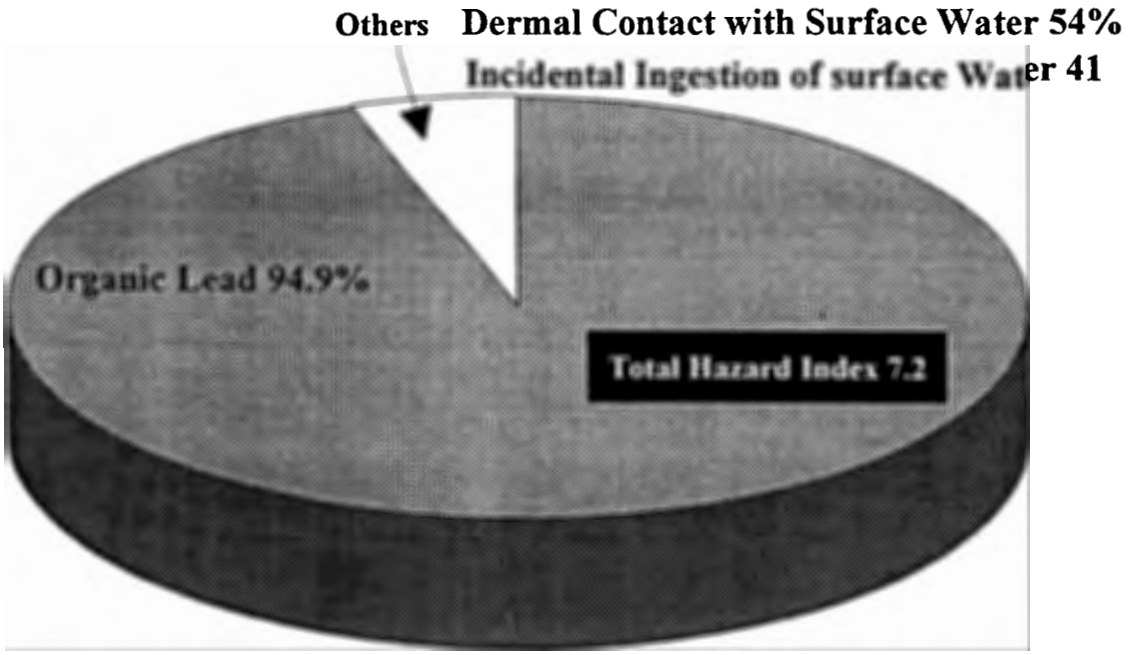

Figure 10-5. Reasonable Maximum Noncancer Hazard Index--Current Off-Site Recreational Adult Scenario

Carcinogenic Risk--Carcinogenic risk was not modeled for the subchronic recreational scenario since carcinogenic risks are estimated as the probability of an individual developing cancer over a lifetime. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is not appropriate.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 7.7 and 23, respectively. Both values exceed unity and may indicate cause for concern regarding noncancer hazards for children who use Lake Holloman for recreational purposes. Organic lead was responsible for virtually all of the chemical-specific risk for both average and reasonable maximum exposure. Incidental ingestion of surface water contributed the majority of both the average (61%) and reasonable maximum (60%) hazard, while dermal contact with surface water was responsible for the remaining hazard (38% of both average and reasonable maximum exposure).

Current Off-Site Recreational Scenario-Child Chronic Exposure

Current Off-Site Chronic Recreational Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 7.7
- Total reasonable maximum HI = 23

The subchronic recreational scenario addresses the same pathways of exposure as the chronic recreational scenario but assesses hazards for the families of military personnel who may reside in the area for an average (3 years) tour-of-duty. Calculated noncancer hazard indices are presented in Appendix I.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 7.7 and 23, respectively. Both values exceed unity and may indicate cause for concern regarding noncancer hazards for children who use Lake Holloman for recreational purposes. As shown in Figure 10-6, organic lead was responsible for virtually all of the chemical-specific risk for both average and reasonable maximum exposure. Incidental ingestion of surface water contributed the majority of both the average (61%) and reasonable maximum (60%) hazard, while dermal contact with surface water was responsible for the remaining hazard (38% of both average and reasonable maximum exposure).

Current Off-Site Recreational Scenario - Child Subchronic Exposure

Current Off-Site Subchronic Recreational Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 7.6
- Total reasonable maximum HI = 22

The subchronic recreational scenario addresses the same pathways of exposure as the chronic recreational scenario but assesses hazards for the families of military personnel who may reside in the area for an average (3 years) tour-of-duty. Calculated noncancer hazard indices are presented in Appendix I.

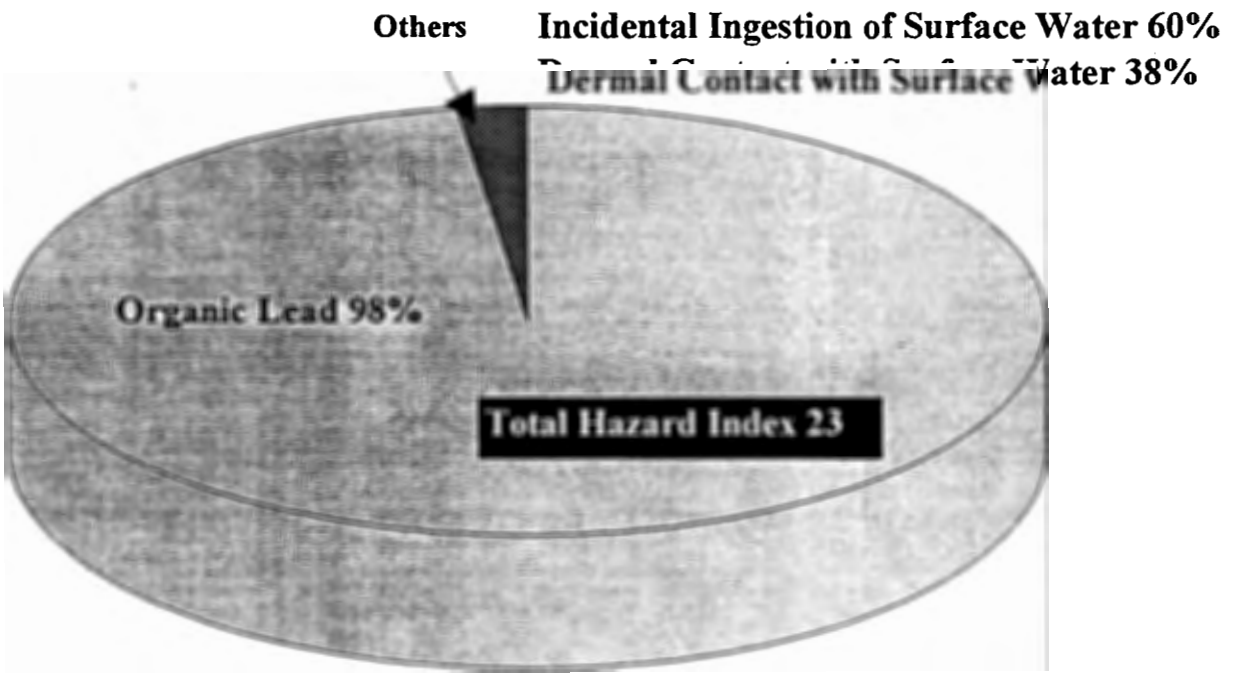

Figure 10-6. Reasonable Maximum Noncancer Hazard Index Summary--Child Off-site Recreational Scenario

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 7.6 and 22, respectively. Both values exceed unity and may indicate cause for concern regarding noncancer hazards for children who are exposed to contaminants associated with Lake Holloman on a subchronic basis. Again, organic lead was responsible for virtually all of the chemical-specific hazard, while incidental ingestion and dermal contact with surface water contributed the majority of the pathway-specific hazard.

Current Agricultural Exposure Scenario - Adult Chronic Exposure

Major Factors Driving Current Agricultural Risks

Carcinogenic risk:

- No risks exceed *de minimis* values.

Noncarcinogenic hazard:

- Ingestion of beef contaminated with organic lead by adults and children.

This scenario addresses pathways considered to be complete for adults who consume beef from cattle exposed to contaminated surface water (Lake Holloman) and plant forage. The current agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this current exposure scenario, it was assumed that cattle drink from Lake Holloman. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, was also considered as a contaminant source for the introduction of chemicals into edible portions of beef.

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 3E-9 and 7E-8, respectively. Both risk values are below the RCRA goal and suggest that contaminants migrating off-site via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Current Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 3E-9
- Total reasonable maximum = 7E-8

Noncarcinogenic hazard

- Total average HI = 20
- Total reasonable maximum HI = 123

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 20 and 123, respectively. Both HIs are greater than unity and suggest that contaminants migrating off-site via groundwater may cause adverse noncancer health effects in adults. As shown in Figure 10-7, ingestion of beef contaminated with organic lead is responsible for virtually all of the hazard for both average and reasonable maximum exposure.

Current Agricultural Exposure Scenario - Child Chronic Exposure

This scenario addresses pathways considered to be complete for children who consume beef from cattle exposed to contaminated surface water and plant forage. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated noncancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 46 and 287, respectively. Both HIs are greater than one and

Ingestion of Beef 100%

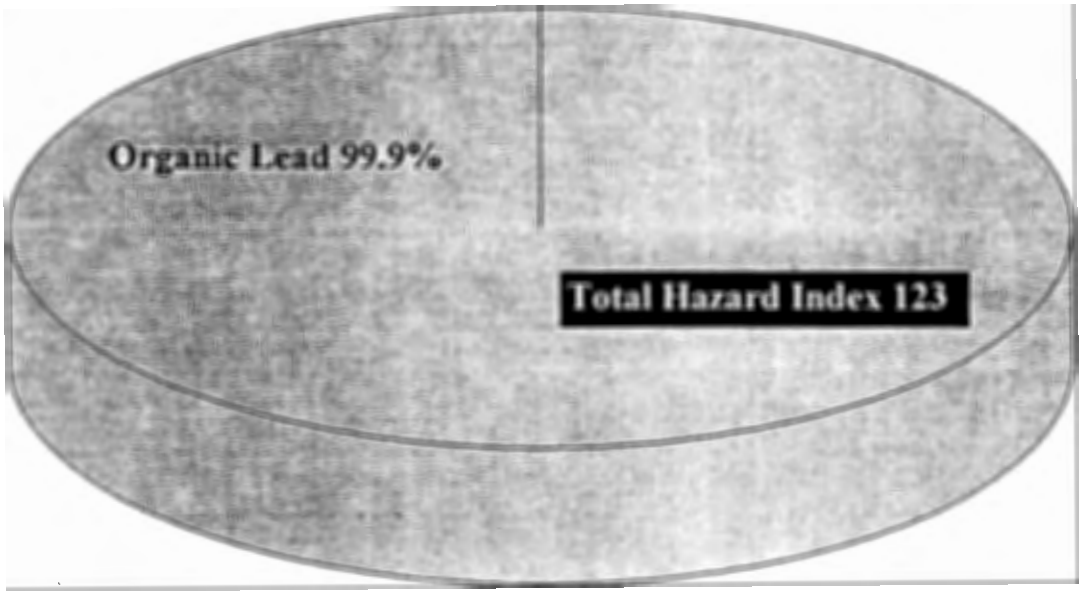

Figure 10-7. Reasonable Maximum Noncancer Hazard Index--Adult Off-Site Agricultural Scenario

Current Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 46
- Total reasonable maximum HI = 287

suggest that contaminants migrating via groundwater may cause adverse noncancer health effects in children. As shown in Figure 10-8, ingestion of beef contaminated with organic lead was responsible for virtually all of the hazard for both average and reasonable maximum exposure.

10.6.5 Major Factors Driving Future Risks

Land use around the lakes is not expected to change significantly in the future. Therefore, no future scenarios were assessed.

10.6.6 Lead Evaluation

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. The Lead5 Model was obtained for this risk assessment and used in conjunction with site specific data to estimate blood lead levels as an indicator of risk. The results generated by the Lead5 Model are presented in Appendix H. All blood lead levels at this site were well below the 10 μg/dL (exposure level known to increase the risk of irreversible neurobehavioral deficits during infancy or childhood) cutoff point.

10.6.7 Uncertainties Associated with Risk Characterization

The current recreational carcinogenic risks associated with Lake Holloman are caused primarily by inhalation of arsenic and heptachlor epoxide. Most of the arsenic results were flagged with an @ flag indicating that the results are within five times the reporting limit and calling the concentrations into question.

Carcinogenic risk associated with ingestion of waterfowl was based solely on modeled concentrations, assuming that waterfowl spend a percentage of their time feeding on biota from *each* impoundment in the lagoon system. Significant uncertainty is associated with these results because the most toxic PCB congeners are generally present in biota at such low concentrations as to severely compromise their detection. Therefore, data for the most toxic PCB congeners were not generated. Instead, the most potent enzyme inducing congener in the "numerical PCB class" (i.e., hexachlorinated biphenyl, pentachlorinated biphenyl, etc.) was used as a proxy for the entire class. It is possible that the risks associated with waterfowl ingestion are overestimated due to the assumption that all contaminants detected in the lower trophic levels bioaccumulate in waterfowl. The current recreational noncancer HI is caused by dermal contact and incidental ingestion of organic lead in surface water. In addition, the hazards associated with the current agricultural scenario result from ingestion of organic lead contaminated beef. A primary source of uncertainty associated with these results is the source of the organic lead. The hazards are based on results obtained from an investigation conducted in 1991. It is likely that the organic lead has volatilized. However, its presence can not be ruled out without further sampling.

10.6.8 Summary

Risk Characterization Results

Risks above *de minimis* levels include:

- Carcinogenic risk to recreational adults.
- Noncancer hazard to recreational adults and children.
- Noncancer hazard to adult and child consumers of local agricultural products (beef).

The results of this risk assessment indicate that elevated carcinogenic risks are associated with reasonable maximum exposure to recreational adults at Lake Holloman. Both the average and reasonable maximum noncancer hazards for adult and child

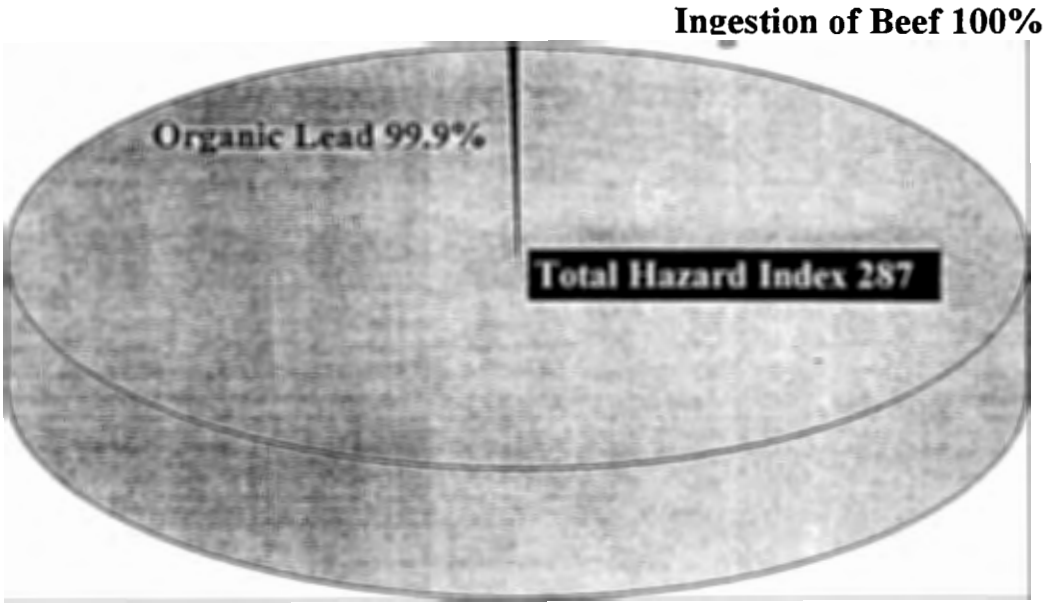

Figure 10-8. Reasonable Maximum Noncancer Hazard Index--Child Off-Site Agricultural Scenario

recreational users were above *de minimis* levels. Average and reasonable maximum hazards associated with the current agricultural scenario were also above *de minimis* levels for adults and children.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Lake Holloman. Conservative assumptions that may impact the risk characterization include: 1) use of the oral RFD to assess risk/hazard associated with dermal exposure to organic lead; 2) exposure frequency; 3) exposure duration; 4) surface area available for dermal contact; 5) conservative inhalation rates; 6) assumption that all contaminants detected in lower trophic levels are bioaccumulated in waterfowl; and 7) use of toxicity equivalence approach for estimating risks associated with PCB contaminated waterfowl.

10.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological HI for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk assessment, a value greater than one indicates that adverse effects may occur because of exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the USEPA, the quotient method..."can provide some qualitative information on the likelihood and severity of impacts" due to chemical exposures (USEPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Lake Holloman and discusses the ecological quotient calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties can be found in Appendix K, and will not be repeated here. In addition, a discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

10.7.1 Background

Lake Holloman is an unlined, 166 acre lake that was intended to be the final impoundment for evaporation. The lake has the capacity to hold 379 million gallons of water. Plankton, fish, sludge and surface water were collected from Lake Holloman. Water quality parameters were measured at three stations in Lake Holloman. Water quality parameters and depth profiles for temperature, conductivity (C), and dissolved oxygen (DO) are presented in Table 10-5.

Fish (*Gambusia affinis*) samples were collected at three stations in Lake Holloman as discussed in Appendix M. The fish were found in areas where grass was overhanging the water, and caught by running a dipnet up under the grass along the shoreline. Dragonfly larvae, damselfly larvae, beetles, and corixids were taken in the dipnets with the fish and were released back to the lake.

No benthos were collected in Lake Holloman. The bottom from 9 feet to 4 feet of depth was covered with a layer of bacterial/algal ooze that was devoid of macroscopic life. Benthic organisms began to appear at about 3 feet where the ooze began to thin out. A population of chironomids was found in hand dredge samples taken from 1 to 3 feet of water. The extreme difficulty of separating the benthos from the muck and caliche gravel found at this depth made sample collection infeasible. In the shallow north end of the lake, dense algal mats covered the bottom and clogged the screens of the skid dredge. After towing the skid dredge for about 500 feet, it was filled with algae and contained only 15 chironomid larvae which had to be separated from the muck by handpicking. Plankton and surface water samples were collected

Table 10-5

Water Quality Parameters-Lake Holloman

	Station 3 (South end) Date: 3/3/93 Time: 3:30 p.m. pH: 8.68 Alkalinity: 135 mg/L Water Depth: 2.5 m Secchi Depth: 0.65 m			Station 2 (Middle) Date: 3/4/93 Time: 9:30 a.m. pH: 8.58 Alkalinity: 153 mg/L Water Depth: 2.5 m Secchi Depth: 0.7 m			Station 1 (North end) Date: 3/4/93 Time: 3:30 p.m. pH: 8.78 Alkalinity: 198 mg/L Water Depth: 0.75 m Secchi Depth: 0.6 m		
Depth (m)	C (μmhos)	Temp (°C)	DO* (mg.L)	C (μmhos)	Temp (°C)	DO* (mg.L)	C (μmhos)	Temp (°C)	DO* (mg.L)
Surface	14000	13.5	14, 14	13400	12	13.2, 14.2	13200-13300	14	>15
0.5	14000	13	14.8, 14.8	13400	12	13.5, 13.2	NC	NC	NC
1.0	14000	13	14.8, 15	13400	11.5	13.4, 12.2	NC	NC	NC
1.5	14000	12.5	14.1, 14.2	13400	11	13.3, 12.9	NC	NC	NC
2.0	14000	11.5	11.9, 12.3	13400	11	13.0, 12.9	NC	NC	NC
2.5	14000	11	11.2	13400	11	10.6	NC	NC	NC

* Duplicate samples were taken, one as the probe was lowered, and one as the probe was raised.

NC - Not Collected

along the transects shown in Appendix M.

10.7.2 Exposure Assessment

Indicator species selected for Lake Holloman are:

- Mallards;
- Mergansers; and
- Fish.

Figure 10-9 is a conceptual site model of Lake Holloman. Sludge and surface water samples were collected at this pond. Fish were present in Lake Holloman. The indicator species selected for this lake were mallards and mergansers which feed on plankton (in this case, is a mixture of algae, plankton and mosquito larvae) and fish.

In calculating the potential intake in mg/kg/day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Lake Holloman makes up about 49% of the system; therefore, 49% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, at the most, 6 months. The average ingestion fraction, which was 24.5%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

For mergansers, the average ingestion fraction was assumed to be 33%, since fish were only present in Pond G, Lake Holloman and the ditch and the birds may feed at each of these locations. The reasonable maximum was assumed to be 100%, since the birds may potentially spend the majority of their time feeding at one pond. The mergansers are migratory; therefore, the ingestion fraction was divided in half for average exposure (16.5 %) to represent 6 months in the area. The reasonable maximum was set at 33%, which is worst case, to cover those birds feeding on fish in this area year round.

10.7.3 Risk Characterization

Table 10-6 lists the EQs for the indicator species. The EQ for mallards was below 1.0 for average exposure. However, for mallards, it was greater than 1.0 for reasonable maximum exposure, indicating that adverse effects are possible to mallards though the probability is low. It should be noted that the majority of the potential risk in Lake Holloman was a result of metal toxicity. This may not be accurate since metals were not speciated, and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations.

Risk Characterization Results

Birds:

- Adverse effects are possible.

Fish:

- Adverse effects are possible.

Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to birds feeding at Lake Holloman can be quantified based on the fraction ingested from this pond; however, the birds are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributable to Lake Holloman alone is acceptable, the cumulative risk from the entire system has to be taken into consideration. The EQs were summed for all ten assessments to determine a total EQ, or the ecological HI, for birds. A discussion of cumulative risks from feeding at all ten locations is included in the conclusions in Section 10.8.

Fish are present in Lake Holloman, as discussed above. Based strictly on contaminant concentrations in surface water, the EQ for fish was 2.5 for average exposure and 3.1 for reasonable maximum exposure. These values are above the acceptable level of 1.0. Therefore, based strictly on the water contaminant concentrations, adverse affects are possible. In addition, these EQs may be on the low side, since they do not account for contaminant exposure from other sources. Since fish are present, it is assumed that pond conditions are adequate for their survival. Fish were used as an

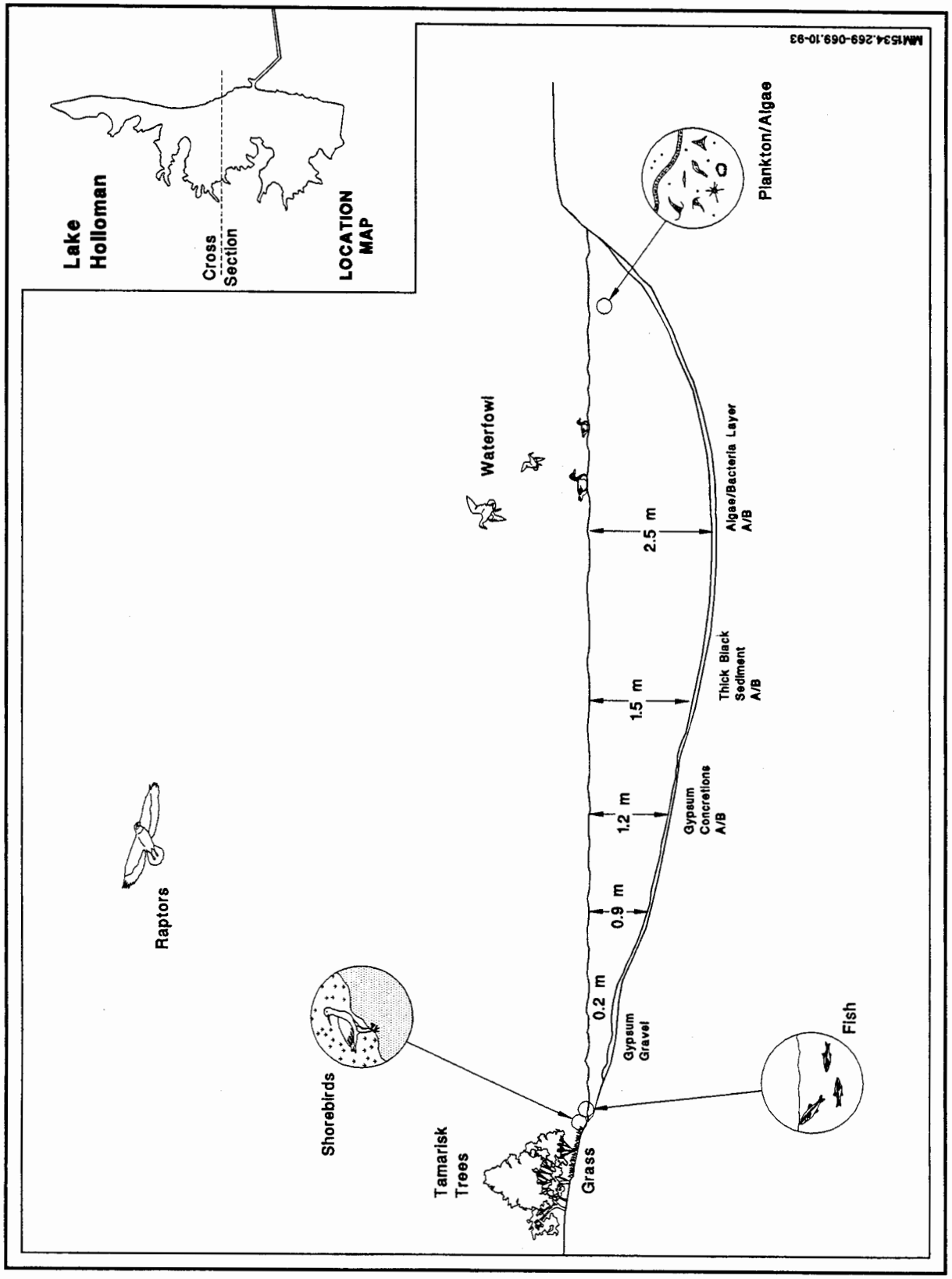

Figure 10-9. Ecological Conceptualization Model for Lake Holloman

Table 10-6

Ecological Quotients - Lake Holloman

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.91	1.5
Mergansers	0.18	0.29
Fish	2.5	3.1

indicator species for aquatic organisms in general. Based on the EQ for fish, adverse effects are possible in benthic organisms.

10.8 Conclusions for Lake Holloman

The recreational scenario for Lake Holloman assumed that hunters consume waterfowl that have ingested contaminants from the lagoon system, and that hunters or bird watchers might fall into the lake and be exposed to surface water and sediments/sludge and soil. Moreover, it was assumed that recreational users of the area could be exposed to wind-blown dust containing contaminants entrained from Lake Stinky sediments. Carcinogenic risks and noncancer hazards were above *de minimis* levels. The carcinogenic risks were due primarily to inhalation of arsenic-contaminated particulate from Lake Stinky and ingestion of contaminated waterfowl. The noncancer hazard primarily resulted from organic lead in surface water. Hazard index values were particularly high for children, which is of some concern because of the known sensitivity of children to the neurotoxic effects of lead.

Organic lead concentrations in Lake Holloman were measured in 1991, and were substantially higher than those in the upper lagoons. The origin of the organic lead is uncertain, and may not be related to past waste disposal practices. It is probable that the organic lead detected during the previous sampling event has volatilized. Assuming that the presence of organic lead is ruled out, all remaining noncancer hazards would be within acceptable limits. However, the presence of organic lead in Lake Holloman cannot be ruled out as a source of potentially hazardous recreational exposure without additional surface water sampling and analysis.

Although PCBs have only been detected in Ponds A and B, the carcinogenic risk associated with ingestion of waterfowl results from PCB contamination. This is because it was assumed that waterfowl spend a percentage of their time feeding at *each* impoundment in the lagoon system. These elevated risks are based solely on modeled concentrations and have considerable uncertainty associated with them. It is possible that the risks are overestimated due to the assumption that all contaminants detected in lower tropic levels bioaccumulate in waterfowl.

The current agricultural scenario evaluates the risk from ingestion of beef from cattle pastured on land adjacent to the lake and obtaining their drinking water from Lake Holloman exclusively. Although carcinogenic risk for this exposure scenario was below *de minimis* levels, the noncancer hazard was above *de minimis levels* for both adults and children. The source of the hazard was the organic lead in surface water. However, since cattle are not currently present adjacent to the lake, this exposure is only theoretical. Moreover, it is unlikely that cattle would use the lake as their sole source of drinking water because of the high total dissolved solids in the water.

The ecological risk assessment evaluated birds and fish. Acceptable values were found for mergansers and for mallards under average exposure conditions, although the reasonable maximum EQ was slightly elevated. EQ values for fish were also elevated; however based on the large population of Gambusia in the lake these values are unlikely to represent a significant risk. Lake Holloman provides excellent habitat for a variety of species from several trophic levels. The presence of numerous threatened and endangered species in the area is evidence that the lakes are an important source of both water and habitat. Although the human health risk assessment suggested that noncancer hazards are possible due to the presence of organic lead and that carcinogenic risks may occur as a result of waterfowl ingestion, it is strongly recommended that additional sampling be performed before closure/ remediation strategies are completed. In addition, comparisons should be made between the modeled contaminant concentrations in waterfowl presented in this assessment and those found in the bird tissues that are currently being analyzed, when those data become available.

Section 11
RISK ASSESSMENT FOR LAKE STINKY

This section presents the unit-specific risk assessment for Lake Stinky. As detailed in Section 1.0, the purpose of completing individual assessments is to assist in evaluating closure options for the wastewater treatment system.

11.1 Conceptual Site Model

A conceptual site model has been prepared for the human health and ecological risk assessment of Lake Stinky. The objective of the conceptual site model is to assess the site and make a preliminary identification of potential contaminants, source areas, release mechanisms, transport media, and exposure routes and receptors. This information, integrated with geologic and hydrologic data, provides the framework necessary to evaluate human health and ecological risk.

11.1.1 Site Description

Lake Stinky is a 20 to 24 feet deep follow-on impoundment to the wastewater treatment system at HAFB. The lake is unlined and unfenced. Typically the lake accepts excesses from Lake Holloman during high flow events. It is considered a playa lake which is dry approximately 6 months of the year. When the lake is holding water, maximum capacity is approximately 277 million gallons. It serves as a migratory habitat for several bird species and provides a recreational area for local hunters and bird watchers. Cattle have also been observed drinking from Lake Stinky. During dry seasons the primary mechanism for release is evaporation, during which times the lake is almost completely dry, giving way to the generation of fugitive dusts.

Lake Stinky is surrounded by public lands administered by the Bureau of Land Management for the U.S. Department of the Interior. Cattle are pastured on the land surrounding the lake and have been observed drinking from the lake. Lake Stinky supports a significant population of planktonic organisms; the death and decay of these organisms when the lake dries up are the source of the odors giving rise to its name. The abundant microscopic and plant life is an important seasonal food source, particularly since the aquatic phase of the lake coincides with the spring migration of waterfowl.

11.1.2 Identification of Releases into Media

Release Summary

Contaminants in Lake Stinky have:

- Partially remained in surface water;
- Infiltrated into underlying soil;
- Leached into groundwater;
- Accumulated in biota; and
- Migrated into air.

Figure 11-1 outlines the fate and transport of contaminant releases from Lake Stinky, exposure pathways and routes, and potential receptors. As indicated by the figure, surface water and algae in the lake serve as the contaminant source. Sampling data indicate that the significant fate and transport mechanisms for contaminant migration to other media include: 1) volatilization and particulate entrainment; 2) infiltration into underlying soil 3) surface water discharge into groundwater; 4) leaching into groundwater from soils; and 5) uptake by biota.

11.1.3 Evaluation of Exposure Points/Routes

Assessments of the lake, the fate and transport potentially occurring, and the activities that occur (or will occur) in close proximity, indicate that humans may be exposed to contaminants in/from Lake Stinky at the lake and points hydraulically downgradient. Evaluation of these points of exposure suggests that six potential routes exist for human contact with contaminants (see Figure 11-1). These include: 1) dermal contact with contaminants in surface water; 2) dermal contact with soil 3) incidental ingestion of surface water; 4) inhalation of volatiles and fugitive dust; 5) ingestion of waterfowl; and 6) ingestion of beef from cattle exposed to contaminated groundwater.

Currently, inhalation of volatile contaminants and fugitive dusts from Lake Stinky is considered to be a viable exposure route, since Lake Stinky is dry approximately six months of the year. Ingestion of contaminated soil was not considered in

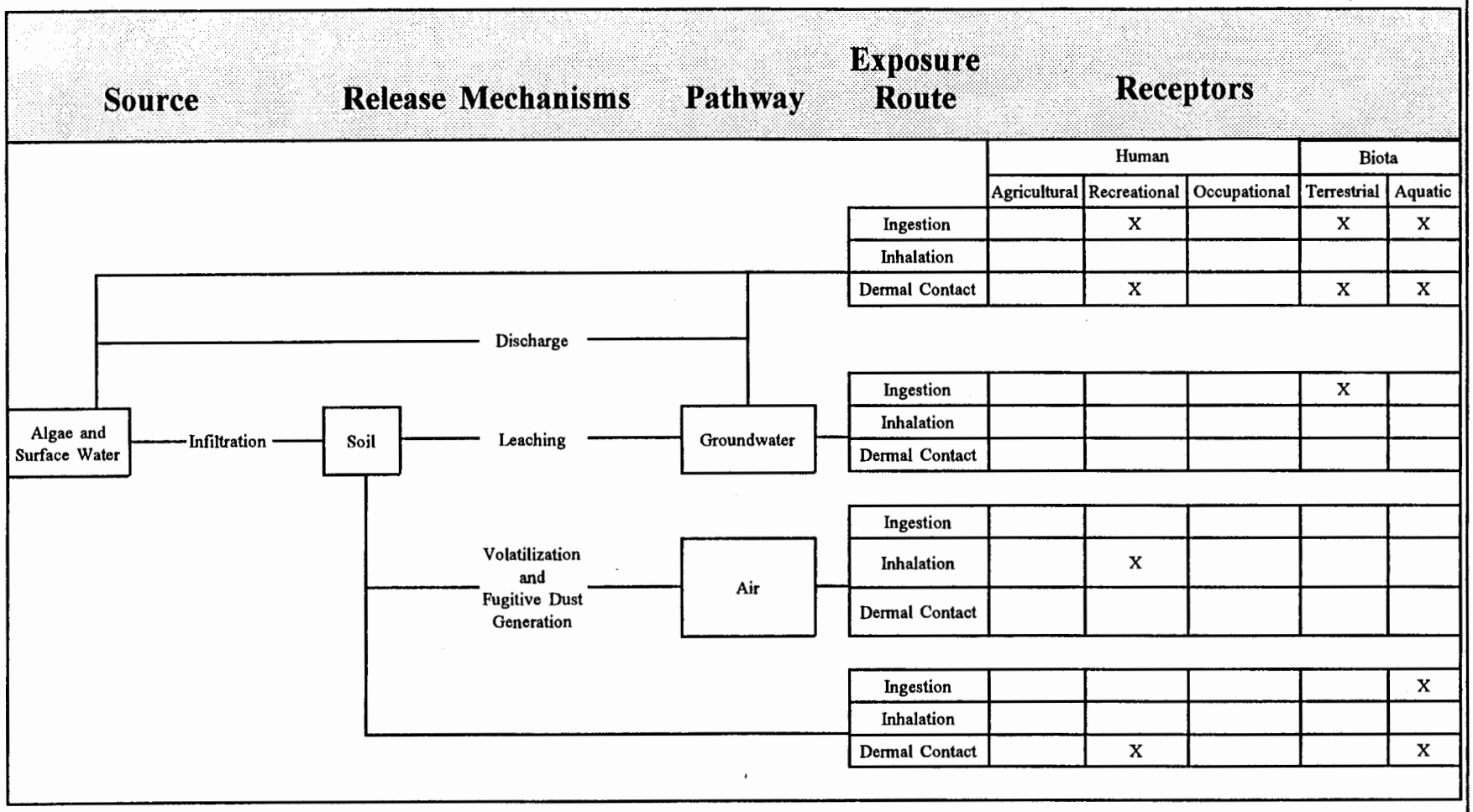

Figure 11-1. Fate and Transport - Lake Stinky

Exposure Point/Route Summary

Potential exposures include:

- Dermal contact with contaminated surface water;
- Dermal contact with soil;
- Incidental ingestion of surface water;
- Inhalation of volatiles and dust;
- Ingestion of contaminated waterfowl; and
- Ingestion of beef from cattle exposed to contaminated water.

this assessment. Groundwater in the vicinity of the Base is not potable because of high total dissolved solids (TDS). Therefore, exposure pathways associated with domestic water use are not considered in this assessment. A discussion of ecological exposure is provided in Section 11.7. Other than the possible installation of agricultural wells, future land uses in the vicinity of the Base are not anticipated to significantly alter the exposure points and exposure routes.

11.1.4 Potentially Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Current recreational users; and
- Current agricultural consumers.

Two potentially exposed human populations have been identified based on the contaminant fate and transport data and the potential points/routes of exposure (see Figure 11-1). These include: 1) current bird watchers or hunters who may have dermal contact with surface water, and soil, incidentally ingest surface water, consume contaminated waterfowl, or inhale contaminants in the air during recreational activities; and 2) local consumers who may ingest beef from cattle exposed to contaminants. Cattle are assumed to be exposed to site-related contaminants by drinking water from the lake and ingesting plant forage subirrigated with contaminated groundwater. Exposure of waterfowl is assumed to occur via ingestion of contaminated surface water, algae, and plankton.

11.2 Identification of Chemicals of Potential Concern

Identification of Chemicals of Concern

Identification process:

- Gather data;
- Evaluate useability;
- Evaluate validity;
- Further limit number of chemicals; and
- Establish a data set for risk assessment.

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using the risk-based screening methodology suggested by Region III (USEPA, 1993). A step by step process was employed to evaluate and organize available data into a form appropriate for use in a comprehensive risk assessment. The process is described in Appendix A.

A detailed discussion of the processes and criteria used to narrow the list of contaminants detected in and around the lagoons at HAFB and the lakes, which are located downgradient, is presented in Appendix A.

The chemicals identified as contaminants of potential concern for Lake Stinky are presented in Table 11-1.

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source

Table 11-1

Chemicals of Concern for Lake Stinky

Analyte	Groundwater	Surface Water	Soils	Sludge/Sediments
Organics				
Aldrin		✓	✓	
α-BHC	✓	✓	✓	
β-BHC	✓		✓	
δ-BHC			✓	
γ-BHC	✓	✓	✓	
γ-Chlordane	✓			
Cyclohexanone			✓	
4,4'-DDD	✓	✓		
4,4'-DDE	✓			
4,4'-DDT	✓			
Dieldrin	✓	✓		
Endosulfan I	✓	✓		
Endosulfan II	✓			
Endrin			✓	
Endrin aldehyde	✓	✓	✓	
Heptachlor	✓			
Heptachlor epoxide		✓	✓	
Isodrin	✓	✓	✓	
Kepone	✓			
Parathion			✓	
2,4,5-T			✓	
Trichloroethene			✓	
Inorganics				
Arsenic			✓	
Beryllium			✓	
Cobalt			✓	
Lead			✓	
Sulfide			✓	

areas under investigation than background levels. Table A-4 summarizes the results of these comparisons and presents a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment (e.g., concentrations detected at the site may be statistically greater than background, but are less than health-based criteria). A brief description of the technical approach is provided in Appendix A. A more detailed discussion is presented in Appendix C.

11.3 Contaminant Fate and Transport

Fate and Transport Summary

Lake Stinky Contaminants:

- Originate in surface water and algae;
- Discharge from surface water to groundwater;
- Infiltrate into soils;
- Leach into groundwater; and
- May volatilize or become entrained in air.

Critical Assumptions:

- System is at steady state; and
- No significant contaminant loading from current operations.

Fate and Transport Models:

- Used in absence of analytical data;
- May not simulate actual behavior.

Primary transport media for chemicals in the environment include the air, groundwater, surface water, and soils. Contaminant migration through a given medium, and from one medium to another, may occur by one of several processes. Four potentially significant contaminant fate and transport processes have been identified for Lake Stinky. These include: 1) surface water discharge to groundwater; 2) infiltration from surface water to soil; 3) leaching from soil into groundwater; and 4) volatilization and wind entrainment of fugitive dust.

Release rates to the soil, groundwater, and air (volatilization and fugitive dust generation) were based on analytical data from current and previous investigations. Since no hazardous wastes have entered the treatment system since 1984, estimated releases to various media were assumed to be steady state (i.e., in equilibrium), indicating that they will not increase or decrease over the assumed periods of time for exposure duration. Therefore, the estimated release rates are biased toward conservatism and most likely are overestimated because contaminant concentrations in all media should decrease over time as chemicals volatilize to the air, biologically and chemically degrade in the algae, surface water, soil, and groundwater, and are physically flushed from the site. It was also assumed that no significant additional contaminant loading from current operations was occurring. To assess contaminant fate and transport for the risk assessment, analytical data were used where available and applicable.

The following subsections discuss the contaminant fate and transport for each migration pathway at Lake Stinky, and include a brief discussion of the modeling approach where models were used. Complete discussions of the models and modeling approaches used in the risk assessment are included in Appendices D and E.

11.3.1 Release from Surface Water to Soils

Release of contaminants from infiltration of surface water and deposition of algae to sediments and soils is one of the primary transport mechanisms within Lake Stinky. This transport mechanism can lead to direct biotic uptake from soils or can lead to subsequent additional transport through secondary mechanisms, (i.e., groundwater).

11.3.2 Leaching from Soils to Groundwater

Contaminants may be transported from soils and sediments to groundwater via leaching. This mechanism can transport both dissolved and suspended contaminants depending on immediate environmental conditions. Groundwater samples taken at the monitor wells associated with Lake Stinky (MW-18 and MWS-09) indicate the transport of contaminants from Lake Stinky in the down gradient direction.

11.3.3 Discharge from Surface water to Groundwater

Discharge from surface water to groundwater may be a transport mechanism for water-borne contaminants present in Lake Stinky. Results of chemical analyses indicate that contaminants similar to those originating in the surface water have been found in groundwater samples taken at the monitor wells associated with Lake Stinky.

11.3.4 Groundwater Migration

Fate and Transport - Groundwater

Groundwater beneath Lake Stinky:

- Occurs 13 ft below ground surface;
- Generally flows to the southwest;
- Contains contaminants similar to those from Lake Stinky; and
- Periodically discharges to lakes.

Monitor wells associated with Lake Stinky:

- MW-18 and MWS-09.

Groundwater occurs under water table conditions at HAFB. The depth to groundwater ranges from 2 ft below ground level (BGL) near the lagoons to 13 ft BGL near lakes Holloman and Stinky. Under an average hydraulic gradient of 0.3%, the groundwater flow is fairly consistent, from northeast to southwest. In addition, investigations have revealed communication between the surface water in the lagoons and lakes with the groundwater. During high water conditions, groundwater mounding occurs beneath the lagoons and lakes causing local changes in groundwater flow direction. Monitor well data indicate that shifts in the flow direction occur east of the sewage lagoons and east of Lake Holloman. Groundwater flow is briefly redirected from Ponds A-D and Lake Holloman to the south-southeast, instead of to the southwest. West of these two areas, the flow is redirected toward the southwest based on water table data from nearby wells.

As noted previously, monitor wells downgradient from the lagoons have detected the presence of anthropogenic contaminants. For the risk assessment, data from specific monitor wells were associated with Lake Stinky based on an analysis of the local hydrogeology. The purpose of linking specific wells with specific sources was to provide for a more accurate characterization of the source's individual contribution to total risk. For Lake Stinky, monitor wells MW-18 and MWS-09 were assigned based on hydrogeologic data.

11.3.5 Discharge of Groundwater to Surface Water

Hydrogeologic investigations have revealed contact between the surface water in the lagoons and lakes with the groundwater beneath the site. Data indicate that groundwater migrating from the area beneath the lagoons periodically discharge to Lakes Holloman and Stinky. Therefore, groundwater contaminants may further migrate into surface water.

11.3.6 Uptake by Biota

Fate and Transport - Uptake by Biota

Biota exposed to Lake Stinky contaminants:

- Waterfowl;
- Fish;
- Plankton;
- Benthic invertebrates;
- Algae and bacteria;
- Semi-aquatic plants; and
- Livestock.

Lipophilic chemicals may bioaccumulate in the tissues of these ecoreceptors.

Several ecological populations within the lagoons and lakes ecosystem may come into contact with contaminants of concern in Lake Stinky. Waterfowl (e.g., ducks, killdeer, black-necked stilts, and sanderlings) have been observed using Lake Stinky and use several of the water bodies in the treatment system as either permanent or migratory habitat. These bodies of water also serve as habitat for plankton, benthic invertebrates, algae, and bacteria. Very few fish are present in the northern

section of Lake Stinky. These are considered to be fugitives from Lake Holloman, since no fish were found in the southern section of Lake Stinky. Semi-aquatic plant species (e.g., reeds, cattails, etc.) also may contact contaminated media and incorporate contaminants. Finally, future livestock may ingest contaminated groundwater and plant forage drawing from the shallow aquifer.

Contaminants that may be retained within the tissues of these receptors include those possessing lipophilic properties, indicated by such parameters as high octanol-water partition coefficients (K_{ow} values). Several of the contaminants detected possess these properties and may therefore bioaccumulate in these ecological receptors. Bioaccumulation in the edible meat of these receptors (primarily waterfowl and livestock) provides a mechanism for human exposure. Section 2.7 and Appendices F and K contain more information on uptake by biota.

11.3.7 Air Dispersion

Fate and Transport - Air Dispersion

Contaminants may enter the air by:

- Volatilization; and
- Wind entrainment.

Potential emission rates were:

- Estimated with equations; and
- Modeled to predict air concentrations.

Air Dispersion

During dry periods (six months of the year) when Lake Stinky is devoid of water, volatilization and fugitive dust generation can be very important methods of contaminant transport. Modeling results indicate that during dry periods, contaminants originating in surface water and algae from Lake Stinky infiltrate into sediments and can migrate into ambient air (in the form of volatiles and fugitive dust) in significant concentrations.

Emission rates of chemical compounds resulting from volatilization and wind entrainment of contaminated dust were estimated using predictive emission rate equations applicable to various emission mechanisms (see Appendix E). The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere. The predicted concentrations were used to estimate health risks to the exposed populations. Appendix E discusses these equations and the "Box Model" in greater detail and provides the predicted ambient air concentrations to which receptors are, or could be, exposed.

11.4 Exposure Assessment

Exposure Assessment Process Summary

Must identify:

- Releases;
- Exposure scenarios;
- Potential exposure pathways;
- Exposed populations;
- Exposure point concentrations;
- Contaminant intakes for pathways; and
- Uncertainties.

Exposure assessment is the determination or estimation (qualitative or quantitative) of the magnitude, frequency, duration, and route of human exposure for the chemicals of potential concern that are present at, or may have migrated from, a site. Section 1.3 provides a detailed description of the physical characteristics of the entire Base and the surrounding area; Section 11.1 provides a brief description of the exposure setting for Lake Stinky.

Human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identification of contaminant releases; 2) identification of exposure scenarios; 3) identification of potential exposure pathways; 4) identification of exposed populations; 5) estimation of exposure point concentrations; 6) estimation of contaminant intakes for specific pathways; and 7) determination of uncertainties. Figure 11-2 diagrams the exposure assessment process.

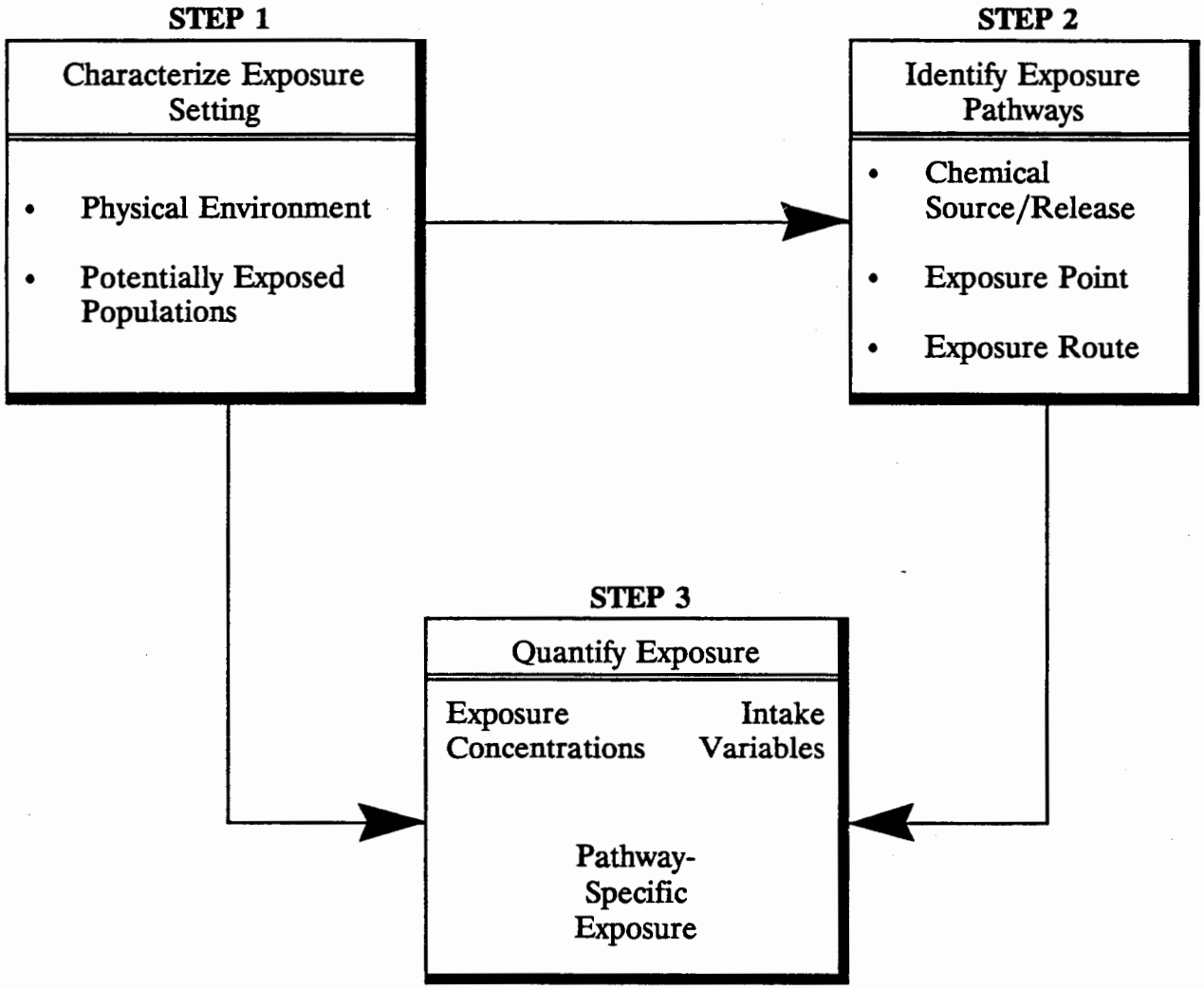

Figure 11-2. Flowchart of the Exposure Assessment Process

The following subsections discuss these tasks in detail. Appendix F presents a detailed discussion of how the estimated exposure concentrations were calculated, including the exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway.

11.4.1 Identification of Contaminant Releases

Sampling conducted at Lake Stinky has identified releases of contaminants from surface water and algae to underlying soil, groundwater, and biota. Sections 11.1.2 and 11.3 provide a more complete discussion of contaminant releases from Lake Stinky.

11.4.2 Exposure Scenarios

Exposure Scenario Summary

Recreational users (chronic):

- Adult, average; and
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

Agricultural consumers (chronic):

- Adult, average;
- Adult, reasonable maximum;
- Child, average; and
- Child, reasonable maximum.

Recreational users (including bird watchers or hunters) and consumers of beef from nearby agricultural areas (livestock) represent the significant populations that may potentially be exposed to chemicals at or originating from the lake. Figure 11-3 illustrates these potential exposure scenarios. The concentrations of contaminants are expected to be highest within the lake itself. For chemicals released to groundwater, human exposure could occur as a result of ingesting beef that consumed contaminated plant forage that is subirrigated with groundwater.

An evaluation was undertaken to determine whether exposure would be chronic, or both chronic and subchronic, for these potential exposure groups. Chronic and subchronic exposure scenarios are based on current and future predicted lifetime exposures. These scenarios assume exposure to contaminant levels at the nearest receptor. Based on the evaluation, the scenarios evaluated for recreational exposure include only chronic conditions for adults and children. For agricultural exposures, the scenarios analyzed are only for chronic exposures to both adults and children, and include both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Risk estimates for noncarcinogenic effects were predicted for adults and children. For carcinogens, the probability that an individual will develop cancer over a lifetime of exposure was predicted. Risk estimates for carcinogenic effects were predicted for adults based on an exposure duration of 70 years. Risk estimates for carcinogenic effects were not predicted for children.

11.4.3 Identification of Potential Exposure Pathways

Exposure Pathways Summary

Complete exposure pathways:

- Dermal contact with surface water;
- Dermal contact with soil;
- Incidental ingestion of surface water;
- Inhalation of volatiles/dust (future); and
- Ingestion of contaminated beef and waterfowl.

Incomplete exposure pathways:

- Ingestion of soil; and
- Ingestion of groundwater.

An exposure pathway describes the movement or translocation of a chemical or physical

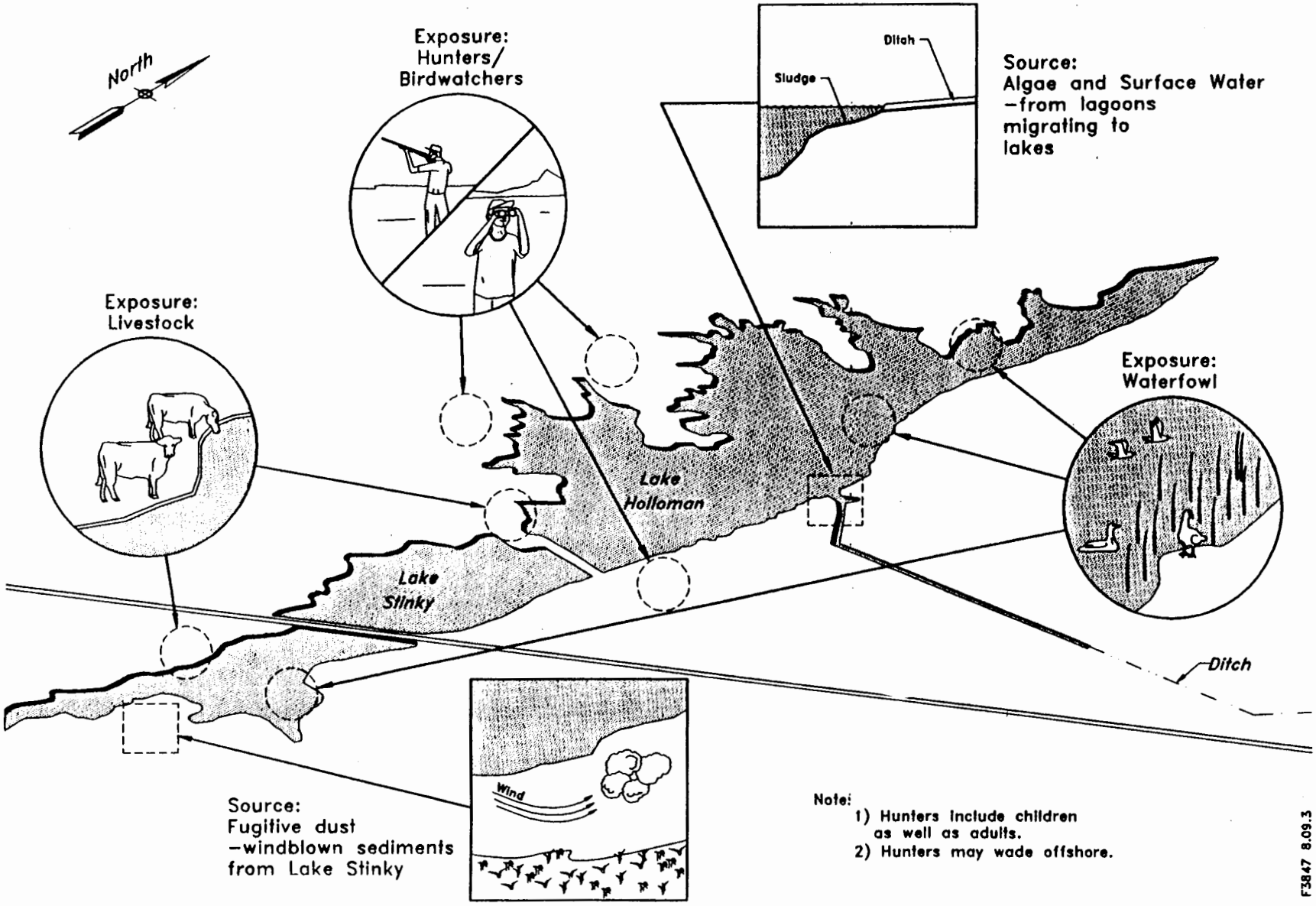

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Figure 11-3. Exposure Scenario Diagram for Lake Stinky

agent from the source to the exposed individual. An exposure pathway generally consists of:

- A source and mechanism of chemical release;
- A retention and/or transport medium, or media in cases involving multi-media transfer of chemicals;
- A point of potential human contact with the contaminated medium; and
- An exposure route (e.g., ingestion).

Potential exposure pathways associated with plausible receptors were evaluated to determine whether they were complete and significant. The pathway may include media other than the source, and the receptor must engage in activity that will cause the exposure to occur. Table 11-2 documents the complete current/future exposure pathways. Exposure pathways include: 1) dermal contact with contaminated surface water by recreational users during hunting/bird watching; 2) dermal contact with soil during recreational activities; 3) incidental ingestion of surface water during recreational activities; 4) inhalation of fugitive dust by recreational users; and 5) ingestion of waterfowl by hunters and beef by local consumers. These pathways are considered to be complete because Lake Stinky is routinely frequented by recreational users. The level of intake for all pathways is based on the pathway exposure assumptions presented in Appendix F.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) ingestion of soil; and 2) ingestion of groundwater. The contribution of these exposure pathways is likely to be minor by comparison to those detailed above.

There are no anticipated operational changes for Lake Stinky in the future. Therefore, no additional future scenarios were assessed.

11.4.4 Identification of Exposed Populations

Exposed Populations Summary

Potentially exposed populations:

- Recreational Users:
  - Dermal contact with surface water;
  - Dermal contact with soil;
  - Incidental ingestion of surface water;
  - Ingestion of contaminated waterfowl; and
  - Inhalation of volatiles and dust;
  - Ingestion of contaminated water fowl.
- Consumers:
  - Ingestion of contaminated beef.

Analysis of Base activities in proximity to Lake Stinky suggests that two human subpopulations may potentially be exposed to contaminants, including recreational users and consumers of local agricultural products (beef).

Recreational users are exposed to multiple media via multiple pathways during hunting and bird watching activities. Agricultural consumers are indirectly exposed to site-related contaminants via ingestion of beef.

11.4.5 Estimating Exposure Point Concentrations

This section provides the exposure point concentrations for the populations and exposure pathways selected for quantitative evaluation. The various exposure media quantified for this risk assessment include surface water, soil, beef and waterfowl (exposed to contaminated surface water, plant forage and biota), and air. Section 11.3 (Contaminant Fate and Transport) also aids in the discussion of determining exposure point concentrations. The measured and modeled (beef, waterfowl, and air) exposure concentrations associated with Lake Stinky are provided in Table 11-3.

Beef and waterfowl concentrations were modeled using the equations in Appendix F. Air

Table 11-2

Potentially Complete Current/Future Exposure Pathways: Lake Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Recreational users	Yes	Recreational activities may include bird watching or hunting where contact with surface water is likely.
Dermal contact with chemicals in soil	Recreational users	Yes	Soil at the bottom of the lake may be encountered assuming accidental immersion of hunters and bird watchers.
Inhalation of chemicals in ambient air	Recreational users	Yes	Lake Stinky is dry six months of the year and volatilization along with wind entrainment of particulates may be an important method for human exposure.
Ingestion of surface water	Recreational users	Yes	Incidental ingestion of surface water is a viable exposure pathway assuming accidental immersion of recreational users.
Ingestion of soil	Recreational users	No	Incidental ingestion of soil is not likely since it is found at the bottom of the lake during activity.
Ingestion of groundwater	Recreational users	No	Groundwater is not potable due to high TDS concentrations.
Ingestion of beef exposed to contaminated forage and surface water	Agricultural consumers	Yes	A local rancher has grazing rights to BLM land, on which Lake Stinky sits. Access is not restricted and cattle occasionally drink from Lake Stinky.
Ingestion of contaminated waterfowl	Recreational users	Yes	Hunters may shoot and consume waterfowl exposed to contamination.

Table 11-3

Exposure Point Concentrations for Lake Stinky

Chemical	Groundwater (mg/L)		Surface Water (mg/L)		Beef (mg/kg)		Sludge (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
4,4'-DDD	9.40E-06	1.40E-05	2.39E-05	4.30E-05	4.76E-05	8.56E-05	0.00E+00	0.00E+00
4,4'-DDE	9.90E-06	1.50E-05	0.00E+00	0.00E+00	1.525E-08	2.31E-08	0.00E+00	0.00E+00
4,4'-DDT	9.50E-06	9.60E-06	0.00E+00	0.00E+00	6.659E-09	6.73E-09	0.00E+00	0.00E+00
Aldrin	0.00E+00	0.00E+00	1.49E-05	2.50E-05	3.70E-06	6.26E-06	0.00E+00	0.00E+00
alpha-BHC	1.39E-05	2.30E-05	5.50E-05	1.00E-04	5.00E-07	9.99E-07	0.00E+00	0.00E+00
beta-BHC	8.40E-06	1.20E-05	0.00E+00	0.00E+00	7.727E-10	1.10E-09	0.00E+00	0.00E+00
Dieldrin	9.40E-06	1.40E-05	1.10E-05	1.10E-05	4.417E-08	4.44E-08	0.00E+00	0.00E+00
Endosulfan I	6.40E-06	7.90E-06	3.44E-05	6.40E-05	3.00E-07	5.44E-07	0.00E+00	0.00E+00
Endosulfan II	1.90E-06	1.90E-06	0.00E+00	0.00E+00	1.344E-10	1.34E-10	0.00E+00	0.00E+00
Endrin aldehyde	1.08E-05	1.20E-05	2.93E-05	4.90E-05	8.1E-06	1.35E-05	0.00E+00	0.00E+00
gamma-BHC	1.04E-05	1.60E-05	9.80E-06	9.80E-06	9.856E-08	9.90E-08	0.00E+00	0.00E+00
gamma-Chlordane	3.80E-06	3.80E-06	0.00E+00	0.00E+00	1.638E-10	1.64E-10	0.00E+00	0.00E+00
Heptachlor	3.60E-05	3.60E-05	0.00E+00	0.00E+00	4.432E-09	4.43E-09	0.00E+00	0.00E+00
Heptachlor epoxide	0.00E+00	0.00E+00	1.14E-05	1.80E-05	7.176E-09	1.133E-08	0.00E+00	0.00E+00
Isodrin	7.40E-06	1.00E-05	2.94E05	5.40E-05	8.10E-06	1.48E-05	0.00E+00	0.00E+00
Kepone	4.97E-04	9.90E-04	0.00E+00	0.00E+00	5.946E-09	1.183E-08	0.00E+00	0.00E+00

Table 11-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	3.98E-08	9.05E-08	0.00E+00	0.00E+00
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	1.26E-09	2.86E–09	0.00E+00	0.00E+00
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	1.57E-10	3.56E-10	0.00E+00	0.00E+00
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	5.81E-10	1.32E-09	0.00E+00	0.00E+00
2,3,7,8-TCDD	0.00E+00	0.00E+00	4.19E-09	9.53E-09	0.00E+00	0.00E+00
2,3,7,8-TCDF	0.00E+00	0.00E+00	4.49E-10	1.02E-09	0.00E+00	0.00E+00
2,4'-DDD	0.00E+00	0.00E+00	1.25E-05	2.19E-05	0.00E+00	0.00E+00
2,4'-DDE	0.00E+00	0.00E+00	8.55E-06	1.94E-05	0.00E+00	0.00E+00
2,4'-DDT	0.00E+00	0.00E+00	1.13E-06	2.58E-06	0.00E+00	0.00E+00
2,4,5-T	7.71E-04	1.02E-03	0.00E+00	0.00E+00	2.28E-02	3.00E-02
4,4'-DDD	0.00E+00	0.00E+00	1.31E-04	2.99E-04	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	1.06E-04	2.42E-04	0.00E+00	0.00E+00
4,4'-DDT	0.00E+00	0.00E+00	2.08E-06	4.74E-06	0.00E+00	0.00E+00
Aldrin	2.55E-04	4.49E-04	1.40E-07	3.20E-07	7.51E-03	1.32E-02
alpha-BHC	1.87E–04	3.37E-04	5.17E-09	1.25E-08	5.51E-03	9.95E-03
Aluminum	0.00E+00	0.00E+00	3.42E-08	1.09E-07	2.70E+00	3.38E+00
Antimony	1.14E-03	1.85E-03	1.10E-06	2.51E-06	0.00E+00	0.00E+00
Arsenic	9.15E-02	1.15E-01	2.61E-04	5.93E-04	3.20E+00	4.03E+00
Barium	0.00E+00	0.00E+00	8.36E-06	1.76E-05	0.00E+00	0.00E+00
Benzyl alcohol	0.00E+00	0.00E+00	4.74E-09	1.08E-08	0.00E+00	0.00E+00
Beryllium	2.18E-02	5.37E-06	1.87E-08	4.24E-08	6.42E-01	7.15E-01
beta-BHC	2.12E-04	3.56E-04	1.65E-09	5.72E–09	6.26E-03	1.05E-02
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	1.72E-05	4.00E-05	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	6.08E-07	1.95E-06	0.00E+00	0.00E+00

Table 11-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Cadmium (food)	0.00E+00	0.00E+00	6.49E-07	1.47E-06	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	2.14E-08	4.86E-08	0.00E+00	0.00E+00
Chromium III	0.00E+00	0.00E+00	3.59E-05	9.45E-05	0.00E+00	0.00E+00
Cobalt	1.19E-01	1.34E-01	0.00E+00	0.00E+00	3.51E+00	3.96E+00
Cyanide	0.00E+00	0.00E+00	6.85E-05	1.56E-04	0.00E+00	0.00E+00
Cyclohexanone	1.25E+00	1.25E+00	0.00E+00	0.00E+00	1.00E+00	1.00E+00
delta-BHC	3.00E-02	6.24E-02	5.56E-05	8.92E-05	8.85E-01	1.84E+00
Dibenzofuran	0.00E+00	0.00E+00	1.90E-06	4.32E-06	0.00E+00	0.00E+00
Dieldrin	0.00E+00	0.00E+00	6.38E-09	1.46E-08	0.00E+00	0.00E+00
Endosulfan sulfate	0.00E+00	0.00E+00	8.02E-12	1.90E-11	0.00E+00	0.00E+00
Endrin	2.16E-04	3.87E-04	1.13E-07	2.56E-07	6.37E-03	1.14E-02
Endrin aldehyde	3.64E-04	6.71E-04	0.00E+00	0.00E+00	1.07E-02	1.98E-02
gamma-BHC	3.48E-04	6.43E-04	2.62E-08	5.96E-08	1.03E-02	1.90E-02
Heptachlor	0.00E+00	0.00E+00	1.49E-08	3.38E-08	0.00E+00	0.00E+00
Heptachlor epoxide	2.73E-02	7.77E-02	5.77E-12	1.32E-11	8.06E-01	2.29E+00
Hexachlorobenzene	0.00E+00	0.00E+00	2.27E-08	5.16E-08	0.00E+00	0.00E+00
HpCB	0.00E+00	0.00E+00	8.22E-06	1.87E-05	0.00E+00	0.00E+00
HxCB	0.00E+00	0.00E+00	1.66E-05	3.77E-05	0.00E+00	0.00E+00
Isodrin	2.29E-04	3.84E-04	0.00E+00	0.00E+00	6.74E-03	1.13E-02
Lead	1.08E-01	1.37E-01	2.97E-06	9.48E-06	3.20E+00	4.03E+00
Lead (organic)	0.00E+00	0.00E+00	1.48E-06	2.17E-06	0.00E+00	0.00E+00
Magnesium	0.00E+00	0.00E+00	1.69E+00	3.83E+00	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	9.27E-05	2.11E-04	0.00E+00	0.00E+00
Mirex	0.00E+00	0.00E+00	2.18E-12	4.95E-12	0.00E+00	0.00E+00

Table 11-3

(Continued)

Chemical	Air (µg/m³)		Duck (mg/kg)		Soil (mg/kg)	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Mercury	0.00E+00	0.00E+00	1.16E-03	2.63E-03	0.00E+00	0.00E+00
Nickel	0.00E+00	0.00E+00	2.04E-05	4.65E-05	0.00E+00	0.00E+00
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	6.13E-05	1.39E-04	0.00E+00	0.00E+00
n-Nitrosodimethylamine	0.00E+00	0.00E+00	9.71E-07	2.21E-06	0.00E+00	0.00E+00
OCDD	0.00E+00	0.00E+00	2.63E-09	5.98E-09	0.00E+00	0.00E+00
OCDF	0.00E+00	0.00E+00	1.27E-09	2.89E-09	0.00E+00	0.00E+00
Parathion	3.39E-03	4.83E-03	0.00E+00	0.00E+00	9.81E-02	1.42E-01
PnCB	0.00E+00	0.00E+00	5.43E-05	1.23E-04	0.00E+00	0.00E+00
Pyridine	0.00E+00	0.00E+00	5.10E-09	1.16E-08	0.00E+00	0.00E+00
Selenium	0.00E+00	0.00E+00	1.64E-03	3.73E-03	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	1.01E-05	2.31E-05	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	2.20E-04	5.59E-04	0.00E+00	0.00E+00
Sulfide	7.37E+00	1.25E+01	0.00E+00	0.00E+00	2.17E+02	3.70E+02
TCB	0.00E+00	0.00E+00	4.06E-06	9.21E-06	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	2.76E-04	6.28E-04	0.00E+00	0.00E+00
Trichloroethene	6.39E-01	1.33E+00	0.00E+00	0.00E+00	4.56E-02	9.50E-02
Vanadium	0.00E+00	0.00E+00	5.86E-05	1.82E-04	0.00E+00	0.00E+00

Exposure Concentrations Summary

Recreational Users:

- Concentrations in air;
- Concentrations in lake media (water, soil;
- Concentrations in waterfowl; and
- Waterfowl: concentrations in water and algae.

Agricultural consumers:

- Concentrations in beef; and
- Cattle: concentrations in surface water and plant forage.

concentrations were modeled using a Box Model (see Section 11.3.7). For the recreational exposure of hunters and bird watchers via dermal contact with contaminants or incidental ingestion of surface water, actual media sample concentrations were used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed for the surface water, sludge, and soil samples taken during the RFI and previous investigations. Because exposure is assumed to occur at the lagoon, these concentrations represent valid exposure point concentrations.

Under the agricultural exposure scenario, contaminated surface water and plant forage is assumed to contribute to concentrations of contaminants in the edible meat of cattle. Groundwater samples taken from monitor wells adjacent to the site and downgradient from Lake Stinky (MW-18 and MWD-09) provided the groundwater concentrations accumulated in plant forage. Measured surface water concentrations in Lake Stinky provided the surface water concentrations consumed by the cattle.

Because no hazardous wastes have been disposed in the wastewater treatment system since 1984, contaminants are assumed to have reached equilibrium, suggesting that current groundwater and surface water concentrations should not differ significantly from those in the future. To estimate the chemical concentrations in meat, equations derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) were used. Appendix F provides the algorithms and spreadsheet calculations for quantifying concentrations in beef as a result of contaminated stock water and plant forage. Appendix F also provides the algorithms for calculating concentrations in duck meat. The spreadsheet calculations are provided in Appendix K.

The fraction of feed from a contaminated source (plant forage) was assumed to be 100 percent. Similarly, 100% of all contaminants in water was assumed to be bioavailable. However, the fraction of water from contaminated source (Lake Stinky) was assumed to be 50%, since Lake Stinky is dry six months of the year. While these assumptions are not necessarily realistic and tend to be conservative, they allow assessment of a worst-case scenario.

11.4.6 Estimating Contaminant Intakes for Specific Pathways

Intake Calculation Summary

Variables needed in algorithm:

- Exposure concentration;
- Population variables:
  - Contact rate;
  - Exposure frequency and duration;
  - Body weight; and
- Period of exposure (e.g., lifetime).

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time).

The chemical-related variables (exposure concentrations) are presented in Table 11-3. Tables F-21 through F-26, presented in Appendix F, provide a summary of the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Appendix J.

Conservative Exposure Assumptions

- Amount of media intake is constant;
- 30-year maximum recreational exposure;
- Contaminants 100% bioavailable;
- Beef consumed 350 day/year;
- Waterfowl consumed a maximum of 14 days/year;
- Water-to-beef and water-(and algae) to-waterfowl transfer coefficients do not consider metabolism/disposition; and
- 100% absorption of inhaled/ingested contaminants.

Exposure assumptions recommended in the *Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors* (USEPA, 1991), the *Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual* (USEPA, 1989a), and the *Exposure Factors Handbook* (USEPA, 1989b) were used when available and applicable. Site-specific and chemical-specific values were used when available data justified their use; otherwise, conservative default values were substituted.

The standard assumptions regarding body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures that more accurately depict all scenarios cannot be determined, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include: 1) the amount of media intake is assumed to be constant and representative of the exposed population; 2) exposure is assumed to occur 350 days/year for 30 years for chronic agricultural exposures involving ingestion of beef; 3) the use of feed (water)-to-beef and algae/water-to-waterfowl transfer coefficients that do not account for metabolism and/or disposition; 4) 100% absorption of inhaled and ingested contaminants is assumed; and 5) 100% bioavailability is assumed for all inhaled, ingested, and dermally absorbed contaminants.

11.4.7 Uncertainties

Uncertainties

Sources include:

- Fate and transport models; and
- Exposure assumptions.

Remedies include:

- Use of average and reasonable maximum values;
- Use of conservative estimates; and
- Identification of sources of uncertainty.

Major sources of uncertainty associated with the exposure assessment include: 1) the ability of fate and transport and uptake models to realistically simulate the behavior of chemicals in the environment; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed.

Uncertainty is addressed in this risk assessment by: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates in order that the results can be properly interpreted and used for estimation of risks.

11.5 Toxicity Assessment

Toxicity Assessment

Involves:

- Determining if exposure increases incidence of adverse effects;
- Characterizing the nature and strength of evidence for causation;
- Quantifying relationship between dose and adverse health effects.

Toxicity assessment involves determining whether exposure to an agent can increase the incidence of a particular adverse effect (e.g., cancer, birth defects) in humans, characterizing the nature and strength of evidence of causation, and if sufficient data are available, quantifying the relationship between the dose of the contaminant and the incidence of adverse health effects in the exposed population. Toxicity values are derived from the quantitative dose-response relationship. These values can be used to estimate the incidence or potential for adverse effects as a function of human exposure to the contaminant.

11.5.1 Toxicity Values Used in the Risk Assessment

Table 11-4 summarizes the toxicity values used in this risk assessment. Toxicity information on noncarcinogenic effects and carcinogenic effects is provided for each contaminant for which the USEPA has published a reference dose (RfD), carcinogenic slope factor, or weight-of-evidence classification. The relevant information includes standard USEPA toxicity values and toxicity values derived for use in this risk assessment. Even though they are not included in the quantitative exposure assessment, chemicals of concern that do not have USEPA-verified toxicity values were included in the toxicity assessment to more accurately reflect the uncertainties associated with this risk assessment. The information in this section was used in determining the risks associated with noncarcinogenic effects (RfDs) and carcinogenic potential (slope factors and weight-of-evidence classification).

Toxicity Values for Noncarcinogenic Effects

The RfD values for the chemicals of concern were obtained from a database search of the Integrated Risk Information System (IRIS), dated July, 1993, or from the USEPA Health Effects Assessment Summary Tables (HEAST, 1992). In some cases, surrogate oral RfD values were derived using the methodology described in Appendix G. When available, inhalation RfDs or reference concentrations (RfCs) were included. Unless otherwise indicated, oral RfD values were used to evaluate the noncarcinogenic hazard associated with dermal exposure. However, when available information permitted, oral RfDs were adjusted to account for the dermally absorbed dose. Refer to Appendix G for a detailed discussion of the methodology used to adjust oral RfDs for dermal exposures.

Toxicity Values for Carcinogenic Effects

The slope factors for chemicals of potential concern classified by USEPA as carcinogens were obtained from an IRIS search dated July, 1993, or from HEAST, 1992. When available, inhalation unit risks are included. Oral slope factors were used to evaluate the carcinogenic risk associated with dermal exposure.

Table 11-4

Toxicity Values for Lake Stinky

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (μg/m³)
Aldrin	B2	3.00E-05 [I]	3.00E-05 [H]	7.54E-05 [S]	--	--	1.70E+01 [I]	4.90E-03 [I]
Antimony	--	4.00E-04 [I]	4.00E-04 [H]	--	--	--	--	--
Arsenic	A	3.00E-04 [I]	3.00E-04 [H]	3.00E-04 [S]	--	--	--	4.30E-03 [I]
Barium	--	7.00E-02 [I]	7.00E-02 [H]	7.00E-02	5.00E-04 [H]	5.00E-03 [H]	--	--
Benzyl alcohol	D	3.00E-01 [H]	1.00E+00 [H]	3.00E-01	--	--	--	--
Beryllium	B2	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	4.30E+00 [I]	2.40E-03 [I]
α-BHC	B2	4.16E-04 [S]	4.16E-03 [S]	1.17E-03 [S]	--	--	6.30E+00 [I]	1.80E-03 [I]
β-BHC	C	3.33E-04 [S]	3.33E-03 [S]	3.33E-04	--	--	1.80E+00 [I]	5.30E-04 [I]
δ-BHC	D	2.00E-04 [S]	2.00E-03 [S]	2.00E-04	--	--	--	--
γ-BHC	B2/C	3.00E-04 [I]	3.00E-03 [H]	3.00E-03 [S]	--	--	1.30E+00 [H]	--
Bis (2-ethylhexyl)phthalate	B2	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	1.40E-02 [I]	--
Boron	--	9.00E-02 [I]	9.00E-02 [H]	9.00E-02	2.00E-02 [H]	2.00E-02 [H]	--	--
Cadmium (food)	B1	1.00E-03 [I]	--	--	--	--	--	--
γ-Chlordane	--	6.00E-05 [S]	6.00E-05 [S]	6.00E-05 [S]	--	--	1.30E+00 [S]	3.70E-04 [S]
Chromium III	--	1.00E+00 [I]	1.00E+00 [H]	1.00E+00	--	--	--	--
Cobalt	--	--	--	--	--	--	--	--
Cyanide	--	2.00E-02 [H]	2.00E-02 [H]	2.00E-02	--	--	--	--
Cyclohexenone	--	5.00E+00 [I]	--	--	--	--	--	--
2,4'-DDD	--	2.26E-04 [S]	--	2.26E-04	--	--	--	--
2,4'-DDE	--	--	--	--	--	--	--	--
2,4'-DDT	--	3.58E-05 [S]	--	3.58E-05	--	--	--	--
4,4'-DDD	B2	5.00E-04 [S]	--	5.00E-04	--	--	2.40E-01 [I]	--
4,4'-DDE	B2	3.89E-03 [S]	--	3.89E-03	--	--	3.40E-01 [I]	--
4,4'-DDT	B2	5.00E-04 [I]	5.00E-04 [H]	1.12E-02 [S]	--	--	3.40E-01 [I]	9.70E-05 [I]
Dibenzofuran	D	--	--	--	--	--	--	--
Dieldrin	B2	5.00E-05 [I]	5.00E-05 [H]	6.52E-05 [S]	--	--	1.60E+01 [I]	4.60E-03 [I]

Table 11-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (µg/m³)
Endosulfan I	--	2.53E-02 [S]	--	2.53E-02	--	--	--	--
Endosulfan II	--	8.00E+01 [S]	--	8.00E+01	--	--	--	--
Endosulfan sulfate	--	6.00E-03 [S]	--	2.47E-02 [S]	--	--	--	--
Endrin	D	3.00E-04 [I]	3.00E-04 [H]	6.00E-04 [S]	--	--	--	--
Endrin aldehyde	--	--	--	--	--	--	--	--
Heptachlor	B2	5.00E-04 [I]	5.00E-04 [H]	9.75E-04 [S]	--	--	4.50E+00 [I]	1.30E-03 [I]
Heptachlor epoxide	B2	1.30E-05 [I]	1.30E-05 [H]	1.30E-05	--	--	9.10E+00 [I]	2.60E-03 [I]
Hexachlorobenzene	B2	8.00E-04 [I]	--	--	--	--	1.60E+00 [I]	4.60E-04 [I]
HpCB	--	6.20E-07 [C]	--	6.20E-07	--	--	2.40E+00 [C]	5.30E-04 [C]
1,2,3,4,6,7,8 HpCDD	--	1.00E-07	--	--	--	--	1.50E+03 [C]	3.30E+01 [C]
HxCB	--	6.00E-07 [C]	--	6.00E-07	--	--	2.40E+02 [C]	5.30E-02 [C]
1,2,3,4,7,8-HxCDF	--	1.00E-08	--	--	--	--	1.50E+04 [C]	3.30E+00 [C]
1,2,3,7,8,9-HxCDF	--	1.00E-08	--	--	--	--	1.50E+04 [C]	3.30E+00 [C]
2,3,4,6,7,8-HxCDF	--	1.00E-08	--	--	--	--	1.50E+04 [C]	3.30E+00 [C]
Isodrin	--	3.00E-04 [S]	--	3.00E-04	--	--	--	--
Kepone	--	4.20E-05 [S]	--	6.72E-04 [S]	--	--	--	--
Lead	B2	--	--	--	--	--	--	--
Lead (organic)	--	1.00E-07 [I]	1.00E-07 [H]	1.00E-07	1.50E+00 [N]	--	--	--
Magnesium	--	--	--	--	--	--	--	--
Manganese (food)	D	5.00E-03 [I]	--	5.00E-03	--	--	--	--
Mercury	D	3.00E-04 [H]	3.00E-04 [H]	3.00E-04	3.00E-04 [H]	3.00E-04 [H]	--	--
Mirex	--	2.00E-04 [I]	--	--	--	--	--	--
Nickel	A	2.00E-02 [I]	2.00E-02 [H]	2.00E-02	--	--	--	--
n-Nitroso-di-n-propylamine	B2	--	--	--	--	--	7.0E+00 [I]	--
n-Nitroso-di-methylamine	B2	--	--	--	--	--	5.1E+01 [I]	1.40E-02 [I]
OCDD	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.30E-02 [C]

Table 11-4

(Continued)

Chemical	EPA Class	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Dermal RfD (mg/kg-day)	Chronic Inhalation RfC (mg/m³)	Subchronic Inhalation RfC (mg/m³)	Oral Slope Factor (mg/kg-day)	Inhalation Unit Risk (μg/m³)
OCDF	--	1.00E-06 [C]	--	1.00E-06	--	--	1.50E+02 [C]	3.30E-02 [C]
Parathion	C	6.00E-03 [H]	6.00E-03 [H]	6.00E-03	--	--	--	--
PnCB	--	2.50E-09 [C]	--	2.50E-09	--	--	6.00E+04 [C]	1.32E+01 [C]
Pyridine	--	1.00E-03 [I]	--	--	--	--	--	--
Selenium	D	5.00E-03 [I]	5.00E-03 [H]	5.00E+08	--	--	--	--
Silicon	--	--	--	--	--	--	--	--
Silver	D	5.00E-03 [I]	5.00E-03 [H]	5.00E-03	--	--	--	--
Sulfide	--	--	--	--	--	--	--	--
2,4,5-T	--	1.00E-02 [I]	1.00E-01 [H]	1.00E-02	--	--	--	--
TCB	--	2.70E-07 [C]	--	2.70E-01	--	--	4.05E+02 [C]	8.91E-01 [C]
2,3,7,8-TCDD	B2	1.00E-09 [H]	--	--	--	--	1.50E+05 [H]	3.3E-11 [H]
2,3,7,8-TCDF	--	--	--	--	--	--	1.50E+04 [C]	3.3E-12 [C]
Thallium	D	8.00E-05 [I]	8.00E-04 [H]	8.00E-05	--	--	--	--
Trichloroethene	B2/C	--	--	--	--	--	1.00E-02 [I]	1.70E-06 [I]
Vanadium	--	7.00E-03 [H]	7.00E-03 [H]	7.00E-03	--	--	--	--

C Calculated based on the comparative potency factors for individual PAHs or dioxins.
E Value obtained from EPA. A new chronic oral RfD has been derived but has not yet been loaded into IRIS.
H Health Effects Assessment Summary Tables (HEAST).
I Integrated Risk Information System (IRIS).
S Surrogate value. Refer to Appendix G for rationale.
N National Ambient Air Quality Standard.

11.5.2 Critical Effects Associated with Chemicals of Potential Concern

A detailed discussion and a summary table of the potential health effects associated with exposures to the chemicals of potential concern are provided in Appendix G.

11.5.3 Uncertainties Associated with Toxicity Assessment

Uncertainties

Includes use of:

- Information sources other than USEPA;
- Toxicity data from animal studies;
- Extrapolation of high-dose effects in animals to low-dose effects in humans;
- Information from short-term exposures; and
- Surrogate toxicity values.

Toxicity information for some of the chemicals of concern was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this section of the risk assessment.

Uncertainty associated with toxicity values arises from several sources. Studies conducted on laboratory animals often must be used to provide the exposure, dose, and biological effects data needed to evaluate toxicity associated with chemicals of concern because these data usually are not available for human exposures. Additional uncertainty arises when USEPA-verified toxicity values are not available necessitating the use of data from alternate sources. This results in difficulty assigning levels of confidence to the alternate values. Uncertainties also arise when information gathered in studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) are used to predict effects likely to occur in the general human population.

Another source of uncertainty related to toxicity information is the use of dose-response information for effects observed at high doses in animals to predict adverse health effects that may occur at low doses to which humans are likely to be exposed. Lastly, development of surrogate toxicity values has associated uncertainties. The approach used in this risk assessment for developing surrogate toxicity values implicitly adopts the quantitative toxicity assessments conducted by the USEPA for several chlorinated hydrocarbon pesticides. In addition to the inherent uncertainties associated with these toxicity assessments, the approach includes the added qualitative assumption (and associated uncertainty) that other chlorinated pesticides will demonstrate the same effects.

11.5.4 Summary of Toxicity Assessment

Noncancer Toxicity Information

- 67 Chemicals of potential concern;
- 55 oral RfDs available:
  - -- 13 surrogate values derived;
  - -- 10 calculated values; and
  - -- 6 values from HEAST; and
  - -- 26 USEPA-verified RfDs:
    - 3 - high confidence;
    - 16 - medium confidence; and
    - 7 - low confidence.

The degree of confidence ascribed to toxicity values depends on both the quality of the critical study from which it was derived and the quantity of supporting data. Thirteen of the 55 RfDs available for this risk assessment were surrogate values derived using the methodology described in Appendix G. Therefore, a level of confidence associated with these values can not be assigned. Twenty-six values were obtained from IRIS and have levels of confidence that range from high (three chemicals) to low (seven chemicals). Six values were calculated based on comparative potency factors for dioxins and six values were from HEAST. Oral RfDs were not available for 12 of the chemicals

of potential concern. A qualitative assessment was conducted for these 12 chemicals (see Appendix G).

Carcinogen Toxicity Information

- 29 oral slope factors available:
  - 15 USEPA-verified slope factors:
    Group B2 - 13 chemicals;
    Group B2/C - 1 chemical;
    Group C - 1 chemical;
  - 1 surrogate value;
  - 11 calculated values; and
  - 2 values from HEAST.
- 25 inhalation unit risks available:
  - 12 USEPA-verified unit risks;
  - 1 surrogate value;
  - 11 calculated values; and
  - 1 value from HEAST.

Thirty-one of the 67 contaminants carried through the risk assessment have been classified by the USEPA as to carcinogenic potential. Nine chemicals were classified as Group D (Not Classifiable as a Human Carcinogen), indicating inadequate or no evidence of carcinogenicity. Two chemicals were classified as Group C (Possible Human Carcinogen). Two chemicals were classified as Group B2/C (Probable Human Carcinogen/Possible Human Carcinogen), indicating that its classification is uncertain. Fifteen chemicals were classified as Group B2 (Probable Human Carcinogen), indicating that there is sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans. One chemical was classified as Group B1 (Probable Human Carcinogen), indicating that there is limited evidence of carcinogenicity in humans, and two chemicals were classified as Group A (Human Carcinogen).

USEPA-verified oral slope factors were available for 15 of the 31 chemicals of potential concern that have been classified as Group A, B, or C carcinogens. A surrogate oral slope factors was assigned to gamma-chlordane. Eleven slope factors were calculated based on comparative potency factors for dioxins, and two values were obtained from HEAST. Inhalation unit risk factors were available for 25 chemicals. Twelve values were USEPA-verified, 11 values were calculated based on comparative potency factors for dioxins, one value was derived from a surrogate and one value was obtained from HEAST.

11.6 Risk Characterization

Risk Characterization

Involves integration of:

- Exposure pathways;
- Chemical intakes; and
- Toxicity values.

Risk characterization integrates exposure pathway data and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. To characterize the risks for Lake Stinky, measured contaminant exposure levels, as well as those predicted by fate and transport modeling, were used to estimate contaminant intake and were compared to chemical-specific toxicity information.

11.6.1 Carcinogenic Risk

Carcinogenic Risks

- Estimate the probability (risk) that an individual will develop cancer over a lifetime of exposure.
- Intake x Slope Factor = Risk.
- A cancer risk of 10^{-6} (one in 1,000,000) is considered *de minimis*.

For each carcinogen present in Lake Stinky, the probability of an individual developing cancer over a lifetime of exposure was estimated from projected intake levels and the carcinogenic slope

factor. The slope factor converts estimated daily intakes to an estimate of incremental risk by multiplying the average lifetime intake rate (Appendix F) of the chemical by the chemical's slope factor. These risks were then summed across chemicals and pathways to calculate the total cancer risk for each scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

The USEPA's goal set forth in the proposed Subpart S corrective action rule (55 *Federal Register* 30826, 17 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} is considered the point of departure *(de minimis)* for risk management purposes. This range is designed to be protective of human health. The carcinogenic risk estimate is generally an upper-bound estimate. Therefore, "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991).

11.6.2 Noncarcinogenic Hazard

Noncancer Hazard Indices

- Hazard quotients (HQs) were derived by comparing intakes to toxicity values (e.g., RfDs, RfCs).
- Exposure concentrations that exceed the toxicity value (HQ > 1) may be cause for concern.

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes of contaminants for a specific exposure period (Appendix F) and accepted toxicity values [(oral, dermal, and inhalation reference doses (RfDs)]. A hazard quotient (HQ), which is the ratio between exposure to a chemical and the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with a specific pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs is presented in Appendix I.

11.6.3 Potential Exposure Scenarios

To ensure adequate characterization of risk that may be incurred from exposure at Lake Stinky presently or in the future, two chronic scenarios were identified for human exposure. The *chronic* exposure scenarios included: 1) off-site recreational exposure; and 2) off-site agricultural exposure.

11.6.4 Major Factors Driving Current Risks

Major Factors Driving Current Recreational Risks

Carcinogenic Risk:

- Inhalation of arsenic by recreational adults.
- Ingestion of PCB contaminated waterfowl.

Noncarcinogenic hazard:

- No hazard exceeds *de minimis* levels.

Current Off-Site Recreational Exposure Scenario - Chronic Exposure

Lake Stinky is routinely frequented by hunters and bird watchers. Contaminants may bioaccumulate in waterfowl that use the lagoons and lakes as habitat. As several of these waterfowl are game species, humans may be indirectly exposed as a result of hunting activities. The off-site recreational scenario addresses pathways considered to be complete for hunters and bird watchers, assuming that wild game duck are hunted and ingested and that recreational users occasionally fall into the lake.

The current off-site recreational scenario assumes exposure to site-related contaminants via five pathways of exposure: 1) dermal contact with surface water; 2) dermal contact with soil; 3) incidental ingestion of surface water; 4) inhalation

of fugitive dust and volatiles; and 5) ingestion of waterfowl.

To assess this current scenario, it was assumed that waterfowl bioaccumulate site-related contaminants via ingestion of contaminated surface water, plankton, and algae. For waterfowl exposed to contaminants migrating through the lagoon system, exposure concentrations were based on: 1) measured surface water concentrations in the individual impoundments; 2) measured and modeled concentrations in algae and plankton; and 3) modeled uptake and accumulation in the edible portions of ducks (based on measured surface water concentrations and modeled biota concentrations). Exposure concentrations in surface water and soils were based on measured concentrations. Ambient air concentrations were based on modeled results, using the soil at the bottom of Lake Stinky as the source during dry periods.

Current Chronic Off-site Recreational Adult Risk

Carcinogenic risk:

- Total average = 5E-7
- Total reasonable maximum average = 1E-5

Noncarcinogenic hazard:

- Total average HI = 7.4E-3
- Total reasonable maximum HI = 0.09

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 5E-7 and 1E-5, respectively. The reasonable maximum risk value exceeds the lower-bound goal and may indicate cause for concern for local hunters and bird watchers. As shown in Figure 11-4, arsenic contributed the majority (43%) of the risk for reasonable maximum exposure. Pentachlorinated biphenyls contributed significantly to the risk (23%) as well. These same constituents were risk drivers for average exposure. Inhalation of fugitive dusts/volatiles contributed 60% of the reasonable maximum pathway-specific risk, while ingestion of waterfowl was responsible for 36% of the risk.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 7.4E-3 and 0.09, respectively. Neither value exceeds the *de minimis* value of one. Pentachlorinated biphenyls and heptachlor epoxide were responsible for the majority of the average (57%) and reasonable maximum (52%) hazards. Ingestion of waterfowl caused 73% of the average and 88% of the reasonable maximum pathway-specific hazard.

Current Off-Site Recreational Scenario - Adult Subchronic Exposure

A subchronic scenario was not assessed for the current recreational scenario since none of the chronic hazards exceeded *de minimis* levels.

Current Off-Site Recreational Scenario-Child Chronic Exposure

Current Off-Site Chronic Recreational Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 0.02
- Total reasonable maximum HI = 0.25

This scenario addresses pathways considered to be complete for children who use Lake Stinky for recreational purposes. The pathways considered are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total hazard index for

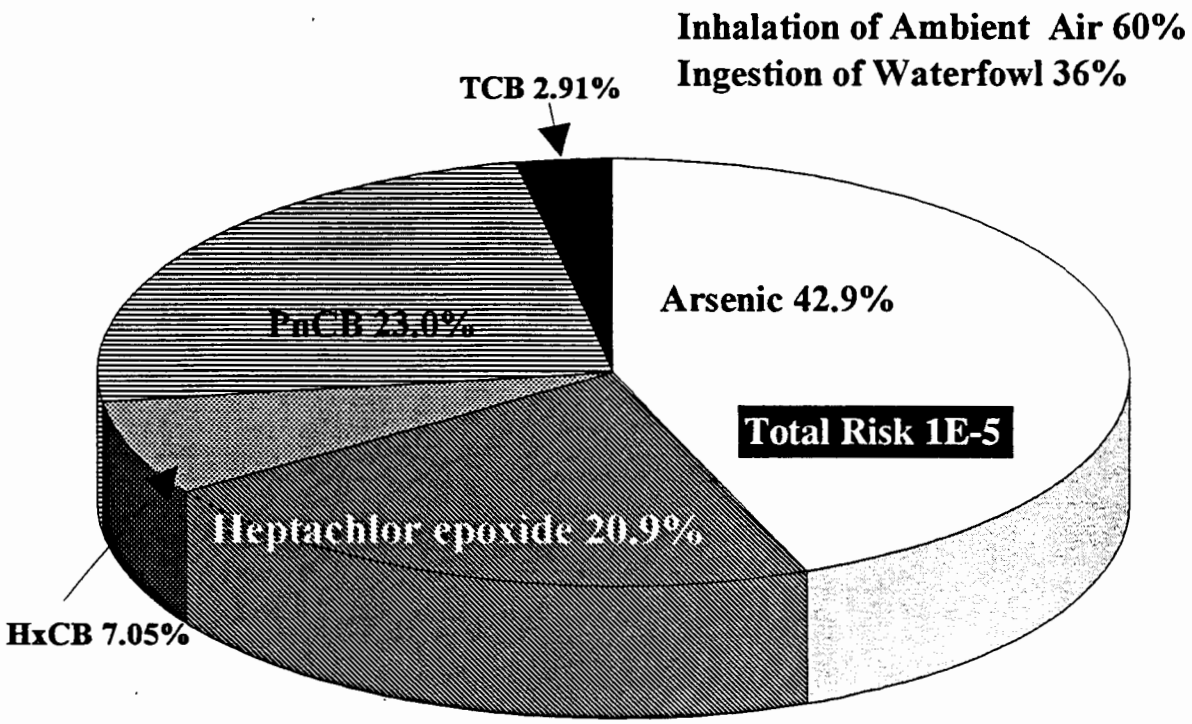

Figure 11-4 Reasonable Maximum Cancer Risk - Adult Off-Site Recreational Scenario

average and reasonable maximum exposure is 0.02 and 0.25, respectively. Neither value exceeds the *de minimis* value of one. Again, pentachlorinated biphenyls and heptachlor epoxide were responsible for the majority of the chemical-specific hazard, while ingestion of waterfowl contributed the majority of the pathway-specific hazard.

Current Off-Site recreational Scenario - Child Subchronic Exposure

Subchronic exposure was not assessed for the child recreational scenario since none of the chronic hazards exceeded the *de minimis* values.

Current Agricultural Exposure Scenario - Adult Chronic Exposure

This scenario addresses pathways considered to be complete for adults who consume beef from cattle exposed to contaminated surface water (Lake Stinky) and plant forage. The current agricultural scenario assumes exposure to site-related contaminants via ingestion of beef.

To assess this current exposure scenario, it was assumed that cattle drink from Lake Stinky. Subirrigation (by the shallow groundwater aquifer) of forage, on which the cattle would feed, was also considered as a contaminant source for the introduction of chemicals into edible portions of beef.

For cattle exposed to contaminants migrating through groundwater from Lake Stinky, exposure concentrations were based on: 1) measured surface water concentrations in the lake itself; 2) modeled uptake and accumulation in forage (based on measured groundwater concentrations in MW-18 and MWS-09); and 3) modeled uptake and accumulation in the edible portions of beef (based on surface water and forage concentrations).

Carcinogenic Risk--The calculated cancer risk, grouped by chemical and pathway, is presented in Appendix I. The total risk for average and reasonable maximum exposure is 7E-9 and 2E-7, respectively. Both risk values are below the RCRA goal and suggest that contaminants migrating offsite via groundwater are not likely to cause adverse carcinogenic health effects in adults.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are presented in Appendix I. The total HI for average and reasonable maximum exposure is 1.7E-4 and 1.2E-3, respectively. Both HIs are less than unity and suggest that contaminants migrating off-site via groundwater are not likely to cause adverse non-cancer health effects in adults.

Current Agricultural Chronic Adult Risk

Carcinogenic risk

- Total average = 7E-9
- Total reasonable maximum = 2E-7

Noncarcinogenic hazard

- Total average HI = 1.7E-4
- Total reasonable maximum HI = 1.2E-3

Current Agricultural Exposure Scenario - Child Chronic Exposure

Current Agricultural Chronic Child Risk

Carcinogenic risk

- Not determined for children

Noncarcinogenic hazard

- Total average HI = 3.9E-4
- Total reasonable maximum HI = 2.9E-3

This scenario addresses pathways considered to be complete for children who consume beef from cattle exposed to contaminated surface water and plant forage. The pathways assessed for children are the same as those considered for adults.

Carcinogenic Risk--Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime.

Noncarcinogenic Hazard--Calculated non-cancer HIs, grouped by chemical and pathway, are

presented in Appendix I. The total HIs for average and reasonable maximum exposure is 3.9E-4 and 2.9E-3, respectively. Both HIs are less than one and suggest that contaminants migrating off-site via groundwater are not likely to cause adverse non-cancer health effects in children.

11.6.5 Major Factors Driving Future Risks

Land use around the lakes in not expected to change significantly in the future. Therefore, no future scenarios were assessed.

11.6.6 Lead Evaluation

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. The Lead5 Model was obtained for this risk assessment and used in conjunction with site-specific data to estimate blood lead levels as an indicator of risk. The results generated by the Lead5 Model are presented in Appendix H. All blood lead levels at this site were well below the 10 μg/dL (exposure level known to increase the risk of irreversible neurobehavioral deficits during infancy or childhood) cutoff point.

11.6.7 Uncertainties Associated with Risk Characterization

The risk at Lake Stinky was driven primarily by inhalation of arsenic and heptachlor epoxide - contaminated particulate. Most of the arsenic results were flagged with an @ flag, indicating that the result was within five times the reporting limit. Therefore, there is considerable uncertainty associated with the arsenic concentrations at Lake Stinky.

These risks associated with waterfowl ingestion are based solely on modeled contaminant concentrations, assuming that waterfowl spend a percentage of their time feeding on contaminated biota from each impoundment in the lagoon system. However, the most toxic PCB congeners are generally present in biota at such low concentrations as to severely limit their detection. Therefore, data were not collected for the most toxic PCB congeners. Instead, the most potent enzyme inducing congener in the "numerical PCB class" (i.e., hexachlorinated biphenyls, pentachlorinated biphenyls, etc.) was used as a proxy for the entire class. In addition, it was also assumed that all contaminants detected in the lower trophic levels bioaccumulate in waterfowl. This may be an over-estimation.

11.6.8 Summary

Risk Characterization Results

Risks above *de minimis* levels include:

- Carcinogenic risk to current off-site hunters/bird watchers.

The results of this risk assessment indicate that the reasonable maximum risk to current recreational users are above *de minimis* levels. All of the noncarcinogenic hazards for recreational users were below *de minimis* levels, as were all hazards/risks associated with the current agricultural scenario.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. This risk assessment was based on conservative exposure assumptions and modeling parameters and may overestimate the magnitude of risk associated with Lake Stinky. Conservative assumptions that may impact the risk characterization include: 1) exposure frequency; 2) exposure duration; 3) inhalation rates; 4) assumption that all contaminants detected in the lower trophic levels are bioaccumulated in waterfowl; and 5) use of toxicity equivalence approach for estimating risks associated with PCB contaminated waterfowl.

11.7 Ecological Assessment

An ecological evaluation estimates the potential risk to the environment through the use of indicator species which are representative of other species in the area. The potential risk is estimated by calculating an ecological quotient (EQ) for each chemical. An EQ is the ratio of the observed (measured or modeled) contaminant concentrations to the benchmark ("safe") concentration. Summing all of the EQs for all of the chemicals results in an ecological hazard index for use in estimating the potential for adverse impacts to the indicator species. Ideally, an EQ is considered acceptable if it is equal to or less than one. In a human health risk

assessment, a value greater than one indicates that adverse effects may occur from exposure to the contaminants of concern. However, this interpretation is not directly transferrable to ecological assessments. According to the U.S. EPA, the quotient method..."can provide some qualitative information on the likelihood and severity of impacts" resulting from chemical exposures (U.S. EPA, 1989, as cited in Watkin and Stelljes, 1993). An EQ less than one indicates that there is a low probability of adverse effects. If an ecological EQ is between one and ten, there is a possibility that adverse effects might occur. In addition, if exceedences occur for more than one chemical, adverse effects may be more likely to occur. Exceedences of greater than ten indicate that adverse effects are probable (Watkin and Stelljes, 1993).

This section describes the physical characteristics of Lake Stinky and discusses the EQ calculated for the indicator species. A detailed discussion of the species found in the area, indicator species selected, methods, assumptions, and uncertainties is presented in Appendix K. In addition, a discussion on potential risks resulting from exposure to all of the ponds, lakes and the ditch is included in the conclusions in Section 13.0.

11.7.1 Background

Lake Stinky is an unlined playa lake area that is frequently flooded and just as frequently nearly dry. The lake has the capacity to hold 227 million gallons of water. Lake Stinky is split by US Highway 82/70 and forms two ecologically distinct lakes connected by a culvert under the highway. Both portions (north and south) of Lake Stinky were flooded during the March 1993 sampling activities.

On March 9, 1993, north Lake Stinky was 20 to 24 inches deep with a soft, sludgy bottom overlain with algal/bacterial mats. Widgeon grass was present in sparse clumps. Benthic organisms were present at very low populations. Because the algal/bacterial mats which would not wash through the sieve, benthos could not be concentrated, and a benthic sample was not collected in north Lake Stinky. The few fish (*Gambusia affinis*) observed in north Lake Stinky were probably fugitives from Lake Holloman and not a resident population. Not enough *Gambusia* were present to allow sampling, although the attempt was made. A 50 foot seine was pulled through the north end for about 200 meters. The net filled up with algal/bacterial mats, and no fish were caught. No benthic organisms were present in this net full of muck either. Only a few (4 or 5) fish were caught in dip nets along the entire northwest shoreline in prime *Gambusia* habitat. Surface water, plankton, and sludge samples were collected in north Lake Stinky.

South Lake Stinky has a hard sandy bottom. On March 3, 1993, the lake had a plankton population much like the other ponds and Lake Holloman, but somewhat less dense. Widgeon grass was beginning to grow in isolated strands on the bottom. Algal mats were present in places on the bottom. On March 24, 1993, the plankton noted on March 3 was replaced almost entirely by a population of ostracods (seed shrimp) which were distributed throughout the water column, lake bottom, and widgeon grass. Widgeon grass was growing in isolated strands and small clumps, with very little or no algae present. The water was clear. A pure sample of ostracods was collected with the skid dredge. On April 5, 1993, south Lake Stinky was similar in appearance, with widgeon grass was much more widespread, moving from the deeper water into shallower areas along the shore. A few bright red copepods with egg sacs were noted in shallow water near the shore. Plankton, ostracods, widgeon grass, sludge, and surface water were collected from Lake Stinky.

Water quality parameters were measured in north and south Lake Stinky. Water quality parameters and depth profiles for temperature, conductivity (C), and dissolved oxygen (DO) are presented in Table 11-5.

Ducks were common in north and south Lake Stinky. Lake Stinky is good shorebird habitat, and the fluctuating water level and salt keeps vegetation from invading the mud flats of the playa. Snowy plovers, avocets, black-necked stilts, and killdeer nest around Lake Stinky (Ewing, 1993). Plankton and surface water samples were collected along the transects as shown in Appendix M.

11.7.2 Exposure Assessment

Figure 11-5 is a conceptual site model of Lake Stinky. Benthic invertebrates, sediments, sludge, and surface water samples at this pond. Fish are not expected to be regular residents in Lake

Table 11-5

Water Quality Parameters - Lake Stinky

North Lake Stinky Date: 3/3/93 Time: 8:45 am pH: 9.54 Alkalinity: 124 mg/L Water Depth: 0.5-0.6 m Secchi Depth: NA				South Lake Stinky Date: 3/2/93 Time: 10:00 am pH: 9.7 Alkalinity: 167 mg/L Water Depth: 0.45 m Secchi Depth: NA		
Depth (m)	C (μmhos)	Temp (° C)	DO* (mg/L)	C (μmhos)	Temp (° C)	DO (mg/L)
Surface	16200	8	11.2	172000	9	10
0.5	16200	8	11.6	NC	NC	NC

NC Not Collected

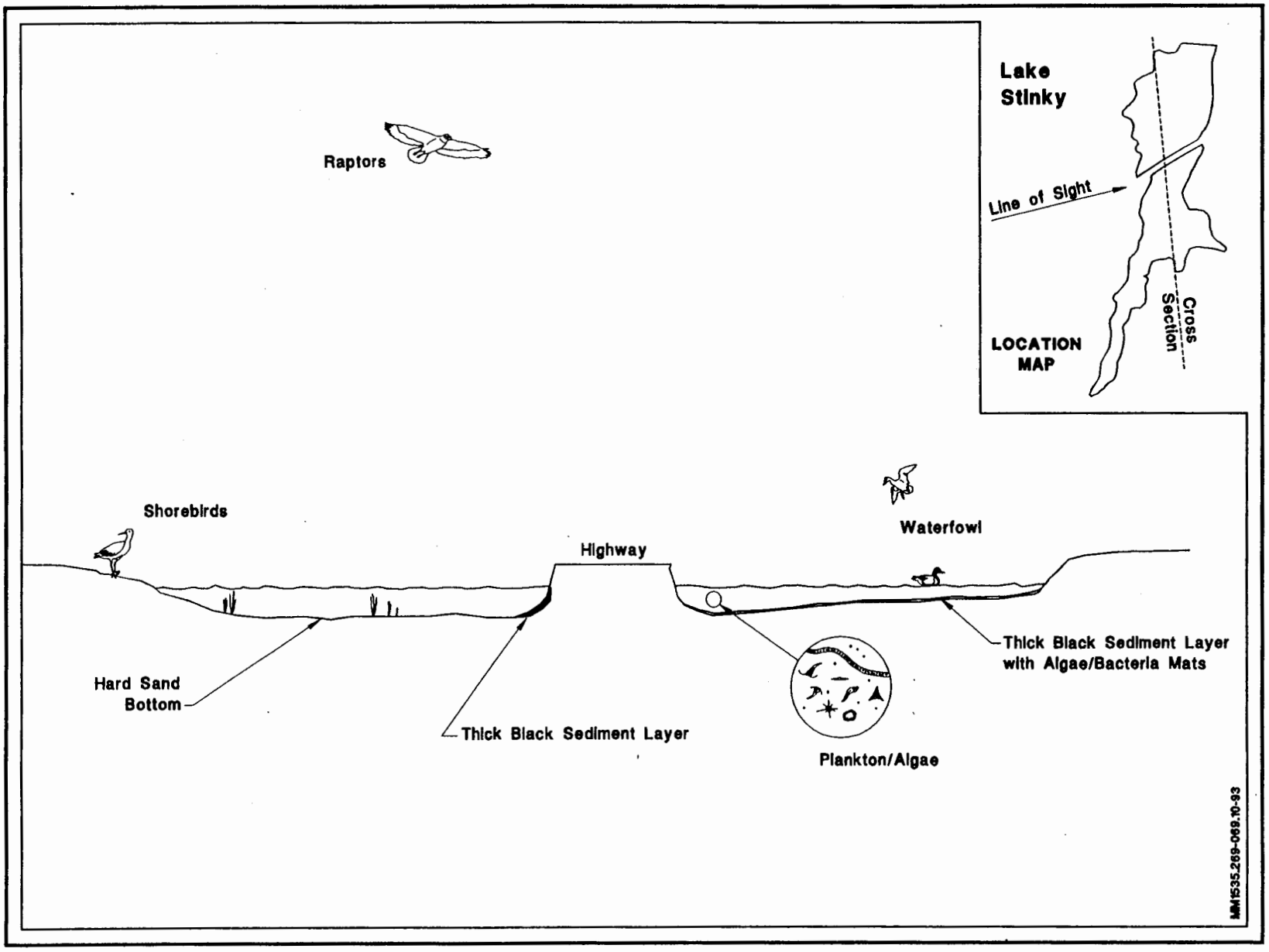

Figure 11-5. Ecological Conceptualization Model for Lake Stinky

Indicator Species Selected for Lake Stinky Are:

- Mallards
- Fish

Stinky, because this lake dries out every year. Otherwise, there were no significant differences in water quality parameters between the ponds that would inhibit fish life. The indicator species selected for this pond were mallards, which feed on the plankton. In this case, plankton was a combination of algae, plankton, and mosquito larvae. Although fish are not present year round, they were selected as indicator species for the aquatic environment.

In calculating the potential intake in mg/kg-day for mallards, the ingestion fraction was based on the size of the pond in relation to the entire lagoon and lake system. Lake Stinky makes up about 21% of the system; therefore, 21% was used as the reasonable maximum ingestion fraction. Since the ducks are migratory, they are probably only in the area for, a maximum of 6 months. The average ingestion fraction, which was 10.5%, was calculated by dividing the reasonable maximum by two (or half a year exposure).

11.7.3 Risk Characterization

Risk Characterization Results

Birds:

- Adverse effects possible.

Fish:

- Adverse effects not expected.

Table 11-6 lists the EQs for the indicator species. The potential risk to mallards was above one for reasonable maximum exposure; however, acceptable for average exposure. This indicates that reasonable maximum exposure may result in adverse effects, although the potential is very low. It should be noted that the majority of the potential risk in Lake Stinky was a result of metal toxicity. This may not be accurate since metals were not speciated, and the exact compounds are uncertain. In addition, the bioavailability was assumed to be 100%, which is conservative. To reduce some of the conservatism associated with the assessment of metals, absorption efficiencies were included in the intake calculations. Therefore, even though 100% is assumed to be bioavailable, only a fraction is assumed to be absorbed after ingestion. Risk to mallards feeding at Lake Stinky can be quantified based on the fraction ingested from this pond; however, the mallards are expected to feed, to some extent, in all of the ponds and lakes and in the ditch. The fraction of the total food ingested was divided among all of the locations. Therefore, although the risk that is attributed to Lake Stinky alone is acceptable, the cumulative risk from the entire system has to be considered. The EQs were summed for all ten assessments to determine a total EQ, or ecological hazard index, for mallards. A discussion of cumulative risks to birds feeding at all of the locations is included in the conclusions in Section 13.0.

A few fish were noted in Lake Stinky, as discussed above. However, they were expected to be fugitives from Lake Holloman and the population was too sparse to sample. Based strictly on the water contaminant concentrations, adverse effects are not expected. The ecological hazard quotient for fish was 0.26 for average exposure and 0.32 for reasonable maximum exposure. However, this hazard quotient was based strictly on the contaminants detected in the surface water and does not account for contaminant exposure from other sources. Since fish are present, pond conditions may be adequate for their survival. Fish were used as an indicator species for aquatic organisms in general. Invertebrates are present at very low levels, indicating that conditions are adequate for their survival. Their low numbers are probably a result of Lake Stinky drying up during the year.

11.8 Conclusions for Lake Stinky

The recreational scenario for Lake Stinky assumed that hunters consume waterfowl that have ingested contaminants from the lagoon system, and that hunters or bird watchers might fall into the lake and be exposed to surface water and soils. Moreover, it was assumed that recreational users of

Table 11-6

Ecological Quotients - Lake Stinky

Indicator Species	Ecological Quotients	
	Average	Reasonable Maximum
Mallards	0.69	1.1
Fish	0.26	0.32

the area could be exposed to wind-blown dust containing contaminants entrained from Lake Stinky soils. This could be considered a "double-counting" of exposures, since Lake Stinky cannot be full of water and dry at the same time. However, since Lake Stinky is a playa with natural depression in ground elevation, it is not impossible that portions of Lake Stinky could be dry while other parts contained water. Therefore, all potential pathways were combined into a single scenario to assure conservatism.

Reasonable maximum carcinogenic risks exceeded *de minimis* levels. The risk was driven primarily by inhalation of arsenic- and heptachlor epoxide-contaminated dusts and ingestion of contaminated waterfowl.

Most of the arsenic results were flagged with an @ flag, indicating that the results were within five times the method reporting limit. Therefore, there is uncertainty associated with the arsenic concentrations. Additional sampling of Lake Stinky soils for arsenic and heptachlor epoxide would aid in interpreting the significance of these results.

Although PCBs have only been detected in Ponds A and B, carcinogenic risks associated with ingestion of waterfowl are driven by PCBs. This is because it was assumed that waterfowl spend a percentage of their time feeding on contaminated biota from each impoundment in the lagoon system. These risks are based solely on modeled concentrations in waterfowl and have significant uncertainty associated with them. Bird tissues have been collected and are currently being analyzed. The modeled waterfowl concentrations presented in this assessment will be compared to actual contaminant concentrations in bird tissue when those data become available.

All of the noncancer hazards were below *de minimis* levels despite the conservatism of the evaluation. The agricultural scenario evaluates the ingestion of beef from cattle pastured adjacent to the lake and drinking from it. These carcinogenic risks and noncancer hazards were found to be below *de minimis* levels.

The ecological risk assessment evaluated risks to fish and mallards. EQ values were in the acceptable range for both species. Lake Stinky provides seasonal habitat for a variety of species from several trophic levels. The presence of numerous threatened and endangered species in the area is evidence that the lakes are an important source of both water and habitat. Although the human health risk assessment suggested that excessive risk is possible primarily from arsenic in soil, it is strongly recommended that additional sampling be performed before closure/remediation strategies are completed.

Section 12
UNCERTAINTY ANALYSIS

To evaluate and appreciate any risk assessment, it is important to identify and understand the primary variables and assumptions that contribute most to uncertainty. An uncertainty analysis allows the risk assessment findings to be placed in perspective. Although a degree of uncertainty occurs in virtually every step of the risk assessment process, even in nonquantitative assumptions, this section focuses on the areas of uncertainty that may significantly affect the calculated results.

Uncertainty Analysis

Includes evaluation of three general concepts:

- Accuracy;
- Variability; and
- Bias.

Uncertainty with respect to the accuracy of data and the variability of parameter values is a product of the methodology and is generally unintentionally introduced into the risk assessment. Uncertainty occurs when the accuracy of a value is not well known. This can result from use of low sensitivity analytical equipment or use of predictive models, particularly dose-response models incorporating extrapolation. Variability can produce uncertainty in calculated results when limited data are used to represent a parameter that actually spans a range of possible values. This restricts the results to conditions described by those particular values and lessens the overall applicability of the risk assessment.

Bias can occur intentionally or unintentionally when selected values depict a situation that contributes either more or less toward risk than the site does in actuality. Because risk assessment deals with implications for human health, it is not surprising that bias is often introduced through conservative estimates designed to protect human health in the absence of complete information. This can result in the deliberate over-estimation of health effects, contaminant transport, or chemical toxicity, particularly in the calculation of reasonable maximum exposures. Unintentional biases are just as likely to lead to underestimation of risks. They tend to balance each other and generally are considered negligible with respect to calculated results.

Uncertainty in Risk Assessment

Primary areas include:

- Identification of chemicals of concern;
- Exposure assessment; and
- Toxicity assessment.

Each type of uncertainty is compounded when more than one questionable factor is used in any particular calculation. The uncertainty attached to the result is greater than that for any of the input parameters. In most cases, this amounts to a conservative assessment that is protective of human health and the environment even in the average case.

The sources of uncertainty for this risk assessment are introduced at several stages of the analysis. The three primary areas of uncertainty (identification of chemicals of concern, exposure assessment, and toxicity assessment) are discussed individually in the following sections.

12.1 Uncertainty in Identification of Chemicals of Concern (COCs)

In general, this aspect of risk assessment involves the lowest degree of uncertainty. Detailed analytical procedures including standardized quality control and quality assurance (QA/QC) should produce data that are sufficient for identification and quantification of the chemicals used in a risk assessment. However, there are systematic difficulties which can give rise to uncertainty.

Uncertainty in Identifying COCs

Sources include:

- Use of estimated values;
- Use of values close to the RL; and
- Use of data with associated codes or qualifiers.

By definition, the detection limit, or the reporting limit (RL), is the point below which concentrations can no longer be identified in type and/or concentration with an acceptable level of accuracy. Therefore, uncertainty increases as concentrations approach the RL. Contaminants reported below the RL, for which estimates are usually taken at half the RL, tend to overestimate actual contaminant concentrations. Reported concentrations that approach the RL, but are not below it, may either over- or underestimate actual concentrations because confidence in the analytical accuracy of detection procedures decreases as concentrations approach the detection limit. In other cases, concentrations may be reported at levels sufficiently above the RL, yet be accompanied by codes or qualifiers indicating some other uncertainty in data quality. This might include questions of reproducability, statistical outliers, or insufficient sample size to account for variability.

12.2 Uncertainty in Exposure Assessment

Exposure assessment includes both chemical and exposure characterization and relies on the directives provided by the USEPA in order to estimate levels of exposure. Some of these algorithms may be eliminated when applied to site-specific conditions. If in error, the determination that a particular mode of transport, route of exposure, or intake pathway is not viable for a particular risk assessment may lead to great discrepancies between actual and estimated risks at a site. Ordinarily, there are two main components of exposure analysis through which uncertainty may be introduced: the estimation of chemical concentrations and characterization of exposure scenarios.

The estimation of chemical concentrations at end points, in media, and over time is typically performed using contaminant fate and transport models. These models may be tailored to site-specific conditions, but inevitably generalize the incremental degradation of chemicals and their movement through the environment over time for ease of calculation. Fate and transport models are likely to overestimate at times and underestimate in others. However, the uncertainty attached to their results may be significantly influenced by the selected input values from which their calculations are made (i.e., influenced by deliberate over- or underestimation).

Uncertainty in Exposure Assessment

Sources include:

- Fate and transport models
  --Estimation of contaminant degradation and movement over time; and
- Exposure parameter estimation
  --Generalization of site-specific and community-specific conditions.

Although generalized guidelines are provided by the USEPA, parameter estimations used in exposure analysis are intended to reflect realistic physical conditions and human behavior on a site-specific basis . To reduce the extent of potential error and variability among parameter estimations, USEPA developed guidelines that tend to conservatively estimate risks while providing reasonable assumptions that can be used in a broad range of situations. They cannot, however, be realistic for all sites. Specific exposure assumptions used in this risk assessment are provided within the discussion of individual sites and Appendix F. For all sites addressed in this analysis, both average and reasonable maximum values were incorporated to provide a range of results which may be more representative of site conditions.

12.3 Uncertainty in Toxicity Assessment

Toxicity assessment involves determination of the extent to which a particular agent will increase the incidence of a specific health effect. Often toxicity factors expressing the dose-response relationship are the most uncertain parameters used in risk assessment. These toxicity values are

determined through empirical research when applicable and through comparison of chemical structure when specific data are not available. USEPA has verified many chemical toxicity values for use in risk characterization. These accepted toxicity values incorporate varying degrees of uncertainty because of their basis of determination.

Uncertainty in Toxicity Assessment

Sources include:

- Extrapolation from animal studies;
- Using data from short-term, high dose exposures; and
- Using surrogate toxicity values.

Most toxicity values are extrapolated from animal studies in which media conditions, exposure scenarios, and toxicological effects can be either controlled or investigated. Because empirical data collected from animal studies must be extrapolated to simulate effects in humans, varying degrees of uncertainty can arise from differences in life span, body size, metabolic rates, and rates of exposure.

Confidence in toxicity values can also be influenced by the methodology through which animal studies are implemented. In addition to extrapolation across species, many toxicity values are taken from frequent, acute exposures at relatively high concentrations which are extrapolated to less frequent, chronic exposures at lower doses in humans. Assuming that a lesser degree of the same health effect will occur at low doses is not necessarily an accurate portrayal of toxicity. Additionally, duration and frequency of exposure greatly influence toxicity and the long-term effects of many agents differ substantially from those related to short-term exposure. Because human exposures are more likely to be chronic and at lower doses, experimental conditions may lead to gross overestimation of risks.

Finally, the use of surrogate toxicity values can compound uncertainty because the applicability and appropriateness of surrogates cannot be known entirely. There are families of chemicals that act in the same general way, but individual toxicities in a given situation, species, and dose may not be predictable based on the tendencies of the group. However, USEPA emphasizes that interim use of surrogate values is appropriate in some cases pending development of more rigorous methods.

12.4 Overall Uncertainty in This Risk Assessment

The overall level of uncertainty associated with this risk assessment is reasonable given the methodology approved and recommended by USEPA. Appropriate care was taken to increase the level of accuracy while mitigating, to the extent possible, the introduction of data variability and bias. Particular attention was given to consistency and developing appropriately conservative but realistic assumptions.

Uncertainty has been addressed in each stage of this risk analysis with appropriate QA/QC measures taken to minimize its impact on risk results. In identifying the chemicals of concern, data were taken from multiple investigations dating back to 1988 and sample sizes were considered sufficient to accurately portray conditions. The exposure assessment relied primarily on the parameter values and scenarios recommended by USEPA publications. Other values not identified in USEPA guidance were developed using conservative estimates considered realistic for the individual sites. These were established with the aid of the USACE and Base personnel who helped to identify site activities, including maintenance requirements and accessibility. Toxicity values were taken from two primary sources: IRIS and HEAST. In some cases, surrogate toxicity values were derived based on structure activity relationships. Comparative potency estimates were used to develop cancer slope factors for PAHs and dioxins that lack EPA-verified values.

The composite uncertainty for this analysis, although not specifically quantified, does not reduce its quality. Uncertainty should, however, be considered when basing actions on the results of this assessment.

Section 13
CONCLUSIONS

This section presents a summary of the results from the comprehensive human health risk assessments conducted for the ten impoundments (Ponds A through G, the ditch, Lake Holloman, and Lake Stinky) investigated during the HAFB lakes and lagoons investigation. Results from the ecological assessments conducted for each site are also presented.

Human Health Risk Assessment

- Separate risk assessments were conducted for each of the ten impoundments.
- Each impoundment was considered as a potential source of contamination.
- All migration pathways and logical receptors were considered in the evaluation.

Ecological Risk Assessment

- Separate ecological risk assessments were conducted for each impoundment.

Separate human health risk assessments were prepared for each of the seven lagoons, the ditch, and the two lakes to evaluate current and potential future impacts to public health. Each impoundment was considered as a potential contaminant source, and all migration pathways and logical receptors were considered in the evaluation. Lakes Holloman and Stinky were of particular concern since they are accessible to the general public. In addition, a separate ecological risk assessment was conducted for each impoundment to evaluate potential impacts to the environment.

The purpose of the risk assessments (including the ecological assessments) was to provide information to be used in making closure recommendations for *each* of the sewage lagoons, individually. The U.S. Fish and Wildlife Services expressed a preference for maintaining Pond G and Lake Holloman as year-round water bodies to provide habitat and drinking water for migratory and nesting birds. However, the New Mexico Environmental Department indicated that a threat to human health should supersede possible impacts of habitat loss on wildlife.

The human health risk assessments included incorporation of all available analytical data, including prior sampling of sludge, soil, and surface water. Biota samples were collected from each of the sewage lagoons and lakes, as well as from the ditch connecting Pond G and Lake Holloman for purposes of conducting the ecological assessment.

13.1 Results of the Human Health Risk Assessment

Results of Human Health Risk Assessment

Carcinogenic Risks Exceeding 10^{-6}

- Reasonable maximum - 7 sites.
- Average - 1 site.

Noncancer Hazards in Excess of One

- Adult hazard indices - 5 sites.
- Teen hazard indices - 1 site.
- Child hazard indices - 1 site.

The analyses conducted for the comprehensive human health risk assessments predict potential carcinogenic risk that exceeds the 10^{-6} *de minimis* level established by the proposed RCRA Subpart S rule for seven of the ten impoundments examined in the Lakes and Lagoons Investigation. However, no site poses a risk that exceeds the upper-bound risk goal of 10^{-4}. Five sites had adult hazard indices that exceeded one. One site had teen hazard indices that exceeded one, and

one site had child hazard indices that were greater than one.

13.1.1 Carcinogenic Risk

For each carcinogen present, the probability of an individual developing cancer over a lifetime of exposure was estimated. Chemical-specific risks were then summed for each pathway to determine a pathway-specific risk. The USEPA goal set forth in the proposed RCRA subpart S corrective action rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk between 10^{-4} (one in 10,000) and 10^{-6} (one in 1,000,000). A cancer risk of 10^{-6} (one in 1,000,000) was considered *de minimis* for the purpose of this risk assessment.

Carcinogenic risk was only modeled for adult chronic exposure scenarios. Carcinogenic risk was not modeled for children since risks are estimated as the probability of an individual developing cancer over a lifetime. Carcinogenic risk was not modeled for subchronic exposures for the same reason given for child exposures. In addition, the USEPA's approach to toxicity assessment for carcinogens was developed for assessing risks associated with chronic exposures. Therefore, use of USEPA-verified slope factors for assessing risks associated with subchronic exposures is inappropriate. Table 13-1 presents a summary of the potential carcinogenic risks for each site.

Most of the current occupational risks at the ponds were driven by dermal contact with heptachlor epoxide in sludge or sediments. However, dermal contact with PCBs in sludge contributed the majority of the risk at Pond B and contributed significantly to the risks at Pond A as well. Inhalation of arsenic and heptachlor epoxide, in the form of fugitive dusts, contributed the majority of the recreational risks at both Lakes Holloman and Lake Stinky. Although PCBs have only been detected in Ponds A and B, ingestion of PCB contaminated waterfowl was a significant contributor to recreational risk at Pond G, the ditch, Lake Holloman, and Lake Stinky. This is because it was assumed that waterfowl spend a percentage of their time feeding on contaminated biota from *each* impoundment in the sewage lagoon system. Dermal contact with heptachlor epoxide contributed significantly to recreational risk at the ditch.

Risk Drivers

- Current Occupational
  - -- Most risks were driven by dermal contact with heptachlor epoxide in sludge/or sediments.
  - -- Dermal contact with PCBs in sludge contributed the majority of the risk at Pond B.
- Current Recreational
  - -- Inhalation of arsenic and heptachlor epoxide contributed major risk at Lakes Holloman and Stinky.
  - -- Ingestion of PCB-contaminated waterfowl contributed significantly to risks at Pond G, the Ditch, and Lakes Holloman and Stinky.
  - -- Dermal contact with heptachlor epoxide in soil contributed significantly to recreational risk at the ditch.

13.1.2 Noncancer Hazard

To characterize potential noncarcinogenic human health effects, comparisons were made between projected intakes and acceptable daily intakes to calculate a hazard quotient. Hazard quotients were then summed to determine a hazard index for that pathway. Table 13-2 provides a summary of the potential chronic noncancer hazards for each site. Subchronic hazards were also evaluated for subchronic exposures. However, when both chronic and subchronic exposures were assessed, the subchronic hazards were either identical or only slightly less than those predicted for chronic exposures. Therefore, subchronic hazards are only presented in those instances where chronic exposure was not assessed.

The only hazard index to exceed one, which is considered *de minimis* by the proposed RCRA Subpart S rule, for the current occupational scenario was at Pond A. Dermal contact with heptachlor

Table 13-1

Identification of Key Pathways and Exposure Scenarios that Drive Carcinogenic Risks for the Sewage Lagoons, the Ditch, and Lakes Holloman and Stinky

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond A			
- Current Occupational			
Adult, average	2E-6	Heptachlor epoxide (94.7)	Dermal contact with sludge/ sediment (100)
Adult, reasonable maximum	8E-5	Heptachlor epoxide (94.7)	Dermal contact with sludge/ sediment (100)
- Future Agricultural	*de minimis*		
Pond B			
- Current Occupational			
Adult, Average	8E-8	PCB 1254 (65.1) PCB 1260 (26.7)	Dermal contact with sludge (98)
Adult, reasonable maximum	4E-6	PCB 1254 (66.6) PCB 1260 (24.7)	Dermal contact with sludge (94.3)
- Future Agricultural	*de minimis*		
Pond C			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		

Table 13-1

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond D			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		
Pond E			
- Current Occupational			
Adult, average	4E-7	Heptachlor epoxide (99.3)	Dermal contact with sludge/ sediment (99.8)
Adult, reasonable maximum	1E-6	Heptachlor epoxide (90.9)	Dermal contact with sludge/ sediment (91.2)
- Future Agricultural	*de minimis*		
Pond F			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		

Table 13-1

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond G			
- Current Occupational	*de minimis*		
- Current Off-Site Recreational			
Adult, average	1E-7	Pentachlorinated biphenyls (63.6) Hexachlorinated biphenyls (19.4)	Ingestion of waterfowl (100)
Adult, reasonable maximum	5E-6	Pentachlorinated biphenyls (63.6) Hexachlorinated biphyenyls(19.5)	Ingestion of waterfowl (100)
- Future Agricultural	*de minimis*		
Ditch			
- Current Occupational	*de minimis*		
- Current Off-Site Recreational			
Adult, average	3E-7	Heptachlor epoxide (65.1) Pentachlorinated biphenyls (22.5)	Dermal contact with soils (65.5) Ingestion of waterfowl (34.5)
Adult, reasonable maximum	6E-6	Pentachlorinated biphenyls (50.8) Heptachlor epoxide (19.9)	Ingestion of waterfowl (79.9) Dermal contact with soils (20.1)

Table 13-1

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Lake Holloman			
- Current Off-Site Recreational			
Adult, average	5E-7	Arsenic (67.2)	Inhalation of fugitive dust (73.8)
Adult, reasonable maximum	1E-5	Pentachlorinated biphenyls (15.6)	Ingestion of waterfowl (24.6)
		Arsenic (47.9)	Inhalation of fugitive dust (58.3)
		Pentachlorinated biphenyls (26.1)	Ingestion of waterfowl (41.0)
- Current Agricultural	*de minimis*		
Lake Stinky			
- Current Off-Site Recreational			
Adult, average	5E-7	Arsenic (56.0)	Inhalation of fugitive dust (73.9)
		Pentachlorinated biphenyls (13.0)	Ingestion of waterfowl (20.5)
Adult, reasonable maximum	1E-5	Arsenic (42.3)	Inhalation of fugitive dust (60.1)
		Pentachlorinated biphenyls (23.0)	Ingestion of waterfowl (36.2)
- Current Agricultural	*de minimis*		

Table 13-2

Identification of Key Pathways and Exposure Scenarios that Drive Noncancer Hazards for the Sewage Lagoons, the Ditch, and Lakes Holloman and Stinky

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)		Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)	
Pond A					
- Current Occupational					
Adult, average	0.13	Heptachlor epoxide	(99.4)	Dermal contact with sediment	(99.5)
Adult, reasonable maximum	1.8	Heptachlor epoxide	(99.3)	Dermal contact with sediment	(99.3)
- Future Agricultural	*de minimis*				
- Future Occupational (subchronic)					
Adult, average	39	Heptachlor epoxide	(99.5)	Dermal contact with sediment	(83.1)
Adult, reasonable maximum	147	Heptachlor epoxide	(99.3)	Dermal contact with sediment	(80.9)
Pond B					
- Current Occupational	*de minimis*				
- Future Agricultural	*de minimis*				
- Future Occupational (subchronic)					
Adult, average	0.35	Manganese	(83.4)	Inhalation of fugitive dust	(83.6)
Adult, reasonable maximum	6.8	Manganese	(91.1)	Inhalation of fugitive dust	(91.2)

Table 13-2

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond C			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		
- Future Occupational (subchronic)			
Adult, average	0.44	Manganese (82.3)	Inhalation of fugitive dust (82.3)
Adult, reasonable maximum	7.2	Manganese (91.6)	Inhalation of fugitive dust (91.6)
Pond D			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		
- Future Occupational (subchronic)	*de minimis*		

Table 13-2

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond E			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		
- Future Occupational			
Adult, average	17	Heptachlor epoxide (99.6)	Dermal contact with sludge (83.1)
Adult, reasonable maximum	63	Heptachlor epoxide (99.4)	Dermal contact with sludge (55.2) Incidental ingestion of sludge (44.6)
Pond F			
- Current Occupational	*de minimis*		
- Future Agricultural	*de minimis*		
- Future Occupational	*de minimis*		

Table 13-2

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond G			
- Current Occupational			
Adult, average	5.0E-2	Organic lead (100)	Dermal contact with surface water (100)
Adult, reasonable maximum	2.2	Organic lead (100)	Dermal contact with surface water (100)
- Current Off-Site Recreational	*de minimis*		
- Current On-Site Recreational (subchronic)			
Teen, average	1.2	Organic lead (100)	Dermal contact with surface water (50) Incidental ingestion of surface water (50)
Teen, reasonable maximum	3.9	Organic lead (100)	Dermal contact with surface water (50) Incidental ingestion with surface water (50)
- Future Agricultural	*de minimis*		
Ditch			
- Current Occupational	*de minimis*		
- Current Off-Site Recreational	*de minimis*		

Table 13-2

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)		Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)	
Lake Holloman					
- Current Off-Site Recreational					
Adult, average	2.4	Organic lead	(97.2)	Dermal contact with surface water	(56.4)
				Incidental ingestion of surface water	(43.3)
Adult, reasonable maximum	7.2	Organic lead	(99.8)	Dermal contact with surface water	(56.3)
				Incidental ingestion of surface water	(43.2)
Child, average	7.7	Organic lead	(99.1)	Dermal contact with surface water	(61.0)
				Incidental ingestion of surface water	(38.1)
Child, reasonable maximum	23	Organic lead	(98)	Dermal contact with surface water	(60.3)
				Incidental ingestion of surface water	(37.7)
- Current Agricultural					
Adult, average	20	Organic lead	(99.9)	Ingestion of Beef	(100)
Adult, reasonable maximum	123	Organic lead	(99.9)	Ingestion of Beef	(100)
Child, average	46	Organic lead	(99.9)	Ingestion of Beef	(100)
Child, reasonable maximum	287	Organic lead	(99.9)	Ingestion of Beef	(100)
Lake Stinky					
- Current Off-Site Recreational	*de minimis*				
- Current Agricultural	*de minimis*				

Hazard Drivers

- Current Occupational
  - -- Dermal contact with heptachlor epoxide in sediment was responsible for hazard at Pond A.
- Future Occupational
  - -- Dermal contact with heptachlor epoxide in sediments was responsible for hazards at Ponds A and E.
  - -- Inhalation of manganese drives the hazards at Ponds B and C.
- Current Recreational
  - -- Dermal contact with organic lead in surface water drives hazards at Pond G and Lake Holloman.
- Current Agricultural
  - -- Ingestion of beef contaminated with organic lead contributed virtually all of the hazard for Lake Holloman.

epoxide in sediment was responsible for virtually all of the hazard. Dermal contact with heptachlor epoxide in sediment was also responsible for future occupational hazards at Ponds A and E. Inhalation of manganese was responsible for the majority of the future occupational hazard at Ponds B and C. Dermal contact with organic lead in surface water contributed the majority of the noncancer hazard at Pond G and Lake Holloman for recreational users. Ingestion of beef contaminated with organic lead contributed virtually all of the hazard associated with the current agricultural scenario.

13.1.3 Uncertainties Associated with the Human Health Risk Assessment

The current occupational risks/hazards at Ponds A and E, as well as some of the recreational risk at the ditch, were based on a single sediment/sludge sample (one at each site) in which heptachlor epoxide was detected. While the levels were high, they do not necessarily represent site conditions as a whole. Therefore, the current occupational risks/hazards predicted at these sites may be overestimated.

Uncertainties Associated with the Human Health Assessment

- Predicted current occupational risks/hazards associated with Ponds A, E, and the Ditch were based on a single sediment/sludge sample from each site.
- Source of organic lead is not likely the sewage lagoon system.
- It was assumed that cattle drinking from Lake Holloman receive 100% of their water from the lake even though they have not been observed drinking from it.

All organic lead results that drive the recreational hazards at Pond G and the recreational and agricultural hazards at Lake Holloman were from the Sewage Lagoon Surface Water Sampling Investigation conducted in 1991. While the source is unknown, Lake Holloman receives direct runoff from the southern portion of the runways. Surface runoff from the runways also collects in the lagoons, although organic lead was only detected in Ponds B and G. Pond G is located near the HAFB boundary and may receive runoff from highway 82/70. The highest concentrations of organic lead were detected at Lake Holloman and Pond G. Therefore, it seems likely that the source for the organic lead is something other than the sewage lagoons system. It is likely that the organic lead contamination detected in 1991 has volatilized. Assuming that the presence of organic lead can be ruled out, all remaining noncancer hazard indices for Pond G and Lake Holloman would be within acceptable limits. However, the presence of organic lead cannot be ruled out without further sampling.

Ingestion of PCB contaminated waterfowl contributes significantly to the recreational risks at Pond G, the ditch, and Lakes Holloman and Stinky. Significant uncertainty is associated with the

modeled PCB concentrations in waterfowl. Contaminant uptake in waterfowl was modeled assuming that a percentage of time is spent at *each* compoundment in the lagoon system feeding on contaminated biota. However, the most toxic PCB congeners are generally present in biota at such low concentrations as to severely limit their detection. Therefore, data were not generated for the most toxic PCB congeners. Instead, the most potent enzyme inducing congener in the "numerical PCB class" (i.e., hexachlorinated biphenyls, pentachlorinated biphenyls, etc.) was used as a proxy for the entire class. In addition, it was assumed that all contaminants detected in the lower trophic levels are bioaccumulated in waterfowl. This may be an over estimation.

It was assumed that cattle drinking from Lake Holloman receive 100% of their water from this source even though cattle have not been directly observed drinking from the lake. While this assumption is currently an overestimation, access to the lake is not restricted and a local rancher has grazing rights to BLM land. Therefore, it is possible that cattle could use Lake Holloman as a drinking water source. However, if cattle were to be pastured north of the highway, water would most likely be provided from sources other than the lake due to the poor quality of the water. In addition to the uncertainties discussed above, feed/water-to-beef transfer coefficients that do not account for metabolism were used, and 100% bioavailability was assumed for contaminants consumed in beef. Therefore, the modeled risks/hazards associated with ingestion of beef exposed to contaminants in Lake Holloman are likely overestimated.

13.2 Results of the Ecological Assessment

Potential risk to the environment was evaluated through the use of indicator species which are representative of other species in the area. Risk was estimated by calculating an ecological quotient (EQ), which is the ratio of the observed or estimated contaminant concentrations to the benchmark concentration. Ecological hazard indices, for use in estimating the potential for adverse impacts to the indicator species, were calculated by summing ecological hazard quotients.

A separate ecological risk assessment was conducted for each of the ponds, the lakes, and the ditch. However, animals in the area are likely to depend on the entire system for food and cover, as opposed to a single impoundment.

Ingestion fractions were considered to assess ecological risk associated with *each* impoundment independently. It is possible to estimate the fraction of the diet that may be obtained in each area and base the potential risk on that fraction. However, when determining the total risk that a particular species may incur, its total range must be considered. Therefore, it is important to remember that while risk at one location may not exceed *de minimis* levels, the cumulative risk (from the entire sewage lagoon system) may be above levels that are considered significant.

This section presents the potential cumulative risks to each of the birds used as indicator species. Table 13-3 presents a summary of these risks. It was assumed that fish spend their entire life in one pond or lake, or the ditch; therefore, cumulative risk to fish from the entire lagoon system was not quantitated. The fish ecological assessments are discussed in the previous site-by-site discussions of this report.

13.2.1 Cumulative Ecological Risks for Indicator Birds

Cumulative Results of Ecological Assessment for Birds

- Mallards - Ecological indices are slightly above *de minimis* levels.
- Killdeer - Ecological indices are slightly above *de minimis* levels.
- Mergansers - Ecological indices are below *de minimis* levels.

The average and reasonable maximum cumulative risks, or ecological hazard indices, for mallards and killdeer are slightly above the acceptable level of 1.0 and indicate that adverse effects may be possible. Because these values are well below 10.0, the potential for adverse effects is assumed to be low. Mallards and killdeer most likely feed on a range of plants, insects and

Table 13-3

Cumulative Risks for Indicator Birds

Location	Mergansers		Mallards		Killdeer	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
Pond A	NA	NA	0.04	0.07	0.02	0.07
Pond B	NA	NA	0.06	0.13	NA	NA
Pond C	NA	NA	0.03	0.05	NA	NA
Pond D	NA	NA	0.07	0.1	NA	NA
Pond E	NA	NA	0.03	0.04	1.25	3.94
Pond F	NA	NA	0.09	0.14	NA	NA
Pond G	0.22	0.36	0.08	0.14	NA	NA
Ditch	0.2	0.32	0.01	0.01	0.01	0.05
Lake Holloman	0.18	0.29	0.91	1.45	NA	NA
Lake Stinky	NA	NA	0.69	1.1	NA	NA
TOTALS	0.6	0.97	2.01	3.23	1.28	4.05

NA = Not applicable due to lack of food source

invertebrates. This study is worst case in that it assumes that these birds feed entirely on contaminated algae or benthic invertebrates in the sewage lagoon system. According to the limnological survey conducted at sewage lagoon system. Lake Holloman (Cole et al., 1981), reproductive success appeared to be low for the number of birds that use the system during the summer months. Observed reproductive success was particularly low for mallards and killdeer. This may be a subtle adverse effect that is occurring in mallards and killdeer because of contaminant exposure, this is supported by the hazard indices. However, currently these birds seem to be plentiful, and mallards provide for recreational hunting at the sewage lagoon system.

The average and reasonable maximum hazard indices for mergansers were both below the acceptable value of 1.0. Reproductive effects were not discussed in the limnological survey, and based on these EQs they are not expected. The assessment for mergansers is expected to be conservative since bioavailability could not be accounted for and, with the exception of metals, was assumed to be 100 percent. The conservatism is balanced by the use of measured fish tissue concentrations, as opposed to modeled concentrations which are typically much higher. Fish were only present in Pond G, Lake Holloman, and the ditch. It was assumed that the birds feed at each of these locations; however, if they were to feed exclusively at Pond G, potential risk may approach or exceed 1.0. Based on this assessment, mergansers, or fish-eating birds, are not expected to experience adverse health effects.

Results of Ecological Assessment for Fish

- Fish were present in Pond G, Lake Holloman, and the Ditch.
- Ecological hazards were above *de minimis* levels.

It was evident from the field effort that fish populations were low. The limnological survey supports this finding. According to the various EQs calculated based on surface water concentrations alone, including those locations where fish were not found, potential adverse effects are possible. With the exception of Pond F, the ditch, and Lake Stinky, all of the EQs exceeded the acceptable level of 1.0. Fish were seen in Lake Stinky in very low numbers (too few to sample), but were presumed to be refugees from Lake Holloman. Since Lake Stinky dries up during the year, it is not expected to support fish life for long periods of time. Based on the limnological survey, fish were detected in Lake Holloman in low numbers compared to the available habitat. This may be a result of fluctuating dissolved oxygen levels, which occurs in all of the locations, with the exception of the ditch, lack of adequate cover, and predation.

This assessment concluded that adverse effects are possible in fish; however, their low number can be attributed to inadequate habitat as well as contamination. Another important point is that fish are not native residents of the sewage lagoon system. Mosquito fish are known for their ability to adapt to adverse conditions and it is possible that they are adapting to this system. They seem to be surviving and reproducing. It is evident that the population will not expand under the current conditions; however, this should be viewed in context. It is possible that the fish could adversely affect the bird population; therefore, effects seen in fish may be more important in the bird assessment than the fish assessment. Merganser EQs do not indicate that this is a problem. However, it is possible that fish tissue concentrations simply reduce the fish population, thereby limiting the bird population from lack of food.

13.2.2 Uncertainty Associated with the Ecological Assessment

One of the main sources of uncertainty was the assessment of metals. A large portion of the potential risk in each location was the result of metals contamination. Many of the metals are expected to be adsorbed to some extent to sediments and particulate matter; however the extent of adsorption is unknown. Therefore, gut absorption factors, obtained from literature, were used in place of bioavailability factors. Although 100% of the metals were assumed to be bioavailable, only a certain percentage of this is assumed to be absorbed upon ingestion. In addition to the uncertainties associated with the assessment of metals, there is also some uncertainty in that bioaccumulation

Uncertainties Associated with Ecological Assessment

- 100% of metals were assumed to be bioavailable.
- Bioaccumulation factors in birds were not used.

factors in birds were not used. Bioaccumulation factors often vary by an order of magnitude in the literature and using them in ecological risk assessment tends to increase the risk excessively. In short, use of bioaccumulation factors almost always ensures that the EQ will exceed acceptable levels, especially when pesticides and metals are contaminants of concern. Bird tissue samples have been collected at the sewage lagoon system and are currently being analyzed. Once this data is available, the modeled results will be compared to the measured results. It is suspected that many of the contaminants will not be detected in the mallard tissue; therefore, the risks presented here are expected to be overestimated.

In conclusion, mallards and killdeer have cumulative hazard indices that indicate that adverse effects are possible, while mergansers have a lower cumulative hazard index that is acceptable based on fish ingestion at Pond G, Lake Holloman and the ditch. Fish were present in Pond G and Lake Holloman, although the EQs for these locations were above *de minimis* levels This indicates that the assessment is either conservative, or the fish have adapted to some extent. In addition, lack of fish in other locations may be more a result of lack of cover than exposure to contaminants.

Comparison of 1991 and 1993 Exposure Scenarios

1991 exposure scenarios:

- Occupational site workers;
- Residential (children);
- Recreational bird watchers; and
- Recreational hunters.

1993 exposure scenarios:

- Occupational site workers;
- Recreational (teenagers at Pond G);
- Recreational (hunters/bird watchers);
- Current and future agriculture; and
- Future construction workers.

Comparison of 1991 and 1993 Risk Assessments

1991 excessive risks/hazards:

- Children playing by lagoons.

1993 excessive risks/hazards:

- Site workers (Ponds A, B and C);
- Teenagers at Pond G;
- Hunters/bird watchers (Pond G, ditch, Lake Holloman, Lake Stinky);
- Current agriculture (Lake Holloman); and
- Future construction workers (Ponds A, B, C and E).

13.3 Comparison to Previous Lagoons and Lakes Risk Assessments

An initial risk assessment that characterized the cumulative risks for the entire wastewater treatment system was conducted in February, 1991 (Radian, 1991). This risk assessment evaluated exposure scenarios similar to those analyzed during the current (1993) site-specific risk assessments. Specifically, the 1991 assessment identified four potential exposure scenarios: 1) occupational exposure for workers at the sewage lagoons; 2) residential exposure of children living on Base and playing at the lagoons; 3) recreational exposure of bird watchers at Lakes Holloman and Stinky; and 4) recreational exposure of hunters at Lakes Holloman and Stinky. The current lagoons and lakes risk assessments evaluate: 1) occupational exposure at Ponds A through G and the ditch; 2) teenager recreational exposure at Pond G; 3) bird watcher/ recreational hunter exposure at Pond G, the ditch, Lakes Holloman and Stinky; 4) current agricultural exposure at Lakes Holloman and Stinky;

5) future agricultural exposure at Ponds A through G; and 6) future construction worker exposure at Ponds A through F. Table 13-4 presents a side-by-side comparison of the cumulative risk characterization results for these two risk assessments.

At the time of the 1991 assessment, the lagoon network was accessible to trespassers (mainly curious children) because of limited access control measures (i.e., a fence was not in place). As a result, child access to the lagoons was possible, and the risk posed to children playing by the lagoons was quantified. The results of this scenario analysis indicated an elevated noncarcinogenic hazard (9.8) to children well above the *de minimis* level of one. Since 1991, a fence has been erected around Ponds A through F, preventing access by unauthorized personnel. Therefore, in contrast to the 1991 risk assessment, child exposure pathways at these six lagoons are now believed to be incomplete, and child exposure has not been assessed in the current risk assessments for these lagoons. While a fence is in place around Pond G, gaps/holes are present that provide entry to the lagoon, and trespassers have been observed. However, these observations suggest that the trespassers are teenagers instead of children. Thus, teenage (defined as 12 to 15 years old) exposure at Pond G has been evaluated in the current assessment.

Regarding the disparity in occupational risks/hazards posed to site workers, the 1991 assessment assumed that workers would only come into dermal contact with surface water, and not sludge or soil. The current assessment assumes limited dermal contact with the sludge and soil media based on analysis of the site activities that occur, including aerator repair, water sampling, and routine inspection. Because the concentrations in the sludge and soil are higher than concentrations in surface water, dermal exposure to these media increases the potential risk/hazards.

The 1991 assessment also reported that no carcinogenic risks or noncarcinogenic hazards exceeding *de minimis* levels were incurred by hunters or bird watchers at Lakes Holloman and Stinky. However, the current assessment indicates that these exposure groups are incurring elevated risks/hazards. This discrepancy can be explained based on analysis of the available sample data. Because of the limited sample data available in 1991, the earlier risk assessment used Pond C sludge concentrations as exposure point concentrations for hunters and bird watchers. The rationale for using these data was that while, "Higher levels were detected in the sludge in Ponds A and B; the lower values in Pond C were believed to represent a dilution of the contaminants due to settling and bonding to organic carbon in Ponds A and B...Since there were no well-documented data for contaminant concentrations in sludge from Lakes Holloman or Stinky, Pond C data were chosen to represent the system in general." (Radian, 1991). The additional sampling data that have been compiled since 1991 indicate that contaminant concentrations in Pond C are lower than those reported for some of the lagoons downstream from Pond C. For example, organic lead was never detected above the reporting limit in Pond C, while relatively high levels were detected in Pond G and Lake Holloman. As a result, the assumption that Pond C data "represent the system in general" is erroneous given the additional data. The current risk assessment incorporates these supplementary data.

As is evident from the two lists of exposure scenarios, the 1993 assessment addressed the risks posed by agriculture (current and future) and construction worker (future) exposures. Although there are no cattle grazing on land adjacent to the lagoons or lakes, a local landowner has leased the grazing rights; therefore, BLM requested that these exposures be assessed. Future construction worker exposure was also addressed to quantify the risks incurred during removal of the lagoons from service.

The 1991 risk assessment only provided a qualitative evaluation of ecological risk. A quantitative ecological assessment was not conducted during the 1991 assessment because of the lack of biota samples and the inability of models to adequately estimate the likelihood of adverse impacts. As a result, the ingestion of waterfowl exposure pathway was not assessed quantitatively. Since 1991, extensive biota sampling/analysis has occurred and innovative ecological assessment techniques have been developed. Therefore, the current risk assessment provides a quantitative evaluation of ecological risk and the ingestion of waterfowl exposure pathway.

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Holloman Risk Assessments

Sewage Lagoons and Lakes Investigation

Volume II - Appendices

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New Mexico

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HOLLOMAN RISK ASSESSMENTS

SEWAGE LAGOONS AND LAKES INVESTIGATION

VOLUME II - APPENDICES

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APPENDIX A

SELECTION OF CHEMICALS OF CONCERN

1.0 IDENTIFICATION OF CHEMICALS OF POTENTIAL CONCERN

Contaminants of potential concern were identified following guidance in Chapter 5 (Data Evaluation) of the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* (USEPA, 1989) and the *Guidance for Data Useability in Risk Assessment* (USEPA, 1992). Chemicals were further eliminated using risk-based screening methodology suggested by Region III (USEPA, 1993). USEPA guidance stipulates the following nine-step evaluation process to organize the data into a form appropriate for a comprehensive risk assessment:

1. Gather data available from site investigations;
2. Evaluate analytical methods used;
3. Evaluate the quality of data with respect to sample quantitation limits;
4. Evaluate the quality of data with respect to qualifiers and codes;
5. Evaluate the data with respect to blanks;
6. Evaluate tentatively identified compounds (TICs);
7. Compare potential site-related contamination with background;
8. Develop a set of data for use in the risk assessment; and
9. If appropriate, further limit the number of chemicals to be carried through the risk assessment.

The following subsections discuss the process and criteria used to narrow the list of contaminants detected in and around the lagoons and lakes at Holloman AFB to those analytes which could potentially pose a threat to human health.

1.1 Step 1: Data Available from Site Investigations

Data collected during different sampling events from 1988 to the current investigation were combined after performing the following tasks:

- Reviewing quality control measures;
- Comparing analytical methods;
- Eliminating unusually high reporting limits (RLs); and
- Determining exchangeability of the units of measure.

Historical and present quality control measures are discussed in Section 1.2 of this appendix. Analytical methods were comparable if they were the same or considered compatible by USEPA guidelines (USEPA, 1992). Identical analytical methods were used in most cases for the different site investigations. For groundwater data at Pond A, Pond B, Lake Holloman, and Lake Stinky, method SW7841 was used for thallium without incorporating SW6010 data to avoid possible interferences associated with analyzing this analyte with SW6010. Where SW7841 was not used to analyze for thallium, SW6010 data were used to analyze for thallium in this risk assessment.

For the purposes of this risk assessment, a positive result included values at and below the RL. If a chemical was detected for a particular medium and site in some samples, but not all samples available from the various investigations, one-half the RL was used as a proxy concentration for nondetected compounds. Samples with an analytical result of non-detect associated with unusually high RLs were eliminated from the quantitative risk assessment. RLs were considered unusually high if the proxy concentration (one-half the RL) exceeded positive results for the same chemical in other samples. All data for this risk assessment were reported in comparable metric units. Analytical data which met these criteria were combined to provide a precise, accurate, representative, and complete data set for this risk assessment.

Analytical results from the current data set (Radian, 1993) included uncensored data for inorganic analytes. Uncensored data included positive and what appear to be negative results. Negative numbers are generated when the instrument calibration curve has a negative y-intercept because of instrument mechanics and chemical interactions. The negative numbers indicate that, based on the lowest reliable RL for that sample, the target analyte is not present. The negative numbers were used (with adjustment) in the calculation of means and upper control limits (UCLs) for inorganic analytes to indicate analytes that were truly detected on site and their associated concentrations. This issue is further discussed in Appendix C.

1.2 Step 2: Analytical Methods

A detailed evaluation of the analytical methods used and a quality assurance/quality control (QA/QC) evaluation of the current data are presented under separate cover in the *Sampling and Quality Control Summary Report (A-E SQCSR) Sewage Lagoons and Lakes Investigation Holloman Air Force Base, New Mexico* (Radian, 1993). Earlier reports which detail QA/QC evaluations associated with historical data used in this risk assessment are listed in Section 1.2.3 of the main text. The QA/QC evaluation of the data was a factor in choosing the list of chemicals of potential concern. A summary of the QA/QC concerns that pertain to the risk assessment is presented in Table A-1. No overall trends towards biases or false results were indicated. The QA/QC concerns associated with the data were not significant, and all available data were used to determine the chemicals of potential concern.

1.3 Step 3: Sample Quantitation Limits

Remedial investigation (RI) data reports provide RLs specific to each sample. The sample RLs account for sample characteristics (e.g., matrix; dry weight) and analytical dilutions. RLs represent the lower bound of reliable laboratory data using multiple instruments and are the equivalent of method quantitation limits (the minimum

Table A-1

Summary of Quality Control Findings[a]

Method	Quality Control Deviation	Potential Impact
Quality Controls Results - Sewage Lagoons and Lakes Investigation -- July 1993		
SW7041	Low matrix spike (MS) and laboratory control samples (LCS) recoveries for antimony.	Potential low bias or possible false negative for background soil results.
SW8080	Low LCS recoveries for kepone.	Potential low bias or possible false negative for background soil results.
SW7421	Low MS recoveries for lead.	Potential low bias for water results.
SW7841	Low MS recoveries for thallium.	Potential low biased results or possible false negative results for soil and water.
Assessment Monitoring Results; Appendix IX and Confirmation Sampling -- April 1992		
SW8080	In one matrix spike sample and in one recovery check sample, recoveries for aldrin (36%, 14%) and heptachlor (25%, 11%) were below acceptance criteria.	Field concentrations may be biased low. Confirmation sampling performed in April 1992.
SW8080	In all of the quality control confirmation samples (QCCS) samples, the recovery for aldrin was below acceptance criteria. In the two QCCS samples that were spiked with heptachlor, both recoveries were below acceptance criteria.	Field concentrations may be biased low. Confirmation sampling performed in April 1992.
SW8240	Methylene chloride (11 µg/L) detected in one rinsate above detection limit.	Field sample results may reflect contamination. Detected in 4 field samples at 10-15 µg/L.

Table A-1

Continued

Method	Quality Control Deviation	Potential Impact
Sewage Lagoon Surface Water Sampling -- June 1991		
Metals	Equipment blank hits: H-1-RB / G-1-GB Aluminum 42 µg/L Chromium 16 µg/L Iron 300 µg/L Lead 4.2 µg/L Org. Lead 320 µg/L / 330 µg/L Mercury 2.5 µg/L Zinc 12 µg/L / 6.3 µg/L	Sample results may be biased high because of field contamination.
Field Investigation to Support Sewage Lagoon Closure -- June 1991		
SW8150	Low MS recoveries for 2,4-D (11%, 13%), 2,4,5-TP (7%, 9%) and 2,4-T (7%, 10%).	Potential low biased results.
Metals	Erratic results for 15 of 20 metallic analytes in the 2 field duplicate pairs.	Potential for measurement variability because of matrix.
Metals	Aluminum (32 mg/kg), calcium (490 mg/kg), iron (140 mg/kg), selenium (2.2 mg/kg), silicon (290 mg/kg), sodium (410 mg/kg), and zinc (24 mg/kg) detected in the equipment blank.	Field results may reflect contamination. Similar concentrations detected in field samples.
Sewage Lagoon Investigation -- August 1992		
SW6010	8 of 11 soil antimony LCS recoveries (48-61% & 138%) are outside criteria (75-125%). Nineteen of 20 antimony MS recoveries were below criteria with a mean of 53%. All antimony water LCS recoveries were within criteria.	Calcium interferes spectrally. Based on these results, concentrations ≥52 mg/kg would be found in field samples. Field results biased low.
Metals, SW8080, SW9010, SW9030	Soil matrix heterogeneity and interferences caused high variability in metals, pesticide/PCB, cyanide, and sulfide results.	Low concentrations of cyanide and sulfide - relative variability not unexpected.

Table A-1

Continued

Method	Quality Control Deviation	Potential Impact
Additional Sampling, Hazardous Waste Sewage Sludge Removal -- December 1988 (may be superseded by June 1991)		
SW7740	Erratic selenium results with 4 of 12 MS recoveries outside criteria (75-125%) and a mean recovery of 196 ± 146%.	Potential for measurement variability because of matrix.
Method 8080 Organochlorine Pesticide Results, Pond C Sampling -- March 1990 (Letter Report)		
SW8080	No QC data to evaluate.	

[a] Based on review of Sampling and Quality Control Summary Reports (SQCSRs).

concentration that can be measured and reported). The RL reported for each sample is the lowest reliable concentration available and is used as the sample quantitation limit (SQL) for this risk assessment.

1.4 Step 4: Qualifiers and Codes

Data qualifiers or codes were presented with the analytical results so that uncertainties could be identified and evaluated. Laboratory qualifier codes associated with the analytical data are listed for the different site investigations in Table A-2.

1.5 Step 5: Blanks

Field and laboratory blanks were included in the analytical program to provide an indication of the introduction of contaminants into samples during collection or analysis. Positive results qualified by the presence of the analyte in associated blanks were evaluated according to USEPA guidance (USEPA, 1989). Sample results for common laboratory contaminants (acetone, methyl ethyl ketone, methylene chloride, toluene, and the phthalate esters) were considered positive only if the concentration exceeded ten times the maximum amount detected in any associated blank. If the concentration of a common laboratory contaminant was less than or equal to ten times the blank concentration, the sample was considered to be contaminated. Chemicals that are not common laboratory contaminants were evaluated in the same way, but using five times the maximum blank-related concentration to distinguish between nondetected compounds and contamination. Table A-3 lists all blank contaminated samples and their associated blanks.

1.6 Step 6: Tentatively Identified Compounds

The mass spectral analyses of samples for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) result in the identification and quantitation of compounds listed on the Target Compound List (TCL). The mass spectra frequently

Table A-2

Summary of Data Flags and Definitions

Data Flag	Definition
Codes and Qualifiers for Data from SQCSR, July 1993)	
*	Analyte concentration is suspect; refer to Section 4 of SQCSR for detailed explanation.
@	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
G	Analyte was not confirmed. Analyte was detected on both primary and secondary columns; however, the concentrations differ by more than a factor of two.
J	Analyte detected at concentration less than reported detection limit.
N/A	Not Available.
X (SW8080)	Analyte was not confirmed. Analyte was detected on primary column only.
X (SW8270)	Indicates that benzo(b)fluoranthene coelutes with benzo(k)fluoranthene. The reported concentration is the combined total response of the two compounds.
Codes and Qualifiers for Data from the Site Characterization Report, August 1992	
@	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
X	Analyte was not confirmed. Analyte was detected on both primary and secondary columns; however, the concentrations differ by more than a factor of two.
J	Analyte detected at concentration less than reported detection limit.
N/A	Not Available.
C	Confirmed on second column analysis by GC/MS.

Table A-2

(Continued)

Data Flag	Definition
Codes and Qualifiers for Data from the Assessment Monitoring Results, April 1992	
*	Analyte concentration is suspect; refer to Section 4 of SQCSR for detailed explanation.
@	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
G	Analyte was not confirmed. Analyte was detected on both primary and secondary columns; however, the concentrations differ by more than a factor of two.
C	Confirmed on second column or by GC/MS.
Codes and Qualifiers for Data from QCSR for Field Investigation, June 1991	
*	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
G	Analyte was not confirmed. Analyte was detected on both primary and secondary columns; however, the concentrations differ by more than a factor of two.
J	Analyte detected at concentration less than reported detection limit.
N/A	Not Available.
X	Analyte was not confirmed. Analyte was detected on primary column only.
C	Confirmed on second column by GC/MS.
H	Analyte analyzed 4 days past allowable holding time.

Table A-2

(Continued)

Data Flag	Definition
Codes and Qualifiers for Data from QCSR for Surface Water, June 1991	
*	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
J	Analyte detected at concentration less than reported detection limit.
Codes and Qualifiers for Data from The Letter Report, April 1990	
@	Analyte concentration is less than five times the reported detection limit.
G	Analyte was not confirmed. Analyte was detected on both primary and secondary columns; however, the concentrations differ by more than a factor of two.
X	Analyte was not confirmed. Analyte was detected on primary column only.
C	Confirmed on second column.
Codes and Qualifiers for Data from the QCSR, December 1988	
*	Analyte concentration is less than five times the reported detection limit.
B	Analyte was detected in the laboratory method blank (organic methods only).
J	Analyte detected at concentration less than reported detection limit.
#	Detected at a value less than 3.3 times the reporting limit.

Table A-3
Samples Eliminated from the Risk Assessment Based on Blank Data

Analyte	Sample result range	No. of samples	Blank result range *	No. of blanks	Blank type
Samples Eliminated from Soil, Sludge and Sediment Matrixes (mg/kg)					
Pond A					
Beryllium	0.082	1	0.135	1	MB
Cobalt	1.8 - 2	2	2.75	1	MB
Mercury	0.0076 - 0.029	2	0.06	1	MB
Thallium	0.061 - 1.3	5	0.08 - 7	2	MB
Pond E					
Beryllium	0.082	1	0.135	1	MB
Cobalt	1.8 - 2	2	2.75	1	MB
Mercury	0.0076 - 0.029	2	0.06	1	MB
Thallium	0.061 - 1.3	5	0.08 - 7	2	MB
Lake Stinky					
Antimony	(-27) - (-15)	2	16	1	MB
Cadmium	0.25	1	0.34	1	MB
Copper	7.1 - 8.4	2	8.5	1	MB
Cyanide	(-0.14) - (-0.13)	2	0.0108	1	MB
Endrin	0.00053	1	0.00065	1	MB
Mercury	(-0.031) - (-0.029)	2	0.072	1	MB
Nickel	5.2	1	6.5	1	MB
Selenium	0.046	1	0.52	1	MB
Silver	(-0.39) - (-0.34)	2	0.96	1	MB
Sulfide	(-35) - 14	2	96	1	MB
Thallium	(-6.4) - 1.4	4	0.16 - 35.6	2	MB
Tin	(-6.1) - (-0.73)	2	1.15	1	MB
Samples Eliminated from Surface and Groundwater Matrixes (mg/L)					
Pond A					
Endrin	0.0000093 - 0.00002	6	0.000055	1	MB
4,4'-DDT	0.00002 - 0.000024	4	0.000095	1	MB
alpha-Chlordane	0.000001 - 0.0000028	2	0.0000225	1	MB
Antimony	(-0.95) - 0.34	12	0.09 - 0.4	2	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
beta-BHC	0.000018 - 0.00003	5	0.000055	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - 0.0069	9	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0011 - 0.0059	10	0.0075	1	MB
Endrin	0.0000019 - 0.000024	12	0.00001 - 0.000085	2	MB
Heptachlor	0.0000042 - 0.000037	5	0.000041	1	MB
Heptachlor epoxide	0.000005 - 0.000065	14	0.000048 - 0.000085	2	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB

Table A-3
Samples Eliminated from the Risk Assessment Based on Blank Data

Analyte	Sample result range	No. of samples	Blank result range *	No. of blanks	Blank type
Pond A continued					
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.0013) - 0.21	3	0.136	1	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB
Pond B					
Endrin	0.0000093 - 0.00002	6	0.000055	1	MB
4,4'-DDT	0.00002 - 0.000024	4	0.000095	1	MB
alpha-Chlordane	0.000001 - 0.0000028	2	0.0000225	1	MB
Antimony	(-0.95) - 0.34	12	0.09 - 0.4	2	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
beta-BHC	0.000018 - 0.00003	5	0.000055	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - 0.0069	9	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0011 - 0.0059	10	0.0075	1	MB
Endrin	0.0000019 - 0.000024	12	0.00001 - 0.000085	2	MB
Heptachlor	0.0000042 - 0.000037	5	0.000041	1	MB
Heptachlor epoxide	0.000005 - 0.000065	14	0.000048 - 0.000085	2	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.0013) - 0.21	3	0.136	1	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB
Pond C					
alpha-Chlordane	0.000001 - 0.0000028	2	0.0000225	1	MB
Heptachlor	0.0000042 - 0.000037	4	0.000041	1	MB
Heptachlor epoxide	0.0000085 - 0.000036	6	0.000048	1	MB
Pond D					
Endrin	0.000093 - 0.00002	6	0.000055	1	MB
4,4'-DDD	0.000017 - 0.000018	2	0.00009	1	MB
4,4'-DDT	0.00002 - 0.000024	4	0.000095	1	MB
alpha-Chlordane	0.0000011 - 0.0000028	2	0.0000225	1	MB
Antimony	(-.95) - 0.34	11	0.4	1	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
beta-BHC	0.000018 - 0.00003	5	0.000055	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB

Table A-3
Samples Eliminated from the Risk Assessment Based on Blank Data

Analyte	Sample result range	No. of samples	Blank result range *	No. of blanks	Blank type
Pond D continued					
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - (-0.00006)	8	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0006 - 0.0059	13	0.0075 - 0.01	2	MB
Endrin	0.0000019 - 0.000024	14	0.00001 - 0.000085	3	MB
Heptachlor	0.0000042 - 0.000037	4	0.000041	1	MB
Heptachlor epoxide	0.000005 - 0.000065	16	0.0000435 - 0.000085	3	MB
Lead	(-0.02) - (-0.012)	2	0.004	1	MB
Mercury	(-0.000005) - 0.0000028	2	0.00016	1	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.006) - 0.048	2	0.0032 - 0.136	2	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB
Pond E					
alpha-BHC	0.00001	1	0.00044	1	EB
Endosulfan sulfate	0.000015	1	0.000165	1	EB
Endrin	0.0000093 - 0.00002	6	0.000045	1	EB
Endrin	0.0000093 - 0.00002	6	0.000055	1	MB
4,4'-DDD	0.000017 - 0.000018	2	0.00009	1	MB
4,4'-DDT	0.00002 - 0.000024	4	0.000095	1	MB
alpha-Chlordane	0.0000011 - 0.0000028	2	0.0000225	1	MB
Antimony	(-.95) - 0.34	11	0.4	1	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
beta-BHC	0.000018 - 0.00003	5	0.000055	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - (-0.00006)	8	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0006 - 0.0059	13	0.0075 - 0.01	2	MB
Endrin	0.0000019 - 0.000024	14	0.00001 - 0.000085	3	MB
Heptachlor	0.0000042 - 0.000037	4	0.000041	1	MB
Heptachlor epoxide	0.000005 - 0.000065	16	0.0000435 - 0.000085	3	MB
Lead	(-0.02) - (-0.012)	2	0.004	1	MB
Mercury	(-0.000005) - 0.0000028	2	0.00016	1	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.006) - 0.048	2	0.0032 - 0.136	2	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB

Table A-3
Samples Eliminated from the Risk Assessment Based on Blank Data

Analyte	Sample result range	No. of samples	Blank result range *	No. of blanks	Blank type
Pond F					
Endrin	0.0000093 - 0.00002	6	0.000055	1	MB
4,4'-DDD	0.000017 - 0.000018	2	0.00009	1	MB
4,4'-DDT	0.00002 - 0.000024	4	0.000095	1	MB
alpha-Chlordane	0.0000011 - 0.0000028	2	0.0000225	1	MB
Antimony	(-.95) - 0.34	11	0.4	1	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
beta-BHC	0.000018 - 0.00003	5	0.000055	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - (-0.00006)	8	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0006 - 0.0059	13	0.0075 - 0.01	2	MB
Endrin	0.0000019 - 0.000024	14	0.00001 - 0.000085	3	MB
Heptachlor	0.0000042 - 0.000037	4	0.000041	1	MB
Heptachlor epoxide	0.000005 - 0.000065	16	0.0000435 - 0.000085	3	MB
Lead	(-0.02) - (-0.012)	2	0.004	1	MB
Mercury	(-0.000005) - 0.0000028	2	0.00016	1	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.006) - 0.048	2	0.0032 - 0.136	2	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB
Pond G					
4,4'-DDD	0.000017 - 0.000018	2	0.00009	1	MB
Endrin	0.0000052 - 0.0000093	2	0.0000265	1	MB
Heptachlor	0.0000042 - 0.000037	4	0.000041	1	MB
Heptachlor epoxide	0.0000085 - 0.000036	6	0.000048	1	MB
Lake Holloman					
Antimony	(-0.95) - 0.34	13	.09 - 0.4	3	MB
Arsenic	(-0.033) - 0.0024	12	0.0008	1	EB
	(-0.033) - 0.0024	12	0.0036 - 0.0092	2	MB
Beryllium	(-0.00092) - 0.0021	9	0.00345	1	EB
	(-0.00092) - 0.0021	9	0.00064 - 0.00225	2	MB
Cadmium	(-0.0035) - 0.0098	7	0.0156	1	EB
	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.022) - 0.00047	10	0.00385	1	EB
	(-0.022) - 0.00047	10	0.00165 - .056	2	MB
Cobalt	(-0.01) - (-0.00006)	9	0.0176	1	EB
	(-0.01) - (-0.00006)	9	0.00005 - 0.004	2	MB
Copper	(-0.012) - 0.014	15	0.038	1	EB

Table A-3
Samples Eliminated from the Risk Assessment Based on Blank Data

Analyte	Sample result range	No. of samples	Blank result range *	No. of blanks	Blank type
Lake Holloman continued					
Copper	(-0.012) - 0.014	15	0.0292 - 0.0296	2	MB
Cyanide	0.0011 - 0.0077	11	0.0055	1	EB
	0.0011 - 0.0077	11	0.0075 - 0.0115	2	MB
Endrin	0.0000019 - 0.0000083	7	1.00E-05	1	MB
Heptachlor	0.000026	1	0.0009	1	EB
Heptachlor epoxide	0.000005 - 0.000065	8	0.000085	1	MB
Lead	-0.012	1	0.0024	1	MB
Nickel	(-0.048) - 0.012	15	0.084	1	EB
Nickel	(-0.048) - 0.012	15	0.06 - 0.1	2	MB
Selenium	(-0.019) - 0.0062	10	0.0104	1	EB
	(-0.019) - 0.0062	10	0.003 - 0.0072	2	MB
Silver	(-0.015) - (-0.0017)	15	0.0044	1	EB
	(-0.015) - (-0.0017)	15	0.019 - 0.0268	2	MB
Sulfide	(-0.22) - 0.067	10	0.95	1	EB
	(-0.22) - 0.067	10	0.072 - 0.145	2	MB
Thallium	(-0.063) - 0.3	5	0.0024 - 0.55	2	EB
	(-0.063) - 0.3	5	0.0024 - 0.136	3	MB
Tin	(-0.15) - 0.073	15	0.19	1	EB
	(-0.15) - 0.073	15	0.09 - 0.12	2	MB
Vanadium	(-0.0015) - 0.011	4	0.01	1	EB
	(-0.0015) - 0.011	4	0.00284 - 0.048	2	MB
Zinc	(-0.0049) - 0.0054	6	0.0068	1	EB
	(-0.0049) - 0.0054	6	0.0064	1	MB
Lake Stinky					
Antimony	(-.95) - 0.34	11	0.4	1	MB
Arsenic	(-0.033) - 0.0024	11	0.0036	1	MB
Beryllium	(-0.00023) - 0.0021	8	0.00225	1	MB
Cadmium	(-0.0035) - 0.0098	7	0.01	1	MB
Chromium	(-0.013) - 0.00047	9	0.00165	1	MB
Cobalt	(-0.01) - (-0.00006)	8	0.00005	1	MB
Copper	(-0.012) - 0.014	14	0.0296	1	MB
Cyanide	0.0011 - 0.0059	10	0.0075	1	MB
Endrin	0.0000019 - 0.0000083	7	1.00E-05	1	MB
Heptachlor epoxide	0.000005 - 0.000065	8	0.000085	1	MB
Nickel	(-0.048) - 0.012	14	0.1	1	MB
Selenium	(-0.019) - 0.0062	9	0.0072	1	MB
Silver	(-0.011) - (-0.0017)	14	0.019	1	MB
Sulfide	(-0.22) - 0.1	11	0.072 - 0.145	2	MB
Thallium	0.048 - 0.2	2	0.136	1	MB
Tin	(-0.05) - 0.073	14	0.12	1	MB
Vanadium	(-0.0015) - 0.0019	3	0.00284	1	MB
Zinc	(-0.0049) - 0.0054	6	0.0064	1	MB

* - Concentrations deteceted in blanks were multiplied by a factor of 10 for common lab contaminants and a factor of 5 for all other contaminants. The factors incorporated in the results were used to determined the range of contamination in nomal samples.

EB - Equipment blank

MB - Method Blank

indicate the presence of additional organic compounds that are not on the TCL. These spectra are compared to library spectra, and the compounds are tentatively identified based on similarities to the library spectra. These compounds are called tentatively identified compounds (TICs) and the assigned identity of the compound is, in most cases, highly uncertain.

The Contract Laboratory Protocol Scope of Work provides procedures to estimate the concentration of TICs. These estimates, however, are highly uncertain and could be orders of magnitude higher or lower than the actual concentration. When evaluating TIC data, it is important to note that the assigned identity may be incorrect and that the quantitation is likely to be inaccurate. The only TICs identified for this risk assessment were 1,1,2-trichlorotrifluoroethane, 3-methyl pentane, 4-hydroxy-4-methyl-2-pentanone, and cyclohexenone. Because of the concentration levels detected and the uncertain historical relevance, these four chemicals were retained for further assessment. 1,1,2-Trichlorotrifluorethane was eliminated by the risk screen.

1.7 Step 7: Means Comparison

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than in background. Table A-4 presents a summary of the results of these comparisons and a conclusion for each analyte. The conclusion is based on the results of the statistical analyses, but may be qualified by practical considerations in later stages of the risk assessment. (For example, concentrations detected at the site may be statistically greater than background but are still less than health-based criteria.) A brief description of the technical approach is provided in the next paragraph. Additional details may be found in Appendix C.

For this risk assessment, two types of statistical analyses were used to compare results from downgradient wells to upgradient "background" wells and to compare results

Table A-4

Summary of Statistical Comparisons

Area Under Investigation	Analyte
Data Did Not Indicate Difference Between Study Area and Background Concentrations	
Ditch - Soil	None
Pond A/B	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Nickel
	Selenium
	Silver
	Thallium
	Vanadium
	Zinc
Pond D/E/F	Antimony
	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Lake Holloman	Arsenic
	Barium
	Beryllium
	Chromium
	Copper
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Lake Stinky	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver

Table A-4

(Continued)

Area Under Investigation	Analyte
Lake Stinky (Cont'd)	Thallium
	Tin
	Vanadium
	Zinc
Statistical Comparisons Inconclusive	
Ditch	Arsenic by SW7060
	Barium
	Chromium
	Copper
	Lead by SW7421
	Nickel
	Selenium by SW7740
	Vanadium
	Zinc
Pond A/B	Antimony
	Mercury
	Tin
Pond D/E/F	Cadmium
Lake Holloman	Antimony
	Cobalt
	Lead
Data Indicated Statistical Difference Between Study Area and Background Concentrations	
Ditch	Antimony
	Beryllium
	Cadmium
	Cobalt
	Mercury
	Silver
	Thallium
	Tin
Pond A/B	Cadmium
Lake Holloman	Cadmium

from soil samples collected in the ditch to background soils. Tests of central tendency (e.g., means comparisons) were used to determine if, on the average, concentrations of metals in the source areas were greater than background concentrations. Additionally, individual source area results were compared to upper tolerance limits for background. [See Appendix B-1 of the *Phase 1 Groundwater Assessment Monitoring Report* (Radian, 1993) for information regarding background characterization and summary statistics useful for comparisons.] Comparisons of individuals were used to determine if individual sample results indicate the presence of hot-spots. The conclusions of these comparisons were confirmed or qualified by graphical analysis of the results.

1.8 Steps 8 and 9: Data Set Used in the Risk Assessment

USEPA guidance (USEPA, 1989a) stipulates that the list of chemicals of potential concern include chemicals that were:

1. Positively detected in at least one sample in a given medium, including: a) chemicals with no qualifiers attached (excluding samples with unusually high RLs) and, b) chemicals with qualifiers attached that indicate known identities but unknown concentrations (e.g., J-qualified data);

2. Detected at levels significantly above levels of the same chemicals detected in associated blank samples; and

3. Detected at levels significantly above naturally occurring background levels of the same chemicals (inorganic only).

Figure A-1 outlines the steps recommended by USEPA for developing a data set for use in risk assessment. Appendix B presents analytical data summary tables and all analytical data used in this risk assessment.

USEPA's preference is to include all chemicals that meet the three criteria described above. However, further procedures for reducing the number of chemicals

Table A-4

Summary of Statistical Comparisons

Area Under Investigation	Analyte
Data Did Not Indicate Difference Between Study Area and Background Concentrations	
Soil	
Ditch	None
Statistical Comparisons Inconclusive	
Ditch	Arsenic by SW7060
	Barium
	Chromium
	Copper
	Lead by SW7421
	Nickel
	Selenium by SW7740
	Vanadium
	Zinc
Groundwater	
Pond A/B	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Nickel
	Selenium
	Silver
	Thallium
	Vanadium
	Zinc
Pond D/E/F	Antimony
	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Lake Holloman	Arsenic
	Barium
	Beryllium
	Chromium
	Copper
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc

Table A-4

(Continued)

Area Under Investigation	Analyte
Lake Stinky	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Statistical Comparisons Inconclusive	
Pond A/B	Antimony
	Mercury
	Tin
Pond D/E/F	Cadmium
Lake Holloman	Antimony
	Cobalt
	Lead
Data Indicated Statistical Difference Between Study Area and Background Concentrations	
Ditch	Antimony
	Beryllium
	Cadmium
	Cobalt
	Mercury
	Silver
	Thallium
	Tin
Pond A/B	Cadmium
Lake Holloman	Cadmium

from soil samples collected in the ditch to background soils. For soils, statistical comparisons to background levels were not conducted for subsurface soil samples collected from beneath the lagoons and lakes. Difficulty in adequately differentiating and separating the sludge soil matrix beneath these impoundments prevented this comparison. Concentrations in groundwater downgradient from Pond G also were not compared to background, as the concentrations used in the risk assessment were modeled to a hypothetical off-site location. Tests of central tendency (e.g., means comparisons) were used to determine if, on the average, concentrations of metals in the source areas were greater than background concentrations. Additionally, individual source area results were compared to upper tolerance limits for background. [See Appendix B-1 of the *Phase 1 Groundwater Assessment Monitoring Report* (Radian, 1993) for information regarding background characterization and summary statistics useful for comparisons.] Comparisons of individuals were used to determine if individual sample results indicate the presence of hot-spots. The conclusions of these comparisons were confirmed or qualified by graphical analysis of the results.

1.8 Steps 8 and 9: Data Set Used in the Risk Assessment

USEPA guidance (USEPA, 1989a) stipulates that the list of chemicals of potential concern include chemicals that were:

1. Positively detected in at least one sample in a given medium, including: a) chemicals with no qualifiers attached (excluding samples with unusually high RLs) and, b) chemicals with qualifiers attached that indicate known identities but unknown concentrations (e.g., J-qualified data);

2. Detected at levels significantly above levels of the same chemicals detected in associated blank samples; and

3. Detected at levels significantly above naturally occurring background levels of the same chemicals (inorganic only).

Figure A-1 outlines the steps recommended by USEPA for developing a data set for use in risk assessment. Appendix B presents analytical data summary tables and all analytical data used in this risk assessment.

USEPA's preference is to include all chemicals that meet the three criteria described above. However, further procedures for reducing the number of chemicals included in the quantitative risk assessment are permissible under USEPA risk assessment guidelines (USEPA, 1989a). For this risk assessment, a large number of analytes met the criteria specified by USEPA. Carrying a large number of chemicals through the quantitative risk assessment would unnecessarily complicate the assessment and could distract from the dominant risks associated with the lakes and lagoons. Therefore, the number of chemicals of concern were further reduced by eliminating essential nutrients and performing a risk-based screen. This approach allowed identification of the chemicals most likely to contribute significantly to risks associated with the sites and focused the risk assessment on the "risk drivers." Section 2.0 of this appendix discusses the risk-based screening methodology.

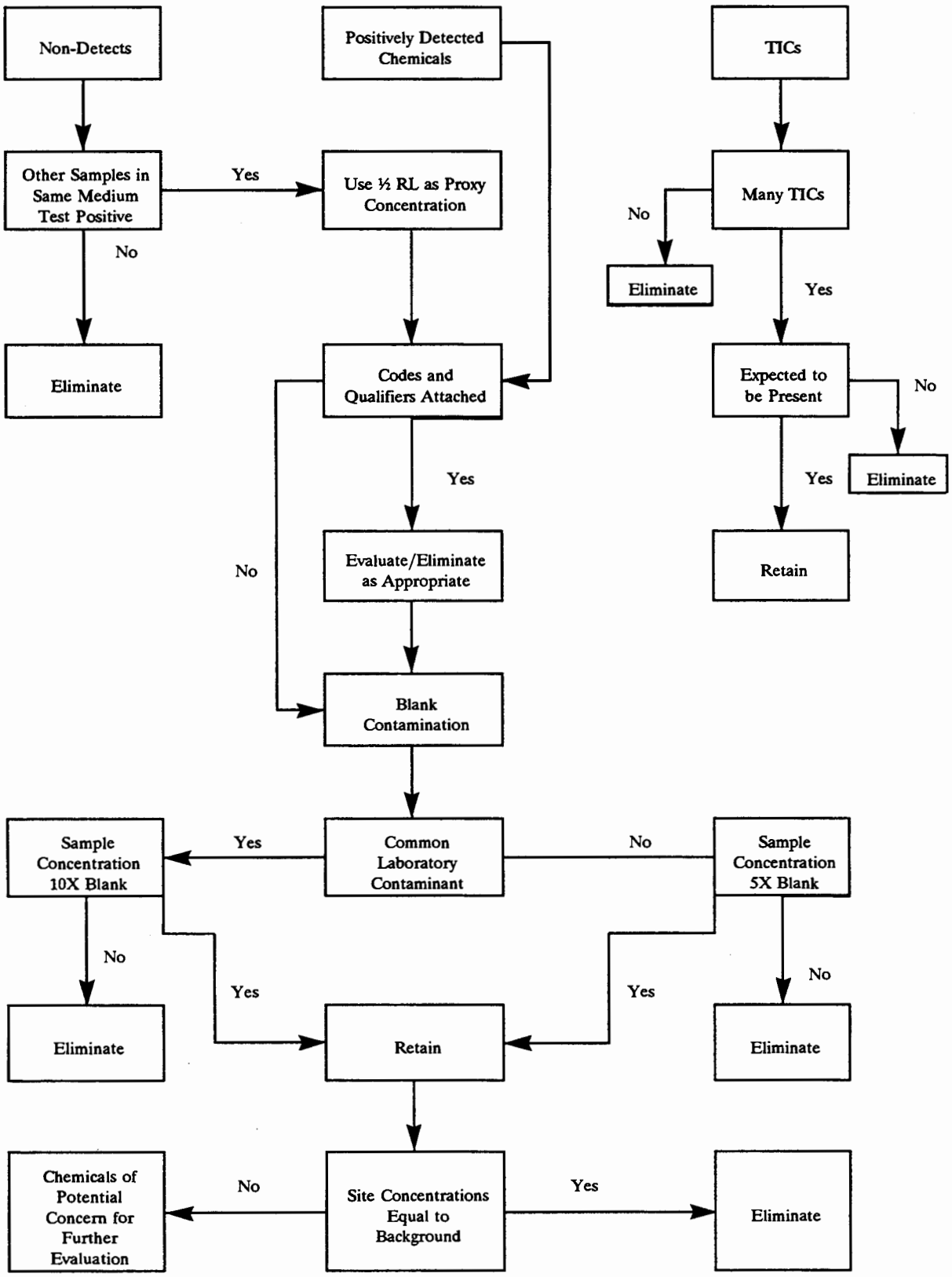

Figure A-1. Data Evaluation

2.0 RISK-BASED SCREEN

The risk-based screen used in this risk assessment followed new guidance outlined in USEPA's Region III Technical Guidance Manual for Risk Assessment, *Selecting Exposure Routes and Contaminants of Concern by Risk-Based Screening* (USEPA, 1993). This new methodology uses an absolute comparison of risk rather than the relative concentration toxicity screen outlined in the *Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A)* to select contaminants. Figure A-2 outlines the risk-based screening methodology. The new guidance provides risk-based concentrations for 600 contaminants in air, drinking water, fish, and soil which correspond to a systematic lifetime cancer risk of 1×10^{6} (1×10^{7} for soil) or noncarcinogenic hazard quotient of 0.1. The values are based on exposure algorithms developed by USEPA (1991) and the best available reference doses and carcinogenic slope factors. Algorithms used in the risk based screen address exposures from ingestion and inhalation of contaminants during residential water use, and dermal contact with contaminants during commercial and industrial activities.

For this risk assessment, the algorithms and exposure factors in the Region III guidance were incorporated into a spreadsheet model which calculated risk-based water and sludge concentrations using an allowable cancer risk of 10^{6}. Risk-based soil concentrations were calculated using an allowable cancer risk of 10^{7} to account for potential volatilization or fugitive emission to air. For noncarcinogens, the model calculated a risk-based concentration using a hazard quotient of 0.1. Subsequently, the Region III screening process was applied.

The steps used in the Region III screening process that were incorporated in the spreadsheet model are outlined below:

- Maximum detected concentrations for each contaminant were identified and compared to the risk-based concentrations for each medium.

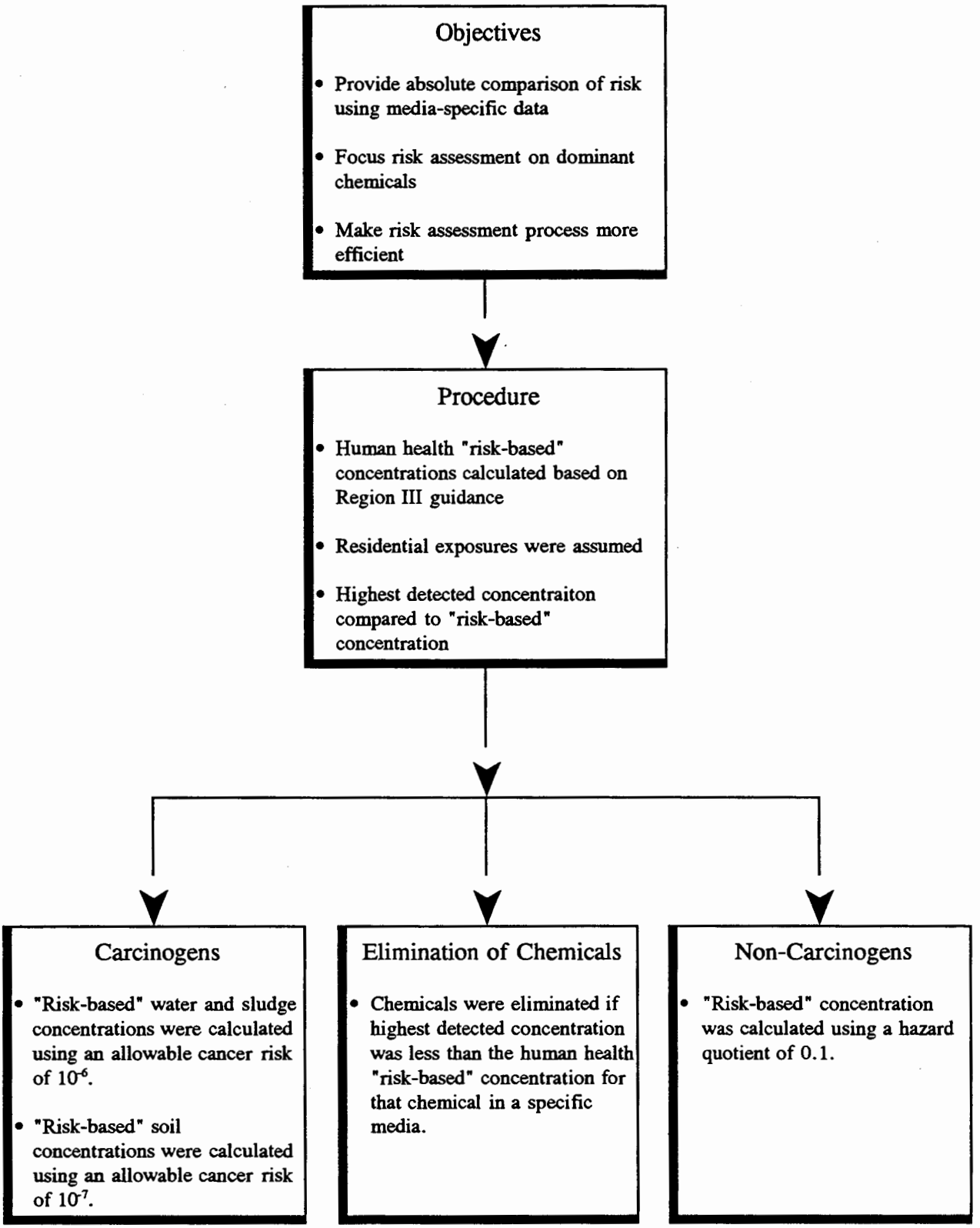

Figure A-2. Risk-Based Screen

- In cases where the maximum concentration exceeded the risk-based concentration, the contaminant was retained for inclusion in all exposure routes involving that medium. Otherwise the contaminant was eliminated from that medium.

- If a given contaminant did not exceed the risk-based concentration for any medium, then the contaminant was eliminated from the assessment.

All contaminants and/or media eliminated by this process were kept on a separate list to be considered for re-inclusion in the assessment. Reasons for re-inclusion included: historical information, exceptional toxicity, mobility, persistence, special exposure routes, or treatability problems. No pesticides were eliminated by this process based on historical use at the site. Table A-4 lists all analytes eliminated from the quantitative risk assessment based on screening results. Tables A-5 through A-9 present the results of the risk-based screen for all analytes screened on a site-by-site basis and for each medium sampled.

Data Limitations/Data Gaps

Limitations of analytical methods in detecting chemicals below the instrument detection limit, use of estimated values below the RL, and use of values that were close to the RL limit the data used in this risk assessment. Use of estimated values tends to overestimate actual concentrations and the use of values close to the RL could either over- or underestimate contaminant concentrations. Data with associated codes and qualifiers can further affect estimations of contaminant concentrations. The use of potentially biased results as indicated in Table A-1 could cause an over- or underestimation of contaminants detected at the sites.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond A								
1,2,4-Trichlorobenzene	D	YES	0.01	N/A	1.8	14	78.21	N/A
2-Methylnaphthalene		NO	N/A	N/A	13	14	N/A	N/A
4,4'-DDE	B2	YES	N/A	0.34	0.63	1	N/A	5.01
4-Chloroaniline		YES	0.004	N/A	5.5	15	31.29	N/A
Acenaphthene		YES	0.06	N/A	0.89	6	469.29	N/A
Acetone	D	YES	0.1	N/A	2.8	9	782.14	N/A
Anthracene	D	YES	0.3	N/A	7.4	14	2346.43	N/A
Antimony	D	NO	0.0004	N/A	5.7	1	3.13	N/A
Arsenic	A	NO	0.0003	N/A	18	10	2.35	N/A
Barium		YES	0.07	N/A	64	1	547.50	N/A
Benzo(a)anthracene	B2	NO	N/A	1.06	6.9	14	N/A	1.61
Benzo(a)pyrene	B2	NO	N/A	7.3	6.1	15	N/A	0.233
Benzo(b)fluoranthene	B2	NO	N/A	1.02	9.6	15	N/A	1.67
Benzo(g,h,i)perylene	D	NO	N/A	N/A	2.2	8	N/A	N/A
Benzo(k)fluoranthene	B2	NO	N/A	0.482	6.5	15	N/A	3.53
Benzoic acid	D	YES	4	N/A	3.8	1	31285.71	N/A
Beryllium	B2	NO	0.005	4.3	1.3	10	39.11	0.396
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	76	15	156.43	121.67
Cadmium	B1	NO	0.001	N/A	14	10	7.82	N/A
Chromium		YES	1	N/A	125	10	7821.43	N/A
Chrysene	B2	YES	N/A	0.0321	8	14	N/A	53.06
Cobalt	D	NO	N/A	N/A	5.2	5	N/A	N/A
Copper	D	YES	1.3	N/A	660	10	10167.86	N/A
Cyanide		YES	0.04	N/A	180	5	312.86	N/A
Di-n-octylphthalate		YES	0.02	N/A	2.3	14	156.43	N/A
Dibutylphthalate	D	YES	0.1	N/A	15	14	782.14	N/A
Diethylphthalate	D	NO	0.8	N/A	0.12	1	6257.14	N/A
Endosulfan I	D	NO	0.00005	N/A	0.53	1	0.391	N/A
Endosulfan II	D	NO	0.00005	N/A	1.1	1	0.391	N/A

* - This a was retained in the risk assessment due to regulatory directive.
N/A - Tl ated regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond A continued								
Endosulfan sulfate		NO	N/A	N/A	0.42	1	N/A	N/A
Fluoranthene	D	YES	0.04	N/A	8.4	15	312.86	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.11	5	2.35	1.31
gamma-Chlordane		NO	N/A	N/A	0.49	1	N/A	N/A
Heptachlor	B2	YES *	0.0005	4.5	0.23	1	3.91	0.379
Heptachlor epoxide	B2	NO	0.000013	9.1	180	1	0.102	0.187
Indeno(1,2,3-cd)pyrene	B/2	NO	N/A	1.69	2.2	13	N/A	1.01
Lead	B2	NO	N/A	N/A	180	10	N/A	N/A
Mercury	D	NO	0.0003	N/A	5.1	10	2.35	N/A
Nickel	A	YES	0.02	N/A	23	10	156.43	N/A
OCDD		YES *	0.000001	150	0.00076	1	0.008	0.011
PCB-1254	B2	NO	N/A	7.7	19.5	30	N/A	0.221
PCB-1260	B2	NO	N/A	7.7	5.4	30	N/A	0.221
Phenanthrene	D	NO	N/A	N/A	7.9	14	N/A	N/A
Selenium	D	YES	0.005	N/A	2	10	39.11	N/A
Silver	D	NO	0.005	N/A	235	10	39.11	N/A
Tin		YES	0.6	N/A	3.9	1	4692.86	N/A
Vanadium		YES	0.007	N/A	13	1	54.75	N/A
Zinc	D	YES	0.3	N/A	910	10	2346.43	N/A
Pond B								
2-Methylnaphthalene		NO	N/A	N/A	8.8	12	N/A	N/A
4-Chloroaniline		YES	0.004	N/A	4.3	12	31.29	N/A
Acetone	D	YES	0.1	N/A	4.5	11	782.14	N/A
Arsenic	A	NO	0.0003	N/A	15	6	2.35	N/A
Benzo(a)anthracene	B2	YES	N/A	1.06	1.6	3	N/A	1.61
Benzo(a)pyrene	B2	NO	N/A	7.3		12	N/A	0.233
Benzo(b)fluoranthene	B2	NO	N/A	1.02	3.5	12	N/A	1.67

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond B continued								
Benzo(k)fluoranthene	B2	YES	N/A	0.482	1.4	12	N/A	3.53
Beryllium	B2	NO	0.005	4.3	1.35	6	39.11	0.396
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	76	12	156.43	121.67
Cadmium	B1	NO	0.001	N/A	22	6	7.82	N/A
Chromium		YES	1	N/A	290	6	7821.43	N/A
Chrysene	B2	YES	N/A	0.0321	1.9	12	N/A	53.06
Copper	D	YES	1.3	N/A	1200	6	10167.86	N/A
Cyanide		YES	0.04	N/A	6.75	6	312.86	N/A
Di-n-octylphthalate		YES	0.02	N/A	3	12	156.43	N/A
Dibutylphthalate	D	YES	0.1	N/A	26	12	782.14	N/A
Fluoranthene	D	YES	0.04	N/A	3.8	12	312.86	N/A
Isophorone	C	YES *	0.2	0.00095	4.5	12	1564.29	1792.98
Lead	B2	NO	N/A	N/A	320	6	N/A	N/A
Mercury	D	NO	0.0003	N/A	6.35	6	2.35	N/A
Nickel	A	YES	0.02	N/A	32.5	6	156.43	N/A
PCB-1254	B2	NO	N/A	7.7	16	31	N/A	0.221
PCB-1260	B2	NO	N/A	7.7	3	28	N/A	0.221
Phenanthrene	D	NO	N/A	N/A	3	12	N/A	N/A
Pyrene	D	YES	0.03	N/A	2.2	12	234.64	N/A
Selenium	D	YES	0.005	N/A	2	6	39.11	N/A
Silver	D	NO	0.005	N/A	470	6	39.11	N/A
Zinc	D	YES	0.3	N/A	1300	6	2346.43	N/A
Pond C								
2,4,5-T		YES *	0.01	N/A	0.3	12	78.21	N/A
2-Methylnaphthalene		NO	N/A	N/A	14	12	N/A	N/A
4,4'-DDD	B2	NO	N/A	0.24	16	12	N/A	7.10
4,4'-DDE	B2	NO	N/A	0.34	8.1	12	N/A	5.01
4,4'-DDT	B2	YES *	0.0005	0.34	0.36	6	3.91	5.01

* - This an[illegible] was retauined in the risk assessment due to regulatory directive.
N/A - Th[illegible]ted regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond C continued								
Acetone	D	YES	0.1	N/A	2.3	12	782.14	N/A
Acetophenone	D	YES	0.1	N/A	12	6	782.14	N/A
alpha-Chlordane		NO	N/A	N/A	0.12	6	N/A	N/A
Aluminum		NO	N/A	N/A	13000	6	N/A	N/A
Arsenic	A	NO	0.0003	N/A	3.5	12	2.35	N/A
Barium		YES	0.07	N/A	130	12	547.50	N/A
Benzene	A	YES	N/A	0.029	0.06	6	N/A	58.74
Beryllium	B2	NO	0.005	4.3	0.46	7	39.11	0.396
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	36	12	156.43	121.67
Cadmium	B1	YES	0.001	N/A	6	6	7.82	N/A
Carbon disulfide	D	YES	0.1	N/A	0.11	12	782.14	N/A
Chromium		YES	1	N/A	120	12	7821.43	N/A
Cobalt	D	NO	N/A	N/A	10	12	N/A	N/A
Copper	D	YES	1.3	N/A	260	12	10167.86	N/A
Cyanide		NO	0.04	N/A	330	6	312.86	N/A
delta-BHC	D	NO	N/A	N/A	5	6	N/A	N/A
Dibenzofuran	D	NO	N/A	N/A	0.31	5	N/A	N/A
Dibutylphthalate	D	YES	0.1	N/A	9	12	782.14	N/A
Endosulfan I	D	NO	0.00005	N/A	4.4	9	0.391	N/A
Ethyl benzene	D	YES	0.1	N/A	0.043	6	782.14	N/A
Fluoranthene	D	YES	0.04	N/A	9	6	312.86	N/A
gamma-Chlordane		NO	N/A	N/A	0.21	6	N/A	N/A
Kepone (Mirex)		NO	N/A	1.8	95.7	8	N/A	0.946
Lead	B2	NO	N/A	N/A	64	12	N/A	N/A
Manganese	D	YES	0.14	N/A	210	6	1095.00	N/A
Mercury	D	YES	0.0003	N/A	1.6	6	2.35	N/A
Methyl ethyl ketone	D	YES	0.6	N/A	0.31	12	4692.86	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.0073	7	469.29	227.11
Nickel	A	YES	0.02	N/A	15	12	156.43	N/A
Phenanthrene	D	NO	N/A	N/A	11	12	N/A	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond C continued								
Phenol	D	YES	0.6	N/A	0.15	5	4692.86	N/A
Pyrene	D	YES	0.03	N/A	9	12	234.64	N/A
Selenium	D	YES	0.005	N/A	6.3	12	39.11	N/A
Silicon		NO	N/A	N/A	8200	6	N/A	N/A
Silver	D	NO	0.005	N/A	320	12	39.11	N/A
Sulfide		NO	N/A	N/A	2800	6	N/A	N/A
Tetrachloroethene	B2/C	YES	0.01	N/A	0.06	6	78.21	N/A
Toluene	D	YES	0.2	N/A	0.015	6	1564.29	N/A
Vanadium		NO	0.007	N/A	55	12	54.75	N/A
Xylenes	D	YES	2	N/A	0.13	12	15642.86	N/A
Zinc	D	YES	0.3	N/A	330	12	2346.43	N/A
Pond E								
4,4'-DDD	B2	YES	N/A	0.24	4.085	5	N/A	7.10
4,4'-DDE	B2	YES	N/A	0.34	1.205	5	N/A	5.01
4,4'-DDT	B2	YES *	0.0005	0.34	0.13	5	3.91	5.01
Antimony	D	NO	0.0004	N/A	6.6	1	3.13	N/A
Arsenic	A	NO	0.0003	N/A	2.7	6	2.35	N/A
Barium		YES	0.07	N/A	110	6	547.50	N/A
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	12	6	156.43	121.67
Cadmium	B1	YES	0.001	N/A	2.9	6	7.82	N/A
Chromium		YES	1	N/A	28	6	7821.43	N/A
Copper	D	YES	1.3	N/A	75	6	10167.86	N/A
Dibutylphthalate	D	YES	0.1	N/A	3.25	5	782.14	N/A
Diethylphthalate	D	NO	0.8	N/A	0.12	1	6257.14	N/A
gamma-Chlordane		NO	N/A	N/A	0.54	6	N/A	N/A
Heptachlor	B2	YES *	0.0005	4.5	0.59	1	3.91	0.379
Heptachlor epoxide		NO	0.000013	9.1	78	1	0.102	0.187

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ated regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond E continued								
Lead	B2	NO	N/A	N/A	21	6	N/A	N/A
Mercury	D	YES	0.0003	N/A	0.44	5	2.35	N/A
Molecular sulfur		YES			62	1	0.00E+00	FALSE
Molecular sulfur		YES			53	1	0.00E+00	FALSE
Naphthalene	D	YES	0.04	N/A	0.89	7	312.86	N/A
Nickel	A	YES	0.02	N/A	12	6	156.43	N/A
Phenanthrene	D	NO	N/A	N/A	2.95	5	N/A	N/A
Phenol	D	YES	0.6	N/A	1	12	4692.86	N/A
Pyrene	D	YES	0.03	N/A	7.7	15	234.64	N/A
Selenium	D	YES	0.005	N/A	2.7	6	39.11	N/A
Silver	D	YES	0.005	N/A	39	6	39.11	N/A
Sulfide		NO	N/A	N/A	850	5	N/A	N/A
Tin		YES	0.6	N/A	0.27	1	4692.86	N/A
Toluene	D	YES	0.2	N/A	0.66	5	1564.29	N/A
Vanadium		YES	0.007	N/A	34	6	54.75	N/A
Xylenes	D	YES	2	N/A	0.59	5	15642.86	N/A
Zinc	D	YES	0.3	N/A	86	6	2346.43	N/A
Pond F								
4,4'-DDD	B2	NO	N/A	0.24	11	2	N/A	7.10
4,4'-DDE	B2	YES *	N/A	0.34	1.9	2	N/A	5.01
4,4'-DDT	B2	YES *	0.0005	0.34	0.16	2	3.91	5.01
Acetone	D	YES	0.1	N/A	1.4	2	782.14	N/A
alpha-Chlordane		NO	N/A	N/A	0.25	2	N/A	N/A
Arsenic	A	NO	0.0003	N/A	4	2	2.35	N/A
Barium		YES	0.07	N/A	59	2	547.50	N/A
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	5.4	2	156.43	121.67
Carbon disulfide	D	YES	0.1	N/A	0.038	2	782.14	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond F continued								
Chromium		YES	1	N/A	33	2	7821.43	N/A
Copper	D	YES	1.3	N/A	75	2	10167.86	N/A
delta-BHC	D	NO	N/A	N/A	5	2	N/A	N/A
Dibenzofuran	D	NO	N/A	N/A	3.9	2	N/A	N/A
Ethyl benzene	D	YES	0.1	N/A	0.033	2	782.14	N/A
Fluorene	D	YES	0.04	N/A	5.2	2	312.86	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.076	2	2.35	1.31
gamma-Chlordane		NO	N/A	N/A	0.064	2	N/A	N/A
Heptachlor	B2	YES *	0.0005	4.5	0.053	2	3.91	0.379
Lead	B2	NO	N/A	N/A	17	2	N/A	N/A
Mercury	D	YES	0.0003	N/A	0.43	2	2.35	N/A
Methyl ethyl ketone	D	YES	0.6	N/A	0.22	2	4692.86	N/A
Nickel	A	YES	0.02	N/A	13	2	156.43	N/A
Phenanthrene	D	NO	N/A	N/A	4.6	2	N/A	N/A
Selenium	D	YES	0.005	N/A	2.5	2	39.11	N/A
Silver	D	NO	0.005	N/A	59	2	39.11	N/A
Sulfide		NO	N/A	N/A	1800	2	N/A	N/A
Toluene	D	YES	0.2	N/A	0.01	2	1564.29	N/A
Vanadium		YES	0.007	N/A	36	2	54.75	N/A
Xylenes	D	YES	2	N/A	0.038	2	15642.86	N/A
Zinc	D	YES	0.3	N/A	98	2	2346.43	N/A
Pond G								
4,4'-DDD	B2	YES *	N/A	0.24	3.1	6	N/A	7.10
4,4'-DDE	B2	YES *	N/A	0.34	0.45	6	N/A	5.01
4,4'-DDT	B2	YES *	0.0005	0.34	0.14	6	3.91	5.01
Acetone	D	YES	0.1	N/A	10.5	6	782.14	N/A
Acetophenone	D	YES	0.1	N/A	6.9	6	782.14	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ted regulatory health effects value was not available for this chemical.

Table A-5
Risk Based Screen for Sludge at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond G continued								
alpha-BHC	B2	YES *	N/A	6.3	0.079	6	N/A	0.27
alpha-Chlordane		NO	N/A	N/A	0.11	6	N/A	N/A
Arsenic	A	NO	0.0003	N/A	3.3	6	2.35	N/A
Barium		YES	0.07	N/A	120	6	547.50	N/A
Beryllium	B2	NO	0.005	4.3	0.9	6	39.11	0.396
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	3.9	6	156.43	121.67
Carbon disulfide	D	YES	0.1	N/A	0.7	6	782.14	N/A
Chromium		YES	1	N/A	18	6	7821.43	N/A
Cobalt	D	NO	N/A	N/A	6.2	6	N/A	N/A
Copper	D	YES	1.3	N/A	24	6	10167.86	N/A
Cyanide		YES	0.04	N/A	5.6	6	312.86	N/A
gamma-Chlordane		NO	N/A	N/A	0.31	6	N/A	N/A
Kepone (Mirex)		YES *	N/A	1.8	0.0525	6	N/A	0.946
Lead	B2	NO	N/A	N/A	280.5	6	N/A	N/A
Mercury	D	YES	0.0003	N/A	0.32	6	2.35	N/A
Nickel	A	YES	0.02	N/A	12	6	156.43	N/A
Selenium	D	YES	0.005	N/A	1.95	6	39.11	N/A
Sulfide		NO	N/A	N/A	2000	6	N/A	N/A
Vanadium		YES	0.007	N/A	30	6	54.75	N/A
Zinc	D	YES	0.3	N/A	66	6	2346.43	N/A
Lake Holloman								
4,4'-DDD	B2	YES *	N/A	0.24	0.6	7	N/A	7.10
4,4'-DDE	B2	YES *	N/A	0.34	0.045	7	N/A	5.01
4,4'-DDT	B2	YES *	0.0005	0.34	0.016	7	3.91	5.01
Acetone	D	YES	0.1	N/A	12	7	782.14	N/A
alpha-BHC	B2	YES *	N/A	6.3	0.008	7	N/A	0.27
alpha-Chlordane		NO	N/A	N/A	0.059	7	N/A	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond A								
1,1,2-Trichloroethane	C	YES	0.004	0.057	0.003	2	31.29	2.99
Acetone	D	YES	0.1	N/A	0.077	7	782.14	N/A
Aluminum		NO	N/A	N/A	130000	7	N/A	N/A
Arsenic	A	NO	0.0003	N/A	5.4	7	2.35	N/A
Barium		YES	0.07	N/A	120	7	547.50	N/A
Beryllium	B2	NO	0.005	4.3	0.77	7	39.11	0.04
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	0.39	7	156.43	12.17
Chromium		YES	1	N/A	11	7	7821.43	N/A
Cobalt	D	NO	N/A	N/A	4.6	7	N/A	N/A
Copper	D	YES	1.3	N/A	10	7	10167.86	N/A
Lead	B2	NO	N/A	N/A	39	7	N/A	N/A
Manganese	D	YES	0.14	N/A	240	7	1095.00	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.014	7	469.29	22.71
Nickel	A	YES	0.02	N/A	8.2	7	156.43	N/A
Selenium	D	YES	0.005	N/A	1.3	7	39.11	N/A
Silicon		NO	N/A	N/A	410	7	N/A	N/A
Thallium		NO	0.00008	N/A	94	7	0.626	N/A
Vanadium		YES	0.007	N/A	20	7	54.75	N/A
Zinc	D	YES	0.3	N/A	44	7	2346.43	N/A
Pond B								
Acetone	D	YES	0.1	N/A	0.039	6	782.14	N/A
Aluminum		NO	N/A	N/A	18000	6	N/A	N/A
Arsenic	A	NO	0.0003	N/A	6.6	6	2.35	N/A
Barium		YES	0.07	N/A	86	6	547.50	N/A
Beryllium	B2	NO	0.005	4.3	0.78	6	39.11	0.04
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	0.17	1	156.43	12.17

* - This ar[illegible] was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ted regulatory health effects value was not available for this chemical.

Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond B continued								
Carbon disulfide	D	YES	0.1	N/A	0.0043	6	782.14	N/A
Chromium		YES	1	N/A	16	6	7821.43	N/A
Cobalt	D	NO	N/A	N/A	5.7	6	N/A	N/A
Copper	D	YES	1.3	N/A	9.1	6	10167.86	N/A
Dibutylphthalate	D	YES	0.1	N/A	0.17	6	782.14	N/A
Endosulfan I	D	YES *	0.00005	N/A	0.00194	6	0.391	N/A
Lead	B2	NO	N/A	N/A	7.4	6	N/A	N/A
Manganese	D	YES	0.14	N/A	250	6	1095.00	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.0029	3	469.29	22.71
Nickel	A	YES	0.02	N/A	10	6	156.43	N/A
Silicon		NO	N/A	N/A	6000	6	N/A	N/A
Vanadium		YES	0.007	N/A	37	6	54.75	N/A
Zinc	D	YES	0.3	N/A	40	6	2346.43	N/A
Pond C								
4,4'-DDD	B2	YES *	N/A	0.24	0.18	14	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.24	14	N/A	0.501
4,4'-DDT	B2	YES *	0.0005	0.34	0.042	8	3.91	0.501
Acetone	D	YES	0.1	N/A	0.43	14	782.14	N/A
Aldrin	B2	YES *	0.00003	17	0.021	8	0.235	0.01
Aluminum		NO	N/A	N/A	11000	6	N/A	N/A
Arsenic	A	NO	0.0003	N/A	2.6	14	2.35	N/A
Barium		YES	0.07	N/A	160	14	547.50	N/A
Beryllium	B2	NO	0.005	4.3	0.44	13	39.11	0.04
beta-BHC	C	YES *	N/A	1.8	0.063	8	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	7.9	14	156.43	12.17
Carbon disulfide	D	YES	0.1	N/A	0.03975	14	782.14	N/A
Chromium		YES	1	N/A	15	14	7821.43	N/A
Cobalt	D	NO	N/A	N/A	3.9	14	N/A	N/A
Copper	D	YES	1.3	N/A	18	14	10167.86	N/A

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Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond C continued								
Cyanide		YES	0.04	N/A	1.2	8	312.86	N/A
delta-BHC	D	NO	N/A	N/A	0.021	8	N/A	N/A
Di-n-octylphthalate		YES	0.02	N/A	11	8	156.43	N/A
Dibutylphthalate	D	YES	0.1	N/A	0.26	6	782.14	N/A
Dichloroprop		NO	N/A	N/A	0.153	6	N/A	N/A
Endosulfan I	D	NO	0.00005	N/A	0.44	14	0.391	N/A
Endosulfan sulfate		NO	N/A	N/A	0.014	8	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	0.042	8	N/A	N/A
Ethyl benzene	D	YES	0.1	N/A	0.053	8	782.14	N/A
Heptachlor epoxide	B2	YES *	0.000013	9.1	0.021	8	0.102	0.019
Lead	B2	NO	N/A	N/A	5.3	10	N/A	N/A
Manganese	D	YES	0.14	N/A	150	6	1095.00	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.03975	14	469.29	22.71
Molybdenum		YES	0.005	N/A	12	6	39.11	N/A
Nickel	A	YES	0.02	N/A	8.3	14	156.43	N/A
Phenanthrene	D	NO	N/A	N/A	0.37	6	N/A	N/A
Pyrene	D	YES	0.03	N/A	0.12	6	234.64	N/A
Silicon		NO	N/A	N/A	4000	6	N/A	N/A
Sulfide		NO	N/A	N/A	130	8	N/A	N/A
Toluene	D	YES	0.2	N/A	0.0068	8	1564.29	N/A
Vanadium		YES	0.007	N/A	30	14	54.75	N/A
Zinc	D	YES	0.3	N/A	210	14	2346.43	N/A
Pond D								
2-Hexanone		NO	N/A	N/A	0.004	1	N/A	N/A
3-Methyl pentane		NO	N/A	N/A	0.02	1	N/A	N/A
4,4'-DDD	B2	YES *	N/A	0.24	0.24	9	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.035	9	N/A	0.501

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Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond D continued								
4,4'-DDT	B2	YES *	0.0005	0.34	0.052	9	3.91	0.501
4-Hydroxy-4-methyl-2-pentanone		NO	N/A	N/A	13	1	N/A	N/A
Acetone	D	YES	0.1	N/A	0.1125	9	782.14	N/A
alpha-Chlordane		NO	N/A	N/A	0.013	9	N/A	N/A
Arsenic	A	NO	0.0003	N/A	2.8	9	2.35	N/A
Barium		YES	0.07	N/A	82	10	547.50	N/A
beta-BHC	C	YES *	N/A	1.8	0.026	9	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	1.1333333	9	156.43	12.17
Chromium		YES	1	N/A	11.7	10	7821.43	N/A
Cobalt	D	NO	N/A	N/A	4.2	9	N/A	N/A
Cyanide		YES	0.04	N/A	2.78	9	312.86	N/A
delta-BHC	D	NO	N/A	N/A	0.017	9	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	0.064	10	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.013	9	2.35	0.131
Heptachlor	B2	YES *	0.0005	4.5	0.013	9	3.91	0.038
Lead	B2	NO	N/A	N/A	5	9	N/A	N/A
Nickel	A	YES	0.02	N/A	12.5	9	156.43	N/A
Selenium	D	YES	0.005	N/A	0.59	9	39.11	N/A
Sulfide		NO	N/A	N/A	82	9	N/A	N/A
Vanadium		YES	0.007	N/A	24	10	54.75	N/A
Zinc	D	YES	0.3	N/A	27	10	2346.43	N/A
Pond E								
1,1,2-Trichlorotrifluoroethane		YES	30	N/A	0.017	1	234642.86	N/A
4,4'-DDD	B2	YES *	N/A	0.24	0.0815	9	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.00705	9	N/A	0.501
4,4'-DDT	B2	YES *	0.0005	0.34	0.004	9	3.91	0.501
Acetone	D	YES	0.1	N/A	0.105	9	782.14	N/A
Aldrin	B2	YES *	0.00003	17	0.0024	9	0.235	0.01

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Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond E continued								
alpha-BHC	B2	YES *	N/A	6.3	0.0019	9	N/A	0.027
alpha-Chlordane		NO	N/A	N/A	0.0014	9	N/A	N/A
Arsenic	A	NO	0.0003	N/A	2.65	9	2.35	N/A
Barium		YES	0.07	N/A	130	9	547.50	N/A
beta-BHC	C	YES *	N/A	1.8	0.0194	9	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	5.4	9	156.43	12.17
Carbon disulfide	D	YES	0.1	N/A	0.018	9	782.14	N/A
Chromium		YES	1	N/A	8.45	9	7821.43	N/A
Cobalt	D	NO	N/A	N/A	7	9	N/A	N/A
Cyanide		YES	0.04	N/A	2.9	9	312.86	N/A
delta-BHC	D	NO	N/A	N/A	0.011	9	N/A	N/A
Endosulfan II	D	YES *	0.00005	N/A	0.0042	9	0.391	N/A
Endosulfan sulfate		NO	N/A	N/A	0.0072	9	N/A	N/A
gamma-Chlordane		NO	N/A	N/A	0.00565	9	N/A	N/A
Heptachlor	B2	YES *	0.0005	4.5	0.0021	9	3.91	0.038
Lead	B2	NO	N/A	N/A	4.2	9	N/A	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.0054	9	469.29	22.71
Selenium	D	YES	0.005	N/A	1	9	39.11	N/A
Sulfide		NO	N/A	N/A	90	9	N/A	N/A
Toluene	D	YES	0.2	N/A	0.0072	9	1564.29	N/A
Vanadium		YES	0.007	N/A	19	9	54.75	N/A
Zinc	D	YES	0.3	N/A	22	9	2346.43	N/A
Pond F								
4,4'-DDD	B2	YES *	N/A	0.24	0.037	1	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.015	1	N/A	0.501
4,4'-DDT	B2	YES *	0.0005	0.34	0.0058	1	3.91	0.501

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Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond F continued								
Arsenic	A	YES	0.0003	N/A	0.96	1	2.35	N/A
Barium		YES	0.07	N/A	28	1	547.50	N/A
delta-BHC	D	NO	N/A	N/A	0.0027	1	N/A	N/A
gamma-Chlordane		NO	N/A	N/A	0.00045	1	N/A	N/A
Lead	B2	NO	N/A	N/A	0.5	1	N/A	N/A
Sulfide		NO	N/A	N/A	60	1	N/A	N/A
Toluene	D	YES	0.2	N/A	0.00094	1	1564.29	N/A
Pond G								
4,4'-DDD	B2	YES *	N/A	0.24	0.0075	8	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.0031	8	N/A	0.501
Acetone	D	YES	0.1	N/A	0.14	8	782.14	N/A
alpha-BHC	B2	YES *	N/A	6.3	0.0033	8	N/A	0.027
Arsenic	A	NO	0.0003	N/A	3.1	8	2.35	N/A
Barium		YES	0.07	N/A	180	8	547.50	N/A
beta-BHC	C	YES *	N/A	1.8	0.011	8	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	3.6	8	156.43	12.17
Butylbenzylphthalate	C	YES	0.2	N/A	1.6	8	1564.29	N/A
Carbon disulfide	D	YES	0.1	N/A	0.015	8	782.14	N/A
Chromium		YES	1	N/A	16	8	7821.43	N/A
Cobalt	D	NO	N/A	N/A	4.6	8	N/A	N/A
Copper	D	YES	1.3	N/A	9.8	8	10167.86	N/A
Cyanide		YES	0.04	N/A	0.61	8	312.86	N/A
Cyclohexenone		YES	5	N/A	1.2	1	39107.14	N/A
Di-n-octylphthalate		YES	0.02	N/A	1.6	8	156.43	N/A
Endosulfan sulfate		NO	N/A	N/A	0.0021	8	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.0031	8	2.35	0.131
Heptachlor	B2	YES *	0.0005	4.5	0.0033	8	3.91	0.038

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Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Pond G continued								
Isodrin		NO	N/A	N/A	0.0047	8	N/A	N/A
Lead	B2	NO	N/A	N/A	120	8	N/A	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.0355	8	469.29	22.71
Nickel	A	YES	0.02	N/A	9.7	8	156.43	N/A
Sulfide		NO	N/A	N/A	100	8	N/A	N/A
Toluene	D	YES	0.2	N/A	0.0075	8	1564.29	N/A
Vanadium		YES	0.007	N/A	29	8	54.75	N/A
Zinc	D	YES	0.3	N/A	44	8	2346.43	N/A
Ditch								
4,4'-DDD	B2	YES *	N/A	0.24	0.35	11	N/A	0.71
4,4'-DDE	B2	YES *	N/A	0.34	0.081	11	N/A	0.501
4,4'-DDT	B2	YES *	0.0005	0.34	0.18	11	3.91	0.501
Acetone	D	YES	0.1	N/A	0.12	10	782.14	N/A
Aldrin	B2	YES *	0.00003	17	0.0018	10	0.235	0.01
alpha-BHC	B2	YES *	N/A	6.3	0.0018	10	N/A	0.027
alpha-Chlordane		NO	N/A	N/A	0.042	11	N/A	N/A
Antimony	D	NO	0.0004	N/A	96	1	3.13	N/A
Arsenic	A	NO	0.0003	N/A	14	11	2.35	N/A
Barium		YES	0.07	N/A	120	11	547.50	N/A
Benzo(b)fluoranthene	B2	NO	N/A	1.02	1.6	11	N/A	0.167
Benzo(k)fluoranthene	B2	NO	N/A	0.482	1.6	11	N/A	0.353
Beryllium	B2	NO	0.005	4.3	0.98	11	39.11	0.04
beta-BHC	C	YES *	N/A	1.8	0.0058	10	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	4	11	156.43	12.17
Cadmium	B1	YES	0.001	N/A	0.88	1	7.82	N/A
Carbon disulfide	D	YES	0.1	N/A	0.072	10	782.14	N/A
Chromium		YES	1	N/A	19	11	7821.43	N/A

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Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Ditch continued								
Chrysene	B2	YES	N/A	0.0321	1.6	10	N/A	5.31
Cobalt	D	NO	N/A	N/A	7.3	11	N/A	N/A
Copper	D	YES	1.3	N/A	17	11	10167.86	N/A
Cyanide		YES	0.04	N/A	16	10	312.86	N/A
Cyclohexenone		YES	5	N/A	1.2	2	39107.14	N/A
delta-BHC	D	NO	N/A	N/A	0.88	10	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	0.0037	10	N/A	N/A
Fluoranthene	D	YES	0.04	N/A	0.071	1	312.86	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.0071	10	2.35	0.131
gamma-Chlordane		NO	N/A	N/A	0.062	11	N/A	N/A
Heptachlor epoxide	B2	NO	0.000013	9.1	12	1	0.102	0.019
Isodrin		NO	N/A	N/A	0.055	10	N/A	N/A
Lead	B2	NO	N/A	N/A	120	11	N/A	N/A
Mercury	D	YES	0.0003	N/A	0.54	10	2.35	N/A
Methyl ethyl ketone	D	YES	0.6	N/A	0.16	10	4692.86	N/A
Nickel	A	YES	0.02	N/A	19	11	156.43	N/A
Pyrene	D	YES	0.03	N/A	0.061	1	234.64	N/A
Selenium	D	YES	0.005	N/A	7.1	1	39.11	N/A
Silver	D	YES	0.005	N/A	0.59	1	39.11	N/A
Sulfide		NO	N/A	N/A	390	10	N/A	N/A
Thallium		YES	0.00008	N/A	0.22	1	0.626	N/A
Tin		YES	0.6	N/A	1.4	1	4692.86	N/A
Toluene	D	YES	0.2	N/A	0.0092	10	1564.29	N/A
Vanadium		YES	0.007	N/A	32	11	54.75	N/A
Zinc	D	YES	0.3	N/A	71	11	2346.43	N/A

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Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Lake Holloman								
4,4'-DDE	B2	YES *	N/A	0.34	0.016	9	N/A	0.501
Acetone	D	YES	0.1	N/A	0.17	9	782.14	N/A
alpha-BHC	B2	YES *	N/A	6.3	0.016	9	N/A	0.027
Arsenic	A	NO	0.0003	N/A	4	9	2.35	N/A
Barium		YES	0.07	N/A	110	9	547.50	N/A
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	1.125	9	156.43	12.17
Carbon disulfide	D	YES	0.1	N/A	0.016	9	782.14	N/A
Chromium		YES	1	N/A	8.3	9	7821.43	N/A
Cobalt	D	NO	N/A	N/A	5.7	9	N/A	N/A
Cyanide		YES	0.04	N/A	11	9	312.86	N/A
delta-BHC	D	NO	N/A	N/A	4.2	9	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	0.032	9	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.025	9	2.35	0.131
Heptachlor	B2	YES *	0.0005	4.5	0.016	9	3.91	0.038
Isodrin		NO	N/A	N/A	0.042	9	N/A	N/A
Lead	B2	NO	N/A	N/A	3.8	9	N/A	N/A
Mercury	D	YES	0.0003	N/A	0.53	9	2.35	N/A
Methyl ethyl ketone	D	YES	0.6	N/A	0.16	9	4692.86	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.033	9	469.29	22.71
Selenium	D	YES	0.005	N/A	1.2	9	39.11	N/A
Sulfide		NO	N/A	N/A	360	9	N/A	N/A
Toluene	D	YES	0.2	N/A	0.0076	9	1564.29	N/A
Vanadium		YES	0.007	N/A	19	9	54.75	N/A
Zinc	D	YES	0.3	N/A	29	9	2346.43	N/A

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Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Lake Stinky								
2,4,5-T		YES *	0.01	N/A	0.034	8	78.21	N/A
Acetone	D	YES	0.1	N/A	2.55	8	782.14	N/A
Aldrin	B2	YES *	0.00003	17	0.021	8	0.235	0.01
alpha-BHC	B2	YES *	N/A	6.3	0.016	8	N/A	0.027
Arsenic	A	NO	0.0003	N/A	4.7	8	2.35	N/A
Barium		YES	0.07	N/A	95	8	547.50	N/A
Beryllium	B2	NO	0.005	4.3	0.735	8	39.11	0.04
beta-BHC	C	YES *	N/A	1.8	0.016	8	N/A	0.095
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	0.014	3.9	8	156.43	12.17
Cadmium	B1	YES	0.001	N/A	2.4	7	7.82	N/A
Carbon disulfide	D	YES	0.1	N/A	0.1275	8	782.14	N/A
Chromium		YES	1	N/A	11	8	7821.43	N/A
Cobalt	D	NO	N/A	N/A	4.9	8	N/A	N/A
Cyanide		YES	0.04	N/A	11	6	312.86	N/A
Cyclohexenone		YES	5	N/A	1	1	39107.14	N/A
delta-BHC	D	NO	N/A	N/A	3.4	8	N/A	N/A
Endrin	D	YES *	0.0003	N/A	0.016	7	2.35	N/A
Endrin aldehyde		NO	N/A	N/A	0.033	8	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	1.3	0.035	8	2.35	0.131
Heptachlor epoxide	B2	NO	0.000013	9.1	6.3	8	0.102	0.019
Isodrin		NO	N/A	N/A	0.016	8	N/A	N/A
Lead	B2	NO	N/A	N/A	6.1	8	N/A	N/A
Methyl ethyl ketone	D	YES	0.6	N/A	3.4	8	4692.86	N/A
Methylene chloride	B2	YES	0.06	0.0075	0.1275	8	469.29	22.71
Nickel	A	YES	0.02	N/A	7.35	7	156.43	N/A
Parathion	C	YES *	0.006	N/A	0.24	8	46.93	N/A
Selenium	D	YES	0.005	N/A	0.6	7	39.11	N/A
Sulfide		NO	N/A	N/A	540	7	N/A	N/A
Toluene	D	YES	0.2	N/A	0.17	8	1564.29	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-6
Risk Based Screen for Soils at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Max. Detect. mg/kg	Frequency of Detect.	Region III Risk Based Screening	
							Non-Carc. mg/kg	Carc. mg/kg
Lake Stinky continued								
Trichloroethene	B2/C	NO	N/A	N/A	0.17	8	N/A	N/A
Vanadium		YES	0.007	N/A	20	8	54.75	N/A
Xylenes	D	YES	2	N/A	0.17	8	15642.86	N/A
Zinc	D	YES	0.3	N/A	40	8	2346.43	N/A

* - This a[illegible]te was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ated regulatory health effects value was not available for this chemical.

Table A-7
Risk Based Screen for Groundwater at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Ponds A/B												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.019	16	N/A	0.355
4,4'-DDE	B2	YES *	N/A	N/A	N/A	0.34	N/A	N/A	0.026	16	N/A	0.25
4,4'-DDT	B2	NO	0.0005	N/A	N/A	0.34	0.000097	0.34	0.0495	15	N/A	0.042
Aldrin	B2	NO	0.00003	N/A	N/A	17	0.0049	17	0.018	16	N/A	8.35E-04
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.06	16	N/A	0.002
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.041	10	N/A	N/A
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.0395	15	N/A	0.008
bis(2-Ethylhexyl)phthalat	B2	YES	0.02	N/A	N/A	0.014	N/A	N/A	1.5	1	N/A	6.08
Cyanide		NO	0.04	N/A	N/A	N/A	N/A	N/A	9.7	2	N/A	N/A
Cyclohexene		NO	N/A	N/A	N/A	N/A	N/A	N/A	12	3	N/A	N/A
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.048	16	N/A	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.036	16	N/A	8.87E-04
Endosulfan I	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.0295	16	N/A	N/A
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.0435	16	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.039	16	N/A	N/A
Endrin	D	YES *	0.0003	N/A	N/A	N/A	N/A	N/A	0.056	13	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0085	7	N/A	N/A
gamma-BHC	B2/C	NO	0.0003	N/A	N/A	1.3	N/A	N/A	0.084	16	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	2.7	12	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.019	13	N/A	0.003
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.01	10	N/A	0.002
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.068	13	N/A	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.02	4	1.08	N/A
Methoxychlor	D	YES *	0.005	N/A	N/A	N/A	N/A	N/A	0.0046	1	N/A	N/A
Pond C												
4,4'-DDE	B2	YES *	N/A	N/A	N/A	0.34	N/A	N/A	0.016	3	N/A	0.25
4,4'-DDT	B2	YES *	0.0005	N/A	N/A	0.34	0.000097	0.34	0.014	3	N/A	0.042
Aldrin	B2	NO	0.00003	N/A	N/A	17	0.0049	17	0.015	3	N/A	8.35E-04
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0083	1	N/A	N/A
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.03	3	N/A	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.

Table A-7
Risk Based Screen for Groundwater at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Pond G												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.047	5	N/A	0.355
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.1	6	N/A	0.002
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.016	6	N/A	8.87E-04
Endosulfan I	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.024	6	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.038	6	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.04	6	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.059	6	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.072	4	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.008	6	N/A	0.003
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.043	4	N/A	0.002
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.015	4	N/A	N/A
Methoxychlor	D	YES *	0.005	N/A	N/A	N/A	N/A	N/A	0.016	1	N/A	N/A
Lake Holloman												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.022	3	N/A	0.355
4,4'-DDE	B2	YES *	N/A	N/A	N/A	0.34	N/A	N/A	0.015	3	N/A	0.25
Aldrin	B2	NO	0.00003	N/A	N/A	17	0.0049	17	0.014	3	N/A	8.35E-04
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.051	3	N/A	0.002
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0084	3	N/A	N/A
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.027	3	N/A	0.008
bis(2-Ethylhexyl)phthalat	B2	YES	0.02	N/A	N/A	0.014	N/A	N/A	2.3	2	N/A	6.08
Cadmium	B1	NO	0.0005	N/A	N/A	N/A	0.0018	6.1	14	2	N/A	0.003
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.049	2	N/A	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.029	3	N/A	8.87E-04
Endosulfan I	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.03	3	N/A	N/A
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.013	1	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.016	2	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.02	2	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.014	3	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.036	2	N/A	0.003

* - This an[illegible] was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ed regulatory health effects value was not available for this chemical.
NV - All inorganics except mercury and lead (organic) were considered non-volatile.

Table A-7
Risk Based Screen for Groundwater at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Pond C continued												
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.017	3	N/A	8.87E-04
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.017	3	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.018	3	N/A	N/A
Endrin	D	YES *	0.0003	N/A	N/A	N/A	N/A	N/A	0.018	3	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0044	2	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.016	3	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.74	2	N/A	N/A
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0051	2	N/A	N/A
Ponds D/E/F												
4,4'-DDT	B2	NO	0.0005	N/A	N/A	0.34	0.000097	0.34	0.24	12	N/A	0.042
Aldrin	B2	NO	0.00003	N/A	N/A	17	0.0049	17	0.097	13	N/A	8.35E-04
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.0535	13	N/A	0.002
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.015	10	N/A	N/A
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.017	11	N/A	0.008
bis(2-Ethylhexyl)phthalat	B2	YES	0.02	N/A	N/A	0.014	N/A	N/A	2.4	1	N/A	6.08
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.035	13	N/A	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.25	13	N/A	8.87E-04
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.067	13	N/A	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.036	13	N/A	N/A
Endrin	D	YES *	0.0003	N/A	N/A	N/A	N/A	N/A	0.28	9	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.077	13	N/A	N/A
gamma-BHC	B2/C	NO	0.0003	N/A	N/A	1.3	N/A	N/A	0.15	13	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.16	11	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.082	12	N/A	0.003
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.011	9	N/A	0.002
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.054	11	N/A	N/A
Methoxychlor	D	YES *	0.005	N/A	N/A	N/A	N/A	N/A	0.21	13	N/A	N/A

* - This analyte was retained in the risk assessment due to regulatory directive.
N/A - The indicated regulatory health effects value was not available for this chemical.
NV - All inorganics except mercury and lead (organic) were considered non-volatile.

Table A-7
Risk Based Screen for Groundwater at Holloman Lakes and Lagoons

Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Lake Holloman continued												
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.018	3	N/A	N/A
Kepone (Mirex)		NO	N/A	N/A	N/A	1.8	N/A	N/A	0.75	3	N/A	0.047
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.02	3	1.08	N/A
Lake Stinky												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.014	2	N/A	0.355
4,4'-DDE	B2	YES *	N/A	N/A	N/A	0.34	N/A	N/A	0.015	2	N/A	0.25
4,4'-DDT	B2	YES *	0.0005	N/A	N/A	0.34	0.000097	0.34	0.0096	2	N/A	0.042
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.023	2	N/A	0.002
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.012	2	N/A	0.008
bis(2-Ethylhexyl)phthalat	B2	YES	0.02	N/A	N/A	0.014	N/A	N/A	5	2	N/A	6.08
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.014	2	N/A	8.87E-04
Endosulfan I	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.0079	2	N/A	N/A
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.0019	1	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.012	2	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.016	2	N/A	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0038	1	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.036	1	N/A	0.003
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.01	2	N/A	N/A
Kepone (Mirex)		NO	N/A	N/A	N/A	1.8	N/A	N/A	0.99	2	N/A	0.047

* - This ar[illegible] was retained in the risk assessment due to regulatory directive.
N/A - Th[illegible]ed regulatory health effects value was not available for this chemical.
NV - All inorganics except mercury and lead (organic) were considered non-volatile.

Table A-8
Risk Based Screen for Surface Water at Holloman Lakes and Lagoons

* Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Pond A												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.028	1	N/A	0.355
4,4'-DDT	B2	YES *	0.0005	N/A	0.002	0.34	0.000097	0.34	0.02	1	0.751	0.042
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.037	1	N/A	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.015	1	1.83	8.87E-04
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.013	1	N/A	N/A
Heptachlor	B2	NO	0.0005	N/A	N/A	4.5	0.0013	4.5	0.012	1	18.25	0.003
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.01	1	0.475	0.002
Pond B												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.043	1	N/A	0.355
4,4'-DDE	B2	NO	N/A	N/A	N/A	0.34	N/A	N/A	0.4	3	N/A	0.25
4,4'-DDT	B2	YES *	0.0005	N/A	0.002	0.34	0.000097	0.34	0.018	1	0.751	0.042
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.04	2	N/A	0.002
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0034	1	N/A	N/A
Aluminum		NO	N/A	N/A	N/A	N/A	N/A	N/A	110	8	N/A	N/A
Antimony	D	NO	0.0004	N/A	N/A	N/A	N/A	N/A	78	8	14.60	N/A
Arsenic	A	NO	0.0003	N/A	N/A	N/A	0.00429	50	3.8	8	10.95	3.41E-04
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	40	8	2555.00	N/A
Benzoic acid	D	YES	4	N/A	N/A	N/A	N/A	N/A	5	1	146000.00	N/A
bis(2-Ethylhexyl)phthalate	B2	NO	0.02	N/A	N/A	0.014	N/A	N/A	15	8	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	740	8	3285.00	N/A
Chlordane	B2	NO	0.00006	N/A	N/A	1.3	0.00037	1.0582E-07	0.2	4	2.19	0.066
Chromium		YES	1	N/A	N/A	N/A	N/A	N/A	4.6	8	36500.00	N/A
Chromium VI	A	NO	0.005	N/A	N/A	N/A	0.012	41	0.4	3	182.50	4.15E-04
Copper	D	YES	1.3	N/A	N/A	N/A	N/A	N/A	7.5	8	47450.00	N/A
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.017	1	N/A	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.022	1	1.83	8.87E-04
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.012	1	N/A	N/A

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Table A-8
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Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Pond B continued												
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.01	4	10.95	0.066
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.01	1	0.475	0.002
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	7.4	8	N/A	N/A
Lead (organic)		NO	0.0000001	1.5	0.429	N/A	N/A	N/A	130	8	3.65E-04	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	92	8	182.50	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.62	8	1.08	N/A
Selenium	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	3.8	8	182.50	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	17000	8	N/A	N/A
Silver	D	NO	0.005	N/A	0.018	N/A	N/A	N/A	26	2	7.51	N/A
Vanadium		NO	0.007	N/A	0.025	N/A	N/A	N/A	11	8	10.52	N/A
Zinc	D	YES	0.3	N/A	1.05	N/A	N/A	N/A	33	8	450.88	N/A
Pond C												
Aluminum		NO	N/A	N/A	N/A	N/A	N/A	N/A	53	5	N/A	N/A
Arsenic	A	NO	0.0003	N/A	N/A	N/A	0.00429	50	4.1	5	10.95	3.41E-04
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	38	5	2555.00	N/A
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.03	1	N/A	0.008
bis(2-Ethylhexyl)phthalate	B2	YES	0.02	N/A	N/A	0.014	N/A	N/A	4	2	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	300	5	3285.00	N/A
Chromium VI	A	NO	0.005	N/A	N/A	N/A	0.012	41	14	5	182.50	4.15E-04
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	7.3	5	N/A	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	77	5	182.50	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	16000	5	N/A	N/A
Vanadium		YES	0.007	N/A	0.025	N/A	N/A	N/A	7.8	5	10.52	N/A
Zinc	D	YES	0.3	N/A	1.05	N/A	N/A	N/A	13	5	450.88	N/A

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											Non-Carc. ug/L	Carc. ug/L
Pond D												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.03	1	N/A	0.355
Arsenic	A	NO	0.0003	N/A	N/A	N/A	0.00429	50	6.2	6	10.95	3.41E-04
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	39	6	2555.00	N/A
Benzoic acid	D	YES	4	N/A	N/A	N/A	N/A	N/A	28	5	146000.00	N/A
bis(2-Ethylhexyl)phthalate	B2	NO	0.02	N/A	N/A	0.014	N/A	N/A	20	6	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	300	6	3285.00	N/A
Butylbenzylphthalate	C	YES	0.2	N/A	N/A	N/A	N/A	N/A	4	1	7300.00	N/A
delta-BHC	D	NO	N/A	N/A	N/A	N/A	N/A	N/A	0.021	1	N/A	N/A
Dibutylphthalate	D	YES	0.1	N/A	N/A	N/A	N/A	N/A	4	1	3650.00	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.015	1	1.83	8.87E-04
Diethylphthalate	D	YES	0.8	N/A	N/A	N/A	N/A	N/A	2	1	29200.00	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.013	1	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.01	1	10.95	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0058	1	N/A	N/A
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.01	1	0.475	0.002
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	5.4	6	N/A	N/A
Lead (organic)		NO	0.0000001	1.5	0.429	N/A	N/A	N/A	120	6	3.65E-04	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	74	6	182.50	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.74	6	1.08	N/A
Methoxychlor	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	0.02	1	182.50	N/A
Phenol	D	YES	0.6	N/A	N/A	N/A	N/A	N/A	7	5	21900.00	N/A
Selenium	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	3	6	182.50	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	17000	6	N/A	N/A
Vanadium		YES	0.007	N/A	0.025	N/A	N/A	N/A	6.3	6	10.52	N/A
Zinc	D	YES	0.3	N/A	1.05	N/A	N/A	N/A	8.1	6	450.88	N/A

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Chemical	Weight of Evidence	Meets Elimination Criteria	Oral RfD mg/kg-d	Inhalation RfC ug/m3	Inhalation RfD mg/kg-d	Oral SF (mg/kg-d)^-1	Inhalation Unit Risk 1/(ug/l)	Inhalation SF (mg/kg-d)^-1	Max. Detect. ug/L	Frequency of Detect.	Region III Risk Based Screening	
											Non-Carc. ug/L	Carc. ug/L
Pond E												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.026	1	N/A	0.355
4,4'-DDE	B2	NO	N/A	N/A	N/A	0.34	N/A	N/A	0.4	4	N/A	0.25
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	37	6	2555.00	N/A
Benzoic acid	D	YES	4	N/A	N/A	N/A	N/A	N/A	10	1	146000.00	N/A
bis(2-Ethylhexyl)phthalate	B2	NO	0.02	N/A	N/A	0.014	N/A	N/A	15	6	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	330	6	3285.00	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.0145	1	1.83	8.87E-04
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.0145	1	10.95	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0052	1	N/A	N/A
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.01	1	0.475	0.002
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	4.8	6	N/A	N/A
Lead (organic)		NO	0.0000001	1.5	0.429	N/A	N/A	N/A	100	6	3.65E-04	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	39	6	182.50	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.62	6	1.08	N/A
Selenium	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	5.5	6	182.50	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	15000	6	N/A	N/A
Pond F												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.035	1	N/A	0.355
4,4'-DDE	B2	YES *	N/A	N/A	N/A	0.34	N/A	N/A	0.12	1	N/A	0.25
alpha-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.03	1	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.012	1	10.95	0.066
gamma-Chlordane		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.01	1	N/A	N/A

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											Non-Carc. ug/L	Carc. ug/L
Pond G												
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.2	2	N/A	0.002
Arsenic	A	NO	0.0003	N/A	N/A	N/A	0.00429	50	7.2	5	10.95	3.41E-04
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	40	5	2555.00	N/A
beta-BHC	C	NO	N/A	N/A	N/A	1.8	0.00053	1.8	0.6	2	N/A	0.008
bis(2-Ethylhexyl)phthalate	B2	NO	0.02	N/A	N/A	0.014	N/A	N/A	10	5	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	360	5	3285.00	N/A
Endosulfan II	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.0009	1	1.83	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.0099	1	10.95	0.066
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	3.2	5	N/A	N/A
Lead (organic)		NO	0.0000001	1.5	0.429	N/A	N/A	N/A	310	5	3.65E-04	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	72	5	182.50	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.22	5	1.08	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	16000	5	N/A	N/A
Vanadium		YES	0.007	N/A	0.025	N/A	N/A	N/A	4.7	5	10.52	N/A
Zinc	D	YES	0.3	N/A	1.05	N/A	N/A	N/A	14	5	450.88	N/A
Ditch												
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.0078	1	N/A	0.002
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.011	1	1.83	8.87E-04
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0061	1	N/A	N/A
Lake Holloman												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.0042	1	N/A	0.355
4,4'-DDT	B2	YES *	0.0005	N/A	0.002	0.34	0.000097	0.34	0.016	3	0.751	0.042
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.0094	3	N/A	0.002

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											Non-Carc. ug/L	Carc. ug/L
Lake Holloman continued												
Arsenic	A	NO	0.0003	N/A	N/A	N/A	0.00429	50	8.8	5	10.95	3.41E-04
Barium		YES	0.07	0.0005	NV	N/A	N/A	N/A	42	5	2555.00	N/A
bis(2-Ethylhexyl)phthalate	B2	NO	0.02	N/A	N/A	0.014	N/A	N/A	69	5	730.00	6.08
Boron		YES	0.09	20	NV	N/A	N/A	N/A	360	5	3285.00	N/A
Butylbenzylphthalate	C	YES	0.2	N/A	N/A	N/A	N/A	N/A	42	5	7300.00	N/A
Dibutylphthalate	D	YES	0.1	N/A	N/A	N/A	N/A	N/A	20	5	3650.00	N/A
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.011	3	1.83	8.87E-04
Diethylphthalate	D	YES	0.8	N/A	N/A	N/A	N/A	N/A	14	5	29200.00	N/A
Endosulfan sulfate		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0007	1	N/A	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.0045	1	N/A	N/A
Endrin ketone		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.03	1	N/A	N/A
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.0099	3	10.95	0.066
Lead	B2	NO	N/A	N/A	N/A	N/A	N/A	N/A	4.3	5	N/A	N/A
Lead (organic)		NO	0.0000001	1.5	0.429	N/A	N/A	N/A	350	5	3.65E-04	N/A
Manganese	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	60	5	182.50	N/A
Mercury	D	YES	0.0003	0.3	0.086	N/A	N/A	N/A	0.33	5	1.08	N/A
Methoxychlor	D	YES	0.005	N/A	N/A	N/A	N/A	N/A	50	8	182.50	N/A
Silicon		NO	N/A	N/A	N/A	N/A	N/A	N/A	15000	5	N/A	N/A
Vanadium		YES	0.007	N/A	0.025	N/A	N/A	N/A	4.3	5	10.52	N/A
Zinc	D	YES	0.3	N/A	1.05	N/A	N/A	N/A	29	5	450.88	N/A
Lake Stinky												
4,4'-DDD	B2	YES *	N/A	N/A	N/A	0.24	N/A	N/A	0.043	2	N/A	0.355
Aldrin	B2	NO	0.00003	N/A	1.05E-04	17	0.0049	17	0.025	2	0.045	8.35E-04
alpha-BHC	B2	NO	N/A	N/A	N/A	6.3	0.0018	6.3	0.1	2	N/A	0.002
Dieldrin	B2	NO	0.00005	N/A	N/A	16	0.0046	16	0.011	1	1.83	8.87E-04
Endosulfan I	D	YES *	0.00005	N/A	N/A	N/A	N/A	N/A	0.064	2	1.83	N/A
Endrin aldehyde		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.049	2	N/A	N/A

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											Non-Carc. ug/L	Carc. ug/L
Lake Stinky continued												
gamma-BHC	B2/C	YES *	0.0003	N/A	N/A	1.3	N/A	N/A	0.0098	1	10.95	0.066
Heptachlor epoxide	B2	NO	0.000013	N/A	N/A	9.1	0.0026	9.1	0.018	2	0.475	0.002
Isodrin		NO	N/A	N/A	N/A	N/A	N/A	N/A	0.054	2	N/A	N/A

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APPENDIX B

ANALYTICAL RESULTS USED IN THE RISK ASSESSMENT

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
4,4'-DDD	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDD	SO	Ditch	DT-05	SW8080	>	0.0025	0.0014	mg/kg	C@	2	4
4,4'-DDD	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDD	SO	Ditch	DT-02	SW8080	>	0.0057	0.0013	mg/kg	C@	0	2
4,4'-DDD	SO	Ditch	DT-01	SW8080	>	0.0027	0.0015	mg/kg	C@	0	2
4,4'-DDD	SO	Ditch	DT-04	SW8080	<	0.0013	0.0014	mg/kg	JX	2	4
4,4'-DDD	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDD	SO	Ditch	DT-05	SW8080	>	0.23	0.055	mg/kg	@	0	0.5
4,4'-DDD	SO	Ditch	DT-05	SW8080	>	0.35	0.0018	mg/kg	C	0	2
4,4'-DDD	SO	Ditch	DT-04	SW8080	>	0.016	0.0016	mg/kg	C	0	2
4,4'-DDE	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Ditch	DT-02	SW8080	>	0.0021	0.0013	mg/kg	C@	0	2
4,4'-DDE	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
4,4'-DDE	SO	Ditch	DT-05	SW8080	>	0.047	0.018	mg/kg	CD@	0	2
4,4'-DDE	SO	Ditch	DT-05	SW8080	<	0.0013	0.0014	mg/kg	JC	2	4
4,4'-DDE	SO	Ditch	DT-03	SW8080	>	0.0014	0.0013	mg/kg	C@	0	2
4,4'-DDE	SO	Ditch	DT-04	SW8080	<	0.0013	0.0014	mg/kg	JC	2	4
4,4'-DDE	SO	Ditch	DT-04	SW8080	>	0.0037	0.0016	mg/kg	C@	0	2
4,4'-DDE	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Ditch	DT-01	SW8080	>	0.0026	0.0015	mg/kg	C@	0	2
4,4'-DDE	SO	Ditch	DT-05	SW8080	>	0.081	0.055	mg/kg	@	0	0.5
4,4'-DDT	SO	Ditch	DT-05	SW8080	>	0.18	0.11	mg/kg	@	0	0.5
4,4'-DDT	SO	Ditch	DT-04	SW8080	<	0.0028	0.0028	mg/kg		2	4
4,4'-DDT	SO	Ditch	DT-04	SW8080	<	0.0031	0.0031	mg/kg		0	2
4,4'-DDT	SO	Ditch	DT-03	SW8080	<	0.0029	0.0029	mg/kg		2	4
4,4'-DDT	SO	Ditch	DT-03	SW8080	<	0.0017	0.0025	mg/kg	CJ	0	2
4,4'-DDT	SO	Ditch	DT-02	SW8080	<	0.0027	0.0027	mg/kg		2	4
4,4'-DDT	SO	Ditch	DT-02	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Ditch	DT-01	SW8080	<	0.0031	0.0031	mg/kg		2	4
4,4'-DDT	SO	Ditch	DT-05	SW8080	>	0.011	0.0037	mg/kg	C@	0	2
4,4'-DDT	SO	Ditch	DT-05	SW8080	<	0.0027	0.0027	mg/kg		2	4
4,4'-DDT	SO	Ditch	DT-01	SW8080	>	0.0031	0.0029	mg/kg	C@	0	2
Acetone	SO	Ditch	DT-03	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Ditch	DT-02	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Ditch	DT-04	SW8240	ND	0.12	0.16	mg/kg		0	2
Acetone	SO	Ditch	DT-01	SW8240	ND	0.1125	0.15	mg/kg		2	4
Acetone	SO	Ditch	DT-01	SW8240	ND	0.1125	0.15	mg/kg		0	2
Acetone	SO	Ditch	DT-05	SW8240	<	0.11	0.18	mg/kg	J	0	2
Acetone	SO	Ditch	DT-02	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Ditch	DT-05	SW8240	<	0.044	0.14	mg/kg	J	2	4
Acetone	SO	Ditch	DT-04	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Ditch	DT-03	SW8240	<	0.045	0.15	mg/kg	J	2	4
Aldrin	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Ditch	DT-02	SW8080	<	0.00076	0.0013	mg/kg	JX	0	2
Aldrin	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
Aldrin	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Aldrin	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Ditch	DT-01	SW8080	<	0.0012	0.0015	mg/kg	JC	0	2
Aldrin	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Ditch	DT-04	SW8080	<	0.0016	0.0016	mg/kg		0	2
Aldrin	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Ditch	DT-05	SW8080	<	0.0018	0.0018	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-BHC	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Ditch	DT-05	SW8080	<	0.0018	0.0018	mg/kg		0	2
alpha-BHC	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Ditch	DT-04	SW8080	<	0.0016	0.0016	mg/kg		0	2
alpha-BHC	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Ditch	DT-02	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-BHC	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
alpha-BHC	SO	Ditch	DT-03	SW8080	<	0.0012	0.0014	mg/kg	JC	2	4
alpha-BHC	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-BHC	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
alpha-Chlordane	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
alpha-Chlordane	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Ditch	DT-02	SW8080	<	0.00032	0.0013	mg/kg	JX	0	2
alpha-Chlordane	SO	Ditch	DT-01	SW8080	<	0.00028	0.0015	mg/kg	JX	0	2
alpha-Chlordane	SO	Ditch	DT-05	SW8080	<	0.042	0.055	mg/kg	J	0	0.5
alpha-Chlordane	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Ditch	DT-05	SW8080	<	0.00075	0.018	mg/kg	JXD	0	2
alpha-Chlordane	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Ditch	DT-04	SW8080	<	0.0016	0.0016	mg/kg		0	2
alpha-Chlordane	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Antimony	SO	Ditch	DT-05	SW6010	>	96	12	mg/kg		0	0.5
Arsenic	SO	Ditch	DT-04	SW7060	>	1.3	0.89	mg/kg	@	2	4
Arsenic	SO	Ditch	DT-04	SW7060	>	2.3	1.9	mg/kg	@	0	2
Arsenic	SO	Ditch	DT-03	SW7060	>	3.7	1.7	mg/kg	@	2	4
Arsenic	SO	Ditch	DT-03	SW7060	>	1.4	0.8	mg/kg	@	0	2
Arsenic	SO	Ditch	DT-02	SW7060	ND	0.2345455	0.43	mg/kg		2	4
Arsenic	SO	Ditch	DT-02	SW7060	>	0.78	0.75	mg/kg	@	0	2
Arsenic	SO	Ditch	DT-01	SW7060	>	2.2	0.51	mg/kg	@	2	4
Arsenic	SO	Ditch	DT-05	SW7060	>	2.7	2.3	mg/kg	@	0	2
Arsenic	SO	Ditch	DT-05	SW7060	>	2.3	0.87	mg/kg	@	2	4
Arsenic	SO	Ditch	DT-01	SW7060	>	1.9	0.48	mg/kg	@	0	2
Arsenic	SO	Ditch	DT-05	SW7060	>	14	0.98	mg/kg		0	0.5
Barium	SO	Ditch	DT-03	SW6010	>	120	4.7	mg/kg		2	4
Barium	SO	Ditch	DT-02	SW6010	>	46	4.7	mg/kg		0	2
Barium	SO	Ditch	DT-04	SW6010	>	58	4	mg/kg		2	4
Barium	SO	Ditch	DT-01	SW6010	>	41	4.9	mg/kg		0	2
Barium	SO	Ditch	DT-03	SW6010	>	78	3.7	mg/kg		0	2
Barium	SO	Ditch	DT-02	SW6010	>	19	4.3	mg/kg	@	2	4
Barium	SO	Ditch	DT-05	SW6010	>	48	3.9	mg/kg		2	4
Barium	SO	Ditch	DT-05	SW6010	>	94	5.3	mg/kg		0	2
Barium	SO	Ditch	DT-05	SW6010	>	76	1.2	mg/kg		0	0.5
Barium	SO	Ditch	DT-01	SW6010	>	20	4.9	mg/kg	@	2	4
Barium	SO	Ditch	DT-04	SW6010	>	95	4.5	mg/kg		0	2
Benzo(b)fluoranthene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		0	2
Benzo(b)fluoranthene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		2	4
Benzo(b)fluoranthene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		0	2
Benzo(b)fluoranthene	SO	Ditch	DT-05	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(b)fluoranthene	SO	Ditch	DT-05	SW8270	<	0.27	1.8	mg/kg	JX	0	2
Benzo(b)fluoranthene	SO	Ditch	DT-04	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(b)fluoranthene	SO	Ditch	DT-04	SW8270	<	1.6	1.6	mg/kg		0	2
Benzo(b)fluoranthene	SO	Ditch	DT-03	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(b)fluoranthene	SO	Ditch	DT-03	SW8270	<	1.3	1.3	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Benzo(b)fluoranthene	SO	Ditch	DT-05	SW8270	<	0.13	5.6	mg/kg	JX	0	0.5
Benzo(b)fluoranthene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-05	SW8270	<	0.13	5.6	mg/kg	JX	0	0.5
Benzo(k)fluoranthene	SO	Ditch	DT-05	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-04	SW8270	<	1.6	1.6	mg/kg		0	2
Benzo(k)fluoranthene	SO	Ditch	DT-03	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-03	SW8270	<	1.3	1.3	mg/kg		0	2
Benzo(k)fluoranthene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		0	2
Benzo(k)fluoranthene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-04	SW8270	<	1.4	1.4	mg/kg		2	4
Benzo(k)fluoranthene	SO	Ditch	DT-05	SW8270	<	0.27	1.8	mg/kg	JX	0	2
Benzo(k)fluoranthene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		0	2
Beryllium	SO	Ditch	DT-03	SW6010	ND	0.5475	0.73	mg/kg		0	2
Beryllium	SO	Ditch	DT-05	SW6010	ND	0.585	0.78	mg/kg		2	4
Beryllium	SO	Ditch	DT-05	SW6010	>	0.33	0.24	mg/kg	@	0	0.5
Beryllium	SO	Ditch	DT-02	SW6010	ND	0.6375	0.85	mg/kg		2	4
Beryllium	SO	Ditch	DT-04	SW6010	ND	0.675	0.9	mg/kg		0	2
Beryllium	SO	Ditch	DT-03	SW6010	>	0.98	0.93	mg/kg	@	2	4
Beryllium	SO	Ditch	DT-02	SW6010	ND	0.6975	0.93	mg/kg		0	2
Beryllium	SO	Ditch	DT-04	SW6010	ND	0.6	0.8	mg/kg		2	4
Beryllium	SO	Ditch	DT-01	SW6010	ND	0.735	0.98	mg/kg		2	4
Beryllium	SO	Ditch	DT-05	SW6010	ND	0.825	1.1	mg/kg		0	2
Beryllium	SO	Ditch	DT-01	SW6010	ND	0.7425	0.99	mg/kg		0	2
beta-BHC	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Ditch	DT-05	SW8080	<	0.0018	0.0018	mg/kg		0	2
beta-BHC	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Ditch	DT-04	SW8080	<	0.0016	0.0016	mg/kg		0	2
beta-BHC	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Ditch	DT-01	SW8080	>	0.0058	0.0015	mg/kg	X@	0	2
beta-BHC	SO	Ditch	DT-02	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
beta-BHC	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-01	SW8270	<	0.048	1.5	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-01	SW8270	<	0.83	1.5	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-04	SW8270	ND	1.05	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-05	SW8270	<	0.15	1.4	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-05	SW8270	<	0.39	5.6	mg/kg	J	0	0.5
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-02	SW8270	<	0.099	1.3	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-03	SW8270	<	0.8	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-02	SW8270	<	1.1	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-05	SW8270	>	4	1.8	mg/kg	@	0	2
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-04	SW8270	<	0.067	1.6	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Ditch	DT-03	SW8270	<	0.27	1.4	mg/kg	J	2	4
Cadmium	SO	Ditch	DT-05	SW6010	>	0.88	0.61	mg/kg	@	0	0.5
Carbon disulfide	SO	Ditch	DT-05	SW8240	ND	0.0051	0.0068	mg/kg		2	4
Carbon disulfide	SO	Ditch	DT-01	SW8240	ND	0.005475	0.0073	mg/kg		0	2
Carbon disulfide	SO	Ditch	DT-04	SW8240	ND	0.00525	0.007	mg/kg		2	4
Carbon disulfide	SO	Ditch	DT-04	SW8240	>	0.072	0.0079	mg/kg		0	2
Carbon disulfide	SO	Ditch	DT-03	SW8240	ND	0.005475	0.0073	mg/kg		2	4
Carbon disulfide	SO	Ditch	DT-03	SW8240	ND	0.0048	0.0064	mg/kg		0	2
Carbon disulfide	SO	Ditch	DT-02	SW8240	ND	0.0051	0.0068	mg/kg		2	4

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Carbon disulfide	SO	Ditch	DT-05	SW8240	ND	0.0069	0.0092	mg/kg		0	2
Carbon disulfide	SO	Ditch	DT-02	SW8240	ND	0.005025	0.0067	mg/kg		0	2
Carbon disulfide	SO	Ditch	DT-01	SW8240	ND	0.005775	0.0077	mg/kg		2	4
Chromium	SO	Ditch	DT-03	SW6010	>	18	4.7	mg/kg	@	2	4
Chromium	SO	Ditch	DT-03	SW6010	>	13	3.7	mg/kg	@	0	2
Chromium	SO	Ditch	DT-02	SW6010	ND	3.225	4.3	mg/kg		2	4
Chromium	SO	Ditch	DT-02	SW6010	ND	3.525	4.7	mg/kg		0	2
Chromium	SO	Ditch	DT-01	SW6010	ND	3.675	4.9	mg/kg		2	4
Chromium	SO	Ditch	DT-04	SW6010	>	11	4.5	mg/kg	@	0	2
Chromium	SO	Ditch	DT-04	SW6010	>	4.6	4	mg/kg	@	2	4
Chromium	SO	Ditch	DT-01	SW6010	ND	3.675	4.9	mg/kg		0	2
Chromium	SO	Ditch	DT-05	SW6010	>	6.7	3.9	mg/kg	@	2	4
Chromium	SO	Ditch	DT-05	SW6010	>	9.4	1.2	mg/kg		0	0.5
Chromium	SO	Ditch	DT-05	SW6010	>	19	5.3	mg/kg	@	0	2
Chrysene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		2	4
Chrysene	SO	Ditch	DT-02	SW8270	<	1.3	1.3	mg/kg		0	2
Chrysene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		0	2
Chrysene	SO	Ditch	DT-05	SW8270	<	0.32	1.8	mg/kg	J	0	2
Chrysene	SO	Ditch	DT-03	SW8270	<	1.4	1.4	mg/kg		2	4
Chrysene	SO	Ditch	DT-04	SW8270	<	1.6	1.6	mg/kg		0	2
Chrysene	SO	Ditch	DT-03	SW8270	<	1.3	1.3	mg/kg		0	2
Chrysene	SO	Ditch	DT-01	SW8270	<	1.5	1.5	mg/kg		2	4
Chrysene	SO	Ditch	DT-05	SW8270	<	1.4	1.4	mg/kg		2	4
Chrysene	SO	Ditch	DT-04	SW8270	<	1.4	1.4	mg/kg		2	4
Cobalt	SO	Ditch	DT-01	SW6010	ND	3.675	4.9	mg/kg		2	4
Cobalt	SO	Ditch	DT-01	SW6010	ND	3.675	4.9	mg/kg		0	2
Cobalt	SO	Ditch	DT-05	SW6010	>	3.2	1.2	mg/kg	@	0	0.5
Cobalt	SO	Ditch	DT-05	SW6010	ND	3.975	5.3	mg/kg		0	2
Cobalt	SO	Ditch	DT-04	SW6010	ND	3	4	mg/kg		2	4
Cobalt	SO	Ditch	DT-04	SW6010	>	6.6	4.5	mg/kg	@	0	2
Cobalt	SO	Ditch	DT-03	SW6010	>	7.3	4.7	mg/kg	@	2	4
Cobalt	SO	Ditch	DT-03	SW6010	>	6	3.7	mg/kg	@	0	2
Cobalt	SO	Ditch	DT-05	SW6010	>	4.6	3.9	mg/kg	@	2	4
Cobalt	SO	Ditch	DT-02	SW6010	ND	3.225	4.3	mg/kg		2	4
Cobalt	SO	Ditch	DT-02	SW6010	ND	3.525	4.7	mg/kg		0	2
Copper	SO	Ditch	DT-03	SW6010	>	11	9.3	mg/kg	@	2	4
Copper	SO	Ditch	DT-03	SW6010	ND	5.475	7.3	mg/kg		0	2
Copper	SO	Ditch	DT-02	SW6010	ND	6.375	8.5	mg/kg		2	4
Copper	SO	Ditch	DT-02	SW6010	ND	6.975	9.3	mg/kg		0	2
Copper	SO	Ditch	DT-01	SW6010	ND	7.35	9.8	mg/kg		2	4
Copper	SO	Ditch	DT-04	SW6010	>	11	9	mg/kg	@	0	2
Copper	SO	Ditch	DT-04	SW6010	ND	6	8	mg/kg		2	4
Copper	SO	Ditch	DT-01	SW6010	ND	7.425	9.9	mg/kg		0	2
Copper	SO	Ditch	DT-05	SW6010	ND	5.85	7.8	mg/kg		2	4
Copper	SO	Ditch	DT-05	SW6010	>	17	11	mg/kg	@	0	2
Copper	SO	Ditch	DT-05	SW6010	>	13	2.4	mg/kg		0	0.5
Cyanide	SO	Ditch	DT-02	SW9012	>	0.69	0.32	mg/kg	@	0	2
Cyanide	SO	Ditch	DT-03	SW9012	>	1.2	0.33	mg/kg	@	2	4
Cyanide	SO	Ditch	DT-02	SW9012	<	0.3	0.3	mg/kg		2	4
Cyanide	SO	Ditch	DT-04	SW9012	<	0.4	0.4	mg/kg		0	2
Cyanide	SO	Ditch	DT-05	SW9012	<	0.38	0.38	mg/kg		0	2
Cyanide	SO	Ditch	DT-03	SW9012	<	0.3	0.3	mg/kg		0	2
Cyanide	SO	Ditch	DT-04	SW9012	>	0.83	0.32	mg/kg	@	2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cyanide	SO	Ditch	DT-01	SW9012	>	1.2	0.37	mg/kg	@	2	4
Cyanide	SO	Ditch	DT-05	SW9012	>	1.3	0.33	mg/kg	@	2	4
Cyanide	SO	Ditch	DT-01	SW9012	>	16	0.6	mg/kg		0	2
Cyclohexenone	SO	Ditch	DT-04	SW8270	>	0.95	.	mg/kg		0	2
Cyclohexenone	SO	Ditch	DT-01	SW8270	>	1.2	.	mg/kg		0	2
delta-BHC	SO	Ditch	DT-01	SW8080	>	0.11	0.0015	mg/kg	X	0	2
delta-BHC	SO	Ditch	DT-02	SW8080	>	0.16	0.0013	mg/kg	X	0	2
delta-BHC	SO	Ditch	DT-02	SW8080	>	0.004	0.0014	mg/kg	C@	2	4
delta-BHC	SO	Ditch	DT-03	SW8080	>	0.39	0.0014	mg/kg	X	2	4
delta-BHC	SO	Ditch	DT-01	SW8080	>	0.0018	0.0015	mg/kg	C@	2	4
delta-BHC	SO	Ditch	DT-03	SW8080	>	0.059	0.0013	mg/kg	X	0	2
delta-BHC	SO	Ditch	DT-05	SW8080	>	0.036	0.0014	mg/kg	X	2	4
delta-BHC	SO	Ditch	DT-05	SW8080	>	0.88	0.0018	mg/kg	X	0	2
delta-BHC	SO	Ditch	DT-04	SW8080	>	0.047	0.0014	mg/kg	X	2	4
delta-BHC	SO	Ditch	DT-04	SW8080	>	0.28	0.0016	mg/kg	X	0	2
Endrin aldehyde	SO	Ditch	DT-05	SW8080	<	0.0037	0.0037	mg/kg		0	2
Endrin aldehyde	SO	Ditch	DT-01	SW8080	<	0.0029	0.0029	mg/kg		0	2
Endrin aldehyde	SO	Ditch	DT-05	SW8080	<	0.0027	0.0027	mg/kg		2	4
Endrin aldehyde	SO	Ditch	DT-04	SW8080	<	0.0031	0.0031	mg/kg		0	2
Endrin aldehyde	SO	Ditch	DT-03	SW8080	<	0.0029	0.0029	mg/kg		2	4
Endrin aldehyde	SO	Ditch	DT-03	SW8080	<	0.0015	0.0025	mg/kg	CJ	0	2
Endrin aldehyde	SO	Ditch	DT-04	SW8080	<	0.0028	0.0028	mg/kg		2	4
Endrin aldehyde	SO	Ditch	DT-02	SW8080	<	0.0027	0.0027	mg/kg		2	4
Endrin aldehyde	SO	Ditch	DT-02	SW8080	<	0.0027	0.0027	mg/kg		0	2
Endrin aldehyde	SO	Ditch	DT-01	SW8080	<	0.0031	0.0031	mg/kg		2	4
Fluoranthene	SO	Ditch	DT-05	SW8270	<	0.071	5.6	mg/kg	J	0	0.5
gamma-BHC	SO	Ditch	DT-03	SW8080	>	0.0021	0.0013	mg/kg	C@	0	2
gamma-BHC	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Ditch	DT-01	SW8080	>	0.0031	0.0015	mg/kg	C@	0	2
gamma-BHC	SO	Ditch	DT-04	SW8080	>	0.0018	0.0016	mg/kg	X@	0	2
gamma-BHC	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Ditch	DT-05	SW8080	<	0.0018	0.0018	mg/kg		0	2
gamma-BHC	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Ditch	DT-02	SW8080	>	0.0071	0.0013	mg/kg	X	0	2
gamma-BHC	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
gamma-Chlordane	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
gamma-Chlordane	SO	Ditch	DT-02	SW8080	<	0.001	0.0013	mg/kg	JX	0	2
gamma-Chlordane	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
gamma-Chlordane	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Ditch	DT-05	SW8080	<	0.0088	0.018	mg/kg	JXD	0	2
gamma-Chlordane	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Ditch	DT-05	SW8080	>	0.062	0.055	mg/kg	@	0	0.5
gamma-Chlordane	SO	Ditch	DT-04	SW8080	<	0.00023	0.0016	mg/kg	JX	0	2
gamma-Chlordane	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
gamma-Chlordane	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor epoxide	SO	Ditch	DT-05	SW8080	>	12	0.055	mg/kg	X	0	0.5
Isodrin	SO	Ditch	DT-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Ditch	DT-02	SW8080	<	0.0013	0.0013	mg/kg		0	2
Isodrin	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		2	4
Isodrin	SO	Ditch	DT-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Isodrin	SO	Ditch	DT-01	SW8080	<	0.0015	0.0015	mg/kg		0	2

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Isodrin	SO	Ditch	DT-04	SW8080	<	0.00064	0.0016	mg/kg	CJ	0	2
Isodrin	SO	Ditch	DT-04	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Ditch	DT-05	SW8080	>	0.055	0.018	mg/kg	XD@	0	2
Isodrin	SO	Ditch	DT-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Ditch	DT-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Lead	SO	Ditch	DT-02	SW7421	>	1.1	0.28	mg/kg	@	0	2
Lead	SO	Ditch	DT-03	SW7421	>	9.4	0.6	mg/kg		0	2
Lead	SO	Ditch	DT-01	SW7421	ND	0.2046154	0.38	mg/kg		2	4
Lead	SO	Ditch	DT-03	SW7421	>	11	0.63	mg/kg		2	4
Lead	SO	Ditch	DT-04	SW7421	>	3.5	0.33	mg/kg		2	4
Lead	SO	Ditch	DT-04	SW7421	>	6.2	0.35	mg/kg		0	2
Lead	SO	Ditch	DT-01	SW7421	>	2.8	0.36	mg/kg		0	2
Lead	SO	Ditch	DT-05	SW7421	>	120	8.7	mg/kg		0	2
Lead	SO	Ditch	DT-05	SW7421	>	2.6	0.33	mg/kg		2	4
Lead	SO	Ditch	DT-05	SW7421	>	60	2.9	mg/kg		0	0.5
Lead	SO	Ditch	DT-02	SW7421	>	0.65	0.32	mg/kg	@	2	4
Mercury	SO	Ditch	DT-01	SW7471	>	0.41	0.065	mg/kg		0	2
Mercury	SO	Ditch	DT-05	SW7471	<	0.062	0.062	mg/kg		2	4
Mercury	SO	Ditch	DT-05	SW7471	<	0.082	0.082	mg/kg		0	2
Mercury	SO	Ditch	DT-04	SW7471	<	0.062	0.062	mg/kg		2	4
Mercury	SO	Ditch	DT-04	SW7471	<	0.071	0.071	mg/kg		0	2
Mercury	SO	Ditch	DT-03	SW7471	<	0.065	0.065	mg/kg		2	4
Mercury	SO	Ditch	DT-03	SW7471	<	0.057	0.057	mg/kg		0	2
Mercury	SO	Ditch	DT-02	SW7471	<	0.061	0.061	mg/kg		2	4
Mercury	SO	Ditch	DT-02	SW7471	>	0.54	0.061	mg/kg		0	2
Mercury	SO	Ditch	DT-01	SW7471	<	0.069	0.069	mg/kg		2	4
Methyl ethyl ketone	SO	Ditch	DT-02	SW8240	<	0.14	0.14	mg/kg		2	4
Methyl ethyl ketone	SO	Ditch	DT-02	SW8240	<	0.13	0.13	mg/kg		0	2
Methyl ethyl ketone	SO	Ditch	DT-01	SW8240	<	0.15	0.15	mg/kg		2	4
Methyl ethyl ketone	SO	Ditch	DT-03	SW8240	<	0.13	0.13	mg/kg		0	2
Methyl ethyl ketone	SO	Ditch	DT-03	SW8240	<	0.15	0.15	mg/kg		2	4
Methyl ethyl ketone	SO	Ditch	DT-01	SW8240	<	0.15	0.15	mg/kg		0	2
Methyl ethyl ketone	SO	Ditch	DT-05	SW8240	<	0.14	0.14	mg/kg		2	4
Methyl ethyl ketone	SO	Ditch	DT-04	SW8240	<	0.16	0.16	mg/kg		0	2
Methyl ethyl ketone	SO	Ditch	DT-05	SW8240	<	0.027	0.18	mg/kg	J	0	2
Methyl ethyl ketone	SO	Ditch	DT-04	SW8240	<	0.14	0.14	mg/kg		2	4
Molecular sulfur	SO	Ditch	DT-05	SW8270	>	12	.	mg/kg		0	0.5
Nickel	SO	Ditch	DT-03	SW6010	>	19	9.3	mg/kg	@	2	4
Nickel	SO	Ditch	DT-01	SW6010	ND	7.35	9.8	mg/kg		2	4
Nickel	SO	Ditch	DT-04	SW6010	ND	6.75	9	mg/kg		0	2
Nickel	SO	Ditch	DT-05	SW6010	ND	8.25	11	mg/kg		0	2
Nickel	SO	Ditch	DT-03	SW6010	>	8.8	7.3	mg/kg	@	0	2
Nickel	SO	Ditch	DT-01	SW6010	ND	7.425	9.9	mg/kg		0	2
Nickel	SO	Ditch	DT-04	SW6010	ND	6	8	mg/kg		2	4
Nickel	SO	Ditch	DT-05	SW6010	>	6.9	2.4	mg/kg	@	0	0.5
Nickel	SO	Ditch	DT-05	SW6010	ND	5.85	7.8	mg/kg		2	4
Nickel	SO	Ditch	DT-02	SW6010	ND	6.375	8.5	mg/kg		2	4
Nickel	SO	Ditch	DT-02	SW6010	ND	6.975	9.3	mg/kg		0	2
Pyrene	SO	Ditch	DT-05	SW8270	<	0.061	5.6	mg/kg	J	0	0.5
Selenium	SO	Ditch	DT-05	SW7740	>	7.1	0.61	mg/kg		0	0.5
Silver	SO	Ditch	DT-05	SW6010	<	0.59	1.2	mg/kg	@	0	0.5
Sulfide	SO	Ditch	DT-03	SW9030	>	110	30	mg/kg	@	0	2
Sulfide	SO	Ditch	DT-05	SW9030	<	33	33	mg/kg		2	4

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Sulfide	SO	Ditch	DT-01	SW9030	<	35	35	mg/kg		0	2
Sulfide	SO	Ditch	DT-04	SW9030	>	180	39	mg/kg	@	0	2
Sulfide	SO	Ditch	DT-03	SW9030	>	190	36	mg/kg		2	4
Sulfide	SO	Ditch	DT-05	SW9030	>	390	42	mg/kg		0	2
Sulfide	SO	Ditch	DT-04	SW9030	>	130	34	mg/kg	@	2	4
Sulfide	SO	Ditch	DT-02	SW9030	>	57	28	mg/kg	@	2	4
Sulfide	SO	Ditch	DT-02	SW9030	<	33	33	mg/kg		0	2
Sulfide	SO	Ditch	DT-01	SW9030	<	36	36	mg/kg		2	4
Thallium	SO	Ditch	DT-05	SW7841	<	0.22	0.61	mg/kg	@	0	0.5
Tin	SO	Ditch	DT-05	SW6010	<	1.4	73	mg/kg	@	0	0.5
Toluene	SO	Ditch	DT-02	SW8240	<	0.0068	0.0068	mg/kg		2	4
Toluene	SO	Ditch	DT-05	SW8240	<	0.0092	0.0092	mg/kg		0	2
Toluene	SO	Ditch	DT-05	SW8240	<	0.0068	0.0068	mg/kg		2	4
Toluene	SO	Ditch	DT-04	SW8240	<	0.0003	0.0079	mg/kg	J	0	2
Toluene	SO	Ditch	DT-04	SW8240	<	0.0012	0.007	mg/kg	J	2	4
Toluene	SO	Ditch	DT-02	SW8240	<	0.00024	0.0067	mg/kg	J	0	2
Toluene	SO	Ditch	DT-01	SW8240	<	0.0077	0.0077	mg/kg		2	4
Toluene	SO	Ditch	DT-03	SW8240	<	0.0073	0.0073	mg/kg		2	4
Toluene	SO	Ditch	DT-03	SW8240	<	0.0064	0.0064	mg/kg		0	2
Toluene	SO	Ditch	DT-01	SW8240	<	0.0073	0.0073	mg/kg		0	2
Vanadium	SO	Ditch	DT-01	SW6010	ND	7.35	9.8	mg/kg		2	4
Vanadium	SO	Ditch	DT-02	SW6010	ND	6.375	8.5	mg/kg		2	4
Vanadium	SO	Ditch	DT-02	SW6010	ND	6.975	9.3	mg/kg		0	2
Vanadium	SO	Ditch	DT-01	SW6010	ND	7.425	9.9	mg/kg		0	2
Vanadium	SO	Ditch	DT-05	SW6010	>	19	2.4	mg/kg		0	0.5
Vanadium	SO	Ditch	DT-03	SW6010	>	32	9.3	mg/kg	@	2	4
Vanadium	SO	Ditch	DT-05	SW6010	>	17	7.8	mg/kg	@	2	4
Vanadium	SO	Ditch	DT-05	SW6010	>	25	11	mg/kg	@	0	2
Vanadium	SO	Ditch	DT-04	SW6010	>	11	8	mg/kg	@	2	4
Vanadium	SO	Ditch	DT-04	SW6010	>	27	9	mg/kg	@	0	2
Vanadium	SO	Ditch	DT-03	SW6010	>	24	7.3	mg/kg	@	0	2
Zinc	SO	Ditch	DT-05	SW6010	>	13	7.8	mg/kg	@	2	4
Zinc	SO	Ditch	DT-05	SW6010	>	71	11	mg/kg		0	2
Zinc	SO	Ditch	DT-04	SW6010	>	10	8	mg/kg	@	2	4
Zinc	SO	Ditch	DT-04	SW6010	>	30	9	mg/kg	@	0	2
Zinc	SO	Ditch	DT-03	SW6010	>	53	9.3	mg/kg		2	4
Zinc	SO	Ditch	DT-03	SW6010	>	33	7.3	mg/kg	@	0	2
Zinc	SO	Ditch	DT-02	SW6010	ND	5.3125	8.5	mg/kg		2	4
Zinc	SO	Ditch	DT-02	SW6010	ND	6.975	9.3	mg/kg		0	2
Zinc	SO	Ditch	DT-01	SW6010	ND	7.35	9.8	mg/kg		2	4
Zinc	SO	Ditch	DT-05	SW6010	>	46	2.4	mg/kg		0	0.5
Zinc	SO	Ditch	DT-01	SW6010	>	65	9.9	mg/kg		0	2
alpha-BHC	WS	Ditch	DT-02	SW8080	<	7.80E-06	9.90E-06	mg/L	JX	.	.
Dieldrin	WS	Ditch	DT-02	SW8080	>	0.000011	9.90E-06	mg/L	X@	.	.
Hardness, as CaC03	WS	Ditch	DT-02	E130.2	>	2100	120	mg/L		.	.
Isodrin	WS	Ditch	DT-02	SW8080	<	6.10E-06	9.90E-06	mg/L	J	.	.
Total dissolved solids	WS	Ditch	DT-02	E160.1	>	4900	10	mg/L		.	.
4,4'-DDD	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
4,4'-DDD	SL	Lake H	LH-07	SW8080	<	0.006	0.006	mg/kg		.	.
4,4'-DDD	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
4,4'-DDD	SL	Lake H	LH-04	SW8080	>	0.6	0.0023	mg/kg	C	.	.
4,4'-DDD	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
4,4'-DDD	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.

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4,4'-DDD	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
4,4'-DDE	SL	Lake H	LH-07	SW8080	>	0.021	0.006	mg/kg	C@	.	.
4,4'-DDE	SL	Lake H	LH-04	SW8080	>	0.045	0.0023	mg/kg	C	.	.
4,4'-DDE	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
4,4'-DDE	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
4,4'-DDE	SL	Lake H	LH-06	SW8080	>	0.0091	0.0055	mg/kg	X@	.	.
4,4'-DDE	SL	Lake H	LH-03	SW8080	>	0.01155	0.0067	mg/kg	X@	.	.
4,4'-DDE	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-07	SW8080	<	0.012	0.012	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-06	SW8080	<	0.011	0.011	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-03	SW8080	<	0.012	0.013	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-01	SW8080	<	0.0025	0.0025	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-02	SW8080	<	0.011	0.011	mg/kg		.	.
4,4'-DDT	SL	Lake H	LH-04	SW8080	<	0.0012	0.0047	mg/kg	JX	.	.
4,4'-DDT	SL	Lake H	LH-05	SW8080	<	0.016	0.016	mg/kg		.	.
Acetone	SL	Lake H	LH-01	SW8240	<	0.062	0.13	mg/kg	J	.	.
Acetone	SL	Lake H	LH-03	SW8240	ND	9.375	14	mg/kg		.	.
Acetone	SL	Lake H	LH-05	SW8240	ND	12	16	mg/kg		.	.
Acetone	SL	Lake H	LH-07	SW8240	ND	6.075	8.1	mg/kg		.	.
Acetone	SL	Lake H	LH-06	SW8240	ND	8.25	11	mg/kg		.	.
Acetone	SL	Lake H	LH-04	SW8240	<	0.22	0.24	mg/kg	J	.	.
Acetone	SL	Lake H	LH-02	SW8240	ND	8.25	11	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-04	SW8080	<	0.0023	0.0023	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-07	SW8080	<	0.006	0.006	mg/kg		.	.
alpha-BHC	SL	Lake H	LH-02	SW8080	>	0.0079	0.0053	mg/kg	C@	.	.
alpha-Chlordane	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
alpha-Chlordane	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.
alpha-Chlordane	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
alpha-Chlordane	SL	Lake H	LH-04	SW8080	>	0.059	0.0023	mg/kg	C	.	.
alpha-Chlordane	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
alpha-Chlordane	SL	Lake H	LH-07	SW8080	<	0.006	0.006	mg/kg		.	.
alpha-Chlordane	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
Arsenic	SL	Lake H	LH-06	SW7060	ND	0.9272727	1.7	mg/kg		.	.
Arsenic	SL	Lake H	LH-05	SW7060	>	5.9	4.9	mg/kg	@	.	.
Arsenic	SL	Lake H	LH-03	SW7060	>	4.6	3.9	mg/kg	@	.	.
Arsenic	SL	Lake H	LH-04	SW7060	>	2.7	1.4	mg/kg	@	.	.
Arsenic	SL	Lake H	LH-01	SW7060	>	1.3	0.66	mg/kg	@	.	.
Arsenic	SL	Lake H	LH-07	SW7060	>	2.6	1.8	mg/kg	@	.	.
Arsenic	SL	Lake H	LH-02	SW7060	>	2.7	1.5	mg/kg	@	.	.
Barium	SL	Lake H	LH-01	SW6010	>	34	3.4	mg/kg		.	.
Barium	SL	Lake H	LH-06	SW6010	>	100	4	mg/kg		.	.
Barium	SL	Lake H	LH-05	SW6010	>	180	15	mg/kg		.	.
Barium	SL	Lake H	LH-04	SW6010	>	97	3.4	mg/kg		.	.
Barium	SL	Lake H	LH-03	SW6010	>	185	20	mg/kg		.	.
Barium	SL	Lake H	LH-07	SW6010	>	54	4.8	mg/kg		.	.
Barium	SL	Lake H	LH-02	SW6010	>	20	3.4	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-05	SW8270	>	28	7.9	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-06	SW8270	ND	2.912	5.6	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-02	SW8270	ND	3.975	5.3	mg/kg		.	.

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bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-04	SW8270	<	0.72	2.4	mg/kg	J	.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-03	SW8270	>	85.983333	34	mg/kg	D	.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-01	SW8270	ND	0.975	1.3	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Lake H	LH-07	SW8270	>	6.1	6	mg/kg	@	.	.
Carbon disulfide	SL	Lake H	LH-05	SW8240	<	0.8	0.8	mg/kg		.	.
Carbon disulfide	SL	Lake H	LH-06	SW8240	<	0.56	0.56	mg/kg		.	.
Carbon disulfide	SL	Lake H	LH-02	SW8240	<	0.53	0.53	mg/kg		.	.
Carbon disulfide	SL	Lake H	LH-04	SW8240	>	0.035	0.012	mg/kg	@	.	.
Carbon disulfide	SL	Lake H	LH-03	SW8240	<	0.605	0.68	mg/kg		.	.
Carbon disulfide	SL	Lake H	LH-01	SW8240	>	0.014	0.0063	mg/kg	@	.	.
Carbon disulfide	SL	Lake H	LH-07	SW8240	<	0.4	0.4	mg/kg		.	.
Chromium	SL	Lake H	LH-07	SW6010	>	5	4.8	mg/kg	@	.	.
Chromium	SL	Lake H	LH-06	SW6010	>	9	4	mg/kg	@	.	.
Chromium	SL	Lake H	LH-03	SW6010	>	23	20	mg/kg	@	.	.
Chromium	SL	Lake H	LH-04	SW6010	>	14	3.4	mg/kg	@	.	.
Chromium	SL	Lake H	LH-05	SW6010	>	19	15	mg/kg	@	.	.
Chromium	SL	Lake H	LH-02	SW6010	ND	1.8	3.4	mg/kg		.	.
Chromium	SL	Lake H	LH-01	SW6010	ND	2.55	3.4	mg/kg		.	.
Cobalt	SL	Lake H	LH-01	SW6010	<	3.4	3.4	mg/kg		.	.
Cobalt	SL	Lake H	LH-05	SW6010	<	15	15	mg/kg		.	.
Cobalt	SL	Lake H	LH-06	SW6010	>	4.3	4	mg/kg	@	.	.
Cobalt	SL	Lake H	LH-07	SW6010	<	4.8	4.8	mg/kg		.	.
Cobalt	SL	Lake H	LH-02	SW6010	<	3.4	3.4	mg/kg		.	.
Cobalt	SL	Lake H	LH-04	SW6010	>	4.9	3.4	mg/kg	@	.	.
Cobalt	SL	Lake H	LH-03	SW6010	<	17.5	20	mg/kg		.	.
Copper	SL	Lake H	LH-03	SW6010	ND	32.666667	40	mg/kg		.	.
Copper	SL	Lake H	LH-02	SW6010	ND	5.175	6.9	mg/kg		.	.
Copper	SL	Lake H	LH-01	SW6010	ND	5.1	6.8	mg/kg		.	.
Copper	SL	Lake H	LH-04	SW6010	>	15	6.8	mg/kg	@	.	.
Copper	SL	Lake H	LH-07	SW6010	>	10	9.5	mg/kg	@	.	.
Copper	SL	Lake H	LH-06	SW6010	>	12	8	mg/kg	@	.	.
Copper	SL	Lake H	LH-05	SW6010	ND	16.071429	30	mg/kg		.	.
Cyanide	SL	Lake H	LH-01	SW9012	>	1.4	0.23	mg/kg		.	.
Cyanide	SL	Lake H	LH-07	SW9012	>	1.9	1.2	mg/kg	@	.	.
Cyanide	SL	Lake H	LH-06	SW9012	>	1.7	1.1	mg/kg	@	.	.
Cyanide	SL	Lake H	LH-05	SW9012	<	1.5	1.5	mg/kg		.	.
Cyanide	SL	Lake H	LH-04	SW9012	>	0.51	0.5	mg/kg	@	.	.
Cyanide	SL	Lake H	LH-03	SW9012	>	2.65	1.2	mg/kg	@	.	.
Cyanide	SL	Lake H	LH-02	SW9012	>	120	4.7	mg/kg		.	.
delta-BHC	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
delta-BHC	SL	Lake H	LH-01	SW8080	>	0.5	0.0013	mg/kg	X	.	.
delta-BHC	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
delta-BHC	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
delta-BHC	SL	Lake H	LH-07	SW8080	>	7	0.12	mg/kg	CD	.	.
delta-BHC	SL	Lake H	LH-04	SW8080	>	0.12	0.047	mg/kg	XD@	.	.
delta-BHC	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.
Dieldrin	SL	Lake H	LH-04	SW8080	>	0.0024	0.0023	mg/kg	X@	.	.
Dieldrin	SL	Lake H	LH-03	SW8080	>	0.05765	0.0067	mg/kg	X	.	.
Dieldrin	SL	Lake H	LH-02	SW8080	>	0.11	0.0053	mg/kg	X	.	.
Dieldrin	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
Dieldrin	SL	Lake H	LH-06	SW8080	>	0.052	0.0055	mg/kg	X	.	.
Dieldrin	SL	Lake H	LH-01	SW8080	>	0.019	0.0013	mg/kg	X	.	.
Dieldrin	SL	Lake H	LH-07	SW8080	>	0.033	0.006	mg/kg	C	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
gamma-BHC	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
gamma-BHC	SL	Lake H	LH-07	SW8080	<	0.006	0.006	mg/kg		.	.
gamma-BHC	SL	Lake H	LH-02	SW8080	>	0.014	0.0053	mg/kg	X@	.	.
gamma-BHC	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.
gamma-BHC	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
gamma-BHC	SL	Lake H	LH-04	SW8080	<	0.0023	0.0023	mg/kg		.	.
gamma-BHC	SL	Lake H	LH-03	SW8080	<	0.00835	0.0067	mg/kg		.	.
gamma-Chlordane	SL	Lake H	LH-03	SW8080	<	0.00775	0.0067	mg/kg		.	.
gamma-Chlordane	SL	Lake H	LH-02	SW8080	>	0.011	0.0053	mg/kg	X@	.	.
gamma-Chlordane	SL	Lake H	LH-07	SW8080	<	0.0037	0.006	mg/kg	JX	.	.
gamma-Chlordane	SL	Lake H	LH-06	SW8080	>	0.0063	0.0055	mg/kg	X@	.	.
gamma-Chlordane	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
gamma-Chlordane	SL	Lake H	LH-04	SW8080	>	0.075	0.0023	mg/kg	C	.	.
gamma-Chlordane	SL	Lake H	LH-01	SW8080	>	0.0015	0.0013	mg/kg	C@	.	.
Heptachlor	SL	Lake H	LH-04	SW8080	<	0.0012	0.0023	mg/kg	JX	.	.
Heptachlor	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
Heptachlor	SL	Lake H	LH-07	SW8080	<	0.006	0.006	mg/kg		.	.
Heptachlor	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
Heptachlor	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
Heptachlor	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
Heptachlor	SL	Lake H	LH-06	SW8080	<	0.0055	0.0055	mg/kg		.	.
Isodrin	SL	Lake H	LH-07	SW8080	>	0.013	0.006	mg/kg	X@	.	.
Isodrin	SL	Lake H	LH-05	SW8080	<	0.008	0.008	mg/kg		.	.
Isodrin	SL	Lake H	LH-04	SW8080	<	0.0023	0.0023	mg/kg		.	.
Isodrin	SL	Lake H	LH-06	SW8080	>	9.9	0.0055	mg/kg	X	.	.
Isodrin	SL	Lake H	LH-01	SW8080	<	0.0013	0.0013	mg/kg		.	.
Isodrin	SL	Lake H	LH-02	SW8080	<	0.0053	0.0053	mg/kg		.	.
Isodrin	SL	Lake H	LH-03	SW8080	<	0.006	0.0067	mg/kg		.	.
Lead	SL	Lake H	LH-05	SW7421	>	18	1.9	mg/kg		.	.
Lead	SL	Lake H	LH-06	SW7421	>	2.8	1.3	mg/kg	@	.	.
Lead	SL	Lake H	LH-02	SW7421	>	9.6	1.2	mg/kg		.	.
Lead	SL	Lake H	LH-04	SW7421	>	37	2.1	mg/kg		.	.
Lead	SL	Lake H	LH-03	SW7421	>	9.75	1.5	mg/kg		.	.
Lead	SL	Lake H	LH-01	SW7421	>	2.3	0.25	mg/kg		.	.
Lead	SL	Lake H	LH-07	SW7421	>	12	1.4	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-02	SW8240	<	11	11	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-07	SW8240	<	8.1	8.1	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-01	SW8240	<	0.13	0.13	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-05	SW8240	<	16	16	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-04	SW8240	<	0.034	0.24	mg/kg	J	.	.
Methyl ethyl ketone	SL	Lake H	LH-03	SW8240	<	12.5	14	mg/kg		.	.
Methyl ethyl ketone	SL	Lake H	LH-06	SW8240	<	11	11	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-06	SW8240	ND	0.42	0.56	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-07	SW8240	ND	0.3	0.4	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-05	SW8240	ND	0.6	0.8	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-04	SW8240	<	0.0034	0.012	mg/kg	J	.	.
Methylene chloride	SL	Lake H	LH-02	SW8240	ND	0.3975	0.53	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-03	SW8240	ND	0.45375	0.68	mg/kg		.	.
Methylene chloride	SL	Lake H	LH-01	SW8240	ND	0.004725	0.0063	mg/kg		.	.
Molecular sulfur	SL	Lake H	LH-01	SW8270	>	5	.	mg/kg		.	.
Nickel	SL	Lake H	LH-01	SW6010	ND	5.1	6.8	mg/kg		.	.
Nickel	SL	Lake H	LH-05	SW6010	ND	22.5	30	mg/kg		.	.
Nickel	SL	Lake H	LH-06	SW6010	>	9.1	8	mg/kg	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Nickel	SL	Lake H	LH-07	SW6010	ND	7.125	9.5	mg/kg		.	.
Nickel	SL	Lake H	LH-02	SW6010	ND	5.175	6.9	mg/kg		.	.
Nickel	SL	Lake H	LH-04	SW6010	>	11	6.8	mg/kg	@	.	.
Nickel	SL	Lake H	LH-03	SW6010	ND	26.25	40	mg/kg		.	.
Selenium	SL	Lake H	LH-03	SW7740	ND	1.8166667	2.5	mg/kg		.	.
Selenium	SL	Lake H	LH-02	SW7740	ND	1.425	1.9	mg/kg		.	.
Selenium	SL	Lake H	LH-01	SW7740	ND	0.3075	0.41	mg/kg		.	.
Selenium	SL	Lake H	LH-04	SW7740	ND	0.66	0.88	mg/kg		.	.
Selenium	SL	Lake H	LH-07	SW7740	ND	1.725	2.3	mg/kg		.	.
Selenium	SL	Lake H	LH-06	SW7740	ND	1.575	2.1	mg/kg		.	.
Selenium	SL	Lake H	LH-05	SW7740	ND	2.325	3.1	mg/kg		.	.
Sulfide	SL	Lake H	LH-01	SW9030	>	290	31	mg/kg		.	.
Sulfide	SL	Lake H	LH-07	SW9030	>	1200	140	mg/kg		.	.
Sulfide	SL	Lake H	LH-06	SW9030	>	830	140	mg/kg		.	.
Sulfide	SL	Lake H	LH-05	SW9030	>	2700	190	mg/kg		.	.
Sulfide	SL	Lake H	LH-04	SW9030	>	430	56	mg/kg		.	.
Sulfide	SL	Lake H	LH-03	SW9030	>	1035	170	mg/kg		.	.
Sulfide	SL	Lake H	LH-02	SW9030	>	1200	130	mg/kg		.	.
Total organic carbon	SL	Lake H	LH-03		>	8400	1100	mg/kg		.	.
Vanadium	SL	Lake H	LH-04	SW6010	>	23	6.8	mg/kg	@	.	.
Vanadium	SL	Lake H	LH-03	SW6010	<	43.5	40	mg/kg		.	.
Vanadium	SL	Lake H	LH-02	SW6010	<	6.9	6.9	mg/kg		.	.
Vanadium	SL	Lake H	LH-05	SW6010	>	33	30	mg/kg	@	.	.
Vanadium	SL	Lake H	LH-01	SW6010	=	6.8	6.8	mg/kg	@	.	.
Vanadium	SL	Lake H	LH-07	SW6010	>	13	9.5	mg/kg	@	.	.
Vanadium	SL	Lake H	LH-06	SW6010	>	19	8	mg/kg	@	.	.
Zinc	SL	Lake H	LH-01	SW6010	>	12	6.8	mg/kg	@	.	.
Zinc	SL	Lake H	LH-03	SW6010	>	68	40	mg/kg	@	.	.
Zinc	SL	Lake H	LH-05	SW6010	>	68	30	mg/kg	@	.	.
Zinc	SL	Lake H	LH-07	SW6010	>	18	9.5	mg/kg	@	.	.
Zinc	SL	Lake H	LH-06	SW6010	>	31	8	mg/kg	@	.	.
Zinc	SL	Lake H	LH-04	SW6010	>	55	6.8	mg/kg		.	.
Zinc	SL	Lake H	LH-02	SW6010	>	7.9	6.9	mg/kg	@	.	.
4,4'-DDE	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-07	SW8080	<	0.016	0.016	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Lake H	LH-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		2	4
4,4'-DDE	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-06	SW8080	<	0.0016	0.0016	mg/kg		0	2
4,4'-DDE	SO	Lake H	LH-04	SW8080	>	0.0017	0.0015	mg/kg	X@	0	2
Acetone	SO	Lake H	LH-07	SW8240	>	0.17	0.15	mg/kg	@	0	2
Acetone	SO	Lake H	LH-04	SW8240	<	0.11	0.15	mg/kg	J	0	2
Acetone	SO	Lake H	LH-05	SW8240	ND	0.1125	0.15	mg/kg		2	4
Acetone	SO	Lake H	LH-05	SW8240	<	0.051	0.15	mg/kg	J	0	2
Acetone	SO	Lake H	LH-06	SW8240	<	0.054	0.16	mg/kg	J	0	2
Acetone	SO	Lake H	LH-02	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Lake H	LH-01	SW8240	<	0.05	0.15	mg/kg	J	0	2
Acetone	SO	Lake H	LH-03	SW8240	ND	0.105	0.14	mg/kg		0	2
Acetone	SO	Lake H	LH-02	SW8240	ND	0.105	0.14	mg/kg		0	2
alpha-BHC	SO	Lake H	LH-02	SW8080	<	0.0012	0.0014	mg/kg	JC	0	2
alpha-BHC	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-BHC	SO	Lake H	LH-06	SW8080	<	0.0016	0.0016	mg/kg		0	2
alpha-BHC	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Lake H	LH-05	SW8080	=	0.0015	0.0015	mg/kg	X@	0	2
alpha-BHC	SO	Lake H	LH-04	SW8080	<	0.0015	0.0015	mg/kg		0	2
alpha-BHC	SO	Lake H	LH-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-BHC	SO	Lake H	LH-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
alpha-BHC	SO	Lake H	LH-07	SW8080	<	0.016	0.016	mg/kg		0	2
Arsenic	SO	Lake H	LH-06	SW7060	>	4	0.99	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-01	SW7060	>	2.5	0.85	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-05	SW7060	>	2	0.84	mg/kg	@	2	4
Arsenic	SO	Lake H	LH-05	SW7060	>	3.3	0.85	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-02	SW7060	>	1	0.81	mg/kg	@	2	4
Arsenic	SO	Lake H	LH-04	SW7060	>	2.3	0.96	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-02	SW7060	>	1.6	0.78	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-03	SW7060	>	2.1	1.5	mg/kg	@	0	2
Arsenic	SO	Lake H	LH-07	SW7060	>	2.9	2	mg/kg	@	0	2
Barium	SO	Lake H	LH-01	SW6010	>	54	4	mg/kg		0	2
Barium	SO	Lake H	LH-06	SW6010	>	69	4.4	mg/kg		0	2
Barium	SO	Lake H	LH-05	SW6010	>	92	4	mg/kg		2	4
Barium	SO	Lake H	LH-05	SW6010	>	110	4	mg/kg		0	2
Barium	SO	Lake H	LH-04	SW6010	>	43	4	mg/kg		0	2
Barium	SO	Lake H	LH-03	SW6010	>	89	3.8	mg/kg		0	2
Barium	SO	Lake H	LH-02	SW6010	>	69	3.8	mg/kg		2	4
Barium	SO	Lake H	LH-07	SW6010	>	95	5.3	mg/kg		0	2
Barium	SO	Lake H	LH-02	SW6010	>	49	3.8	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-06	SW8270	<	0.74	1.6	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-05	SW8270	<	0.13	1.5	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-05	SW8270	ND	1.125	1.5	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-04	SW8270	ND	1.125	1.5	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-03	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-02	SW8270	ND	1.05	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-02	SW8270	<	0.19	1.4	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-07	SW8270	<	0.2	1.6	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Lake H	LH-01	SW8270	ND	1.05	1.4	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-05	SW8240	ND	0.0057	0.0076	mg/kg		2	4
Carbon disulfide	SO	Lake H	LH-05	SW8240	ND	0.005775	0.0077	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-04	SW8240	>	0.016	0.0076	mg/kg	@	0	2
Carbon disulfide	SO	Lake H	LH-03	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-02	SW8240	ND	0.005175	0.0069	mg/kg		2	4
Carbon disulfide	SO	Lake H	LH-02	SW8240	ND	0.00525	0.007	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-06	SW8240	ND	0.00585	0.0078	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-07	SW8240	ND	0.005775	0.0077	mg/kg		0	2
Carbon disulfide	SO	Lake H	LH-01	SW8240	ND	0.005475	0.0073	mg/kg		0	2
Chromium	SO	Lake H	LH-05	SW6010	>	8.3	4	mg/kg	@	0	2
Chromium	SO	Lake H	LH-02	SW6010	ND	2.85	3.8	mg/kg		0	2
Chromium	SO	Lake H	LH-06	SW6010	>	5.1	4.4	mg/kg	@	0	2
Chromium	SO	Lake H	LH-01	SW6010	ND	3	4	mg/kg		0	2
Chromium	SO	Lake H	LH-04	SW6010	ND	3	4	mg/kg		0	2
Chromium	SO	Lake H	LH-05	SW6010	>	7.3	4	mg/kg	@	2	4
Chromium	SO	Lake H	LH-07	SW6010	>	7	5.3	mg/kg	@	0	2
Chromium	SO	Lake H	LH-03	SW6010	>	7.1	3.8	mg/kg	@	0	2
Chromium	SO	Lake H	LH-02	SW6010	>	4.4	3.8	mg/kg	@	2	4
Cobalt	SO	Lake H	LH-05	SW6010	=	4	4	mg/kg	@	0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cobalt	SO	Lake H	LH-02	SW6010	ND	2.85	3.8	mg/kg		2	4
Cobalt	SO	Lake H	LH-04	SW6010	ND	3	4	mg/kg		0	2
Cobalt	SO	Lake H	LH-01	SW6010	ND	3	4	mg/kg		0	2
Cobalt	SO	Lake H	LH-05	SW6010	ND	3	4	mg/kg		2	4
Cobalt	SO	Lake H	LH-06	SW6010	ND	3.3	4.4	mg/kg		0	2
Cobalt	SO	Lake H	LH-02	SW6010	ND	2.85	3.8	mg/kg		0	2
Cobalt	SO	Lake H	LH-03	SW6010	ND	2.85	3.8	mg/kg		0	2
Cobalt	SO	Lake H	LH-07	SW6010	>	5.7	5.3	mg/kg	@	0	2
Cyanide	SO	Lake H	LH-01	SW9012	>	1.4	0.32	mg/kg	@	0	2
Cyanide	SO	Lake H	LH-05	SW9012	>	11	0.31	mg/kg		0	2
Cyanide	SO	Lake H	LH-07	SW9012	<	0.37	0.37	mg/kg		0	2
Cyanide	SO	Lake H	LH-06	SW9012	>	4.3	0.36	mg/kg		0	2
Cyanide	SO	Lake H	LH-05	SW9012	>	0.67	0.34	mg/kg	@	2	4
Cyanide	SO	Lake H	LH-04	SW9012	>	1.3	0.29	mg/kg	@	0	2
Cyanide	SO	Lake H	LH-03	SW9012	>	0.55	0.3	mg/kg	@	0	2
Cyanide	SO	Lake H	LH-02	SW9012	>	1.3	0.33	mg/kg	@	2	4
Cyanide	SO	Lake H	LH-02	SW9012	>	3.4	0.29	mg/kg		0	2
delta-BHC	SO	Lake H	LH-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
delta-BHC	SO	Lake H	LH-06	SW8080	>	0.58	0.0016	mg/kg	X	0	2
delta-BHC	SO	Lake H	LH-03	SW8080	>	0.5	0.0013	mg/kg	X	0	2
delta-BHC	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		2	4
delta-BHC	SO	Lake H	LH-02	SW8080	>	0.4	0.0014	mg/kg	X	0	2
delta-BHC	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		0	2
delta-BHC	SO	Lake H	LH-04	SW8080	>	0.61	0.0015	mg/kg	X	0	2
delta-BHC	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Lake H	LH-07	SW8080	>	4.2	0.016	mg/kg	XD	0	2
Endrin aldehyde	SO	Lake H	LH-06	SW8080	<	0.0031	0.0031	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-07	SW8080	<	0.032	0.032	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-05	SW8080	<	0.003	0.003	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-05	SW8080	<	0.003	0.003	mg/kg		2	4
Endrin aldehyde	SO	Lake H	LH-03	SW8080	<	0.0027	0.0027	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-02	SW8080	<	0.0015	0.0027	mg/kg	JC	2	4
Endrin aldehyde	SO	Lake H	LH-02	SW8080	<	0.0028	0.0028	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-04	SW8080	<	0.003	0.003	mg/kg		0	2
Endrin aldehyde	SO	Lake H	LH-01	SW8080	<	0.0029	0.0029	mg/kg		0	2
gamma-BHC	SO	Lake H	LH-05	SW8080	>	0.0017	0.0015	mg/kg	C@	2	4
gamma-BHC	SO	Lake H	LH-05	SW8080	>	0.0051	0.0015	mg/kg	C@	0	2
gamma-BHC	SO	Lake H	LH-04	SW8080	>	0.018	0.0015	mg/kg	C	0	2
gamma-BHC	SO	Lake H	LH-03	SW8080	>	0.0094	0.0013	mg/kg	X	0	2
gamma-BHC	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Lake H	LH-07	SW8080	>	0.025	0.016	mg/kg	X@	0	2
gamma-BHC	SO	Lake H	LH-06	SW8080	>	0.0044	0.0016	mg/kg	X@	0	2
gamma-BHC	SO	Lake H	LH-02	SW8080	>	0.012	0.0014	mg/kg	C	0	2
gamma-BHC	SO	Lake H	LH-01	SW8080	>	0.015	0.0015	mg/kg	C	0	2
Heptachlor	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor	SO	Lake H	LH-06	SW8080	<	0.0016	0.0016	mg/kg		0	2
Heptachlor	SO	Lake H	LH-07	SW8080	<	0.016	0.016	mg/kg		0	2
Heptachlor	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		2	4
Heptachlor	SO	Lake H	LH-05	SW8080	>	0.0022	0.0015	mg/kg	X@	0	2
Heptachlor	SO	Lake H	LH-04	SW8080	<	0.0015	0.0015	mg/kg		0	2
Heptachlor	SO	Lake H	LH-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Heptachlor	SO	Lake H	LH-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Heptachlor	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Isodrin	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Isodrin	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		2	4
Isodrin	SO	Lake H	LH-06	SW8080	<	0.0016	0.0016	mg/kg		0	2
Isodrin	SO	Lake H	LH-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Lake H	LH-05	SW8080	<	0.0015	0.0015	mg/kg		0	2
Isodrin	SO	Lake H	LH-04	SW8080	<	0.0015	0.0015	mg/kg		0	2
Isodrin	SO	Lake H	LH-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Isodrin	SO	Lake H	LH-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Isodrin	SO	Lake H	LH-07	SW8080	>	0.042	0.016	mg/kg	X@	0	2
Lead	SO	Lake H	LH-06	SW7421	>	3.8	0.37	mg/kg		0	2
Lead	SO	Lake H	LH-05	SW7421	>	3.2	0.31	mg/kg		2	4
Lead	SO	Lake H	LH-05	SW7421	>	3.6	0.32	mg/kg		0	2
Lead	SO	Lake H	LH-04	SW7421	>	1.7	0.36	mg/kg	@	0	2
Lead	SO	Lake H	LH-03	SW7421	>	2.6	0.28	mg/kg		0	2
Lead	SO	Lake H	LH-02	SW7421	>	1.8	0.3	mg/kg		2	4
Lead	SO	Lake H	LH-02	SW7421	>	2.2	0.29	mg/kg		0	2
Lead	SO	Lake H	LH-07	SW7421	>	2.1	0.37	mg/kg		0	2
Lead	SO	Lake H	LH-01	SW7421	>	1.7	0.32	mg/kg		0	2
Mercury	SO	Lake H	LH-02	SW7471	<	0.062	0.062	mg/kg		0	2
Mercury	SO	Lake H	LH-05	SW7471	<	0.068	0.068	mg/kg		2	4
Mercury	SO	Lake H	LH-02	SW7471	<	0.062	0.062	mg/kg		2	4
Mercury	SO	Lake H	LH-05	SW7471	<	0.069	0.069	mg/kg		0	2
Mercury	SO	Lake H	LH-06	SW7471	>	0.53	0.071	mg/kg		0	2
Mercury	SO	Lake H	LH-07	SW7471	<	0.071	0.071	mg/kg		0	2
Mercury	SO	Lake H	LH-03	SW7471	<	0.061	0.061	mg/kg		0	2
Mercury	SO	Lake H	LH-04	SW7471	<	0.068	0.068	mg/kg		0	2
Mercury	SO	Lake H	LH-01	SW7471	>	0.07	0.065	mg/kg	@	0	2
Methyl ethyl ketone	SO	Lake H	LH-05	SW8240	<	0.15	0.15	mg/kg		0	2
Methyl ethyl ketone	SO	Lake H	LH-03	SW8240	<	0.14	0.14	mg/kg		0	2
Methyl ethyl ketone	SO	Lake H	LH-06	SW8240	<	0.16	0.16	mg/kg		0	2
Methyl ethyl ketone	SO	Lake H	LH-04	SW8240	<	0.15	0.15	mg/kg		0	2
Methyl ethyl ketone	SO	Lake H	LH-02	SW8240	<	0.14	0.14	mg/kg		2	4
Methyl ethyl ketone	SO	Lake H	LH-05	SW8240	<	0.15	0.15	mg/kg		2	4
Methyl ethyl ketone	SO	Lake H	LH-02	SW8240	<	0.14	0.14	mg/kg		0	2
Methyl ethyl ketone	SO	Lake H	LH-07	SW8240	<	0.019	0.15	mg/kg	J	0	2
Methyl ethyl ketone	SO	Lake H	LH-01	SW8240	<	0.15	0.15	mg/kg		0	2
Methylene chloride	SO	Lake H	LH-01	SW8240	>	0.014	0.0073	mg/kg	@	0	2
Methylene chloride	SO	Lake H	LH-07	SW8240	>	0.033	0.0077	mg/kg	@	0	2
Methylene chloride	SO	Lake H	LH-06	SW8240	<	0.007	0.0078	mg/kg	J	0	2
Methylene chloride	SO	Lake H	LH-05	SW8240	>	0.025	0.0076	mg/kg	@	2	4
Methylene chloride	SO	Lake H	LH-05	SW8240	>	0.024	0.0077	mg/kg	@	0	2
Methylene chloride	SO	Lake H	LH-04	SW8240	>	0.01	0.0076	mg/kg	@	0	2
Methylene chloride	SO	Lake H	LH-03	SW8240	>	0.011	0.0068	mg/kg	@	0	2
Methylene chloride	SO	Lake H	LH-02	SW8240	>	0.019	0.0069	mg/kg	@	2	4
Methylene chloride	SO	Lake H	LH-02	SW8240	<	0.0059	0.007	mg/kg	J	0	2
Molecular sulfur	SO	Lake H	LH-05	SW8270	>	100	.	mg/kg		0	2
Molecular sulfur	SO	Lake H	LH-04	SW8270	>	66	.	mg/kg		0	2
Molecular sulfur	SO	Lake H	LH-03	SW8270	>	41	.	mg/kg		0	2
Molecular sulfur	SO	Lake H	LH-06	SW8270	>	46	.	mg/kg		0	2
Molecular sulfur	SO	Lake H	LH-01	SW8270	>	44	.	mg/kg		0	2
Selenium	SO	Lake H	LH-02	SW7740	>	0.97	0.49	mg/kg	@	0	2
Selenium	SO	Lake H	LH-05	SW7740	ND	0.39	0.52	mg/kg		2	4
Selenium	SO	Lake H	LH-02	SW7740	ND	0.375	0.5	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Selenium	SO	Lake H	LH-05	SW7740	ND	0.3975	0.53	mg/kg		0	2
Selenium	SO	Lake H	LH-06	SW7740	ND	0.465	0.62	mg/kg		0	2
Selenium	SO	Lake H	LH-07	SW7740	ND	0.4575	0.61	mg/kg		0	2
Selenium	SO	Lake H	LH-03	SW7740	>	1.2	0.46	mg/kg	@	0	2
Selenium	SO	Lake H	LH-04	SW7740	>	0.64	0.6	mg/kg	@	0	2
Selenium	SO	Lake H	LH-01	SW7740	ND	0.3975	0.53	mg/kg		0	2
Sulfide	SO	Lake H	LH-05	SW9030	>	170	38	mg/kg	@	0	2
Sulfide	SO	Lake H	LH-03	SW9030	>	120	32	mg/kg	@	0	2
Sulfide	SO	Lake H	LH-06	SW9030	>	79	38	mg/kg	@	0	2
Sulfide	SO	Lake H	LH-04	SW9030	>	160	37	mg/kg	@	0	2
Sulfide	SO	Lake H	LH-02	SW9030	<	35	35	mg/kg		2	4
Sulfide	SO	Lake H	LH-05	SW9030	<	37	37	mg/kg		2	4
Sulfide	SO	Lake H	LH-02	SW9030	<	35	35	mg/kg		0	2
Sulfide	SO	Lake H	LH-07	SW9030	>	360	39	mg/kg		0	2
Sulfide	SO	Lake H	LH-01	SW9030	>	100	36	mg/kg	@	0	2
Toluene	SO	Lake H	LH-01	SW8240	<	0.0013	0.0073	mg/kg	J	0	2
Toluene	SO	Lake H	LH-07	SW8240	<	0.00033	0.0077	mg/kg	J	0	2
Toluene	SO	Lake H	LH-06	SW8240	<	0.00022	0.0078	mg/kg	J	0	2
Toluene	SO	Lake H	LH-05	SW8240	<	0.00042	0.0076	mg/kg	J	2	4
Toluene	SO	Lake H	LH-05	SW8240	<	0.00014	0.0077	mg/kg	J	0	2
Toluene	SO	Lake H	LH-04	SW8240	<	0.0076	0.0076	mg/kg		0	2
Toluene	SO	Lake H	LH-03	SW8240	<	0.00026	0.0068	mg/kg	J	0	2
Toluene	SO	Lake H	LH-02	SW8240	<	0.0022	0.0069	mg/kg	J	2	4
Toluene	SO	Lake H	LH-02	SW8240	<	0.0035	0.007	mg/kg	J	0	2
Total organic carbon	SO	Lake H	LH-06		>	2900	1100	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-03	SW6010	>	14	7.5	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-02	SW6010	>	9.2	7.7	mg/kg	@	2	4
Vanadium	SO	Lake H	LH-02	SW6010	>	8.1	7.7	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-04	SW6010	ND	6.075	8.1	mg/kg		0	2
Vanadium	SO	Lake H	LH-01	SW6010	ND	6.075	8.1	mg/kg		0	2
Vanadium	SO	Lake H	LH-06	SW6010	>	15	8.9	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-07	SW6010	>	16	11	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-05	SW6010	>	19	8	mg/kg	@	0	2
Vanadium	SO	Lake H	LH-05	SW6010	>	14	8	mg/kg	@	2	4
Zinc	SO	Lake H	LH-02	SW6010	>	13	7.7	mg/kg	@	2	4
Zinc	SO	Lake H	LH-06	SW6010	>	16	8.9	mg/kg	@	0	2
Zinc	SO	Lake H	LH-07	SW6010	>	22	11	mg/kg	@	0	2
Zinc	SO	Lake H	LH-05	SW6010	>	20	8	mg/kg	@	2	4
Zinc	SO	Lake H	LH-05	SW6010	>	29	8	mg/kg	@	0	2
Zinc	SO	Lake H	LH-04	SW6010	>	11	8.1	mg/kg	@	0	2
Zinc	SO	Lake H	LH-03	SW6010	>	22	7.5	mg/kg	@	0	2
Zinc	SO	Lake H	LH-01	SW6010	>	12	8.1	mg/kg	@	0	2
Zinc	SO	Lake H	LH-02	SW6010	>	14	7.7	mg/kg	@	0	2
4,4'-DDD	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
4,4'-DDD	WG	Lake H	MW-17	SW8080	>	0.000016	9.50E-06	mg/L	X@	.	.
4,4'-DDD	WG	Lake H	MW-16	SW8080	>	0.000022	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WG	Lake H	MW-17	SW8080	<	9.40E-06	9.50E-06	mg/L	J	.	.
4,4'-DDE	WG	Lake H	MW-16	SW8080	>	0.000015	9.50E-06	mg/L	@	.	.
4,4'-DDE	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Aldrin	WG	Lake H	MW-17	SW8080	>	0.000014	9.50E-06	mg/L	@	.	.
Aldrin	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Aldrin	WG	Lake H	MW-16	SW8080	>	0.000013	9.50E-06	mg/L	@	.	.
alpha-BHC	WG	Lake H	MW-16	SW8080	>	0.000051	9.50E-06	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-BHC	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
alpha-BHC	WG	Lake H	MW-17	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
alpha-Chlordane	WG	Lake H	MW-17	SW8080	<	8.40E-06	9.50E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Lake H	MW-16	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Arsenic	WG	Lake H	MW-16	SW7060	>	0.032	0.016	mg/L	@	.	.
Barium	WG	Lake H	MW-16	SW6010	>	0.58	0.01	mg/L		.	.
Barium	WG	Lake H	MWS-16	SW6010	>	0.029	0.01	mg/L	@	.	.
Barium	WG	Lake H	MW-17	SW6010	>	0.28	0.01	mg/L		.	.
Beryllium	WG	Lake H	MW-16	SW6010	>	0.0036	0.002	mg/L	@	.	.
beta-BHC	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
beta-BHC	WG	Lake H	MW-17	SW8080	<	4.30E-06	9.50E-06	mg/L	J	.	.
beta-BHC	WG	Lake H	MW-16	SW8080	>	0.000027	9.50E-06	mg/L	@	.	.
bis(2-Ethylhexyl)phthalate	WG	Lake H	MW-16	SW8270	<	0.0023	0.0095	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WG	Lake H	MW-17	SW8270	<	0.0006	0.0095	mg/L	J	.	.
Cadmium	WG	Lake H	MW-16	SW6010	>	0.014	0.005	mg/L	@	.	.
Cadmium	WG	Lake H	MWS-16	SW6010	>	0.011	0.005	mg/L	@	.	.
Chromium	WG	Lake H	MW-17	SW6010	<	0.0085	0.01	mg/L	@	.	.
Chromium	WG	Lake H	MW-16	SW6010	>	0.043	0.01	mg/L	@	.	.
Cobalt	WG	Lake H	MW-16	SW6010	>	0.04	0.01	mg/L	@	.	.
delta-BHC	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
delta-BHC	WG	Lake H	MW-16	SW8080	>	0.000049	9.50E-06	mg/L	G	.	.
Dieldrin	WG	Lake H	MW-17	SW8080	>	0.000018	9.50E-06	mg/L	@	.	.
Dieldrin	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Dieldrin	WG	Lake H	MW-16	SW8080	>	0.000029	9.50E-06	mg/L	X@	.	.
Endosulfan I	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Endosulfan I	WG	Lake H	MW-16	SW8080	>	0.00003	9.50E-06	mg/L	X@	.	.
Endosulfan I	WG	Lake H	MW-17	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan II	WG	Lake H	MW-16	SW8080	<	0.000013	0.000029	mg/L	J	.	.
Endosulfan sulfate	WG	Lake H	MW-17	SW8080	<	4.90E-06	0.000048	mg/L	J	.	.
Endosulfan sulfate	WG	Lake H	MW-16	SW8080	<	0.000016	0.000048	mg/L	J	.	.
Endrin	WG	Lake H	MW-16	SW8080	>	0.000011	9.50E-06	mg/L	X@	.	.
gamma-BHC	WG	Lake H	MW-16	SW8080	>	0.00002	9.50E-06	mg/L	G@	.	.
gamma-BHC	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
gamma-Chlordane	WG	Lake H	MWS-16	SW8080	<	1.60E-06	9.70E-06	mg/L	JX	.	.
gamma-Chlordane	WG	Lake H	MW-17	SW8080	>	0.000012	9.50E-06	mg/L	X@	.	.
gamma-Chlordane	WG	Lake H	MW-16	SW8080	>	0.000014	9.50E-06	mg/L	@	.	.
Hardness, as CaC03	WG	Lake H	MW-17	E130.2	<	0	10	mg/L	@	.	.
Hardness, as CaC03	WG	Lake H	MW-16	E130.2	>	7300	250	mg/L		.	.
Hardness, as CaC03	WG	Lake H	MWS-16	E130.2	>	12000	250	mg/L		.	.
Heptachlor	WG	Lake H	MW-16	SW8080	>	0.000036	9.50E-06	mg/L	X@	.	.
Heptachlor	WG	Lake H	MWS-16	SW8080	<	4.40E-06	9.70E-06	mg/L	JX	.	.
Isodrin	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Isodrin	WG	Lake H	MW-17	SW8080	>	0.000018	9.50E-06	mg/L	X@	.	.
Isodrin	WG	Lake H	MW-16	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
Kepone (Mirex)	WG	Lake H	MW-17	SW8080	>	0.00075	9.50E-06	mg/L	G	.	.
Kepone (Mirex)	WG	Lake H	MW-16	SW8080	>	0.00031	9.50E-06	mg/L	G	.	.
Kepone (Mirex)	WG	Lake H	MWS-16	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Lead	WG	Lake H	MW-16	SW7421	>	0.014	0.006	mg/L	@	.	.
Lead	WG	Lake H	MW-17	SW7421	<	-0.002	0.006	mg/L	@	.	.
Mercury	WG	Lake H	MWS-16	SW7470	<	0.00001	0.00018	mg/L	J	.	.
Mercury	WG	Lake H	MW-17	SW7470	<	0	0.00036	mg/L	@	.	.
Mercury	WG	Lake H	MW-16	SW7470	<	0.00002	0.00018	mg/L	J	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Sulfide	WG	Lake H	MW-16	SW9030	<	0.34	1	mg/L	@	.	.
Thallium	WG	Lake H	MW-16	SW7841	<	0.0028	0.02	mg/L	@	.	.
Total dissolved solids	WG	Lake H	MWS-16	E160.1	>	40000	10	mg/L		.	.
Total dissolved solids	WG	Lake H	MW-16	E160.1	>	18000	10	mg/L		.	.
Total dissolved solids	WG	Lake H	MW-17	E160.1	>	24000	10	mg/L		.	.
Vanadium	WG	Lake H	MW-16	SW6010	>	0.091	0.02	mg/L	@	.	.
Vanadium	WG	Lake H	MW-17	SW6010	>	0.03	0.02	mg/L	@	.	.
Zinc	WG	Lake H	MW-17	SW6010	>	0.057	0.02	mg/L	@	.	.
Zinc	WG	Lake H	MW-16	SW6010	>	0.16	0.02	mg/L		.	.
Zinc	WG	Lake H	MWS-16	SW6010	<	0.01	0.02	mg/L	@	.	.
4,4'-DDD	WS	Lake H	LH-02	SW8080	<	4.20E-06	9.50E-06	mg/L	JX	.	.
4,4'-DDT	WS	Lake H	LH-02	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WS	Lake H	LH-03	SW8080	<	0.000016	0.000019	mg/L	J	.	.
4,4'-DDT	WS	Lake H	LH-01	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
alpha-BHC	WS	Lake H	LH-03	SW8080	<	8.50E-06	9.50E-06	mg/L	J	.	.
alpha-BHC	WS	Lake H	LH-02	SW8080	<	8.50E-06	9.50E-06	mg/L	J	.	.
alpha-BHC	WS	Lake H	LH-01	SW8080	<	9.40E-06	9.50E-06	mg/L	JX	.	.
Arsenic	WS	Lake H	H-3	SW7060	>	0.0076	.	mg/L	@	.	.
Arsenic	WS	Lake H	H-5	SW7060	>	0.0088	.	mg/L	@	.	.
Arsenic	WS	Lake H	H-4	SW7060	>	0.0079	.	mg/L	@	.	.
Arsenic	WS	Lake H	H-1	SW7060	>	0.0058	.	mg/L	@	.	.
Arsenic	WS	Lake H	H-2	SW7060	>	0.0065	.	mg/L	@	.	.
Barium	WS	Lake H	H-1	SW6010	>	0.041	.	mg/L	@	.	.
Barium	WS	Lake H	H-4	SW6010	>	0.039	.	mg/L	@	.	.
Barium	WS	Lake H	H-2	SW6010	>	0.039	.	mg/L	@	.	.
Barium	WS	Lake H	H-3	SW6010	>	0.042	.	mg/L	@	.	.
Barium	WS	Lake H	H-5	SW6010	>	0.039	.	mg/L	@	.	.
bis(2-Ethylhexyl)phthalate	WS	Lake H	H-1	SW8270	>	0.009	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Lake H	H-2	SW8270	>	0.01	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Lake H	H-5	SW8270	>	0.008	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Lake H	H-4	SW8270	ND	0.01	0.02	mg/L		.	.
bis(2-Ethylhexyl)phthalate	WS	Lake H	H-3	SW8270	>	0.069	.	mg/L	@B	.	.
Boron	WS	Lake H	H-4	SW6010	>	0.33	.	mg/L	@	.	.
Boron	WS	Lake H	H-1	SW6010	>	0.33	.	mg/L	@	.	.
Boron	WS	Lake H	H-5	SW6010	>	0.27	.	mg/L	@	.	.
Boron	WS	Lake H	H-3	SW6010	>	0.36	.	mg/L	@	.	.
Boron	WS	Lake H	H-2	SW6010	>	0.36	.	mg/L	@	.	.
Butylbenzylphthalate	WS	Lake H	H-2	SW8270	ND	0.01	0.02	mg/L		.	.
Butylbenzylphthalate	WS	Lake H	H-1	SW8270	ND	0.01	0.02	mg/L		.	.
Butylbenzylphthalate	WS	Lake H	H-5	SW8270	ND	0.005	0.01	mg/L		.	.
Butylbenzylphthalate	WS	Lake H	H-4	SW8270	ND	0.01	0.02	mg/L		.	.
Butylbenzylphthalate	WS	Lake H	H-3	SW8270	>	0.042	.	mg/L	@	.	.
Calcium	WS	Lake H	H-1	SW6010	>	870	.	mg/L		.	.
Calcium	WS	Lake H	H-5	SW6010	>	850	.	mg/L		.	.
Calcium	WS	Lake H	H-4	SW6010	>	840	.	mg/L		.	.
Calcium	WS	Lake H	H-3	SW6010	>	880	.	mg/L		.	.
Calcium	WS	Lake H	H-2	SW6010	>	830	.	mg/L		.	.
Dibutylphthalate	WS	Lake H	H-1	SW8270	ND	0.01	0.02	mg/L		.	.
Dibutylphthalate	WS	Lake H	H-5	SW8270	ND	0.005	0.01	mg/L		.	.
Dibutylphthalate	WS	Lake H	H-2	SW8270	ND	0.01	0.02	mg/L		.	.
Dibutylphthalate	WS	Lake H	H-4	SW8270	ND	0.01	0.02	mg/L		.	.
Dibutylphthalate	WS	Lake H	H-3	SW8270	>	0.02	.	mg/L	J	.	.
Dieldrin	WS	Lake H	LH-03	SW8080	>	0.000011	9.50E-06	mg/L	X@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Dieldrin	WS	Lake H	LH-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WS	Lake H	LH-01	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Diethylphthalate	WS	Lake H	H-1	SW8270	ND	0.01	0.02	mg/L		.	.
Diethylphthalate	WS	Lake H	H-2	SW8270	ND	0.01	0.02	mg/L		.	.
Diethylphthalate	WS	Lake H	H-5	SW8270	ND	0.005	0.01	mg/L		.	.
Diethylphthalate	WS	Lake H	H-4	SW8270	ND	0.01	0.02	mg/L		.	.
Diethylphthalate	WS	Lake H	H-3	SW8270	>	0.014	.	mg/L	J	.	.
Endosulfan sulfate	WS	Lake H	LH-02	SW8080	<	7.00E-07	0.000048	mg/L	J	.	.
Endrin aldehyde	WS	Lake H	LH-02	SW8080	<	4.50E-06	0.000019	mg/L	JX	.	.
Endrin ketone	WS	Lake H	H-1	SW8080	>	0.00003	.	mg/L	J	.	.
gamma-BHC	WS	Lake H	LH-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WS	Lake H	LH-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WS	Lake H	LH-01	SW8080	>	9.90E-06	9.50E-06	mg/L	@	.	.
Hardness, as CaC03	WS	Lake H	LH-03	E130.2	>	4800	250	mg/L		.	.
Hardness, as CaC03	WS	Lake H	LH-02	E130.2	>	4700	250	mg/L		.	.
Hardness, as CaC03	WS	Lake H	LH-01	E130.2	>	4700	250	mg/L		.	.
Iron	WS	Lake H	H-5	SW6010	ND	0.0065	0.013	mg/L		.	.
Iron	WS	Lake H	H-2	SW6010	ND	0.0065	0.013	mg/L		.	.
Iron	WS	Lake H	H-1	SW6010	>	0.014	.	mg/L	@	.	.
Iron	WS	Lake H	H-4	SW6010	ND	0.0065	0.013	mg/L		.	.
Iron	WS	Lake H	H-3	SW6010	>	1.7	.	mg/L		.	.
Lead	WS	Lake H	H-2	SW7421	>	0.0039	.	mg/L	@	.	.
Lead	WS	Lake H	H-1	SW7421	>	0.0043	.	mg/L	@	.	.
Lead	WS	Lake H	H-5	SW7421	>	0.0023	.	mg/L	@	.	.
Lead	WS	Lake H	H-4	SW7421	>	0.0029	.	mg/L	@	.	.
Lead	WS	Lake H	H-3	SW7421	>	0.0027	.	mg/L	@	.	.
Lead (organic)	WS	Lake H	H-4	E239.1	>	0.15	.	mg/L	@	.	.
Lead (organic)	WS	Lake H	H-1	E239.1	>	0.1	.	mg/L	@	.	.
Lead (organic)	WS	Lake H	H-5	E239.1	>	0.35	.	mg/L	@	.	.
Lead (organic)	WS	Lake H	H-3	E239.1	>	0.27	.	mg/L	@	.	.
Lead (organic)	WS	Lake H	H-2	E239.1	>	0.16	.	mg/L	@	.	.
Magnesium	WS	Lake H	H-3	SW6010	>	570	.	mg/L		.	.
Magnesium	WS	Lake H	H-4	SW6010	>	540	.	mg/L		.	.
Magnesium	WS	Lake H	H-2	SW6010	>	520	.	mg/L		.	.
Magnesium	WS	Lake H	H-1	SW6010	>	550	.	mg/L		.	.
Magnesium	WS	Lake H	H-5	SW6010	>	540	.	mg/L		.	.
Manganese	WS	Lake H	H-2	SW6010	>	0.053	.	mg/L		.	.
Manganese	WS	Lake H	H-1	SW6010	>	0.055	.	mg/L		.	.
Manganese	WS	Lake H	H-3	SW6010	>	0.06	.	mg/L		.	.
Manganese	WS	Lake H	H-5	SW6010	>	0.053	.	mg/L		.	.
Manganese	WS	Lake H	H-4	SW6010	>	0.052	.	mg/L		.	.
Mercury	WS	Lake H	H-5	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Lake H	H-3	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Lake H	H-2	SW7470	>	0.00033	.	mg/L	@	.	.
Mercury	WS	Lake H	H-4	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Lake H	H-1	SW7470	>	0.00033	.	mg/L	@	.	.
Methoxychlor	WS	Lake H	LH-02	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WS	Lake H	H-4	SW8080	ND	0.005	0.01	mg/L		.	.
Methoxychlor	WS	Lake H	H-3	SW8080	>	0.05	.	mg/L		.	.
Methoxychlor	WS	Lake H	H-1	SW8080	ND	0.0025	0.005	mg/L		.	.
Methoxychlor	WS	Lake H	LH-03	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WS	Lake H	LH-01	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WS	Lake H	H-5	SW8080	>	0.05	.	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Methoxychlor	WS	Lake H	H-2	SW8080	>	0.05	.	mg/L		.	.
Potassium	WS	Lake H	H-3	SW6010	>	34	.	mg/L		.	.
Potassium	WS	Lake H	H-1	SW6010	>	36	.	mg/L		.	.
Potassium	WS	Lake H	H-5	SW6010	>	34	.	mg/L		.	.
Potassium	WS	Lake H	H-4	SW6010	>	34	.	mg/L		.	.
Silicon	WS	Lake H	H-4	SW6010	>	12	.	mg/L		.	.
Silicon	WS	Lake H	H-1	SW6010	>	15	.	mg/L		.	.
Silicon	WS	Lake H	H-5	SW6010	>	12	.	mg/L		.	.
Silicon	WS	Lake H	H-3	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Lake H	H-2	SW6010	>	11	.	mg/L		.	.
Sodium	WS	Lake H	H-3	SW6010	>	1800	.	mg/L		.	.
Sodium	WS	Lake H	H-4	SW6010	>	1700	.	mg/L		.	.
Sodium	WS	Lake H	H-2	SW6010	>	1600	.	mg/L		.	.
Sodium	WS	Lake H	H-1	SW6010	>	1800	.	mg/L		.	.
Sodium	WS	Lake H	H-5	SW6010	>	1700	.	mg/L		.	.
Total dissolved solids	WS	Lake H	LH-03	E160.1	>	11000	10	mg/L		.	.
Total dissolved solids	WS	Lake H	LH-02	E160.1	>	11000	10	mg/L		.	.
Total dissolved solids	WS	Lake H	LH-01	E160.1	>	12000	10	mg/L		.	.
Vanadium	WS	Lake H	H-2	SW6010	ND	0.0015	0.003	mg/L		.	.
Vanadium	WS	Lake H	H-1	SW6010	ND	0.0015	0.003	mg/L		.	.
Vanadium	WS	Lake H	H-5	SW6010	ND	0.0015	0.003	mg/L		.	.
Vanadium	WS	Lake H	H-4	SW6010	ND	0.0015	0.003	mg/L		.	.
Vanadium	WS	Lake H	H-3	SW6010	>	0.0043	.	mg/L	@	.	.
Zinc	WS	Lake H	H-1	SW6010	>	0.0081	.	mg/L	@	.	.
Zinc	WS	Lake H	H-5	SW6010	>	0.011	.	mg/L	@	.	.
Zinc	WS	Lake H	H-4	SW6010	>	0.01	.	mg/L	@	.	.
Zinc	WS	Lake H	H-3	SW6010	>	0.029	.	mg/L	@	.	.
Zinc	WS	Lake H	H-2	SW6010	>	0.012	.	mg/L	@	.	.
2,4,5-T	SO	Lake S	LS-03	SW8150	<	0.032	0.032	mg/kg		0	2
2,4,5-T	SO	Lake S	LS-06	SW8150	ND	0.0145	0.029	mg/kg		0	1
2,4,5-T	SO	Lake S	LS-01	SW8150	<	0.034	0.034	mg/kg		0	2
2,4,5-T	SO	Lake S	LS-05	SW8150	ND	0.0165	0.033	mg/kg		0	1
2,4,5-T	SO	Lake S	LS-02	SW8150	<	0.002	0.031	mg/kg	JX	0	2
2,4,5-T	SO	Lake S	LS-01	SW8150	<	0.027	0.027	mg/kg		2	4
2,4,5-T	SO	Lake S	LS-03	SW8150	<	0.028	0.028	mg/kg		2	4
2,4,5-T	SO	Lake S	LS-02	SW8150	<	0.028	0.028	mg/kg		2	4
Acetone	SO	Lake S	LS-02	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Lake S	LS-03	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Lake S	LS-03	SW8240	>	0.42	0.16	mg/kg	@	0	2
Acetone	SO	Lake S	LS-06	SW8240	<	0.036	0.14	mg/kg	J	0	1
Acetone	SO	Lake S	LS-05	SW8240	>	0.3	0.16	mg/kg	@	0	1
Acetone	SO	Lake S	LS-02	SW8240	ND	2.325	3.1	mg/kg		0	2
Acetone	SO	Lake S	LS-01	SW8240	<	0.08	0.14	mg/kg	J	2	4
Acetone	SO	Lake S	LS-01	SW8240	ND	2.55	3.4	mg/kg		0	2
Aldrin	SO	Lake S	LS-06	SW8080	>	0.0012	0.00048	mg/kg	G@	0	1
Aldrin	SO	Lake S	LS-05	SW8080	>	0.021	0.011	mg/kg	X@	0	1
Aldrin	SO	Lake S	LS-01	SW8080	<	0.0017	0.0017	mg/kg		0	2
Aldrin	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
Aldrin	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
Aldrin	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Lake S	LS-06	SW8080	>	0.00084	0.00048	mg/kg	@	0	1

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-BHC	SO	Lake S	LS-01	SW8080	<	0.0017	0.0017	mg/kg		0	2
alpha-BHC	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
alpha-BHC	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Lake S	LS-05	SW8080	ND	0.0055	0.011	mg/kg		0	1
alpha-BHC	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
alpha-BHC	SO	Lake S	LS-01	SW8080	<	0.0012	0.0014	mg/kg	JC	2	4
Arsenic	SO	Lake S	LS-03	SW7060	>	2.3	1.6	mg/kg	@	2	4
Arsenic	SO	Lake S	LS-05	SW7060	>	3.8	0.38	mg/kg		0	1
Arsenic	SO	Lake S	LS-01	SW7060	>	2.2	1.6	mg/kg	@	2	4
Arsenic	SO	Lake S	LS-03	SW7060	>	4.7	2.1	mg/kg	@	0	2
Arsenic	SO	Lake S	LS-02	SW7060	>	2	1.7	mg/kg	@	2	4
Arsenic	SO	Lake S	LS-02	SW7060	>	2.2	0.95	mg/kg	@	0	2
Arsenic	SO	Lake S	LS-01	SW7060	>	1.8	1	mg/kg	@	0	2
Arsenic	SO	Lake S	LS-06	SW7060	>	2.6	0.38	mg/kg		0	1
Barium	SO	Lake S	LS-03	SW6010	>	84	4.7	mg/kg		2	4
Barium	SO	Lake S	LS-05	SW6010	>	68	0.9	mg/kg		0	1
Barium	SO	Lake S	LS-01	SW6010	>	65	4.7	mg/kg		2	4
Barium	SO	Lake S	LS-03	SW6010	>	95	4.6	mg/kg		0	2
Barium	SO	Lake S	LS-02	SW6010	>	66	4.1	mg/kg		2	4
Barium	SO	Lake S	LS-02	SW6010	>	69	4.9	mg/kg		0	2
Barium	SO	Lake S	LS-01	SW6010	>	60	4.9	mg/kg		0	2
Barium	SO	Lake S	LS-06	SW6010	>	71	0.83	mg/kg		0	1
Beryllium	SO	Lake S	LS-05	SW6010	>	0.45	0.18	mg/kg	@	0	1
Beryllium	SO	Lake S	LS-02	SW6010	ND	0.735	0.98	mg/kg		0	2
Beryllium	SO	Lake S	LS-03	SW6010	ND	0.705	0.94	mg/kg		2	4
Beryllium	SO	Lake S	LS-02	SW6010	ND	0.615	0.82	mg/kg		2	4
Beryllium	SO	Lake S	LS-03	SW6010	ND	0.69	0.92	mg/kg		0	2
Beryllium	SO	Lake S	LS-06	SW6010	>	0.51	0.17	mg/kg	@	0	1
Beryllium	SO	Lake S	LS-01	SW6010	ND	0.6975	0.93	mg/kg		2	4
Beryllium	SO	Lake S	LS-01	SW6010	ND	0.735	0.98	mg/kg		0	2
beta-BHC	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
beta-BHC	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
beta-BHC	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Lake S	LS-05	SW8080	ND	0.0055	0.011	mg/kg		0	1
beta-BHC	SO	Lake S	LS-06	SW8080	>	0.0067	0.00048	mg/kg	G	0	1
beta-BHC	SO	Lake S	LS-01	SW8080	<	0.0017	0.0017	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-05	SW8270	ND	0.275	0.55	mg/kg		0	1
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-02	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-03	SW8270	<	0.062	1.4	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-01	SW8270	>	3.9	1.7	mg/kg	@	0	2
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-03	SW8270	<	0.15	1.6	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-02	SW8270	ND	1.05	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-01	SW8270	<	0.078	1.4	mg/kg	J	2	4
bis(2-Ethylhexyl)phthalate	SO	Lake S	LS-06	SW8270	ND	0.24	0.48	mg/kg		0	1
Cadmium	SO	Lake S	LS-01	SW6010	<	2.4	2.4	mg/kg		0	2
Cadmium	SO	Lake S	LS-06	SW6010	<	0.37	0.42	mg/kg	@	0	1
Cadmium	SO	Lake S	LS-03	SW6010	<	2.4	2.4	mg/kg		2	4
Cadmium	SO	Lake S	LS-03	SW6010	<	2.3	2.3	mg/kg		0	2
Cadmium	SO	Lake S	LS-01	SW6010	<	2.3	2.3	mg/kg		2	4
Cadmium	SO	Lake S	LS-02	SW6010	<	2	2	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cadmium	SO	Lake S	LS-02	SW6010	<	2.4	2.4	mg/kg		0	2
Carbon disulfide	SO	Lake S	LS-01	SW8240	ND	0.005175	0.0069	mg/kg		2	4
Carbon disulfide	SO	Lake S	LS-05	SW8240	>	0.014	0.0082	mg/kg	@	0	1
Carbon disulfide	SO	Lake S	LS-02	SW8240	ND	0.12	0.16	mg/kg		0	2
Carbon disulfide	SO	Lake S	LS-06	SW8240	ND	0.0036	0.0072	mg/kg		0	1
Carbon disulfide	SO	Lake S	LS-01	SW8240	ND	0.1275	0.17	mg/kg		0	2
Carbon disulfide	SO	Lake S	LS-03	SW8240	ND	0.00525	0.007	mg/kg		2	4
Carbon disulfide	SO	Lake S	LS-03	SW8240	>	0.014	0.0081	mg/kg	@	0	2
Carbon disulfide	SO	Lake S	LS-02	SW8240	ND	0.005175	0.0069	mg/kg		2	4
Chromium	SO	Lake S	LS-02	SW6010	>	6.2	4.9	mg/kg	@	0	2
Chromium	SO	Lake S	LS-06	SW6010	>	11	0.83	mg/kg		0	1
Chromium	SO	Lake S	LS-01	SW6010	ND	3.675	4.9	mg/kg		0	2
Chromium	SO	Lake S	LS-03	SW6010	>	7.6	4.7	mg/kg	@	2	4
Chromium	SO	Lake S	LS-03	SW6010	>	10	4.6	mg/kg	@	0	2
Chromium	SO	Lake S	LS-02	SW6010	>	4.5	4.1	mg/kg	@	2	4
Chromium	SO	Lake S	LS-05	SW6010	>	9.7	0.9	mg/kg		0	1
Chromium	SO	Lake S	LS-01	SW6010	ND	3.525	4.7	mg/kg		2	4
Cobalt	SO	Lake S	LS-06	SW6010	>	3.2	0.83	mg/kg	@	0	1
Cobalt	SO	Lake S	LS-02	SW6010	ND	3.075	4.1	mg/kg		2	4
Cobalt	SO	Lake S	LS-03	SW6010	ND	3.45	4.6	mg/kg		0	2
Cobalt	SO	Lake S	LS-05	SW6010	>	2.6	0.9	mg/kg	@	0	1
Cobalt	SO	Lake S	LS-03	SW6010	>	4.9	4.7	mg/kg	@	2	4
Cobalt	SO	Lake S	LS-01	SW6010	ND	3.525	4.7	mg/kg		2	4
Cobalt	SO	Lake S	LS-02	SW6010	ND	3.675	4.9	mg/kg		0	2
Cobalt	SO	Lake S	LS-01	SW6010	ND	3.675	4.9	mg/kg		0	2
Cyanide	SO	Lake S	LS-03	SW9012	>	3.3	0.33	mg/kg		2	4
Cyanide	SO	Lake S	LS-01	SW9012	<	0.37	0.37	mg/kg		0	2
Cyanide	SO	Lake S	LS-03	SW9012	>	0.54	0.4	mg/kg	@	0	2
Cyanide	SO	Lake S	LS-01	SW9012	>	6.1	0.33	mg/kg		2	4
Cyanide	SO	Lake S	LS-02	SW9012	>	11	0.34	mg/kg		2	4
Cyanide	SO	Lake S	LS-02	SW9012	>	8.3	0.37	mg/kg		0	2
Cyclohexenone	SO	Lake S	LS-01	SW8270	>	1	.	mg/kg		0	2
delta-BHC	SO	Lake S	LS-05	SW8080	ND	0.0055	0.011	mg/kg		0	1
delta-BHC	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Lake S	LS-03	SW8080	>	3.4	0.016	mg/kg	X	0	2
delta-BHC	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Lake S	LS-02	SW8080	>	2.9	0.016	mg/kg	X	0	2
delta-BHC	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Lake S	LS-01	SW8080	>	0.75	0.0017	mg/kg	X	0	2
delta-BHC	SO	Lake S	LS-06	SW8080	>	0.02	0.00048	mg/kg	X	0	1
Endrin	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
Endrin	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
Endrin	SO	Lake S	LS-01	SW8080	<	0.0017	0.0017	mg/kg		0	2
Endrin	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Endrin	SO	Lake S	LS-05	SW8080	<	0.0067	0.011	mg/kg	JX	0	1
Endrin	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Endrin	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
Endrin aldehyde	SO	Lake S	LS-01	SW8080	<	0.0034	0.0034	mg/kg		0	2
Endrin aldehyde	SO	Lake S	LS-03	SW8080	<	0.033	0.033	mg/kg		0	2
Endrin aldehyde	SO	Lake S	LS-06	SW8080	ND	0.00048	0.00096	mg/kg		0	1
Endrin aldehyde	SO	Lake S	LS-05	SW8080	ND	0.011	0.022	mg/kg		0	1
Endrin aldehyde	SO	Lake S	LS-03	SW8080	<	0.0028	0.0028	mg/kg		2	4
Endrin aldehyde	SO	Lake S	LS-02	SW8080	<	0.0015	0.0028	mg/kg	CJ	2	4

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Endrin aldehyde	SO	Lake S	LS-02	SW8080	<	0.031	0.031	mg/kg		0	2
Endrin aldehyde	SO	Lake S	LS-01	SW8080	<	0.0027	0.0027	mg/kg		2	4
gamma-BHC	SO	Lake S	LS-06	SW8080	>	0.0057	0.00048	mg/kg	G	0	1
gamma-BHC	SO	Lake S	LS-05	SW8080	<	0.0091	0.011	mg/kg	J	0	1
gamma-BHC	SO	Lake S	LS-03	SW8080	<	0.0011	0.0014	mg/kg	JC	2	4
gamma-BHC	SO	Lake S	LS-03	SW8080	>	0.026	0.016	mg/kg	C@	0	2
gamma-BHC	SO	Lake S	LS-02	SW8080	<	0.0011	0.0014	mg/kg	CJ	2	4
gamma-BHC	SO	Lake S	LS-02	SW8080	>	0.035	0.016	mg/kg	C@	0	2
gamma-BHC	SO	Lake S	LS-01	SW8080	<	0.0011	0.0014	mg/kg	J	2	4
gamma-BHC	SO	Lake S	LS-01	SW8080	>	0.0029	0.0017	mg/kg	X@	0	2
Heptachlor epoxide	SO	Lake S	LS-06	SW8080	>	0.11	0.00048	mg/kg	X	0	1
Heptachlor epoxide	SO	Lake S	LS-05	SW8080	>	6.3	0.011	mg/kg	G	0	1
Heptachlor epoxide	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor epoxide	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor epoxide	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
Heptachlor epoxide	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor epoxide	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
Heptachlor epoxide	SO	Lake S	LS-01	SW8080	<	0.0017	0.0017	mg/kg		0	2
Isodrin	SO	Lake S	LS-01	SW8080	<	0.012	0.017	mg/kg	JXD	0	2
Isodrin	SO	Lake S	LS-05	SW8080	ND	0.0055	0.011	mg/kg		0	1
Isodrin	SO	Lake S	LS-06	SW8080	ND	0.00024	0.00048	mg/kg		0	1
Isodrin	SO	Lake S	LS-03	SW8080	<	0.016	0.016	mg/kg		0	2
Isodrin	SO	Lake S	LS-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Lake S	LS-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Lake S	LS-02	SW8080	<	0.016	0.016	mg/kg		0	2
Isodrin	SO	Lake S	LS-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
Lead	SO	Lake S	LS-02	SW7421	>	3.1	0.33	mg/kg		2	4
Lead	SO	Lake S	LS-01	SW7421	>	2.1	0.3	mg/kg		2	4
Lead	SO	Lake S	LS-01	SW7421	>	3.1	0.39	mg/kg		0	2
Lead	SO	Lake S	LS-03	SW7421	>	6.1	0.39	mg/kg		0	2
Lead	SO	Lake S	LS-02	SW7421	>	2.3	0.36	mg/kg		0	2
Lead	SO	Lake S	LS-06	SW7421	>	3	0.28	mg/kg		0	1
Lead	SO	Lake S	LS-05	SW7421	>	3.1	0.28	mg/kg		0	1
Lead	SO	Lake S	LS-03	SW7421	>	2.8	0.3	mg/kg		2	4
Methyl ethyl ketone	SO	Lake S	LS-01	SW8240	<	3.4	3.4	mg/kg		0	2
Methyl ethyl ketone	SO	Lake S	LS-03	SW8240	<	0.033	0.16	mg/kg	J	0	2
Methyl ethyl ketone	SO	Lake S	LS-06	SW8240	ND	0.07	0.14	mg/kg		0	1
Methyl ethyl ketone	SO	Lake S	LS-05	SW8240	ND	0.08	0.16	mg/kg		0	1
Methyl ethyl ketone	SO	Lake S	LS-03	SW8240	<	0.14	0.14	mg/kg		2	4
Methyl ethyl ketone	SO	Lake S	LS-02	SW8240	<	0.14	0.14	mg/kg		2	4
Methyl ethyl ketone	SO	Lake S	LS-02	SW8240	<	3.1	3.1	mg/kg		0	2
Methyl ethyl ketone	SO	Lake S	LS-01	SW8240	<	0.013	0.14	mg/kg	J	2	4
Methylene chloride	SO	Lake S	LS-02	SW8240	<	0.0059	0.0069	mg/kg	J	2	4
Methylene chloride	SO	Lake S	LS-02	SW8240	ND	0.12	0.16	mg/kg		0	2
Methylene chloride	SO	Lake S	LS-01	SW8240	<	0.0011	0.0069	mg/kg	J	2	4
Methylene chloride	SO	Lake S	LS-03	SW8240	ND	0.006075	0.0081	mg/kg		0	2
Methylene chloride	SO	Lake S	LS-01	SW8240	ND	0.1275	0.17	mg/kg		0	2
Methylene chloride	SO	Lake S	LS-05	SW8240	ND	0.0041	0.0082	mg/kg		0	1
Methylene chloride	SO	Lake S	LS-03	SW8240	>	0.0092	0.007	mg/kg	@	2	4
Methylene chloride	SO	Lake S	LS-06	SW8240	<	0.0016	0.0072	mg/kg	J	0	1
Molecular sulfur	SO	Lake S	LS-02	SW8270	>	92	.	mg/kg		0	2
Molecular sulfur	SO	Lake S	LS-05	SW8270	>	36.33	.	mg/kg		0	1
Molecular sulfur	SO	Lake S	LS-01	SW8270	>	110	.	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Molecular sulfur	SO	Lake S	LS-03	SW8270	>	210	.	mg/kg		0	2
Nickel	SO	Lake S	LS-06	SW6010	>	6.8	1.7	mg/kg	@	0	1
Nickel	SO	Lake S	LS-03	SW6010	ND	7.05	9.4	mg/kg		2	4
Nickel	SO	Lake S	LS-01	SW6010	ND	7.35	9.8	mg/kg		0	2
Nickel	SO	Lake S	LS-02	SW6010	ND	6.15	8.2	mg/kg		2	4
Nickel	SO	Lake S	LS-03	SW6010	ND	6.9	9.2	mg/kg		0	2
Nickel	SO	Lake S	LS-02	SW6010	ND	7.35	9.8	mg/kg		0	2
Nickel	SO	Lake S	LS-01	SW6010	ND	6.975	9.3	mg/kg		2	4
Parathion	SO	Lake S	LS-03	SW8140	<	0.1	0.1	mg/kg		2	4
Parathion	SO	Lake S	LS-05	SW8140	ND	0.06	0.12	mg/kg		0	1
Parathion	SO	Lake S	LS-01	SW8140	<	0.1	0.1	mg/kg		2	4
Parathion	SO	Lake S	LS-03	SW8140	<	0.24	0.24	mg/kg		0	2
Parathion	SO	Lake S	LS-02	SW8140	<	0.1	0.1	mg/kg		2	4
Parathion	SO	Lake S	LS-02	SW8140	<	0.064	0.23	mg/kg	JX	0	2
Parathion	SO	Lake S	LS-01	SW8140	<	0.11	0.11	mg/kg		0	2
Parathion	SO	Lake S	LS-06	SW8140	ND	0.011	0.022	mg/kg		0	1
Selenium	SO	Lake S	LS-01	SW7740	ND	0.3675	0.49	mg/kg		2	4
Selenium	SO	Lake S	LS-06	SW7740	<	0.6	0.94	mg/kg	@	0	1
Selenium	SO	Lake S	LS-01	SW7740	ND	0.4875	0.65	mg/kg		0	2
Selenium	SO	Lake S	LS-03	SW7740	ND	0.495	0.66	mg/kg		0	2
Selenium	SO	Lake S	LS-02	SW7740	ND	0.4125	0.55	mg/kg		2	4
Selenium	SO	Lake S	LS-02	SW7740	ND	0.4425	0.59	mg/kg		0	2
Selenium	SO	Lake S	LS-03	SW7740	ND	0.375	0.5	mg/kg		2	4
Sulfide	SO	Lake S	LS-02	SW9030	<	35	35	mg/kg		2	4
Sulfide	SO	Lake S	LS-05	SW9030	>	310	41	mg/kg		0	1
Sulfide	SO	Lake S	LS-03	SW9030	>	540	39	mg/kg		0	2
Sulfide	SO	Lake S	LS-03	SW9030	<	34	34	mg/kg		2	4
Sulfide	SO	Lake S	LS-01	SW9030	<	32	32	mg/kg		2	4
Sulfide	SO	Lake S	LS-02	SW9030	>	420	39	mg/kg		0	2
Sulfide	SO	Lake S	LS-01	SW9030	>	150	42	mg/kg	@	0	2
Toluene	SO	Lake S	LS-06	SW8240	ND	0.0036	0.0072	mg/kg		0	1
Toluene	SO	Lake S	LS-02	SW8240	<	0.16	0.16	mg/kg		0	2
Toluene	SO	Lake S	LS-01	SW8240	<	0.17	0.17	mg/kg		0	2
Toluene	SO	Lake S	LS-03	SW8240	<	0.0015	0.007	mg/kg	J	2	4
Toluene	SO	Lake S	LS-01	SW8240	<	0.0014	0.0069	mg/kg	J	2	4
Toluene	SO	Lake S	LS-05	SW8240	ND	0.0041	0.0082	mg/kg		0	1
Toluene	SO	Lake S	LS-02	SW8240	<	0.00042	0.0069	mg/kg	J	2	4
Toluene	SO	Lake S	LS-03	SW8240	<	0.00039	0.0081	mg/kg	J	0	2
Total organic carbon	SO	Lake S	LS-03		>	11000	1100	mg/kg		0	2
Total organic carbon	SO	Lake S	LS-02		>	3700	1100	mg/kg	@	2	4
Total organic carbon	SO	Lake S	LS-03		>	8700	1100	mg/kg		2	4
Total organic carbon	SO	Lake S	LS-02		>	5100	1100	mg/kg	@	0	2
Trichloroethene	SO	Lake S	LS-06	SW8240	<	0.0021	0.0072	mg/kg	J	0	1
Trichloroethene	SO	Lake S	LS-01	SW8240	<	0.17	0.17	mg/kg		0	2
Trichloroethene	SO	Lake S	LS-03	SW8240	<	0.007	0.007	mg/kg		2	4
Trichloroethene	SO	Lake S	LS-03	SW8240	<	0.0081	0.0081	mg/kg		0	2
Trichloroethene	SO	Lake S	LS-02	SW8240	<	0.0069	0.0069	mg/kg		2	4
Trichloroethene	SO	Lake S	LS-05	SW8240	ND	0.0041	0.0082	mg/kg		0	1
Trichloroethene	SO	Lake S	LS-02	SW8240	<	0.16	0.16	mg/kg		0	2
Trichloroethene	SO	Lake S	LS-01	SW8240	<	0.0069	0.0069	mg/kg		2	4
Vanadium	SO	Lake S	LS-03	SW6010	>	17	9.4	mg/kg	@	2	4
Vanadium	SO	Lake S	LS-03	SW6010	>	20	9.2	mg/kg	@	0	2
Vanadium	SO	Lake S	LS-02	SW6010	>	11	8.2	mg/kg	@	2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Vanadium	SO	Lake S	LS-02	SW6010	>	13	9.8	mg/kg	@	0	2
Vanadium	SO	Lake S	LS-01	SW6010	ND	6.975	9.3	mg/kg		2	4
Vanadium	SO	Lake S	LS-05	SW6010	>	16	1.8	mg/kg		0	1
Vanadium	SO	Lake S	LS-06	SW6010	>	17	1.7	mg/kg		0	1
Vanadium	SO	Lake S	LS-01	SW6010	>	11	9.8	mg/kg	@	0	2
Xylenes	SO	Lake S	LS-02	SW8240	<	0.16	0.16	mg/kg		0	2
Xylenes	SO	Lake S	LS-03	SW8240	<	0.007	0.007	mg/kg		2	4
Xylenes	SO	Lake S	LS-06	SW8240	<	0.00081	0.0072	mg/kg	J	0	1
Xylenes	SO	Lake S	LS-05	SW8240	<	0.0011	0.0082	mg/kg	J	0	1
Xylenes	SO	Lake S	LS-02	SW8240	<	0.0069	0.0069	mg/kg		2	4
Xylenes	SO	Lake S	LS-01	SW8240	<	0.17	0.17	mg/kg		0	2
Xylenes	SO	Lake S	LS-03	SW8240	<	0.0081	0.0081	mg/kg		0	2
Xylenes	SO	Lake S	LS-01	SW8240	<	0.0069	0.0069	mg/kg		2	4
Zinc	SO	Lake S	LS-05	SW6010	>	40	1.8	mg/kg		0	1
Zinc	SO	Lake S	LS-02	SW6010	>	15	8.2	mg/kg	@	2	4
Zinc	SO	Lake S	LS-01	SW6010	>	13	9.3	mg/kg	@	2	4
Zinc	SO	Lake S	LS-02	SW6010	>	19	9.8	mg/kg	@	0	2
Zinc	SO	Lake S	LS-03	SW6010	>	25	9.4	mg/kg	@	2	4
Zinc	SO	Lake S	LS-01	SW6010	>	13	9.8	mg/kg	@	0	2
Zinc	SO	Lake S	LS-06	SW6010	>	26	1.7	mg/kg		0	1
Zinc	SO	Lake S	LS-03	SW6010	>	34	9.2	mg/kg	@	0	2
4,4'-DDD	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
4,4'-DDD	WG	Lake S	MW-18	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WG	Lake S	MW-18	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
4,4'-DDT	WG	Lake S	MWS-09	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Lake S	MW-18	SW8080	<	9.60E-06	0.000019	mg/L	JX	.	.
alpha-BHC	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
alpha-BHC	WG	Lake S	MW-18	SW8080	>	0.000023	9.50E-06	mg/L	G@	.	.
Barium	WG	Lake S	MW-18	SW6010	>	0.26	0.01	mg/L		.	.
Barium	WG	Lake S	MWS-09	SW6010	>	0.097	0.01	mg/L		.	.
Beryllium	WG	Lake S	MW-18	SW6010	<	0.00057	0.002	mg/L	@	.	.
beta-BHC	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
beta-BHC	WG	Lake S	MW-18	SW8080	>	0.000012	9.50E-06	mg/L	X@	.	.
bis(2-Ethylhexyl)phthalate	WG	Lake S	MW-18	SW8270	<	0.005	0.0096	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WG	Lake S	MWS-09	SW8270	ND	0.00475	0.0095	mg/L		.	.
Chromium	WG	Lake S	MW-18	SW6010	>	0.017	0.01	mg/L	@	.	.
Cobalt	WG	Lake S	MW-18	SW6010	<	0.0029	0.01	mg/L	@	.	.
Dieldrin	WG	Lake S	MW-18	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
Dieldrin	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Endosulfan I	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Endosulfan I	WG	Lake S	MW-18	SW8080	<	7.90E-06	9.50E-06	mg/L	JX	.	.
Endosulfan II	WG	Lake S	MW-18	SW8080	<	1.90E-06	0.000029	mg/L	J	.	.
Endrin aldehyde	WG	Lake S	MWS-09	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Lake S	MW-18	SW8080	<	0.000012	0.000019	mg/L	JX	.	.
gamma-BHC	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
gamma-BHC	WG	Lake S	MW-18	SW8080	>	0.000016	9.50E-06	mg/L	@	.	.
gamma-Chlordane	WG	Lake S	MW-18	SW8080	<	3.80E-06	9.50E-06	mg/L	JX	.	.
Hardness, as CaC03	WG	Lake S	MW-18	E130.2	>	3800	250	mg/L		.	.
Hardness, as CaC03	WG	Lake S	MWS-09	E130.2	>	4400	50	mg/L		.	.
Heptachlor	WG	Lake S	MW-18	SW8080	>	0.000036	9.50E-06	mg/L	@	.	.
Heptachlor epoxide	WG	Lake S	MWS-09	SW8080	>	0.0001	9.70E-06	mg/L	X	.	.
Isodrin	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Isodrin	WG	Lake S	MW-18	SW8080	>	0.00001	9.50E-06	mg/L	X@	.	.
Kepone (Mirex)	WG	Lake S	MW-18	SW8080	>	0.00099	9.50E-06	mg/L	X	.	.
Kepone (Mirex)	WG	Lake S	MWS-09	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Lead	WG	Lake S	MW-18	SW7421	<	0	0.006	mg/L	@	.	.
Lead	WG	Lake S	MWS-09	SW7421	<	-0.006	0.006	mg/L	@	.	.
Mercury	WG	Lake S	MWS-09	SW7470	<	0	0.00018	mg/L	@	.	.
Mercury	WG	Lake S	MW-18	SW7470	<	0.00003	0.00018	mg/L	J	.	.
Selenium	WG	Lake S	MWS-09	SW7740	>	0.017	0.01	mg/L	@	.	.
Thallium	WG	Lake S	MW-18	SW7841	<	0.0008	0.02	mg/L	@	.	.
Total dissolved solids	WG	Lake S	MW-18	E160.1	>	15000	10	mg/L		.	.
Total dissolved solids	WG	Lake S	MWS-09	E160.1	>	18000	10	mg/L		.	.
Vanadium	WG	Lake S	MW-18	SW6010	>	0.021	0.02	mg/L	@	.	.
Zinc	WG	Lake S	MW-18	SW6010	>	0.057	0.02	mg/L	@	.	.
4,4'-DDD	WS	Lake S	LS-01	SW8080	<	0.000043	0.000095	mg/L	JX	.	.
4,4'-DDD	WS	Lake S	LS-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WS	Lake S	LS-01	SW8080	<	0.000025	0.000095	mg/L	JX	.	.
Aldrin	WS	Lake S	LS-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WS	Lake S	LS-02	SW8080	>	0.00001	9.50E-06	mg/L	@	.	.
alpha-BHC	WS	Lake S	LS-01	SW8080	>	0.0001	0.000095	mg/L	X@	.	.
Dieldrin	WS	Lake S	LS-02	SW8080	>	0.000011	9.50E-06	mg/L	X@	.	.
Endosulfan I	WS	Lake S	LS-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WS	Lake S	LS-01	SW8080	<	0.000064	0.000095	mg/L	JX	.	.
Endrin aldehyde	WS	Lake S	LS-02	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WS	Lake S	LS-01	SW8080	<	0.000049	0.00019	mg/L	JX	.	.
gamma-BHC	WS	Lake S	LS-02	SW8080	>	9.80E-06	9.50E-06	mg/L	X@	.	.
Hardness, as CaC03	WS	Lake S	LS-01	E130.2	>	5650	250	mg/L		.	.
Hardness, as CaC03	WS	Lake S	LS-02	E130.2	>	5400	250	mg/L		.	.
Heptachlor epoxide	WS	Lake S	LS-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WS	Lake S	LS-01	SW8080	<	0.000018	0.000095	mg/L	J	.	.
Isodrin	WS	Lake S	LS-02	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WS	Lake S	LS-01	SW8080	<	0.000054	0.000095	mg/L	JX	.	.
Total dissolved solids	WS	Lake S	LS-02	E160.1	>	14000	10	mg/L		.	.
Total dissolved solids	WS	Lake S	LS-01	E160.1	>	14000	10	mg/L		.	.
4,4'-DDE	SE	Pond A	A-01	SW8080	>	0.63	0.56	mg/kg	X@	0	0.5
4-Chloroaniline	SE	Pond A	A-01	SW8270	<	1.7	5.6	mg/kg	J	0	0.5
Antimony	SE	Pond A	A-01	SW6010	<	5.7	11	mg/kg	@	0	0.5
Arsenic	SE	Pond A	A-01	SW7060	>	4.5	1	mg/kg	@	0	0.5
Barium	SE	Pond A	A-01	SW6010	>	64	1.1	mg/kg		0	0.5
Benzo(a)pyrene	SE	Pond A	A-01	SW8270	<	0.11	5.6	mg/kg	J	0	0.5
Benzo(b)fluoranthene	SE	Pond A	A-01	SW8270	<	0.14	5.6	mg/kg	JX	0	0.5
Benzo(k)fluoranthene	SE	Pond A	A-01	SW8270	<	0.14	5.6	mg/kg	JX	0	0.5
Beryllium	SE	Pond A	A-01	SW6010	<	0.17	0.22	mg/kg	@	0	0.5
bis(2-Ethylhexyl)phthalate	SE	Pond A	A-01	SW8270	>	6.5	5.6	mg/kg	@	0	0.5
Cadmium	SE	Pond A	A-01	SW6010	>	0.68	0.55	mg/kg	@	0	0.5
Chromium	SE	Pond A	A-01	SW6010	>	24	1.1	mg/kg		0	0.5
Copper	SE	Pond A	A-01	SW6010	>	40	2.2	mg/kg		0	0.5
Diethylphthalate	SE	Pond A	A-01	SW8270	<	0.12	5.6	mg/kg	J	0	0.5
Endosulfan I	SE	Pond A	A-01	SW8080	<	0.53	0.56	mg/kg	XJ	0	0.5
Endosulfan II	SE	Pond A	A-01	SW8080	<	1.1	1.7	mg/kg	XJ	0	0.5
Endosulfan sulfate	SE	Pond A	A-01	SW8080	<	0.42	2.8	mg/kg	XJB	0	0.5
Fluoranthene	SE	Pond A	A-01	SW8270	<	0.12	5.6	mg/kg	J	0	0.5
gamma-Chlordane	SE	Pond A	A-01	SW8080	<	0.49	0.56	mg/kg	JX	0	0.5
Heptachlor	SE	Pond A	A-01	SW8080	<	0.23	0.56	mg/kg	XJ	0	0.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Heptachlor epoxide	SE	Pond A	A-01	SW8080	>	180	0.56	mg/kg	X	0	0.5
Lead	SE	Pond A	A-01	SW7421	>	12	0.78	mg/kg		0	0.5
Mercury	SE	Pond A	A-01	SW7471	>	0.38	0.064	mg/kg		0	0.5
Molecular sulfur	SE	Pond A	A-01	SW8270	>	62	.	mg/kg		0	0.5
Nickel	SE	Pond A	A-01	SW6010	>	4.4	2.2	mg/kg	@	0	0.5
OCDD	SE	Pond A	A-01	SW8280	>	0.00076	0.00044	mg/kg		0	0.5
Pyrene	SE	Pond A	A-01	SW8270	<	0.12	5.6	mg/kg	J	0	0.5
Selenium	SE	Pond A	A-01	SW7740	>	0.73	0.65	mg/kg	@	0	0.5
Silver	SE	Pond A	A-01	SW6010	>	14	1.1	mg/kg		0	0.5
Tin	SE	Pond A	A-01	SW6010	<	3.9	66	mg/kg	@	0	0.5
Vanadium	SE	Pond A	A-01	SW6010	>	13	2.2	mg/kg		0	0.5
Zinc	SE	Pond A	A-01	SW6010	>	68	2.2	mg/kg		0	0.5
1,2,4-Trichlorobenzene	SL	Pond A	A4-3	SW8270	ND	1.05	2.1	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A2-8	SW8270	ND	1.1	2.2	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A3-2	SW8270	ND	1.05	2.1	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A3-4	SW8270	ND	1.05	2.1	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A4-1	SW8270	ND	0.9	1.8	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A3-6	SW8270	ND	0.65	1.3	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-4	SW8270	ND	0.8	1.6	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-7	SW8270	>	1.8	1.6	mg/kg	#	.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-8	SW8270	ND	0.65	1.3	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-10	SW8270	ND	0.85	1.7	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-12	SW8270	ND	1.55	3.1	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-16	SW8270	ND	0.65	1.3	mg/kg		.	.
1,2,4-Trichlorobenzene	SL	Pond A	A1-24	SW8270	ND	1.45	2.9	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A1-4	SW8270	<	0.86	8.3	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond A	A1-16	SW8270	<	3.6	6.9	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond A	A1-12	SW8270	<	13	17	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond A	A1-7	SW8270	<	0.91	8.3	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond A	A1-8	SW8270	ND	3.325	6.7	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A4-1	SW8270	ND	4.8	9.6	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A1-10	SW8270	<	1.2	9.1	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond A	A3-4	SW8270	ND	5.5	11	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A3-2	SW8270	ND	5.5	11	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A2-9	SW8270	ND	5.5	11	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A3-6	SW8270	ND	3.35	6.7	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A2-8	SW8270	ND	5.5	11	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A4-3	SW8270	ND	5.5	11	mg/kg		.	.
2-Methylnaphthalene	SL	Pond A	A1-24	SW8270	<	1.7	15	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A2-9	SW8270	<	4.1	11	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A2-8	SW8270	<	2.8	11	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-8	SW8270	<	2.5	6.7	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-7	SW8270	<	5.3	8.3	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-4	SW8270	<	3.4	8.3	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-24	SW8270	<	5.5	15	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-16	SW8270	<	3	6.9	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A3-4	SW8270	ND	5.5	11	mg/kg		.	.
4-Chloroaniline	SL	Pond A	A3-2	SW8270	ND	5.5	11	mg/kg		.	.
4-Chloroaniline	SL	Pond A	A1-12	SW8270	<	5.2	17	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A1-10	SW8270	<	3	9.1	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A3-6	SW8270	<	3.6	6.7	mg/kg	J	.	.
4-Chloroaniline	SL	Pond A	A4-1	SW8270	<	2.5	9.6	mg/kg	J	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4-Chloroaniline	SL	Pond A	A4-3	SW8270	ND	5.5	11	mg/kg		.	.
Acenaphthene	SL	Pond A	A1-16	SW8270	ND	0.65	1.3	mg/kg		.	.
Acenaphthene	SL	Pond A	A1-8	SW8270	ND	0.65	1.3	mg/kg		.	.
Acenaphthene	SL	Pond A	A1-10	SW8270	ND	0.85	1.7	mg/kg		.	.
Acenaphthene	SL	Pond A	A1-4	SW8270	<	0.89	1.6	mg/kg	J	.	.
Acenaphthene	SL	Pond A	A3-6	SW8270	ND	0.65	1.3	mg/kg		.	.
Acenaphthene	SL	Pond A	A1-7	SW8270	ND	0.8	1.6	mg/kg		.	.
Acetone	SL	Pond A	A1-7	SW8240	<	2.1	5.6	mg/kg	J	.	.
Acetone	SL	Pond A	A1-24	SW8240	ND	2.75	5.5	mg/kg		.	.
Acetone	SL	Pond A	A1-16	SW8240	ND	2.8	5.6	mg/kg		.	.
Acetone	SL	Pond A	A1-4	SW8240	ND	2.7	5.4	mg/kg		.	.
Acetone	SL	Pond A	A1-10	SW8240	ND	2.8	5.6	mg/kg		.	.
Acetone	SL	Pond A	A1-8	SW8240	ND	3.4333333	5.6	mg/kg		.	.
Acetone	SL	Pond A	A2-8	SW8240	ND	2.7	5.4	mg/kg		.	.
Acetone	SL	Pond A	A1-12	SW8240	ND	2.75	5.5	mg/kg		.	.
Acetone	SL	Pond A	A2-9	SW8240	<	2.3	5.5	mg/kg	J	.	.
Anthracene	SL	Pond A	A3-6	SW8270	ND	0.65	1.3	mg/kg		.	.
Anthracene	SL	Pond A	A3-4	SW8270	>	4.7	2.1	mg/kg	#	.	.
Anthracene	SL	Pond A	A3-2	SW8270	>	7.4	2.1	mg/kg		.	.
Anthracene	SL	Pond A	A2-8	SW8270	ND	1.1	2.2	mg/kg		.	.
Anthracene	SL	Pond A	A1-8	SW8270	ND	0.65	1.3	mg/kg		.	.
Anthracene	SL	Pond A	A1-7	SW8270	ND	0.8	1.6	mg/kg		.	.
Anthracene	SL	Pond A	A1-4	SW8270	ND	0.8	1.6	mg/kg		.	.
Anthracene	SL	Pond A	A2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Anthracene	SL	Pond A	A1-24	SW8270	<	1.5	2.9	mg/kg	J	.	.
Anthracene	SL	Pond A	A1-16	SW8270	<	1	1.3	mg/kg	J	.	.
Anthracene	SL	Pond A	A4-3	SW8270	ND	1.05	2.1	mg/kg		.	.
Anthracene	SL	Pond A	A4-1	SW8270	ND	0.9	1.8	mg/kg		.	.
Anthracene	SL	Pond A	A1-12	SW8270	ND	1.55	3.1	mg/kg		.	.
Anthracene	SL	Pond A	A1-10	SW8270	ND	0.85	1.7	mg/kg		.	.
Arsenic	SL	Pond A	A2-8	SW7060	>	10	0.64	mg/kg		.	.
Arsenic	SL	Pond A	A2-9	SW7060	>	9.1	0.58	mg/kg		.	.
Arsenic	SL	Pond A	A1-4	SW7060	>	18	0.96	mg/kg		.	.
Arsenic	SL	Pond A	A1-24	SW7060	>	10	0.46	mg/kg		.	.
Arsenic	SL	Pond A	A1-8	SW7060	>	7.2	0.75	mg/kg		.	.
Arsenic	SL	Pond A	A1-16	SW7060	>	11	0.37	mg/kg		.	.
Arsenic	SL	Pond A	A1-7	SW7060	>	15	0.94	mg/kg		.	.
Arsenic	SL	Pond A	A1-10	SW7060	>	11	0.48	mg/kg		.	.
Arsenic	SL	Pond A	A1-12	SW7060	>	11	0.48	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A1-10	SW8270	<	1.2	7.1	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond A	A1-7	SW8270	<	1	6.5	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond A	A1-16	SW8270	>	6.9	5.4	mg/kg	#	.	.
Benzo(a)anthracene	SL	Pond A	A1-4	SW8270	ND	3.25	6.5	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A1-24	SW8270	<	5.9	12	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond A	A4-1	SW8270	ND	3.75	7.5	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A3-6	SW8270	<	0.85	5.2	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond A	A3-4	SW8270	ND	4.35	8.7	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A3-2	SW8270	ND	4.35	8.7	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A2-9	SW8270	ND	4.35	8.7	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A2-8	SW8270	ND	4.4	8.8	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A1-8	SW8270	ND	1.735	5.2	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A4-3	SW8270	ND	4.35	8.7	mg/kg		.	.
Benzo(a)anthracene	SL	Pond A	A1-12	SW8270	<	2.1	13	mg/kg	J	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Benzo(a)pyrene	SL	Pond A	A1-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A1-7	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A1-4	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A1-24	SW8270	>	5.1	3.8	mg/kg	#	.	.
Benzo(a)pyrene	SL	Pond A	A1-16	SW8270	>	6.1	1.7	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A1-12	SW8270	<	1.8	4.1	mg/kg	J	.	.
Benzo(a)pyrene	SL	Pond A	A2-8	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A2-9	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A1-10	SW8270	<	1.1	2.3	mg/kg	J	.	.
Benzo(a)pyrene	SL	Pond A	A3-2	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A3-4	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A4-1	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(a)pyrene	SL	Pond A	A3-6	SW8270	<	0.75	1.7	mg/kg	J	.	.
Benzo(a)pyrene	SL	Pond A	A4-3	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A3-2	SW8270	ND	2.65	5.3	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-12	SW8270	<	3.6	7.9	mg/kg	J	.	.
Benzo(b)fluoranthene	SL	Pond A	A1-4	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-7	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-16	SW8270	>	7.1	3.3	mg/kg	#	.	.
Benzo(b)fluoranthene	SL	Pond A	A2-9	SW8270	ND	2.65	5.3	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-8	SW8270	ND	1.6	3.2	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A4-1	SW8270	ND	2.3	4.6	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-10	SW8270	<	1.1	4.3	mg/kg	J	.	.
Benzo(b)fluoranthene	SL	Pond A	A3-6	SW8270	ND	1.6	3.2	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A3-4	SW8270	ND	2.65	5.3	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A1-24	SW8270	>	9.6	7.2	mg/kg	#	.	.
Benzo(b)fluoranthene	SL	Pond A	A4-3	SW8270	ND	2.65	5.3	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond A	A2-8	SW8270	ND	2.7	5.4	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-10	SW8270	ND	1.85	3.7	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-7	SW8270	ND	1.7	3.4	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A4-1	SW8270	ND	1.95	3.9	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A3-6	SW8270	ND	1.35	2.7	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-8	SW8270	ND	1.35	2.7	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-4	SW8270	ND	1.7	3.4	mg/kg		.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-24	SW8270	<	1.6	6.2	mg/kg	J	.	.
Benzo(g,h,i)perylene	SL	Pond A	A1-16	SW8270	<	2.2	2.8	mg/kg	J	.	.
Benzo(k)fluoranthene	SL	Pond A	A1-24	SW8270	>	5.9	3.8	mg/kg	#	.	.
Benzo(k)fluoranthene	SL	Pond A	A1-16	SW8270	>	6.5	1.7	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A1-12	SW8270	<	2.3	4.1	mg/kg	J	.	.
Benzo(k)fluoranthene	SL	Pond A	A1-4	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A1-10	SW8270	ND	1.15	2.3	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A2-9	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A1-7	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A1-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A4-1	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A3-4	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A2-8	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A4-3	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A3-2	SW8270	ND	1.4	2.8	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond A	A3-6	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzoic acid	SL	Pond A	A3-2	SW8270	<	3.8	56	mg/kg	J	.	.
Beryllium	SL	Pond A	A1-10	SW6010	>	0.77	0.6	mg/kg	@	.	.
Beryllium	SL	Pond A	A1-12	SW6010	>	0.76	0.6	mg/kg	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Beryllium	SL	Pond A	A1-16	SW6010	>	0.62	0.49	mg/kg	@	.	.
Beryllium	SL	Pond A	A1-24	SW6010	>	0.77	0.64	mg/kg	@	.	.
Beryllium	SL	Pond A	A1-7	SW6010	ND	0.55	1.1	mg/kg		.	.
Beryllium	SL	Pond A	A2-9	SW6010	ND	0.375	0.75	mg/kg		.	.
Beryllium	SL	Pond A	A2-8	SW6010	ND	0.405	0.81	mg/kg		.	.
Beryllium	SL	Pond A	A1-8	SW6010	>	1.3	0.93	mg/kg	@	.	.
Beryllium	SL	Pond A	A1-4	SW6010	ND	0.6	1.2	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A3-2	SW8270	>	4.5	2.8	mg/kg	#B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A2-9	SW8270	>	33	2.8	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A2-8	SW8270	>	34	2.8	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-8	SW8270	>	22	1.7	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-7	SW8270	>	31	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-4	SW8270	>	16	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-24	SW8270	>	51	3.8	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-16	SW8270	>	32	1.7	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A3-6	SW8270	>	35	1.7	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A3-4	SW8270	>	11	2.8	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-12	SW8270	>	76	4.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A1-10	SW8270	>	50	2.3	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A4-3	SW8270	>	25	2.8	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond A	A4-1	SW8270	>	18	2.4	mg/kg	B	.	.
Cadmium	SL	Pond A	A1-10	SW6010	>	6.5	1.5	mg/kg	@	.	.
Cadmium	SL	Pond A	A2-9	SW6010	>	5	1.6	mg/kg	@	.	.
Cadmium	SL	Pond A	A1-4	SW6010	>	5.9	3	mg/kg	@	.	.
Cadmium	SL	Pond A	A2-8	SW6010	>	8.5	2	mg/kg	@	.	.
Cadmium	SL	Pond A	A1-8	SW6010	>	8.2	2.3	mg/kg	@	.	.
Cadmium	SL	Pond A	A1-7	SW6010	>	14	2.8	mg/kg		.	.
Cadmium	SL	Pond A	A1-24	SW6010	>	5.7	1.6	mg/kg	@	.	.
Cadmium	SL	Pond A	A1-16	SW6010	>	7.1	1.6	mg/kg	@	.	.
Cadmium	SL	Pond A	A1-12	SW6010	>	5.3	1.5	mg/kg	@	.	.
Chromium	SL	Pond A	A1-16	SW6010	>	62	9.5	mg/kg		.	.
Chromium	SL	Pond A	A1-12	SW6010	>	65	8.9	mg/kg		.	.
Chromium	SL	Pond A	A1-24	SW6010	>	72	9.5	mg/kg		.	.
Chromium	SL	Pond A	A1-10	SW6010	>	75	9	mg/kg		.	.
Chromium	SL	Pond A	A1-8	SW6010	>	125	14	mg/kg		.	.
Chromium	SL	Pond A	A1-7	SW6010	>	110	17	mg/kg		.	.
Chromium	SL	Pond A	A2-8	SW6010	>	93	9.2	mg/kg		.	.
Chromium	SL	Pond A	A1-4	SW6010	>	110	18	mg/kg		.	.
Chromium	SL	Pond A	A2-9	SW6010	>	72	9.3	mg/kg		.	.
Chrysene	SL	Pond A	A1-7	SW8270	<	1.1	2.1	mg/kg	J	.	.
Chrysene	SL	Pond A	A1-12	SW8270	<	2.5	4.1	mg/kg	J	.	.
Chrysene	SL	Pond A	A1-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Chrysene	SL	Pond A	A2-9	SW8270	ND	1.4	2.8	mg/kg		.	.
Chrysene	SL	Pond A	A1-4	SW8270	ND	1.05	2.1	mg/kg		.	.
Chrysene	SL	Pond A	A1-16	SW8270	>	8	1.7	mg/kg		.	.
Chrysene	SL	Pond A	A2-8	SW8270	ND	1.4	2.8	mg/kg		.	.
Chrysene	SL	Pond A	A4-1	SW8270	ND	1.2	2.4	mg/kg		.	.
Chrysene	SL	Pond A	A1-10	SW8270	<	1.3	2.3	mg/kg	J	.	.
Chrysene	SL	Pond A	A3-6	SW8270	<	0.99	1.7	mg/kg	J	.	.
Chrysene	SL	Pond A	A3-4	SW8270	ND	1.4	2.8	mg/kg		.	.
Chrysene	SL	Pond A	A1-24	SW8270	>	6.1	3.8	mg/kg	#	.	.
Chrysene	SL	Pond A	A4-3	SW8270	ND	1.4	2.8	mg/kg		.	.
Chrysene	SL	Pond A	A3-2	SW8270	ND	1.4	2.8	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Copper	SL	Pond A	A1-10	SW6010	>	310	7.5	mg/kg		.	.
Copper	SL	Pond A	A2-9	SW6010	>	260	7.8	mg/kg		.	.
Copper	SL	Pond A	A1-4	SW6010	>	440	15	mg/kg		.	.
Copper	SL	Pond A	A2-8	SW6010	>	450	7.7	mg/kg		.	.
Copper	SL	Pond A	A1-8	SW6010	>	595	12	mg/kg		.	.
Copper	SL	Pond A	A1-7	SW6010	>	660	14	mg/kg		.	.
Copper	SL	Pond A	A1-24	SW6010	>	310	8	mg/kg		.	.
Copper	SL	Pond A	A1-16	SW6010	>	380	7.9	mg/kg		.	.
Copper	SL	Pond A	A1-12	SW6010	>	310	7.4	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-16	SW8270	ND	0.85	1.7	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-12	SW8270	ND	2.05	4.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-24	SW8270	<	2.3	3.8	mg/kg	J	.	.
Di-n-octylphthalate	SL	Pond A	A1-10	SW8270	ND	1.15	2.3	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A4-1	SW8270	ND	1.2	2.4	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A2-8	SW8270	ND	1.4	2.8	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A2-9	SW8270	ND	1.4	2.8	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A3-4	SW8270	ND	1.4	2.8	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-4	SW8270	ND	1.05	2.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A3-6	SW8270	ND	0.85	1.7	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A3-2	SW8270	ND	1.4	2.8	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A1-7	SW8270	ND	1.05	2.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond A	A4-3	SW8270	ND	1.4	2.8	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A1-12	SW8270	ND	2.05	4.1	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A1-10	SW8270	ND	1.15	2.3	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A1-24	SW8270	ND	1.9	3.8	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A4-3	SW8270	>	8.9	2.8	mg/kg	#B	.	.
Dibutylphthalate	SL	Pond A	A1-16	SW8270	<	0.78	1.7	mg/kg	BJ	.	.
Dibutylphthalate	SL	Pond A	A1-4	SW8270	>	12	2.1	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A3-6	SW8270	>	8.9	1.7	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A3-4	SW8270	>	15	2.8	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A3-2	SW8270	>	10	2.8	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A2-9	SW8270	ND	1.4	2.8	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A2-8	SW8270	ND	1.4	2.8	mg/kg		.	.
Dibutylphthalate	SL	Pond A	A4-1	SW8270	>	11	2.4	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A1-8	SW8270	>	8.3	1.7	mg/kg	B	.	.
Dibutylphthalate	SL	Pond A	A1-7	SW8270	>	12	2.1	mg/kg	B	.	.
Fluoranthene	SL	Pond A	A2-9	SW8270	ND	1.2	2.4	mg/kg		.	.
Fluoranthene	SL	Pond A	A3-2	SW8270	ND	1.2	2.4	mg/kg		.	.
Fluoranthene	SL	Pond A	A3-6	SW8270	<	1.4	1.5	mg/kg	J	.	.
Fluoranthene	SL	Pond A	A3-4	SW8270	ND	1.2	2.4	mg/kg		.	.
Fluoranthene	SL	Pond A	A4-3	SW8270	ND	1.2	2.4	mg/kg		.	.
Fluoranthene	SL	Pond A	A4-1	SW8270	ND	1.05	2.1	mg/kg		.	.
Fluoranthene	SL	Pond A	A1-7	SW8270	<	1.7	1.8	mg/kg	J	.	.
Fluoranthene	SL	Pond A	A1-4	SW8270	ND	0.9	1.8	mg/kg		.	.
Fluoranthene	SL	Pond A	A1-24	SW8270	>	8.4	3.3	mg/kg	#	.	.
Fluoranthene	SL	Pond A	A1-16	SW8270	>	8.4	1.5	mg/kg		.	.
Fluoranthene	SL	Pond A	A1-12	SW8270	<	3.4	3.6	mg/kg	J	.	.
Fluoranthene	SL	Pond A	A1-8	SW8270	<	1.13	1.5	mg/kg	J	.	.
Fluoranthene	SL	Pond A	A2-8	SW8270	<	1.2	2.5	mg/kg	J	.	.
Fluoranthene	SL	Pond A	A1-10	SW8270	<	1.8	2	mg/kg	J	.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-7	SW8270	ND	1.55	3.1	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-8	SW8270	ND	1.25	2.5	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Indeno(1,2,3-cd)pyrene	SL	Pond A	A2-8	SW8270	ND	2.1	4.2	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A2-9	SW8270	ND	2.05	4.1	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-4	SW8270	ND	1.55	3.1	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-16	SW8270	<	2.2	2.6	mg/kg	J	.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A4-1	SW8270	ND	1.75	3.5	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-10	SW8270	ND	1.65	3.3	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A3-6	SW8270	ND	1.25	2.5	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A3-4	SW8270	ND	2.05	4.1	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A1-24	SW8270	<	1.7	5.6	mg/kg	J	.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A4-3	SW8270	ND	2.05	4.1	mg/kg		.	.
Indeno(1,2,3-cd)pyrene	SL	Pond A	A3-2	SW8270	ND	2.05	4.1	mg/kg		.	.
Lead	SL	Pond A	A1-10	SW7421	>	66	0.36	mg/kg		.	.
Lead	SL	Pond A	A2-9	SW7421	>	68	0.43	mg/kg		.	.
Lead	SL	Pond A	A1-4	SW7421	>	120	0.72	mg/kg		.	.
Lead	SL	Pond A	A2-8	SW7421	>	120	0.48	mg/kg		.	.
Lead	SL	Pond A	A1-8	SW7421	>	180	0.56	mg/kg		.	.
Lead	SL	Pond A	A1-7	SW7421	>	160	0.71	mg/kg		.	.
Lead	SL	Pond A	A1-24	SW7421	>	63	0.35	mg/kg		.	.
Lead	SL	Pond A	A1-16	SW7421	>	79	0.28	mg/kg		.	.
Lead	SL	Pond A	A1-12	SW7421	>	65	0.36	mg/kg		.	.
Mercury	SL	Pond A	A1-16	SW7471	>	2	0.26	mg/kg		.	.
Mercury	SL	Pond A	A1-12	SW7471	>	1.2	0.26	mg/kg	@	.	.
Mercury	SL	Pond A	A1-24	SW7471	>	1.5	0.26	mg/kg		.	.
Mercury	SL	Pond A	A1-10	SW7471	>	2	0.3	mg/kg	^	.	.
Mercury	SL	Pond A	A1-4	SW7471	>	2.8	0.5	mg/kg		.	.
Mercury	SL	Pond A	A2-8	SW7471	>	1.7	0.26	mg/kg		.	.
Mercury	SL	Pond A	A1-7	SW7471	>	3.9	0.5	mg/kg		.	.
Mercury	SL	Pond A	A2-9	SW7471	>	1.5	0.26	mg/kg		.	.
Mercury	SL	Pond A	A1-8	SW7471	>	5.1	0.41	mg/kg		.	.
Naphthalene	SL	Pond A	A4-1	SW8270	ND	0.75	1.5	mg/kg		.	.
Naphthalene	SL	Pond A	A1-16	SW8270	<	0.89	1.1	mg/kg	J	.	.
Naphthalene	SL	Pond A	A1-10	SW8270	ND	0.7	1.4	mg/kg		.	.
Naphthalene	SL	Pond A	A3-6	SW8270	ND	0.55	1.1	mg/kg		.	.
Naphthalene	SL	Pond A	A1-4	SW8270	ND	0.65	1.3	mg/kg		.	.
Naphthalene	SL	Pond A	A1-8	SW8270	ND	0.55	1.1	mg/kg		.	.
Naphthalene	SL	Pond A	A1-7	SW8270	ND	0.65	1.3	mg/kg		.	.
Nickel	SL	Pond A	A1-16	SW6010	>	20	6.3	mg/kg	@	.	.
Nickel	SL	Pond A	A1-12	SW6010	>	20	6	mg/kg	@	.	.
Nickel	SL	Pond A	A2-8	SW6010	>	21	6.2	mg/kg	@	.	.
Nickel	SL	Pond A	A1-24	SW6010	>	12	6.4	mg/kg	@	.	.
Nickel	SL	Pond A	A2-9	SW6010	>	15	6.2	mg/kg	@	.	.
Nickel	SL	Pond A	A1-10	SW6010	>	14	6	mg/kg	@	.	.
Nickel	SL	Pond A	A1-8	SW6010	>	18.5	9.3	mg/kg	@	.	.
Nickel	SL	Pond A	A1-7	SW6010	>	23	11	mg/kg	@	.	.
Nickel	SL	Pond A	A1-4	SW6010	>	15	12	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-21	SW8080	>	7.3	1.3	mg/kg		.	.
PCB-1254	SL	Pond A	A1-19	SW8080	>	2.4	1.2	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-18	SW8080	>	16	0.71	mg/kg		.	.
PCB-1254	SL	Pond A	A1-16	SW8080	>	4.9	2.2	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-15	SW8080	>	5.8	0.65	mg/kg		.	.
PCB-1254	SL	Pond A	A1-12	SW8080	>	8.8	4	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-11	SW8080	<	6.6	6.9	mg/kg	J	.	.
PCB-1254	SL	Pond A	A1-23	SW8080	>	12	2.1	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
PCB-1254	SL	Pond A	A1-22	SW8080	>	3.5	0.62	mg/kg		.	.
PCB-1254	SL	Pond A	A1-10	SW8080	ND	2	4	mg/kg		.	.
PCB-1254	SL	Pond A	A1-1	SW8080	>	15	6.5	mg/kg	@	.	.
PCB-1254	SL	Pond A	A3-6	SW8080	ND	1.9	3.8	mg/kg		.	.
PCB-1254	SL	Pond A	A1-6	SW8080	>	9.1	0.53	mg/kg		.	.
PCB-1254	SL	Pond A	A4-1	SW8080	ND	2.7	5.4	mg/kg		.	.
PCB-1254	SL	Pond A	A1-8	SW8080	ND	1.9	4	mg/kg		.	.
PCB-1254	SL	Pond A	A1-7	SW8080	>	15	4.6	mg/kg	@	.	.
PCB-1254	SL	Pond A	A3-2	SW8080	ND	3.3	6.6	mg/kg		.	.
PCB-1254	SL	Pond A	A1-5	SW8080	>	12.	1.1	mg/kg		.	.
PCB-1254	SL	Pond A	A2-8	SW8080	>	12	5.2	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-28	SW8080	>	12	1.8	mg/kg		.	.
PCB-1254	SL	Pond A	A3-7	SW8080	>	9.7	2.2	mg/kg	@	.	.
PCB-1254	SL	Pond A	A1-4	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1254	SL	Pond A	A3-5	SW8080	>	19.5	3.8	mg/kg	@	.	.
PCB-1254	SL	Pond A	A3-4	SW8080	ND	3.1	6.2	mg/kg		.	.
PCB-1254	SL	Pond A	A1-24	SW8080	ND	1.8	3.6	mg/kg		.	.
PCB-1254	SL	Pond A	A2-10	SW8080	>	11	2.2	mg/kg		.	.
PCB-1254	SL	Pond A	A4-2	SW8080	>	12	2.6	mg/kg	@	.	.
PCB-1254	SL	Pond A	A4-3	SW8080	ND	3.3	6.6	mg/kg		.	.
PCB-1254	SL	Pond A	A4-4	SW8080	>	3	2.4	mg/kg	@	.	.
PCB-1254	SL	Pond A	A2-9	SW8080	ND	3.4	6.8	mg/kg		.	.
PCB-1260	SL	Pond A	A2-10	SW8080	ND	1.1	2.2	mg/kg		.	.
PCB-1260	SL	Pond A	A1-7	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1260	SL	Pond A	A4-3	SW8080	ND	3.3	6.6	mg/kg		.	.
PCB-1260	SL	Pond A	A3-7	SW8080	ND	1.1	2.2	mg/kg		.	.
PCB-1260	SL	Pond A	A2-8	SW8080	ND	2.6	5.2	mg/kg		.	.
PCB-1260	SL	Pond A	A3-4	SW8080	ND	3.1	6.2	mg/kg		.	.
PCB-1260	SL	Pond A	A1-4	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1260	SL	Pond A	A1-5	SW8080	>	3.5	1.1	mg/kg	@	.	.
PCB-1260	SL	Pond A	A4-2	SW8080	ND	1.3	2.6	mg/kg		.	.
PCB-1260	SL	Pond A	A4-1	SW8080	ND	2.7	5.4	mg/kg		.	.
PCB-1260	SL	Pond A	A1-6	SW8080	>	2.9	0.53	mg/kg		.	.
PCB-1260	SL	Pond A	A3-6	SW8080	ND	1.9	3.8	mg/kg		.	.
PCB-1260	SL	Pond A	A3-5	SW8080	ND	1.9	3.8	mg/kg		.	.
PCB-1260	SL	Pond A	A1-8	SW8080	ND	1.9	4	mg/kg		.	.
PCB-1260	SL	Pond A	A2-9	SW8080	ND	3.4	6.8	mg/kg		.	.
PCB-1260	SL	Pond A	A4-4	SW8080	ND	1.2	2.4	mg/kg		.	.
PCB-1260	SL	Pond A	A3-2	SW8080	ND	3.3	6.6	mg/kg		.	.
PCB-1260	SL	Pond A	A1-23	SW8080	ND	1.05	2.1	mg/kg		.	.
PCB-1260	SL	Pond A	A1-22	SW8080	>	2.5	0.62	mg/kg	@	.	.
PCB-1260	SL	Pond A	A1-21	SW8080	>	2.1	1.3	mg/kg	@	.	.
PCB-1260	SL	Pond A	A1-18	SW8080	>	5.35	0.71	mg/kg		.	.
PCB-1260	SL	Pond A	A1-16	SW8080	ND	1.1	2.2	mg/kg		.	.
PCB-1260	SL	Pond A	A1-15	SW8080	>	1.7	0.65	mg/kg	@	.	.
PCB-1260	SL	Pond A	A1-19	SW8080	ND	0.6	1.2	mg/kg		.	.
PCB-1260	SL	Pond A	A1-12	SW8080	ND	2	4	mg/kg		.	.
PCB-1260	SL	Pond A	A1-11	SW8080	ND	3.45	6.9	mg/kg		.	.
PCB-1260	SL	Pond A	A1-28	SW8080	>	5.4	1.8	mg/kg	@	.	.
PCB-1260	SL	Pond A	A1-24	SW8080	ND	1.8	3.6	mg/kg		.	.
PCB-1260	SL	Pond A	A1-10	SW8080	ND	2	4	mg/kg		.	.
PCB-1260	SL	Pond A	A1-1	SW8080	ND	3.25	6.5	mg/kg		.	.
Phenanthrene	SL	Pond A	A4-1	SW8270	ND	2.6	5.2	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Phenanthrene	SL	Pond A	A3-6	SW8270	<	1.2	3.6	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A3-4	SW8270	<	5	6	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A2-9	SW8270	ND	3	6	mg/kg		.	.
Phenanthrene	SL	Pond A	A2-8	SW8270	<	1.1	6.1	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A1-8	SW8270	<	0.945	3.6	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A1-7	SW8270	<	1.4	4.5	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A1-4	SW8270	ND	2.25	4.5	mg/kg		.	.
Phenanthrene	SL	Pond A	A3-2	SW8270	>	7.9	6	mg/kg	#	.	.
Phenanthrene	SL	Pond A	A1-24	SW8270	<	3.7	8.1	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A1-16	SW8270	<	2.6	3.7	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A1-12	SW8270	<	1.7	8.9	mg/kg	J	.	.
Phenanthrene	SL	Pond A	A4-3	SW8270	ND	3	6	mg/kg		.	.
Phenanthrene	SL	Pond A	A1-10	SW8270	<	1.1	4.9	mg/kg	J	.	.
Phenol	SL	Pond A	A1-10	SW8270	ND	0.7	1.4	mg/kg		.	.
Phenol	SL	Pond A	A1-7	SW8270	<	1	1.2	mg/kg	J	.	.
Phenol	SL	Pond A	A1-8	SW8270	ND	0.625	1	mg/kg	J	.	.
Phenol	SL	Pond A	A2-9	SW8270	ND	0.85	1.7	mg/kg		.	.
Phenol	SL	Pond A	A4-1	SW8270	ND	0.7	1.4	mg/kg		.	.
Phenol	SL	Pond A	A1-4	SW8270	<	0.84	1.2	mg/kg	J	.	.
Phenol	SL	Pond A	A3-2	SW8270	ND	0.85	1.7	mg/kg		.	.
Phenol	SL	Pond A	A3-4	SW8270	ND	0.85	1.7	mg/kg		.	.
Phenol	SL	Pond A	A1-16	SW8270	ND	0.5	1	mg/kg		.	.
Phenol	SL	Pond A	A4-3	SW8270	ND	0.85	1.7	mg/kg		.	.
Phenol	SL	Pond A	A2-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Phenol	SL	Pond A	A3-6	SW8270	ND	0.5	1	mg/kg		.	.
Pyrene	SL	Pond A	A1-24	SW8270	>	7.7	2.9	mg/kg	#	.	.
Pyrene	SL	Pond A	A1-12	SW8270	>	4	3.1	mg/kg	#	.	.
Pyrene	SL	Pond A	A1-16	SW8270	>	7.7	1.3	mg/kg		.	.
Pyrene	SL	Pond A	A4-3	SW8270	ND	1.05	2.1	mg/kg		.	.
Pyrene	SL	Pond A	A1-10	SW8270	ND	0.85	1.7	mg/kg		.	.
Pyrene	SL	Pond A	A4-1	SW8270	ND	0.9	1.8	mg/kg		.	.
Pyrene	SL	Pond A	A3-4	SW8270	ND	1.05	2.1	mg/kg		.	.
Pyrene	SL	Pond A	A3-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Pyrene	SL	Pond A	A2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Pyrene	SL	Pond A	A2-8	SW8270	<	1.2	2.2	mg/kg	J	.	.
Pyrene	SL	Pond A	A3-6	SW8270	<	1.1	1.3	mg/kg	J	.	.
Pyrene	SL	Pond A	A1-8	SW8270	<	1.1	1.3	mg/kg	J	.	.
Pyrene	SL	Pond A	A1-7	SW8270	<	1.4	1.6	mg/kg	J	.	.
Pyrene	SL	Pond A	A1-4	SW8270	ND	0.8	1.6	mg/kg		.	.
Selenium	SL	Pond A	A1-4	SW7740	ND	0.7	1.4	mg/kg		.	.
Selenium	SL	Pond A	A1-24	SW7740	ND	0.55	1.1	mg/kg		.	.
Selenium	SL	Pond A	A1-16	SW7740	ND	0.44	0.88	mg/kg		.	.
Selenium	SL	Pond A	A1-12	SW7740	>	1.5	1.2	mg/kg	@	.	.
Selenium	SL	Pond A	A1-7	SW7740	ND	0.7	1.4	mg/kg	@	.	.
Selenium	SL	Pond A	A1-8	SW7740	ND	0.525	1.1	mg/kg		.	.
Selenium	SL	Pond A	A1-10	SW7740	ND	0.6	1.2	mg/kg		.	.
Selenium	SL	Pond A	A2-8	SW7740	ND	0.8	1.6	mg/kg		.	.
Selenium	SL	Pond A	A2-9	SW7740	>	2	1.4	mg/kg	@	.	.
Silver	SL	Pond A	A1-4	SW6010	>	190	18	mg/kg		.	.
Silver	SL	Pond A	A1-8	SW6010	>	235	14	mg/kg		.	.
Silver	SL	Pond A	A2-9	SW6010	>	110	9.3	mg/kg		.	.
Silver	SL	Pond A	A1-10	SW6010	>	140	9	mg/kg		.	.
Silver	SL	Pond A	A2-8	SW6010	>	190	9.2	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Silver	SL	Pond A	A1-12	SW6010	>	110	8.9	mg/kg		.	.
Silver	SL	Pond A	A1-16	SW6010	>	91	9.5	mg/kg		.	.
Silver	SL	Pond A	A1-7	SW6010	>	220	17	mg/kg		.	.
Silver	SL	Pond A	A1-24	SW6010	>	140	9.5	mg/kg		.	.
Zinc	SL	Pond A	A1-4	SW6010	>	610	12	mg/kg		.	.
Zinc	SL	Pond A	A1-12	SW6010	>	500	6	mg/kg		.	.
Zinc	SL	Pond A	A1-10	SW6010	>	450	6	mg/kg		.	.
Zinc	SL	Pond A	A2-9	SW6010	>	370	6.2	mg/kg		.	.
Zinc	SL	Pond A	A1-24	SW6010	>	460	6.4	mg/kg		.	.
Zinc	SL	Pond A	A2-8	SW6010	>	570	6.2	mg/kg		.	.
Zinc	SL	Pond A	A1-8	SW6010	>	820	9.3	mg/kg		.	.
Zinc	SL	Pond A	A1-7	SW6010	>	910	11	mg/kg		.	.
Zinc	SL	Pond A	A1-16	SW6010	>	670	6.3	mg/kg		.	.
1,1,2-Trichloroethane	SO	Pond A	A-5	SW8240	>	0.003	.	mg/kg	J	2	4.75
1,1,2-Trichloroethane	SO	Pond A	A-1	SW8240	ND	0.003	0.006	mg/kg		2	4.9
Acetone	SO	Pond A	A-8	SW8240	>	0.006	.	mg/kg	J	0.5	2
Acetone	SO	Pond A	A-1	SW8240	>	0.072	.	mg/kg		2	4.9
Acetone	SO	Pond A	A-3	SW8240	>	0.025	.	mg/kg	@	2	4.75
Acetone	SO	Pond A	A-6	SW8240	>	0.074	.	mg/kg		0.5	4.75
Acetone	SO	Pond A	A-5	SW8240	>	0.077	.	mg/kg		2	4.75
Acetone	SO	Pond A	A-2	SW8240	>	0.071	.	mg/kg	@	0.5	2.5
Acetone	SO	Pond A	A-7	SW8240	>	0.008	.	mg/kg	J	2	4.75
Aluminum	SO	Pond A	A-3	SW6010	>	9400	.	mg/kg		2	4.75
Aluminum	SO	Pond A	A-2	SW6010	ND	2.4	4.8	mg/kg		0.5	2.5
Aluminum	SO	Pond A	A-1	SW6010	>	12000	.	mg/kg		2	4.9
Aluminum	SO	Pond A	A-8	SW6010	>	6000	.	mg/kg		0.5	2
Aluminum	SO	Pond A	A-6	SW6010	>	8400	.	mg/kg		0.5	4.75
Aluminum	SO	Pond A	A-7	SW6010	>	7000	.	mg/kg		2	4.75
Aluminum	SO	Pond A	A-5	SW6010	>	130000	.	mg/kg		2	4.75
Arsenic	SO	Pond A	A-8	SW7060	>	4.1	.	mg/kg	@	0.5	2
Arsenic	SO	Pond A	A-7	SW7060	>	4.1	.	mg/kg	@	2	4.75
Arsenic	SO	Pond A	A-5	SW7060	>	3.6	.	mg/kg	@	2	4.75
Arsenic	SO	Pond A	A-3	SW7060	>	4.6	.	mg/kg	@	2	4.75
Arsenic	SO	Pond A	A-2	SW7060	>	3.6	.	mg/kg	@	0.5	2.5
Arsenic	SO	Pond A	A-6	SW7060	>	5.4	.	mg/kg	@	0.5	4.75
Arsenic	SO	Pond A	A-1	SW7060	>	5	.	mg/kg	@	2	4.9
Barium	SO	Pond A	A-6	SW6010	>	95	.	mg/kg		0.5	4.75
Barium	SO	Pond A	A-5	SW6010	>	100	.	mg/kg		2	4.75
Barium	SO	Pond A	A-3	SW6010	>	120	.	mg/kg		2	4.75
Barium	SO	Pond A	A-2	SW6010	>	100	.	mg/kg		0.5	2.5
Barium	SO	Pond A	A-1	SW6010	>	110	.	mg/kg		2	4.9
Barium	SO	Pond A	A-8	SW6010	>	79	.	mg/kg		0.5	2
Barium	SO	Pond A	A-7	SW6010	>	78	.	mg/kg		2	4.75
Beryllium	SO	Pond A	A-2	SW6010	>	0.55	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond A	A-8	SW6010	>	0.51	.	mg/kg	@	0.5	2
Beryllium	SO	Pond A	A-3	SW6010	>	0.76	.	mg/kg	@	2	4.75
Beryllium	SO	Pond A	A-5	SW6010	>	0.77	.	mg/kg	@	2	4.75
Beryllium	SO	Pond A	A-6	SW6010	>	0.65	.	mg/kg	@	0.5	4.75
Beryllium	SO	Pond A	A-7	SW6010	>	0.5	.	mg/kg	@	2	4.75
Beryllium	SO	Pond A	A-1	SW6010	>	0.75	.	mg/kg	@	2	4.9
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-6	SW8270	ND	0.235	0.47	mg/kg		0.5	4.75
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-3	SW8270	>	0.26	.	mg/kg	J	2	4.75
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-8	SW8270	>	0.12	.	mg/kg	J	0.5	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-7	SW8270	>	0.082	.	mg/kg	J	2	4.75
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-5	SW8270	>	0.39	.	mg/kg	J	2	4.75
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-2	SW8270	ND	0.25	0.5	mg/kg		0.5	2.5
bis(2-Ethylhexyl)phthalate	SO	Pond A	A-1	SW8270	ND	0.225	0.45	mg/kg		2	4.9
Calcium	SO	Pond A	A-7	SW6010	>	90000	.	mg/kg		2	4.75
Calcium	SO	Pond A	A-1	SW6010	>	14000	.	mg/kg		2	4.9
Calcium	SO	Pond A	A-6	SW6010	>	110000	.	mg/kg		0.5	4.75
Calcium	SO	Pond A	A-5	SW6010	>	90000	.	mg/kg		2	4.75
Calcium	SO	Pond A	A-8	SW6010	>	120000	.	mg/kg		0.5	2
Calcium	SO	Pond A	A-2	SW6010	>	120000	.	mg/kg		0.5	2.5
Calcium	SO	Pond A	A-3	SW6010	>	140000	.	mg/kg		2	4.75
Chromium	SO	Pond A	A-7	SW6010	>	4.2	.	mg/kg		2	4.75
Chromium	SO	Pond A	A-2	SW6010	>	10	.	mg/kg		0.5	2.5
Chromium	SO	Pond A	A-8	SW6010	>	4.6	.	mg/kg		0.5	2
Chromium	SO	Pond A	A-1	SW6010	>	9.8	.	mg/kg		2	4.9
Chromium	SO	Pond A	A-6	SW6010	>	7.3	.	mg/kg		0.5	4.75
Chromium	SO	Pond A	A-5	SW6010	>	11	.	mg/kg		2	4.75
Chromium	SO	Pond A	A-3	SW6010	>	7.6	.	mg/kg		2	4.75
Cobalt	SO	Pond A	A-1	SW6010	>	4.6	.	mg/kg	@	2	4.9
Cobalt	SO	Pond A	A-8	SW6010	ND	0.85	1.7	mg/kg		0.5	2
Cobalt	SO	Pond A	A-3	SW6010	>	2.5	.	mg/kg	@	2	4.75
Cobalt	SO	Pond A	A-7	SW6010	>	2.4	.	mg/kg	@	2	4.75
Cobalt	SO	Pond A	A-6	SW6010	>	3.2	.	mg/kg	@	0.5	4.75
Cobalt	SO	Pond A	A-5	SW6010	>	3.6	.	mg/kg	@	2	4.75
Cobalt	SO	Pond A	A-2	SW6010	>	4.4	.	mg/kg	@	0.5	2.5
Copper	SO	Pond A	A-3	SW6010	>	8.9	.	mg/kg		2	4.75
Copper	SO	Pond A	A-2	SW6010	>	5.4	.	mg/kg	@	0.5	2.5
Copper	SO	Pond A	A-5	SW6010	>	10	.	mg/kg		2	4.75
Copper	SO	Pond A	A-1	SW6010	>	6.9	.	mg/kg	@	2	4.9
Copper	SO	Pond A	A-6	SW6010	>	7.1	.	mg/kg	@	0.5	4.75
Copper	SO	Pond A	A-8	SW6010	>	4.8	.	mg/kg	@	0.5	2
Copper	SO	Pond A	A-7	SW6010	>	6.6	.	mg/kg	@	2	4.75
Iron	SO	Pond A	A-3	SW6010	>	7100	.	mg/kg		2	4.75
Iron	SO	Pond A	A-2	SW6010	>	8300	.	mg/kg		0.5	2.5
Iron	SO	Pond A	A-1	SW6010	>	9200	.	mg/kg		2	4.9
Iron	SO	Pond A	A-6	SW6010	>	6500	.	mg/kg		0.5	4.75
Iron	SO	Pond A	A-7	SW6010	>	4400	.	mg/kg		2	4.75
Iron	SO	Pond A	A-5	SW6010	>	9500	.	mg/kg		2	4.75
Iron	SO	Pond A	A-8	SW6010	>	4300	.	mg/kg		0.5	2
Lead	SO	Pond A	A-6	SW7421	>	2.4	.	mg/kg		0.5	4.75
Lead	SO	Pond A	A-2	SW7421	>	29	.	mg/kg		0.5	2.5
Lead	SO	Pond A	A-5	SW7421	>	39	.	mg/kg		2	4.75
Lead	SO	Pond A	A-3	SW7421	>	25	.	mg/kg		2	4.75
Lead	SO	Pond A	A-8	SW7421	>	21	.	mg/kg		0.5	2
Lead	SO	Pond A	A-7	SW7421	>	5.6	.	mg/kg		2	4.75
Lead	SO	Pond A	A-1	SW7421	>	26	.	mg/kg		2	4.9
Magnesium	SO	Pond A	A-8	SW6010	>	32000	.	mg/kg		0.5	2
Magnesium	SO	Pond A	A-1	SW6010	>	51000	.	mg/kg		2	4.9
Magnesium	SO	Pond A	A-7	SW6010	>	32000	.	mg/kg		2	4.75
Magnesium	SO	Pond A	A-6	SW6010	>	40000	.	mg/kg		0.5	4.75
Magnesium	SO	Pond A	A-5	SW6010	>	48000	.	mg/kg		2	4.75
Magnesium	SO	Pond A	A-3	SW6010	>	52000	.	mg/kg		2	4.75
Magnesium	SO	Pond A	A-2	SW6010	>	46000	.	mg/kg		0.5	2.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Manganese	SO	Pond A	A-7	SW6010	>	143	.	mg/kg		2	4.75
Manganese	SO	Pond A	A-6	SW6010	>	180	.	mg/kg		0.5	4.75
Manganese	SO	Pond A	A-5	SW6010	>	240	.	mg/kg		2	4.75
Manganese	SO	Pond A	A-3	SW6010	>	230	.	mg/kg		2	4.75
Manganese	SO	Pond A	A-2	SW6010	>	230	.	mg/kg		0.5	2.5
Manganese	SO	Pond A	A-8	SW6010	>	140	.	mg/kg		0.5	2
Manganese	SO	Pond A	A-1	SW6010	>	240	.	mg/kg		2	4.9
Methylene chloride	SO	Pond A	A-5	SW8240	>	0.007	.	mg/kg	@	2	4.75
Methylene chloride	SO	Pond A	A-7	SW8240	>	0.005	.	mg/kg	J	2	4.75
Methylene chloride	SO	Pond A	A-2	SW8240	>	0.014	.	mg/kg	@	0.5	2.5
Methylene chloride	SO	Pond A	A-8	SW8240	>	0.005	.	mg/kg	J	0.5	2
Methylene chloride	SO	Pond A	A-3	SW8240	>	0.008	.	mg/kg	@	2	4.75
Methylene chloride	SO	Pond A	A-6	SW8240	>	0.011	.	mg/kg	@	0.5	4.75
Methylene chloride	SO	Pond A	A-1	SW8240	>	0.011	.	mg/kg	@	2	4.9
Nickel	SO	Pond A	A-7	SW6010	ND	1.95	3.9	mg/kg		2	4.75
Nickel	SO	Pond A	A-8	SW6010	>	6.3	.	mg/kg	@	0.5	2
Nickel	SO	Pond A	A-6	SW6010	>	5	.	mg/kg	@	0.5	4.75
Nickel	SO	Pond A	A-5	SW6010	>	8.2	.	mg/kg	@	2	4.75
Nickel	SO	Pond A	A-1	SW6010	>	6.5	.	mg/kg	@	2	4.9
Nickel	SO	Pond A	A-3	SW6010	ND	2	4	mg/kg		2	4.75
Nickel	SO	Pond A	A-2	SW6010	>	7.7	.	mg/kg	@	0.5	2.5
Potassium	SO	Pond A	A-3	SW6010	>	1200	.	mg/kg	@	2	4.75
Potassium	SO	Pond A	A-2	SW6010	>	2200	.	mg/kg		0.5	2.5
Potassium	SO	Pond A	A-1	SW6010	>	2200	.	mg/kg		2	4.9
Potassium	SO	Pond A	A-8	SW6010	>	370	.	mg/kg	@	0.5	2
Potassium	SO	Pond A	A-7	SW6010	>	320	.	mg/kg	@	2	4.75
Potassium	SO	Pond A	A-6	SW6010	>	1300	.	mg/kg	@	0.5	4.75
Potassium	SO	Pond A	A-5	SW6010	>	2500	.	mg/kg		2	4.75
Selenium	SO	Pond A	A-1	SW7740	ND	0.28	0.56	mg/kg		2	4.9
Selenium	SO	Pond A	A-5	SW7740	>	1.2	.	mg/kg		2	4.75
Selenium	SO	Pond A	A-8	SW7740	>	0.97	.	mg/kg		0.5	2
Selenium	SO	Pond A	A-7	SW7740	>	0.7	.	mg/kg		2	4.75
Selenium	SO	Pond A	A-6	SW7740	>	1.1	.	mg/kg		0.5	4.75
Selenium	SO	Pond A	A-3	SW7740	>	0.65	.	mg/kg		2	4.75
Selenium	SO	Pond A	A-2	SW7740	>	1.3	.	mg/kg		0.5	2.5
Silicon	SO	Pond A	A-5	SW6010	>	170	.	mg/kg	@	2	4.75
Silicon	SO	Pond A	A-3	SW6010	>	270	.	mg/kg	@	2	4.75
Silicon	SO	Pond A	A-2	SW6010	>	410	.	mg/kg		0.5	2.5
Silicon	SO	Pond A	A-6	SW6010	>	220	.	mg/kg	@	0.5	4.75
Silicon	SO	Pond A	A-1	SW6010	>	210	.	mg/kg	@	2	4.9
Silicon	SO	Pond A	A-8	SW6010	>	83	.	mg/kg	@	0.5	2
Silicon	SO	Pond A	A-7	SW6010	>	79	.	mg/kg	@	2	4.75
Sodium	SO	Pond A	A-1	SW6010	>	3100	.	mg/kg		2	4.9
Sodium	SO	Pond A	A-3	SW6010	>	3100	.	mg/kg		2	4.75
Sodium	SO	Pond A	A-6	SW6010	>	1800	.	mg/kg		0.5	4.75
Sodium	SO	Pond A	A-8	SW6010	>	2400	.	mg/kg		0.5	2
Sodium	SO	Pond A	A-7	SW6010	>	1300	.	mg/kg		2	4.75
Sodium	SO	Pond A	A-5	SW6010	>	2100	.	mg/kg		2	4.75
Sodium	SO	Pond A	A-2	SW6010	>	770	.	mg/kg		0.5	2.5
Thallium	SO	Pond A	A-7	SW6010	>	42	.	mg/kg	@	2	4.75
Thallium	SO	Pond A	A-6	SW6010	>	94	.	mg/kg	@	0.5	4.75
Thallium	SO	Pond A	A-3	SW6010	>	36	.	mg/kg	@	2	4.75
Thallium	SO	Pond A	A-5	SW6010	>	64	.	mg/kg	@	2	4.75

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Thallium	SO	Pond A	A-1	SW6010	>	56	.	mg/kg	@	2	4.9
Thallium	SO	Pond A	A-8	SW6010	>	55	.	mg/kg	@	0.5	2
Thallium	SO	Pond A	A-2	SW6010	>	69	.	mg/kg	@	0.5	2.5
Vanadium	SO	Pond A	A-1	SW6010	>	19	.	mg/kg		2	4.9
Vanadium	SO	Pond A	A-7	SW6010	>	12	.	mg/kg		2	4.75
Vanadium	SO	Pond A	A-6	SW6010	>	17	.	mg/kg		0.5	4.75
Vanadium	SO	Pond A	A-5	SW6010	>	20	.	mg/kg		2	4.75
Vanadium	SO	Pond A	A-3	SW6010	>	18	.	mg/kg		2	4.75
Vanadium	SO	Pond A	A-8	SW6010	>	12	.	mg/kg		0.5	2
Vanadium	SO	Pond A	A-2	SW6010	>	18	.	mg/kg		0.5	2.5
Zinc	SO	Pond A	A-6	SW6010	>	32	.	mg/kg		0.5	4.75
Zinc	SO	Pond A	A-7	SW6010	>	21	.	mg/kg		2	4.75
Zinc	SO	Pond A	A-2	SW6010	>	32	.	mg/kg		0.5	2.5
Zinc	SO	Pond A	A-5	SW6010	>	44	.	mg/kg		2	4.75
Zinc	SO	Pond A	A-3	SW6010	>	31	.	mg/kg		2	4.75
Zinc	SO	Pond A	A-1	SW6010	>	35	.	mg/kg		2	4.9
Zinc	SO	Pond A	A-8	SW6010	>	20	.	mg/kg		0.5	2
4,4'-DDD	WS	Pond A	A-01	SW8080	>	0.000028	9.50E-06	mg/L	X@	.	.
4,4'-DDT	WS	Pond A	A-01	SW8080	>	0.00002	0.000019	mg/L	X@	.	.
delta-BHC	WS	Pond A	A-01	SW8080	>	0.000037	9.50E-06	mg/L	X@	.	.
Dieldrin	WS	Pond A	A-01	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
Endosulfan sulfate	WS	Pond A	A-01	SW8080	<	0.000013	0.000048	mg/L	JB	.	.
Hardness, as CaC03	WS	Pond A	A-01	E130.2	>	2400	83	mg/L		.	.
Heptachlor	WS	Pond A	A-01	SW8080	>	0.000012	9.50E-06	mg/L	X@	.	.
Heptachlor epoxide	WS	Pond A	A-01	SW8080	>	0.00001	9.50E-06	mg/L	G@	.	.
Total dissolved solids	WS	Pond A	A-01	E160.1	>	5500	10	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-08	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-05	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-13	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
4,4'-DDD	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-12	SW8080	ND	4.83E-06	9.70E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
4,4'-DDD	WG	Pond A/B	MW-05	SW8080	>	0.000019	9.60E-06	mg/L	X@	.	.
4,4'-DDE	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-05	SW8080	>	0.0000245	9.80E-06	mg/L	G@	.	.
4,4'-DDE	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-12	SW8080	ND	4.83E-06	9.70E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-07	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDE	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-05	SW8080	>	0.000026	9.60E-06	mg/L	X@	.	.
4,4'-DDE	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
4,4'-DDE	WG	Pond A/B	MW-08	SW8080	>	0.00001	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-11	SW8080	ND	0.00001	0.00002	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MWD-05	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-05	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-12	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-11	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-13	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-08	SW8080	<	0.000015	0.000019	mg/L	J	.	.
4,4'-DDT	WG	Pond A/B	MW-08	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-08	SW8080	ND	0.00001	0.00002	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-07	SW8080	<	0.000018	0.000019	mg/L	JX	.	.
4,4'-DDT	WG	Pond A/B	MW-07	SW8080	>	0.000034	0.00002	mg/L	X@	.	.
4,4'-DDT	WG	Pond A/B	MW-12	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-07	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond A/B	MW-05	SW8080	<	0.000014	0.000019	mg/L	J	.	.
4,4'-DDT	WG	Pond A/B	MW-05	SW8080	>	0.0000495	0.00002	mg/L	@	.	.
Aldrin	WG	Pond A/B	MW-05	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-05	SW8080	>	0.000018	9.60E-06	mg/L	X@	.	.
Aldrin	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-07	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
Aldrin	WG	Pond A/B	MW-12	SW8080	ND	4.83E-06	9.70E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Aldrin	WG	Pond A/B	MW-08	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond A/B	MW-12	SW8080	>	0.000016	9.70E-06	mg/L	X@	.	.
alpha-BHC	WG	Pond A/B	MW-12	SW8080	<	6.60E-06	9.50E-06	mg/L	JX	.	.
alpha-BHC	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond A/B	MW-13	SW8080	>	0.000028	9.50E-06	mg/L	X@	.	.
alpha-BHC	WG	Pond A/B	MW-13	SW8080	>	0.00006	9.50E-06	mg/L	X	.	.
alpha-BHC	WG	Pond A/B	MW-08	SW8080	<	6.10E-06	9.50E-06	mg/L	J	.	.
alpha-BHC	WG	Pond A/B	MW-08	SW8080	>	0.000013	9.60E-06	mg/L	@	.	.
alpha-BHC	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
alpha-BHC	WG	Pond A/B	MW-07	SW8080	<	8.00E-06	9.50E-06	mg/L	J	.	.
alpha-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
alpha-BHC	WG	Pond A/B	MW-07	SW8080	>	0.000022	9.50E-06	mg/L	C@	.	.
alpha-BHC	WG	Pond A/B	MW-05	SW8080	>	0.000018	9.60E-06	mg/L	@	.	.
alpha-BHC	WG	Pond A/B	MW-11	SW8080	<	6.60E-06	9.50E-06	mg/L	JX	.	.
alpha-BHC	WG	Pond A/B	MW-11	SW8080	>	0.000027	9.80E-06	mg/L	X@	.	.
alpha-BHC	WG	Pond A/B	MW-05	SW8080	ND	1.695E-05	9.80E-06	mg/L		.	.
alpha-BHC	WG	Pond A/B	MW-05	SW8080	>	0.0000215	9.50E-06	mg/L	C@	.	.
alpha-Chlordane	WG	Pond A/B	MW-08	SW8080	>	0.000013	9.60E-06	mg/L	X@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-Chlordane	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond A/B	MW-07	SW8080	>	0.000037	9.50E-06	mg/L	X@	.	.
alpha-Chlordane	WG	Pond A/B	MW-11	SW8080	<	2.20E-06	9.80E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond A/B	MW-05	SW8080	>	0.000024	9.60E-06	mg/L	G@	.	.
alpha-Chlordane	WG	Pond A/B	MW-12	SW8080	<	2.30E-06	9.70E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond A/B	MW-07	SW8080	>	0.000034	9.80E-06	mg/L	X@	.	.
alpha-Chlordane	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond A/B	MW-05	SW8080	ND	4.095E-05	9.80E-06	mg/L		.	.
alpha-Chlordane	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Antimony	WG	Pond A/B	MW-11	SW6010	<	0.5	1	mg/L	@	.	.
Barium	WG	Pond A/B	MW-11	SW6010	>	0.031	0.01	mg/L	@	.	.
Barium	WG	Pond A/B	MWD-05	SW6010	>	0.26	0.01	mg/L		.	.
Barium	WG	Pond A/B	MW-13	SW6010	>	0.026	0.01	mg/L	@	.	.
Barium	WG	Pond A/B	MW-12	SW6010	>	0.0185	0.01	mg/L	@	.	.
Beryllium	WG	Pond A/B	MW-13	SW6010	<	-0.00074	0.002	mg/L	J	.	.
Beryllium	WG	Pond A/B	MW-12	SW6010	<	-0.00077	0.002	mg/L	J	.	.
Beryllium	WG	Pond A/B	MW-11	SW6010	<	-0.00057	0.002	mg/L	J	.	.
beta-BHC	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-12	SW8080	<	7.80E-06	9.70E-06	mg/L	JX	.	.
beta-BHC	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-08	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
beta-BHC	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-08	SW8080	>	0.000018	0.00001	mg/L	X@	.	.
beta-BHC	WG	Pond A/B	MW-07	SW8080	<	1.30E-06	9.50E-06	mg/L	JX	.	.
beta-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-11	SW8080	>	0.000013	9.80E-06	mg/L	X@	.	.
beta-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-05	SW8080	<	1.90E-06	9.60E-06	mg/L	JX	.	.
beta-BHC	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond A/B	MW-13	SW8080	>	0.00002	9.50E-06	mg/L	@	.	.
beta-BHC	WG	Pond A/B	MW-05	SW8080	>	0.0000395	9.80E-06	mg/L	@	.	.
beta-BHC	WG	Pond A/B	MW-05	SW8080	>	0.0000135	9.50E-06	mg/L	X@	.	.
bis(2-Ethylhexyl)phthalate	WG	Pond A/B	MW-12	SW8270	<	0.0015	0.0096	mg/L	J	.	.
Cadmium	WG	Pond A/B	MW-11	SW6010	>	0.012	0.005	mg/L	@	.	.
Cadmium	WG	Pond A/B	MW-13	SW6010	>	0.014	0.005	mg/L	@	.	.
Cadmium	WG	Pond A/B	MW-12	SW6010	>	0.013	0.005	mg/L	@	.	.
Chromium	WG	Pond A/B	MWD-05	SW6010	>	0.02	0.01	mg/L	@	.	.
Cobalt	WG	Pond A/B	MW-11	SW6010	<	0.0076	0.01	mg/L	@	.	.
Cyanide	WG	Pond A/B	MW-11	SW9012	<	0.0097	0.01	mg/L	@	.	.
Cyanide	WG	Pond A/B	MW-12	SW9012	<	0.0081	0.01	mg/L	@	.	.
Cyclohexene	WG	Pond A/B	MW-13	SW8270	>	0.012	.	mg/L		.	.
Cyclohexene	WG	Pond A/B	MW-12	SW8270	>	0.00675	.	mg/L		.	.
Cyclohexene	WG	Pond A/B	MW-11	SW8270	>	0.0048	.	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-12	SW8080	ND	4.83E-06	9.70E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-07	SW8080	>	0.000014	9.50E-06	mg/L	X@	.	.
delta-BHC	WG	Pond A/B	MW-08	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-05	SW8080	>	0.000013	9.60E-06	mg/L	G@	.	.
delta-BHC	WG	Pond A/B	MW-13	SW8080	>	0.000014	9.50E-06	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
delta-BHC	WG	Pond A/B	MW-12	SW8080	<	8.20E-06	9.50E-06	mg/L	JX	.	.
delta-BHC	WG	Pond A/B	MW-05	SW8080	ND	2.495E-05	9.80E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-11	SW8080	<	8.00E-06	9.50E-06	mg/L	JX	.	.
delta-BHC	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-07	SW8080	>	0.000048	9.50E-06	mg/L	C	.	.
delta-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-08	SW8080	>	0.000014	9.60E-06	mg/L	X@	.	.
Dieldrin	WG	Pond A/B	MW-12	SW8080	<	6.30E-06	9.50E-06	mg/L	JX	.	.
Dieldrin	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-08	SW8080	<	7.60E-06	9.50E-06	mg/L	JX	.	.
Dieldrin	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-12	SW8080	ND	8.93E-06	9.70E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-11	SW8080	<	5.60E-06	9.50E-06	mg/L	JX	.	.
Dieldrin	WG	Pond A/B	MW-05	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Dieldrin	WG	Pond A/B	MW-05	SW8080	>	0.000036	9.60E-06	mg/L	X@	.	.
Endosulfan I	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-08	SW8080	>	0.000014	9.50E-06	mg/L	G@	.	.
Endosulfan I	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-12	SW8080	ND	4.83E-06	9.70E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-05	SW8080	<	9.30E-06	9.60E-06	mg/L	J	.	.
Endosulfan I	WG	Pond A/B	MW-05	SW8080	ND	2.945E-05	9.80E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-13	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-07	SW8080	=	0.000029	0.000029	mg/L	@	.	.
Endosulfan II	WG	Pond A/B	MW-08	SW8080	<	0.000017	0.000029	mg/L	JX	.	.
Endosulfan II	WG	Pond A/B	MW-12	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-07	SW8080	<	0.000013	0.000029	mg/L	JX	.	.
Endosulfan II	WG	Pond A/B	MW-11	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-08	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MWD-05	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-13	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-08	SW8080	ND	0.000015	0.00003	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-07	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-12	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond A/B	MW-11	SW8080	ND	0.0000145	0.000029	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Endosulfan II	WG	Pond A/B	MW-05	SW8080	>	0.0000435	0.000029	mg/L	G@	.	.
Endosulfan II	WG	Pond A/B	MW-05	SW8080	<	0.000016	0.000029	mg/L	J	.	.
Endosulfan II	WG	Pond A/B	MW-05	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-13	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-13	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-12	SW8080	<	0.000026	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond A/B	MW-11	SW8080	<	0.000025	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond A/B	MW-11	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-08	SW8080	<	0.000019	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond A/B	MW-08	SW8080	<	9.60E-06	0.000048	mg/L	J	.	.
Endosulfan sulfate	WG	Pond A/B	MW-08	SW8080	ND	0.000025	0.00005	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-07	SW8080	<	0.000015	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond A/B	MW-07	SW8080	<	0.000039	0.000049	mg/L	J	.	.
Endosulfan sulfate	WG	Pond A/B	MW-12	SW8080	ND	2.425E-05	0.000049	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-07	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-05	SW8080	<	0.000018	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond A/B	MW-05	SW8080	<	0.0000265	0.000049	mg/L	J	.	.
Endosulfan sulfate	WG	Pond A/B	MWD-05	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond A/B	MW-05	SW8080	ND	0.000015	0.000048	mg/L		.	.
Endrin	WG	Pond A/B	MW-05	SW8080	>	0.000056	9.60E-06	mg/L	G	.	.
Endrin	WG	Pond A/B	MW-08	SW8080	>	0.000021	9.60E-06	mg/L	G@	.	.
Endrin	WG	Pond A/B	MW-12	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Endrin	WG	Pond A/B	MW-07	SW8080	>	0.000043	9.80E-06	mg/L	G@	.	.
Endrin	WG	Pond A/B	MW-05	SW8080	>	0.0000465	9.80E-06	mg/L	X@	.	.
Endrin	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Endrin	WG	Pond A/B	MW-08	SW8080	>	0.000019	9.50E-06	mg/L	@	.	.
Endrin	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Endrin	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond A/B	MW-07	SW8080	>	0.000035	9.50E-06	mg/L	@	.	.
Endrin	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin aldehyde	WG	Pond A/B	MW-11	SW8080	<	4.30E-06	0.000019	mg/L	JB	.	.
Endrin aldehyde	WG	Pond A/B	MW-11	SW8080	<	7.00E-06	0.00002	mg/L	JX	.	.
Endrin aldehyde	WG	Pond A/B	MW-05	SW8080	<	3.90E-06	0.000019	mg/L	JB	.	.
Endrin aldehyde	WG	Pond A/B	MW-12	SW8080	<	7.80E-06	0.000019	mg/L	JX	.	.
Endrin aldehyde	WG	Pond A/B	MW-13	SW8080	<	4.90E-06	0.000019	mg/L	J	.	.
Endrin aldehyde	WG	Pond A/B	MW-13	SW8080	<	8.50E-06	0.000019	mg/L	JX	.	.
Endrin aldehyde	WG	Pond A/B	MW-12	SW8080	<	7.00E-07	0.000019	mg/L	JB	.	.
gamma-BHC	WG	Pond A/B	MW-12	SW8080	<	5.20E-06	9.50E-06	mg/L	JX	.	.
gamma-BHC	WG	Pond A/B	MW-12	SW8080	>	1.285E-05	9.70E-06	mg/L	@	.	.
gamma-BHC	WG	Pond A/B	MW-11	SW8080	<	5.70E-06	9.50E-06	mg/L	JX	.	.
gamma-BHC	WG	Pond A/B	MW-08	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-08	SW8080	>	0.000014	9.60E-06	mg/L	X@	.	.
gamma-BHC	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-07	SW8080	>	0.000083	9.80E-06	mg/L	X	.	.
gamma-BHC	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-05	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MW-13	SW8080	<	9.30E-06	9.50E-06	mg/L	J	.	.
gamma-BHC	WG	Pond A/B	MW-05	SW8080	>	0.000084	9.80E-06	mg/L	G	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
gamma-BHC	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond A/B	MW-08	SW8080	>	0.0022	9.50E-06	mg/L	G	.	.
gamma-Chlordane	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond A/B	MW-13	SW8080	<	1.60E-06	9.50E-06	mg/L	J	.	.
gamma-Chlordane	WG	Pond A/B	MW-08	SW8080	>	0.00002	9.60E-06	mg/L	G@	.	.
gamma-Chlordane	WG	Pond A/B	MW-05	SW8080	>	0.0027	9.60E-06	mg/L	G	.	.
gamma-Chlordane	WG	Pond A/B	MW-12	SW8080	>	0.000094	9.50E-06	mg/L	X	.	.
gamma-Chlordane	WG	Pond A/B	MW-12	SW8080	<	2.40E-06	9.70E-06	mg/L	JX	.	.
gamma-Chlordane	WG	Pond A/B	MW-07	SW8080	>	0.0025	9.50E-06	mg/L	G	.	.
gamma-Chlordane	WG	Pond A/B	MW-11	SW8080	>	0.00012	9.50E-06	mg/L	X	.	.
gamma-Chlordane	WG	Pond A/B	MW-11	SW8080	<	3.40E-06	9.80E-06	mg/L	J	.	.
gamma-Chlordane	WG	Pond A/B	MW-07	SW8080	>	0.000077	9.80E-06	mg/L	X	.	.
gamma-Chlordane	WG	Pond A/B	MW-05	SW8080	>	0.000098	9.80E-06	mg/L	X	.	.
Hardness, as CaC03	WG	Pond A/B	MW-11	E130.2	>	14000	250	mg/L		.	.
Hardness, as CaC03	WG	Pond A/B	MWD-05	E130.2	>	7100	83	mg/L		.	.
Hardness, as CaC03	WG	Pond A/B	MW-13	E130.2	>	13000	250	mg/L		.	.
Hardness, as CaC03	WG	Pond A/B	MW-12	E130.2	>	12000	250	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-08	SW8080	<	2.60E-06	9.50E-06	mg/L	JX	.	.
Heptachlor	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-05	SW8080	<	4.90E-06	9.60E-06	mg/L	J	.	.
Heptachlor	WG	Pond A/B	MW-11	SW8080	>	0.000019	9.80E-06	mg/L	G@	.	.
Heptachlor	WG	Pond A/B	MW-11	SW8080	<	8.50E-06	9.50E-06	mg/L	J	.	.
Heptachlor	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-13	SW8080	>	0.000013	9.50E-06	mg/L	G@	.	.
Heptachlor	WG	Pond A/B	MW-13	SW8080	>	0.000018	9.50E-06	mg/L	X@	.	.
Heptachlor	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond A/B	MW-12	SW8080	>	0.000015	9.70E-06	mg/L	X@	.	.
Heptachlor epoxide	WG	Pond A/B	MW-05	SW8080	>	0.000059	9.80E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-07	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-08	SW8080	>	0.0012	9.60E-06	mg/L	G	.	.
Heptachlor epoxide	WG	Pond A/B	MW-05	SW8080	>	0.00001	9.60E-06	mg/L	G@	.	.
Heptachlor epoxide	WG	Pond A/B	MW-08	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-12	SW8080	<	5.50E-06	9.70E-06	mg/L	JX	.	.
Heptachlor epoxide	WG	Pond A/B	MW-08	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond A/B	MW-07	SW8080	<	7.10E-06	9.50E-06	mg/L	J	.	.
Heptachlor epoxide	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-11	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MWD-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-05	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-12	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-12	SW8080	<	6.50E-06	9.70E-06	mg/L	JX	.	.
Isodrin	WG	Pond A/B	MW-13	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-11	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-08	SW8080	>	0.000053	9.50E-06	mg/L	X	.	.
Isodrin	WG	Pond A/B	MW-08	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-13	SW8080	>	0.000018	9.50E-06	mg/L	X@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Isodrin	WG	Pond A/B	MW-07	SW8080	>	0.000021	9.50E-06	mg/L	X@	.	.
Isodrin	WG	Pond A/B	MW-07	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Isodrin	WG	Pond A/B	MW-05	SW8080	>	0.000068	9.60E-06	mg/L	X	.	.
Lead	WG	Pond A/B	MWD-05	SW7421	<	0.004	0.006	mg/L	@	.	.
Lead	WG	Pond A/B	MW-12	SW7421	<	-0.009	0.006	mg/L	@	.	.
Lead	WG	Pond A/B	MW-13	SW7421	<	-0.012	0.006	mg/L	@	.	.
Lead	WG	Pond A/B	MW-11	SW7421	<	-0.01	0.006	mg/L	@	.	.
Mercury	WG	Pond A/B	MW-13	SW7470	<	0.00002	0.00018	mg/L	J	.	.
Mercury	WG	Pond A/B	MWD-05	SW7470	<	0.00002	0.00036	mg/L	J	.	.
Mercury	WG	Pond A/B	MW-12	SW7470	<	0.00001	0.00018	mg/L	J	.	.
Mercury	WG	Pond A/B	MW-11	SW7470	<	0	0.00018	mg/L	@	.	.
Methoxychlor	WG	Pond A/B	MW-05	SW8080	<	4.60E-06	0.000048	mg/L	JX	.	.
Selenium	WG	Pond A/B	MW-12	SW7740	>	0.018	0.01	mg/L	@	.	.
Selenium	WG	Pond A/B	MWD-05	SW7740	>	0.044	0.01	mg/L	@	.	.
Thallium	WG	Pond A/B	MW-11	SW7841	<	0.0024	0.02	mg/L	@	.	.
Thallium	WG	Pond A/B	MW-13	SW7841	<	-0.0032	0.02	mg/L	@	.	.
Thallium	WG	Pond A/B	MW-12	SW7841	<	-0.0012	0.02	mg/L	J	.	.
Total dissolved solids	WG	Pond A/B	MW-13	E160.1	>	38000	10	mg/L		.	.
Total dissolved solids	WG	Pond A/B	MW-12	E160.1	>	36500	10	mg/L		.	.
Total dissolved solids	WG	Pond A/B	MWD-05	E160.1	>	16000	10	mg/L		.	.
Total dissolved solids	WG	Pond A/B	MW-11	E160.1	>	40000	10	mg/L		.	.
Vanadium	WG	Pond A/B	MW-11	SW6010	>	0.024	0.02	mg/L	@	.	.
Vanadium	WG	Pond A/B	MW-12	SW6010	<	0.0135	0.02	mg/L	@	.	.
Vanadium	WG	Pond A/B	MWD-05	SW6010	>	0.043	0.02	mg/L	@	.	.
Vanadium	WG	Pond A/B	MW-13	SW6010	<	0.013	0.02	mg/L	@	.	.
Zinc	WG	Pond A/B	MWD-05	SW6010	>	0.069	0.02	mg/L	@	.	.
Zinc	WG	Pond A/B	MW-13	SW6010	<	0.0072	0.02	mg/L	@	.	.
2-Methylnaphthalene	SL	Pond B	B2-6	SW8270	ND	2.4	4.8	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B3-8	SW8270	ND	3.3	6.6	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B2-9	SW8270	ND	4.15	8.3	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B2-8	SW8270	<	1.4	6	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond B	B3-6	SW8270	ND	4.75	9.5	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B3-4	SW8270	ND	2.55	5.1	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B3-2	SW8270	ND	4.75	9.5	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B2-5	SW8270	ND	4.15	8.3	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B2-10	SW8270	<	1.5	8.3	mg/kg	J	.	.
2-Methylnaphthalene	SL	Pond B	B1-23	SW8270	>	8.8	6.7	mg/kg	#	.	.
2-Methylnaphthalene	SL	Pond B	B4-2	SW8270	ND	4.15	8.3	mg/kg		.	.
2-Methylnaphthalene	SL	Pond B	B4-3	SW8270	ND	4.75	9.5	mg/kg		.	.
4-Chloroaniline	SL	Pond B	B3-8	SW8270	<	1.4	6.6	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B3-6	SW8270	<	4.3	9.5	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B3-4	SW8270	<	1	5.1	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B4-3	SW8270	<	2.4	9.5	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B4-2	SW8270	ND	4.15	8.3	mg/kg		.	.
4-Chloroaniline	SL	Pond B	B2-8	SW8270	<	2.1	6	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B2-5	SW8270	<	1.2	8.3	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B1-23	SW8270	ND	3.35	6.7	mg/kg		.	.
4-Chloroaniline	SL	Pond B	B2-6	SW8270	ND	1.455	4.8	mg/kg		.	.
4-Chloroaniline	SL	Pond B	B3-2	SW8270	<	1.5	9.5	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B2-9	SW8270	<	1.1	8.3	mg/kg	J	.	.
4-Chloroaniline	SL	Pond B	B2-10	SW8270	<	1.2	8.3	mg/kg	J	.	.
Acetone	SL	Pond B	B4-2	SW8240	<	1.8	5.5	mg/kg	J	.	.
Acetone	SL	Pond B	B2-5	SW8240	ND	2.65	5.3	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Acetone	SL	Pond B	B3-4	SW8240	<	4.5	5.3	mg/kg	J	.	.
Acetone	SL	Pond B	B2-9	SW8240	ND	2.8	5.6	mg/kg		.	.
Acetone	SL	Pond B	B2-6	SW8240	ND	2.675	5.4	mg/kg		.	.
Acetone	SL	Pond B	B2-10	SW8240	ND	2.65	5.3	mg/kg		.	.
Acetone	SL	Pond B	B3-6	SW8240	ND	2.65	5.3	mg/kg		.	.
Acetone	SL	Pond B	B4-3	SW8240	ND	2.7	5.4	mg/kg		.	.
Acetone	SL	Pond B	B3-8	SW8240	ND	2.7	5.4	mg/kg		.	.
Acetone	SL	Pond B	B2-8	SW8240	ND	2.75	5.5	mg/kg		.	.
Acetone	SL	Pond B	B3-2	SW8240	ND	2.7	5.4	mg/kg		.	.
Arsenic	SL	Pond B	B2-6	SW7060	>	13	0.62	mg/kg		.	.
Arsenic	SL	Pond B	B2-8	SW7060	>	15	0.74	mg/kg		.	.
Arsenic	SL	Pond B	B2-10	SW7060	>	12	0.9	mg/kg		.	.
Arsenic	SL	Pond B	B2-5	SW7060	>	14	0.96	mg/kg		.	.
Arsenic	SL	Pond B	B1-23	SW7060	>	15	0.67	mg/kg		.	.
Arsenic	SL	Pond B	B2-9	SW7060	>	14	1	mg/kg		.	.
Benzo(a)anthracene	SL	Pond B	B3-6	SW8270	<	1.2	7.4	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond B	B1-23	SW8270	<	1.6	5.2	mg/kg	J	.	.
Benzo(a)anthracene	SL	Pond B	B4-3	SW8270	<	1.2	7.4	mg/kg	J	.	.
Benzo(a)pyrene	SL	Pond B	B3-4	SW8270	ND	0.65	1.3	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B3-6	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B4-3	SW8270	<	1.3	2.4	mg/kg	J	.	.
Benzo(a)pyrene	SL	Pond B	B3-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B4-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B2-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B2-6	SW8270	ND	0.6	1.2	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B2-5	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B2-10	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B3-2	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(a)pyrene	SL	Pond B	B1-23	SW8270	>	1.9	1.7	mg/kg	#	.	.
Benzo(b)fluoranthene	SL	Pond B	B2-8	SW8270	ND	1.45	2.9	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B3-6	SW8270	<	1.7	4.6	mg/kg	J	.	.
Benzo(b)fluoranthene	SL	Pond B	B2-6	SW8270	ND	1.15	2.3	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B2-9	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B3-8	SW8270	ND	1.6	3.2	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B2-10	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B3-4	SW8270	ND	1.25	2.5	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B2-5	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B4-3	SW8270	<	1.3	4.6	mg/kg	J	.	.
Benzo(b)fluoranthene	SL	Pond B	B4-2	SW8270	ND	2	4	mg/kg		.	.
Benzo(b)fluoranthene	SL	Pond B	B1-23	SW8270	>	3.5	3.2	mg/kg	#	.	.
Benzo(b)fluoranthene	SL	Pond B	B3-2	SW8270	ND	2.3	4.6	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B3-2	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B4-3	SW8270	<	1.4	2.4	mg/kg	J	.	.
Benzo(k)fluoranthene	SL	Pond B	B1-23	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B3-6	SW8270	ND	1.2	2.4	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B3-4	SW8270	ND	0.65	1.3	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B4-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B2-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B3-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B2-6	SW8270	ND	0.6	1.2	mg/kg		.	.
Benzo(k)fluoranthene	SL	Pond B	B2-5	SW8270	ND	1.05	2.1	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Benzo(k)fluoranthene	SL	Pond B	B2-10	SW8270	ND	1.05	2.1	mg/kg		.	.
Beryllium	SL	Pond B	B2-10	SW6010	ND	0.55	1.1	mg/kg		.	.
Beryllium	SL	Pond B	B2-5	SW6010	<	0.92	1.2	mg/kg	J	.	.
Beryllium	SL	Pond B	B1-23	SW6010	>	1.2	0.85	mg/kg	@	.	.
Beryllium	SL	Pond B	B2-6	SW6010	>	1.35	0.75	mg/kg	@	.	.
Beryllium	SL	Pond B	B2-9	SW6010	ND	0.65	1.3	mg/kg		.	.
Beryllium	SL	Pond B	B2-8	SW6010	>	0.99	0.96	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B4-3	SW8270	>	21	2.4	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B4-2	SW8270	>	15	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B3-8	SW8270	>	25	1.7	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B3-6	SW8270	>	62	2.4	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B3-4	SW8270	>	16	1.3	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B3-2	SW8270	>	24	2.4	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B2-9	SW8270	>	26	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B2-8	SW8270	>	22	1.5	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B2-6	SW8270	>	25.5	1.2	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B2-5	SW8270	>	33	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B2-10	SW8270	>	21	2.1	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond B	B1-23	SW8270	>	76	1.7	mg/kg	B	.	.
Cadmium	SL	Pond B	B2-10	SW6010	>	12	2.9	mg/kg	@	.	.
Cadmium	SL	Pond B	B1-23	SW6010	>	12	2.1	mg/kg		.	.
Cadmium	SL	Pond B	B2-9	SW6010	>	17	3.2	mg/kg		.	.
Cadmium	SL	Pond B	B2-8	SW6010	>	9.8	2.4	mg/kg	@	.	.
Cadmium	SL	Pond B	B2-6	SW6010	>	22	1.9	mg/kg		.	.
Cadmium	SL	Pond B	B2-5	SW6010	>	11	2.9	mg/kg	@^	.	.
Chromium	SL	Pond B	B2-9	SW6010	>	230	20	mg/kg		.	.
Chromium	SL	Pond B	B2-5	SW6010	>	190	17	mg/kg	^	.	.
Chromium	SL	Pond B	B2-6	SW6010	>	275	11	mg/kg		.	.
Chromium	SL	Pond B	B1-23	SW6010	>	290	13	mg/kg		.	.
Chromium	SL	Pond B	B2-10	SW6010	>	190	17	mg/kg		.	.
Chromium	SL	Pond B	B2-8	SW6010	>	180	14	mg/kg		.	.
Chrysene	SL	Pond B	B1-23	SW8270	>	1.9	1.7	mg/kg	#	.	.
Chrysene	SL	Pond B	B3-6	SW8270	ND	1.2	2.4	mg/kg		.	.
Chrysene	SL	Pond B	B4-3	SW8270	ND	1.2	2.4	mg/kg		.	.
Chrysene	SL	Pond B	B4-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Chrysene	SL	Pond B	B3-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Chrysene	SL	Pond B	B3-4	SW8270	ND	0.65	1.3	mg/kg		.	.
Chrysene	SL	Pond B	B3-2	SW8270	ND	1.2	2.4	mg/kg		.	.
Chrysene	SL	Pond B	B2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Chrysene	SL	Pond B	B2-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Chrysene	SL	Pond B	B2-6	SW8270	ND	0.6	1.2	mg/kg		.	.
Chrysene	SL	Pond B	B2-5	SW8270	ND	1.05	2.1	mg/kg		.	.
Chrysene	SL	Pond B	B2-10	SW8270	ND	1.05	2.1	mg/kg		.	.
Copper	SL	Pond B	B2-6	SW6010	>	1200	9.4	mg/kg		.	.
Copper	SL	Pond B	B2-5	SW6010	>	610	14	mg/kg		.	.
Copper	SL	Pond B	B2-10	SW6010	>	630	14	mg/kg		.	.
Copper	SL	Pond B	B2-8	SW6010	>	550	12	mg/kg		.	.
Copper	SL	Pond B	B1-23	SW6010	>	460	11	mg/kg		.	.
Copper	SL	Pond B	B2-9	SW6010	>	890	16	mg/kg		.	.
Cyanide	SL	Pond B	B2-6	SW9010	>	6.75	3.6	mg/kg	@	.	.
Cyanide	SL	Pond B	B2-5	SW9010	ND	3	6	mg/kg		.	.
Cyanide	SL	Pond B	B2-8	SW9010	ND	2.5	5	mg/kg		.	.
Cyanide	SL	Pond B	B2-10	SW9010	ND	0.25	0.5	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cyanide	SL	Pond B	B1-23	SW9010	>	5.3	4.1	mg/kg	@	.	.
Cyanide	SL	Pond B	B2-9	SW9010	ND	3	6	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B2-6	SW8270	ND	0.635	1.2	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B2-9	SW8270	ND	1.05	2.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B2-5	SW8270	<	1	2.1	mg/kg	J	.	.
Di-n-octylphthalate	SL	Pond B	B2-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B3-4	SW8270	ND	0.65	1.3	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B2-10	SW8270	ND	1.05	2.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B1-23	SW8270	>	3	1.7	mg/kg	#	.	.
Di-n-octylphthalate	SL	Pond B	B3-2	SW8270	ND	1.2	2.4	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B4-3	SW8270	ND	1.2	2.4	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B4-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B3-8	SW8270	ND	0.85	1.7	mg/kg		.	.
Di-n-octylphthalate	SL	Pond B	B3-6	SW8270	<	1.4	2.4	mg/kg	J	.	.
Dibutylphthalate	SL	Pond B	B4-2	SW8270	>	3.9	2.1	mg/kg	#	.	.
Dibutylphthalate	SL	Pond B	B3-8	SW8270	<	0.67	1.7	mg/kg	J	.	.
Dibutylphthalate	SL	Pond B	B3-6	SW8270	<	1.4	2.4	mg/kg	J	.	.
Dibutylphthalate	SL	Pond B	B3-2	SW8270	>	26	2.4	mg/kg	#	.	.
Dibutylphthalate	SL	Pond B	B2-9	SW8270	<	1.9	2.1	mg/kg	J	.	.
Dibutylphthalate	SL	Pond B	B2-8	SW8270	>	3	1.5	mg/kg	#	.	.
Dibutylphthalate	SL	Pond B	B3-4	SW8270	>	2.5	1.3	mg/kg	#	.	.
Dibutylphthalate	SL	Pond B	B2-6	SW8270	ND	0.8	1.2	mg/kg	J	.	.
Dibutylphthalate	SL	Pond B	B2-5	SW8270	>	3.7	2.1	mg/kg	#	.	.
Dibutylphthalate	SL	Pond B	B2-10	SW8270	ND	1.05	2.1	mg/kg		.	.
Dibutylphthalate	SL	Pond B	B4-3	SW8270	>	12	2.4	mg/kg	B	.	.
Dibutylphthalate	SL	Pond B	B1-23	SW8270	>	6.1	1.7	mg/kg	B	.	.
Fluoranthene	SL	Pond B	B2-8	SW8270	<	0.94	1.3	mg/kg	J	.	.
Fluoranthene	SL	Pond B	B2-5	SW8270	<	0.89	1.8	mg/kg	J	.	.
Fluoranthene	SL	Pond B	B2-9	SW8270	<	0.86	1.8	mg/kg	J	.	.
Fluoranthene	SL	Pond B	B3-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Fluoranthene	SL	Pond B	B2-6	SW8270	ND	0.57	1	mg/kg		.	.
Fluoranthene	SL	Pond B	B3-4	SW8270	<	0.6	1.1	mg/kg	J	.	.
Fluoranthene	SL	Pond B	B3-6	SW8270	<	1.7	2.1	mg/kg	J	.	.
Fluoranthene	SL	Pond B	B4-3	SW8270	ND	1.05	2.1	mg/kg		.	.
Fluoranthene	SL	Pond B	B4-2	SW8270	ND	0.9	1.8	mg/kg		.	.
Fluoranthene	SL	Pond B	B3-2	SW8270	ND	1.05	2.1	mg/kg		.	.
Fluoranthene	SL	Pond B	B2-10	SW8270	ND	0.9	1.8	mg/kg		.	.
Fluoranthene	SL	Pond B	B1-23	SW8270	>	3.8	1.5	mg/kg	#	.	.
Isophorone	SL	Pond B	B1-23	SW8270	ND	0.75	1.5	mg/kg		.	.
Isophorone	SL	Pond B	B2-6	SW8270	ND	0.5	1	mg/kg		.	.
Isophorone	SL	Pond B	B2-10	SW8270	<	1.3	1.8	mg/kg	J	.	.
Isophorone	SL	Pond B	B2-5	SW8270	ND	0.9	1.8	mg/kg		.	.
Isophorone	SL	Pond B	B4-2	SW8270	ND	0.9	1.8	mg/kg		.	.
Isophorone	SL	Pond B	B3-8	SW8270	ND	0.75	1.5	mg/kg		.	.
Isophorone	SL	Pond B	B3-6	SW8270	>	4.5	2.1	mg/kg	#	.	.
Isophorone	SL	Pond B	B3-4	SW8270	>	1.7	1.1	mg/kg	#	.	.
Isophorone	SL	Pond B	B3-2	SW8270	<	1.6	2.1	mg/kg	J	.	.
Isophorone	SL	Pond B	B2-9	SW8270	ND	0.9	1.8	mg/kg		.	.
Isophorone	SL	Pond B	B4-3	SW8270	ND	1.05	2.1	mg/kg		.	.
Isophorone	SL	Pond B	B2-8	SW8270	ND	0.65	1.3	mg/kg		.	.
Lead	SL	Pond B	B2-10	SW7421	>	200	0.67	mg/kg		.	.
Lead	SL	Pond B	B2-9	SW7421	>	320	0.79	mg/kg		.	.
Lead	SL	Pond B	B1-23	SW7421	>	130	0.71	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Lead	SL	Pond B	B2-6	SW7421	>	285	0.47	mg/kg		.	.
Lead	SL	Pond B	B2-5	SW7421	>	190	0.72	mg/kg	R	.	.
Lead	SL	Pond B	B2-8	SW7421	>	210	0.55	mg/kg		.	.
Mercury	SL	Pond B	B2-10	SW7471	>	4.2	0.5	mg/kg	R	.	.
Mercury	SL	Pond B	B2-5	SW7471	>	4.4	0.5	mg/kg		.	.
Mercury	SL	Pond B	B1-23	SW7471	>	4.3	0.38	mg/kg		.	.
Mercury	SL	Pond B	B2-8	SW7471	>	3.9	0.41	mg/kg		.	.
Mercury	SL	Pond B	B2-6	SW7471	>	6.35	0.32	mg/kg		.	.
Mercury	SL	Pond B	B2-9	SW7471	>	6.3	0.56	mg/kg		.	.
Nickel	SL	Pond B	B2-5	SW6010	>	27	12	mg/kg	@	.	.
Nickel	SL	Pond B	B2-6	SW6010	>	32.5	7.5	mg/kg		.	.
Nickel	SL	Pond B	B2-10	SW6010	>	19	11	mg/kg	@	.	.
Nickel	SL	Pond B	B2-8	SW6010	>	28	9.6	mg/kg	@	.	.
Nickel	SL	Pond B	B2-9	SW6010	>	26	13	mg/kg	@	.	.
Nickel	SL	Pond B	B1-23	SW6010	>	26	8.5	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-6	SW8080	>	14	5.4	mg/kg	@	.	.
PCB-1254	SL	Pond B	B4-1	SW8080	>	1.9	0.51	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-5	SW8080	>	3.3	0.49	mg/kg		.	.
PCB-1254	SL	Pond B	B3-8	SW8080	ND	1.8	3.6	mg/kg		.	.
PCB-1254	SL	Pond B	B4-4	SW8080	>	1.8	0.47	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-7	SW8080	>	4.1	2.2	mg/kg	@	.	.
PCB-1254	SL	Pond B	B4-3	SW8080	ND	2.6	5.2	mg/kg		.	.
PCB-1254	SL	Pond B	B4-2	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1254	SL	Pond B	B1-13	SW8080	>	8	2.2	mg/kg	@	.	.
PCB-1254	SL	Pond B	B2-6	SW8080	ND	1.35	2.8	mg/kg		.	.
PCB-1254	SL	Pond B	B2-10	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1254	SL	Pond B	B2-9	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1254	SL	Pond B	B1-14	SW8080	>	10	3.5	mg/kg	@	.	.
PCB-1254	SL	Pond B	B1-12	SW8080	>	16	2.5	mg/kg		.	.
PCB-1254	SL	Pond B	B-S3-SA	SW8080	>	9.1	.	mg/kg	C@	0	.
PCB-1254	SL	Pond B	B1-6	SW8080	>	7.8	2.4	mg/kg	@	.	.
PCB-1254	SL	Pond B	B1-3	SW8080	>	7.8	2.5	mg/kg	@	.	.
PCB-1254	SL	Pond B	B1-23	SW8080	>	15	3.6	mg/kg	@	.	.
PCB-1254	SL	Pond B	B1-22	SW8080	>	9.4	1.4	mg/kg		.	.
PCB-1254	SL	Pond B	B1-18	SW8080	<	2.8	3	mg/kg	J	.	.
PCB-1254	SL	Pond B	B1-8	SW8080	>	1.8	1.7	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-4	SW8080	ND	1.7	3.4	mg/kg		.	.
PCB-1254	SL	Pond B	B2-5	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1254	SL	Pond B	B1-17	SW8080	>	4	1	mg/kg	@	.	.
PCB-1254	SL	Pond B	B2-8	SW8080	>	5.2	3.4	mg/kg	@	.	.
PCB-1254	SL	Pond B	B1-16	SW8080	>	5.5	1.7	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-1	SW8080	>	4.3	2.8	mg/kg	@	.	.
PCB-1254	SL	Pond B	B3-2	SW8080	ND	2.8	5.6	mg/kg		.	.
PCB-1254	SL	Pond B	B3-3	SW8080	>	7.6	4.6	mg/kg	@	.	.
PCB-1254	SL	Pond B	B-S2-SA	SW8080	>	13	.	mg/kg	C@	0	.
PCB-1254	SL	Pond B	B-S1-SA	SW8080	>	13	.	mg/kg	C@	0	.
PCB-1260	SL	Pond B	B4-4	SW8080	ND	0.235	0.47	mg/kg		.	.
PCB-1260	SL	Pond B	B4-3	SW8080	ND	2.6	5.2	mg/kg		.	.
PCB-1260	SL	Pond B	B4-2	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1260	SL	Pond B	B4-1	SW8080	ND	0.255	0.51	mg/kg		.	.
PCB-1260	SL	Pond B	B1-18	SW8080	ND	1.5	3	mg/kg		.	.
PCB-1260	SL	Pond B	B2-9	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1260	SL	Pond B	B1-17	SW8080	ND	0.5	1	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
PCB-1260	SL	Pond B	B3-2	SW8080	ND	2.8	5.6	mg/kg		.	.
PCB-1260	SL	Pond B	B3-4	SW8080	ND	1.7	3.4	mg/kg		.	.
PCB-1260	SL	Pond B	B1-22	SW8080	>	3	1.4	mg/kg	@	.	.
PCB-1260	SL	Pond B	B1-16	SW8080	ND	0.85	1.7	mg/kg	@	.	.
PCB-1260	SL	Pond B	B2-6	SW8080	ND	1.35	2.8	mg/kg		.	.
PCB-1260	SL	Pond B	B2-10	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1260	SL	Pond B	B1-14	SW8080	ND	1.75	3.5	mg/kg		.	.
PCB-1260	SL	Pond B	B1-8	SW8080	ND	0.85	1.7	mg/kg		.	.
PCB-1260	SL	Pond B	B2-5	SW8080	ND	2.4	4.8	mg/kg		.	.
PCB-1260	SL	Pond B	B1-6	SW8080	ND	1.2	2.4	mg/kg		.	.
PCB-1260	SL	Pond B	B2-8	SW8080	ND	1.7	3.4	mg/kg		.	.
PCB-1260	SL	Pond B	B3-8	SW8080	ND	1.8	3.6	mg/kg		.	.
PCB-1260	SL	Pond B	B3-1	SW8080	ND	1.4	2.8	mg/kg		.	.
PCB-1260	SL	Pond B	B1-3	SW8080	ND	1.25	2.5	mg/kg		.	.
PCB-1260	SL	Pond B	B3-3	SW8080	ND	2.3	4.6	mg/kg		.	.
PCB-1260	SL	Pond B	B1-23	SW8080	ND	1.8	3.6	mg/kg		.	.
PCB-1260	SL	Pond B	B3-5	SW8080	ND	0.245	0.49	mg/kg		.	.
PCB-1260	SL	Pond B	B3-6	SW8080	ND	2.7	5.4	mg/kg		.	.
PCB-1260	SL	Pond B	B3-7	SW8080	ND	1.1	2.2	mg/kg		.	.
PCB-1260	SL	Pond B	B1-13	SW8080	ND	1.1	2.2	mg/kg		.	.
PCB-1260	SL	Pond B	B1-12	SW8080	ND	1.25	2.5	mg/kg		.	.
Phenanthrene	SL	Pond B	B2-10	SW8270	ND	2.25	4.5	mg/kg		.	.
Phenanthrene	SL	Pond B	B2-6	SW8270	ND	1.0533333	2.6	mg/kg		.	.
Phenanthrene	SL	Pond B	B3-2	SW8270	ND	2.55	5.1	mg/kg		.	.
Phenanthrene	SL	Pond B	B3-8	SW8270	ND	1.8	3.6	mg/kg		.	.
Phenanthrene	SL	Pond B	B3-4	SW8270	ND	1.4	2.8	mg/kg		.	.
Phenanthrene	SL	Pond B	B3-6	SW8270	<	0.95	5.1	mg/kg	J	.	.
Phenanthrene	SL	Pond B	B1-23	SW8270	<	3	3.6	mg/kg	J	.	.
Phenanthrene	SL	Pond B	B4-2	SW8270	ND	2.25	4.5	mg/kg		.	.
Phenanthrene	SL	Pond B	B2-9	SW8270	ND	2.25	4.5	mg/kg		.	.
Phenanthrene	SL	Pond B	B4-3	SW8270	ND	2.55	5.1	mg/kg		.	.
Phenanthrene	SL	Pond B	B2-8	SW8270	ND	1.65	3.3	mg/kg		.	.
Phenanthrene	SL	Pond B	B2-5	SW8270	ND	2.25	4.5	mg/kg		.	.
Pyrene	SL	Pond B	B1-23	SW8270	>	2.2	1.3	mg/kg	#	.	.
Pyrene	SL	Pond B	B4-3	SW8270	ND	0.9	1.8	mg/kg		.	.
Pyrene	SL	Pond B	B3-4	SW8270	ND	0.485	0.97	mg/kg		.	.
Pyrene	SL	Pond B	B4-2	SW8270	ND	0.8	1.6	mg/kg		.	.
Pyrene	SL	Pond B	B3-8	SW8270	ND	0.65	1.3	mg/kg		.	.
Pyrene	SL	Pond B	B3-6	SW8270	<	1.6	1.8	mg/kg	J	.	.
Pyrene	SL	Pond B	B3-2	SW8270	ND	0.9	1.8	mg/kg		.	.
Pyrene	SL	Pond B	B2-9	SW8270	ND	0.8	1.6	mg/kg		.	.
Pyrene	SL	Pond B	B2-8	SW8270	ND	0.55	1.1	mg/kg		.	.
Pyrene	SL	Pond B	B2-6	SW8270	ND	0.57	0.9	mg/kg		.	.
Pyrene	SL	Pond B	B2-5	SW8270	<	0.88	1.6	mg/kg	J	.	.
Pyrene	SL	Pond B	B2-10	SW8270	ND	0.8	1.6	mg/kg		.	.
Selenium	SL	Pond B	B2-5	SW7740	ND	0.7	1.4	mg/kg		.	.
Selenium	SL	Pond B	B2-10	SW7740	ND	0.65	1.3	mg/kg		.	.
Selenium	SL	Pond B	B2-6	SW7740	ND	0.425	0.9	mg/kg		.	.
Selenium	SL	Pond B	B1-23	SW7740	ND	0.485	0.97	mg/kg		.	.
Selenium	SL	Pond B	B2-8	SW7740	ND	0.5	1	mg/kg		.	.
Selenium	SL	Pond B	B2-9	SW7740	>	2	1.5	mg/kg	@	.	.
Silver	SL	Pond B	B2-8	SW6010	>	240	14	mg/kg		.	.
Silver	SL	Pond B	B1-23	SW6010	>	340	13	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Silver	SL	Pond B	B2-6	SW6010	>	365	11	mg/kg		.	.
Silver	SL	Pond B	B2-5	SW6010	>	360	17	mg/kg	^	.	.
Silver	SL	Pond B	B2-9	SW6010	>	470	20	mg/kg		.	.
Silver	SL	Pond B	B2-10	SW6010	>	440	17	mg/kg		.	.
Zinc	SL	Pond B	B2-9	SW6010	>	1200	13	mg/kg		.	.
Zinc	SL	Pond B	B2-6	SW6010	>	1300	7.5	mg/kg		.	.
Zinc	SL	Pond B	B1-23	SW6010	>	990	8.5	mg/kg		.	.
Zinc	SL	Pond B	B2-5	SW6010	>	960	12	mg/kg		.	.
Zinc	SL	Pond B	B2-10	SW6010	>	990	11	mg/kg		.	.
Zinc	SL	Pond B	B2-8	SW6010	>	840	9.6	mg/kg		.	.
Acetone	SO	Pond B	B-6	SW8240	>	0.019	.	mg/kg	@	0.5	2.5
Acetone	SO	Pond B	B-5	SW8240	>	0.039	.	mg/kg	B@	0.5	2.5
Acetone	SO	Pond B	B-1	SW8240	ND	0.007	0.014	mg/kg		0.5	2.5
Acetone	SO	Pond B	B-2	SW8240	ND	0.0065	0.013	mg/kg		0.5	2.5
Acetone	SO	Pond B	B-4	SW8240	>	0.011	.	mg/kg	JB	0.5	2.5
Acetone	SO	Pond B	B-3	SW8240	>	0.02	.	mg/kg	@	0.5	2.5
Aluminum	SO	Pond B	B-2	SW6010	>	11000	.	mg/kg		0.5	2.5
Aluminum	SO	Pond B	B-4	SW6010	>	18000	.	mg/kg		0.5	2.5
Aluminum	SO	Pond B	B-1	SW6010	>	7800	.	mg/kg		0.5	2.5
Aluminum	SO	Pond B	B-5	SW6010	>	13000	.	mg/kg		0.5	2.5
Aluminum	SO	Pond B	B-3	SW6010	>	9000	.	mg/kg		0.5	2.5
Aluminum	SO	Pond B	B-6	SW6010	>	12000	.	mg/kg		0.5	2.5
Arsenic	SO	Pond B	B-1	SW7060	>	3.5	.	mg/kg	@	0.5	2.5
Arsenic	SO	Pond B	B-4	SW7060	ND	1.05	2.1	mg/kg		0.5	2.5
Arsenic	SO	Pond B	B-5	SW7060	>	2.5	.	mg/kg	@	0.5	2.5
Arsenic	SO	Pond B	B-6	SW7060	>	6.6	.	mg/kg		0.5	2.5
Arsenic	SO	Pond B	B-3	SW7060	>	3.4	.	mg/kg	@	0.5	2.5
Arsenic	SO	Pond B	B-2	SW7060	>	3.8	.	mg/kg	@	0.5	2.5
Barium	SO	Pond B	B-3	SW6010	>	46	.	mg/kg		0.5	2.5
Barium	SO	Pond B	B-2	SW6010	>	47	.	mg/kg		0.5	2.5
Barium	SO	Pond B	B-1	SW6010	>	45	.	mg/kg		0.5	2.5
Barium	SO	Pond B	B-6	SW6010	>	15	.	mg/kg		0.5	2.5
Barium	SO	Pond B	B-5	SW6010	>	86	.	mg/kg		0.5	2.5
Barium	SO	Pond B	B-4	SW6010	>	78	.	mg/kg		0.5	2.5
Beryllium	SO	Pond B	B-6	SW6010	>	0.59	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond B	B-1	SW6010	>	0.29	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond B	B-5	SW6010	>	0.54	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond B	B-4	SW6010	>	0.78	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond B	B-3	SW6010	>	0.4	.	mg/kg	@	0.5	2.5
Beryllium	SO	Pond B	B-2	SW6010	>	0.65	.	mg/kg	@	0.5	2.5
bis(2-Ethylhexyl)phthalate	SO	Pond B	B-5	SW8270	>	0.17	.	mg/kg	J	0.5	2.5
Calcium	SO	Pond B	B-4	SW6010	>	98000	.	mg/kg		0.5	2.5
Calcium	SO	Pond B	B-5	SW6010	>	59000	.	mg/kg		0.5	2.5
Calcium	SO	Pond B	B-2	SW6010	>	82000	.	mg/kg		0.5	2.5
Calcium	SO	Pond B	B-3	SW6010	>	53000	.	mg/kg		0.5	2.5
Calcium	SO	Pond B	B-1	SW6010	>	91000	.	mg/kg		0.5	2.5
Calcium	SO	Pond B	B-6	SW6010	>	86000	.	mg/kg		0.5	2.5
Carbon disulfide	SO	Pond B	B-6	SW8240	>	0.0043	.	mg/kg	J	0.5	2.5
Carbon disulfide	SO	Pond B	B-5	SW8240	ND	0.00335	0.0067	mg/kg		0.5	2.5
Carbon disulfide	SO	Pond B	B-4	SW8240	ND	0.00325	0.0065	mg/kg		0.5	2.5
Carbon disulfide	SO	Pond B	B-3	SW8240	ND	0.00345	0.0069	mg/kg		0.5	2.5
Carbon disulfide	SO	Pond B	B-2	SW8240	ND	0.0032	0.0064	mg/kg		0.5	2.5
Carbon disulfide	SO	Pond B	B-1	SW8240	ND	0.00355	0.0071	mg/kg		0.5	2.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Chromium	SO	Pond B	B-3	SW6010	>	8.4	.	mg/kg		0.5	2.5
Chromium	SO	Pond B	B-2	SW6010	>	10	.	mg/kg		0.5	2.5
Chromium	SO	Pond B	B-6	SW6010	>	11	.	mg/kg		0.5	2.5
Chromium	SO	Pond B	B-1	SW6010	>	7	.	mg/kg		0.5	2.5
Chromium	SO	Pond B	B-4	SW6010	>	16	.	mg/kg		0.5	2.5
Chromium	SO	Pond B	B-5	SW6010	>	12	.	mg/kg		0.5	2.5
Cobalt	SO	Pond B	B-5	SW6010	>	4.4	.	mg/kg	@	0.5	2.5
Cobalt	SO	Pond B	B-4	SW6010	>	5.7	.	mg/kg	@	0.5	2.5
Cobalt	SO	Pond B	B-3	SW6010	>	3.2	.	mg/kg	@	0.5	2.5
Cobalt	SO	Pond B	B-2	SW6010	>	4	.	mg/kg	@	0.5	2.5
Cobalt	SO	Pond B	B-6	SW6010	>	4	.	mg/kg	@	0.5	2.5
Cobalt	SO	Pond B	B-1	SW6010	>	2.9	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-4	SW6010	>	9.1	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-5	SW6010	>	8.2	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-2	SW6010	>	5.5	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-3	SW6010	>	6.4	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-1	SW6010	>	6.4	.	mg/kg	@	0.5	2.5
Copper	SO	Pond B	B-6	SW6010	>	5.4	.	mg/kg	@	0.5	2.5
Dibutylphthalate	SO	Pond B	B-1	SW8270	ND	0.11	0.22	mg/kg		0.5	2.5
Dibutylphthalate	SO	Pond B	B-6	SW8270	>	0.17	.	mg/kg	J	0.5	2.5
Dibutylphthalate	SO	Pond B	B-2	SW8270	ND	0.11	0.22	mg/kg		0.5	2.5
Dibutylphthalate	SO	Pond B	B-5	SW8270	ND	0.105	0.21	mg/kg		0.5	2.5
Dibutylphthalate	SO	Pond B	B-4	SW8270	ND	0.105	0.21	mg/kg		0.5	2.5
Dibutylphthalate	SO	Pond B	B-3	SW8270	ND	0.11	0.22	mg/kg		0.5	2.5
Endosulfan I	SO	Pond B	B-3	SW8080	ND	0.0007	0.0014	mg/kg		0.5	2.5
Endosulfan I	SO	Pond B	B-2	SW8080	>	0.00194	.	mg/kg	X@	0.5	2.5
Endosulfan I	SO	Pond B	B-4	SW8080	ND	0.00065	0.0013	mg/kg		0.5	2.5
Endosulfan I	SO	Pond B	B-1	SW8080	ND	0.0007	0.0014	mg/kg		0.5	2.5
Endosulfan I	SO	Pond B	B-5	SW8080	ND	0.0013	0.0026	mg/kg		0.5	2.5
Endosulfan I	SO	Pond B	B-6	SW8080	ND	0.0007	0.0014	mg/kg		0.5	2.5
Iron	SO	Pond B	B-6	SW6010	>	7800	.	mg/kg		0.5	2.5
Iron	SO	Pond B	B-1	SW6010	>	5000	.	mg/kg		0.5	2.5
Iron	SO	Pond B	B-3	SW6010	>	6200	.	mg/kg		0.5	2.5
Iron	SO	Pond B	B-4	SW6010	>	13000	.	mg/kg		0.5	2.5
Iron	SO	Pond B	B-2	SW6010	>	7900	.	mg/kg		0.5	2.5
Iron	SO	Pond B	B-5	SW6010	>	9200	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-4	SW7421	>	7.4	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-5	SW7421	>	4.3	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-1	SW7421	>	3.2	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-3	SW7421	>	2.8	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-2	SW7421	>	2.6	.	mg/kg		0.5	2.5
Lead	SO	Pond B	B-6	SW7421	>	3.2	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-2	SW6010	>	22000	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-1	SW6010	>	18000	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-6	SW6010	>	12000	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-5	SW6010	>	18000	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-4	SW6010	>	12000	.	mg/kg		0.5	2.5
Magnesium	SO	Pond B	B-3	SW6010	>	18000	.	mg/kg		0.5	2.5
Manganese	SO	Pond B	B-1	SW6010	>	81	.	mg/kg		0.5	2.5
Manganese	SO	Pond B	B-6	SW6010	>	99	.	mg/kg		0.5	2.5
Manganese	SO	Pond B	B-5	SW6010	>	130	.	mg/kg		0.5	2.5
Manganese	SO	Pond B	B-4	SW6010	>	250	.	mg/kg		0.5	2.5
Manganese	SO	Pond B	B-3	SW6010	>	64	.	mg/kg		0.5	2.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Manganese	SO	Pond B	B-2	SW6010	>	89	.	mg/kg		0.5	2.5
Methylene chloride	SO	Pond B	B-4	SW8240	>	0.0029	.	mg/kg	JB	0.5	2.5
Methylene chloride	SO	Pond B	B-3	SW8240	>	0.0026	.	mg/kg	JB	0.5	2.5
Methylene chloride	SO	Pond B	B-5	SW8240	>	0.0024	.	mg/kg	JB	0.5	2.5
Nickel	SO	Pond B	B-2	SW6010	>	7.2	.	mg/kg	@	0.5	2.5
Nickel	SO	Pond B	B-3	SW6010	>	6.8	.	mg/kg	@	0.5	2.5
Nickel	SO	Pond B	B-1	SW6010	>	5.1	.	mg/kg	@	0.5	2.5
Nickel	SO	Pond B	B-4	SW6010	>	10	.	mg/kg	@	0.5	2.5
Nickel	SO	Pond B	B-6	SW6010	>	9	.	mg/kg	@	0.5	2.5
Nickel	SO	Pond B	B-5	SW6010	>	7.9	.	mg/kg	@	0.5	2.5
Potassium	SO	Pond B	B-5	SW6010	>	3500	.	mg/kg		0.5	2.5
Potassium	SO	Pond B	B-4	SW6010	>	5200	.	mg/kg		0.5	2.5
Potassium	SO	Pond B	B-2	SW6010	>	2300	.	mg/kg		0.5	2.5
Potassium	SO	Pond B	B-3	SW6010	>	2000	.	mg/kg		0.5	2.5
Potassium	SO	Pond B	B-6	SW6010	>	2700	.	mg/kg		0.5	2.5
Potassium	SO	Pond B	B-1	SW6010	>	1700	.	mg/kg	@	0.5	2.5
Silicon	SO	Pond B	B-6	SW6010	>	6000	.	mg/kg		0.5	2.5
Silicon	SO	Pond B	B-5	SW6010	>	460	.	mg/kg	@	0.5	2.5
Silicon	SO	Pond B	B-4	SW6010	>	420	.	mg/kg	@	0.5	2.5
Silicon	SO	Pond B	B-3	SW6010	>	520	.	mg/kg	@	0.5	2.5
Silicon	SO	Pond B	B-1	SW6010	>	2100	.	mg/kg		0.5	2.5
Silicon	SO	Pond B	B-2	SW6010	>	3100	.	mg/kg		0.5	2.5
Sodium	SO	Pond B	B-5	SW6010	>	520	.	mg/kg	@	0.5	2.5
Sodium	SO	Pond B	B-2	SW6010	>	520	.	mg/kg	@	0.5	2.5
Sodium	SO	Pond B	B-6	SW6010	>	430	.	mg/kg	@	0.5	2.5
Sodium	SO	Pond B	B-1	SW6010	>	770	.	mg/kg		0.5	2.5
Sodium	SO	Pond B	B-4	SW6010	>	760	.	mg/kg		0.5	2.5
Sodium	SO	Pond B	B-3	SW6010	>	420	.	mg/kg	@	0.5	2.5
Vanadium	SO	Pond B	B-1	SW6010	>	20	.	mg/kg		0.5	2.5
Vanadium	SO	Pond B	B-3	SW6010	>	25	.	mg/kg		0.5	2.5
Vanadium	SO	Pond B	B-6	SW6010	>	34	.	mg/kg		0.5	2.5
Vanadium	SO	Pond B	B-5	SW6010	>	33	.	mg/kg		0.5	2.5
Vanadium	SO	Pond B	B-4	SW6010	>	29	.	mg/kg		0.5	2.5
Vanadium	SO	Pond B	B-2	SW6010	>	37	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-4	SW6010	>	40	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-3	SW6010	>	19	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-2	SW6010	>	24	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-5	SW6010	>	32	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-1	SW6010	>	16	.	mg/kg		0.5	2.5
Zinc	SO	Pond B	B-6	SW6010	>	22	.	mg/kg		0.5	2.5
4,4'-DDD	WS	Pond B	B-01	SW8080	>	0.000043	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WS	Pond B	B-2	SW8080	ND	0.0003	0.0006	mg/L		.	.
4,4'-DDE	WS	Pond B	B-01	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WS	Pond B	B-1	SW8080	>	0.0004	.	mg/L	J	.	.
4,4'-DDT	WS	Pond B	B-01	SW8080	<	0.000018	0.000019	mg/L	JX	.	.
alpha-BHC	WS	Pond B	B-01	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WS	Pond B	B-3	SW8080	>	0.00004	.	mg/L	J	.	.
alpha-Chlordane	WS	Pond B	B-01	SW8080	<	3.40E-06	9.50E-06	mg/L	JX	.	.
Aluminum	WS	Pond B	B-6	SW6010	>	0.029	.	mg/L	@	.	.
Aluminum	WS	Pond B	B-5	SW6010	>	0.032	.	mg/L	@	.	.
Aluminum	WS	Pond B	B-4	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond B	B-3	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond B	B-2	SW6010	ND	0.012	0.024	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Aluminum	WS	Pond B	B-1	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond B	HW-1	SW6010	>	0.11	.	mg/L	@	.	.
Aluminum	WS	Pond B	HW-2	SW6010	>	0.09	.	mg/L	@	.	.
Antimony	WS	Pond B	HW-2	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	HW-1	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	B-6	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	B-5	SW6010	>	0.078	.	mg/L	@	.	.
Antimony	WS	Pond B	B-4	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	B-3	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	B-2	SW6010	ND	0.014	0.028	mg/L		.	.
Antimony	WS	Pond B	B-1	SW6010	ND	0.014	0.028	mg/L		.	.
Arsenic	WS	Pond B	HW-1	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond B	B-6	SW7060	>	0.0038	.	mg/L	@	.	.
Arsenic	WS	Pond B	B-5	SW7060	>	0.0037	.	mg/L	@	.	.
Arsenic	WS	Pond B	B-4	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond B	B-3	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond B	B-2	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond B	B-1	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond B	HW-2	SW7060	ND	0.003	0.006	mg/L		.	.
Barium	WS	Pond B	B-1	SW6010	>	0.035	.	mg/L	@	.	.
Barium	WS	Pond B	B-2	SW6010	>	0.028	.	mg/L	@	.	.
Barium	WS	Pond B	HW-1	SW6010	>	0.027	.	mg/L	@	.	.
Barium	WS	Pond B	B-5	SW6010	>	0.037	.	mg/L	@	.	.
Barium	WS	Pond B	B-4	SW6010	>	0.037	.	mg/L	@	.	.
Barium	WS	Pond B	B-3	SW6010	>	0.03	.	mg/L	@	.	.
Barium	WS	Pond B	HW-2	SW6010	ND	0.013	0.026	mg/L		.	.
Barium	WS	Pond B	B-6	SW6010	>	0.04	.	mg/L		.	.
Benzoic acid	WS	Pond B	B-1	SW8270	>	0.005	.	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-5	SW8270	>	0.014	.	mg/L	@	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-4	SW8270	>	0.004	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-3	SW8270	>	0.008	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-2	SW8270	>	0.015	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-6	SW8270	ND	0.01	0.02	mg/L	B	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	HW-1	SW8270	>	0.003	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	B-1	SW8270	>	0.007	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond B	HW-2	SW8270	>	0.007	.	mg/L	JB	.	.
Boron	WS	Pond B	HW-1	SW6010	>	0.58	.	mg/L		.	.
Boron	WS	Pond B	B-4	SW6010	>	0.31	.	mg/L	@	.	.
Boron	WS	Pond B	B-2	SW6010	>	0.24	.	mg/L	@	.	.
Boron	WS	Pond B	B-3	SW6010	>	0.3	.	mg/L	@	.	.
Boron	WS	Pond B	B-6	SW6010	>	0.33	.	mg/L	@	.	.
Boron	WS	Pond B	B-1	SW6010	>	0.35	.	mg/L	@	.	.
Boron	WS	Pond B	HW-2	SW6010	>	0.74	.	mg/L		.	.
Boron	WS	Pond B	B-5	SW6010	>	0.27	.	mg/L	@	.	.
Calcium	WS	Pond B	HW-2	SW6010	>	27	.	mg/L		.	.
Calcium	WS	Pond B	B-1	SW6010	>	390	.	mg/L		.	.
Calcium	WS	Pond B	B-6	SW6010	>	410	.	mg/L		.	.
Calcium	WS	Pond B	B-5	SW6010	>	380	.	mg/L		.	.
Calcium	WS	Pond B	B-4	SW6010	>	380	.	mg/L		.	.
Calcium	WS	Pond B	HW-1	SW6010	>	340	.	mg/L		.	.
Calcium	WS	Pond B	B-3	SW6010	>	340	.	mg/L		.	.
Calcium	WS	Pond B	B-2	SW6010	>	310	.	mg/L		.	.
Chlordane	WS	Pond B	B-1	SW8080	>	0.0002	.	mg/L	J	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Chlordane	WS	Pond B	B-6	SW8080	>	0.00005	.	mg/L	J	.	.
Chlordane	WS	Pond B	B-4	SW8080	>	0.00005	.	mg/L	J	.	.
Chlordane	WS	Pond B	B-5	SW8080	>	0.00005	.	mg/L	J	.	.
Chromium	WS	Pond B	B-3	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	B-2	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	B-4	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	B-1	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	B-6	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	B-5	SW6010	>	0.0046	.	mg/L	@	.	.
Chromium	WS	Pond B	HW-1	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium	WS	Pond B	HW-2	SW6010	ND	0.002	0.004	mg/L		.	.
Chromium VI	WS	Pond B	B-6	SW7196	ND	0.0001	0.0002	mg/L		.	.
Chromium VI	WS	Pond B	B-5	SW7196	ND	0.0001	0.0002	mg/L		.	.
Chromium VI	WS	Pond B	B-4	SW7196	>	0.0004	.	mg/L	@	.	.
Copper	WS	Pond B	B-4	SW6010	>	0.0052	.	mg/L	@	.	.
Copper	WS	Pond B	B-6	SW6010	ND	0.0025	0.005	mg/L		.	.
Copper	WS	Pond B	B-5	SW6010	ND	0.0025	0.005	mg/L		.	.
Copper	WS	Pond B	HW-1	SW6010	>	0.0075	.	mg/L	@	.	.
Copper	WS	Pond B	B-3	SW6010	ND	0.0025	0.005	mg/L		.	.
Copper	WS	Pond B	HW-2	SW6010	ND	0.0025	0.005	mg/L		.	.
Copper	WS	Pond B	B-1	SW6010	ND	0.0025	0.005	mg/L		.	.
Copper	WS	Pond B	B-2	SW6010	ND	0.0025	0.005	mg/L		.	.
delta-BHC	WS	Pond B	B-01	SW8080	>	0.000017	9.50E-06	mg/L	X@	.	.
Dieldrin	WS	Pond B	B-01	SW8080	>	0.000022	9.50E-06	mg/L	X@	.	.
Endosulfan sulfate	WS	Pond B	B-01	SW8080	<	0.000012	0.000048	mg/L	JB	.	.
gamma-BHC	WS	Pond B	B-6	SW8080	>	0.00001	.	mg/L	J	.	.
gamma-BHC	WS	Pond B	B-5	SW8080	>	0.00001	.	mg/L	J	.	.
gamma-BHC	WS	Pond B	B-4	SW8080	>	0.00001	.	mg/L	J	.	.
gamma-BHC	WS	Pond B	B-01	SW8080	>	0.00001	9.50E-06	mg/L	@	.	.
Hardness, as CaC03	WS	Pond B	B-01	E130.2	>	1600	62	mg/L		.	.
Heptachlor epoxide	WS	Pond B	B-01	SW8080	>	0.00001	9.50E-06	mg/L	G@	.	.
Iron	WS	Pond B	B-1	SW6010	>	0.11	.	mg/L		.	.
Iron	WS	Pond B	B-5	SW6010	>	0.085	.	mg/L		.	.
Iron	WS	Pond B	HW-2	SW6010	>	0.14	.	mg/L		.	.
Iron	WS	Pond B	HW-1	SW6010	>	0.19	.	mg/L		.	.
Iron	WS	Pond B	B-6	SW6010	>	0.095	.	mg/L		.	.
Iron	WS	Pond B	B-4	SW6010	>	0.072	.	mg/L		.	.
Iron	WS	Pond B	B-3	SW6010	>	0.084	.	mg/L		.	.
Iron	WS	Pond B	B-2	SW6010	>	0.077	.	mg/L		.	.
Lead	WS	Pond B	B-4	SW7421	>	0.0074	.	mg/L	@	.	.
Lead	WS	Pond B	B-3	SW7421	ND	0.001	0.002	mg/L		.	.
Lead	WS	Pond B	B-2	SW7421	ND	0.001	0.002	mg/L		.	.
Lead	WS	Pond B	B-5	SW7421	>	0.0041	.	mg/L	@	.	.
Lead	WS	Pond B	B-1	SW7421	ND	0.005	0.01	mg/L		.	.
Lead	WS	Pond B	HW-2	SW7421	>	0.0029	.	mg/L	@	.	.
Lead	WS	Pond B	HW-1	SW7421	>	0.004	.	mg/L	@	.	.
Lead	WS	Pond B	B-6	SW7421	>	0.0057	.	mg/L	@	.	.
Lead (organic)	WS	Pond B	B-1	E239.1	>	0.11	.	mg/L	@	.	.
Lead (organic)	WS	Pond B	HW-1	E239.1	>	0.1	.	mg/L	@	.	.
Lead (organic)	WS	Pond B	HW-2	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond B	B-5	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond B	B-6	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond B	B-2	E239.1	>	0.13	.	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Lead (organic)	WS	Pond B	B-3	E239.1	>	0.12	.	mg/L	@	.	.
Lead (organic)	WS	Pond B	B-4	E239.1	ND	0.05	0.1	mg/L		.	.
Magnesium	WS	Pond B	B-4	SW6010	>	190	.	mg/L		.	.
Magnesium	WS	Pond B	B-2	SW6010	>	160	.	mg/L		.	.
Magnesium	WS	Pond B	B-1	SW6010	>	200	.	mg/L		.	.
Magnesium	WS	Pond B	B-5	SW6010	>	190	.	mg/L		.	.
Magnesium	WS	Pond B	B-3	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond B	HW-2	SW6010	>	13	.	mg/L		.	.
Magnesium	WS	Pond B	HW-1	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond B	B-6	SW6010	>	200	.	mg/L		.	.
Manganese	WS	Pond B	B-1	SW6010	>	0.055	.	mg/L		.	.
Manganese	WS	Pond B	B-5	SW6010	>	0.086	.	mg/L		.	.
Manganese	WS	Pond B	HW-2	SW6010	>	0.03	.	mg/L	@	.	.
Manganese	WS	Pond B	HW-1	SW6010	>	0.044	.	mg/L		.	.
Manganese	WS	Pond B	B-6	SW6010	>	0.092	.	mg/L		.	.
Manganese	WS	Pond B	B-4	SW6010	>	0.086	.	mg/L		.	.
Manganese	WS	Pond B	B-3	SW6010	>	0.044	.	mg/L		.	.
Manganese	WS	Pond B	B-2	SW6010	>	0.038	.	mg/L	@	.	.
Mercury	WS	Pond B	B-4	SW7470	ND	0.0001	0.0002	mg/L		.	.
Mercury	WS	Pond B	B-3	SW7470	>	0.00062	.	mg/L	@	.	.
Mercury	WS	Pond B	B-2	SW7470	>	0.0004	.	mg/L	@	.	.
Mercury	WS	Pond B	B-5	SW7470	ND	0.0001	0.0002	mg/L		.	.
Mercury	WS	Pond B	B-1	SW7470	>	0.00062	.	mg/L	@	.	.
Mercury	WS	Pond B	HW-2	SW7470	>	0.00041	.	mg/L	@	.	.
Mercury	WS	Pond B	HW-1	SW7470	>	0.00051	.	mg/L	@	.	.
Mercury	WS	Pond B	B-6	SW7470	ND	0.0001	0.0002	mg/L		.	.
Potassium	WS	Pond B	B-1	SW6010	>	13	.	mg/L		.	.
Potassium	WS	Pond B	HW-1	SW6010	>	10	.	mg/L		.	.
Potassium	WS	Pond B	HW-2	SW6010	>	8.3	.	mg/L		.	.
Potassium	WS	Pond B	B-5	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond B	B-6	SW6010	>	13	.	mg/L		.	.
Potassium	WS	Pond B	B-2	SW6010	>	10	.	mg/L		.	.
Potassium	WS	Pond B	B-3	SW6010	>	11	.	mg/L		.	.
Potassium	WS	Pond B	B-4	SW6010	>	12	.	mg/L		.	.
Selenium	WS	Pond B	B-4	SW7740	ND	0.002	0.004	mg/L		.	.
Selenium	WS	Pond B	B-2	SW7740	>	0.0038	.	mg/L	@	.	.
Selenium	WS	Pond B	B-1	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond B	B-5	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond B	B-3	SW7740	>	0.0032	.	mg/L	@	.	.
Selenium	WS	Pond B	HW-2	SW7740	>	0.0026	.	mg/L	@	.	.
Selenium	WS	Pond B	HW-1	SW7740	>	0.0027	.	mg/L	@	.	.
Selenium	WS	Pond B	B-6	SW7740	ND	0.001	0.002	mg/L		.	.
Silicon	WS	Pond B	B-1	SW6010	>	17	.	mg/L		.	.
Silicon	WS	Pond B	B-5	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond B	HW-2	SW6010	>	9.1	.	mg/L		.	.
Silicon	WS	Pond B	HW-1	SW6010	>	12	.	mg/L		.	.
Silicon	WS	Pond B	B-6	SW6010	>	17	.	mg/L		.	.
Silicon	WS	Pond B	B-4	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond B	B-3	SW6010	>	13	.	mg/L		.	.
Silicon	WS	Pond B	B-2	SW6010	>	12	.	mg/L		.	.
Silver	WS	Pond B	HW-2	SW6010	>	0.0075	.	mg/L	@	.	.
Silver	WS	Pond B	HW-1	SW6010	>	0.026	.	mg/L		.	.
Sodium	WS	Pond B	B-2	SW6010	>	450	.	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Sodium	WS	Pond B	B-3	SW6010	>	50	.	mg/L		.	.
Sodium	WS	Pond B	B-1	SW6010	>	580	.	mg/L		.	.
Sodium	WS	Pond B	B-4	SW6010	>	570	.	mg/L		.	.
Sodium	WS	Pond B	HW-1	SW6010	>	510	.	mg/L		.	.
Sodium	WS	Pond B	B-5	SW6010	>	570	.	mg/L		.	.
Sodium	WS	Pond B	B-6	SW6010	>	580	.	mg/L		.	.
Sodium	WS	Pond B	HW-2	SW6010	>	390	.	mg/L		.	.
Total dissolved solids	WS	Pond B	B-01	E160.1	>	3800	10	mg/L		.	.
Vanadium	WS	Pond B	HW-2	SW6010	>	0.0074	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-1	SW6010	>	0.0084	.	mg/L	@	.	.
Vanadium	WS	Pond B	HW-1	SW6010	>	0.011	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-5	SW6010	>	0.0096	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-4	SW6010	>	0.0092	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-3	SW6010	>	0.0079	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-2	SW6010	>	0.0059	.	mg/L	@	.	.
Vanadium	WS	Pond B	B-6	SW6010	>	0.01	.	mg/L	@	.	.
Zinc	WS	Pond B	B-6	SW6010	>	0.025	.	mg/L		.	.
Zinc	WS	Pond B	HW-1	SW6010	>	0.033	.	mg/L		.	.
Zinc	WS	Pond B	B-2	SW6010	>	0.0055	.	mg/L	@	.	.
Zinc	WS	Pond B	B-5	SW6010	>	0.018	.	mg/L		.	.
Zinc	WS	Pond B	B-4	SW6010	>	0.0042	.	mg/L	@	.	.
Zinc	WS	Pond B	B-3	SW6010	>	0.011	.	mg/L	@	.	.
Zinc	WS	Pond B	B-1	SW6010	>	0.013	.	mg/L	@	.	.
Zinc	WS	Pond B	HW-2	SW6010	>	0.018	.	mg/L		.	.
2,4,5-T	SL	Pond C	C-03	SW8150	<	0.15	0.15	mg/kg		.	.
2,4,5-T	SL	Pond C	C-01	SW8150	<	0.22	0.22	mg/kg		.	.
2,4,5-T	SL	Pond C	C-06	SW8150	<	0.11	0.11	mg/kg		.	.
2,4,5-T	SL	Pond C	C-04	SW8150	<	0.17	0.17	mg/kg		.	.
2,4,5-T	SL	Pond C	C-5	SW8150	ND	0.032	0.064	mg/kg		0	.
2,4,5-T	SL	Pond C	C-02	SW8150	<	0.15	0.15	mg/kg		.	.
2,4,5-T	SL	Pond C	C-2	SW8150	ND	0.012	0.024	mg/kg		0	.
2,4,5-T	SL	Pond C	C-3	SW8150	ND	0.015	0.03	mg/kg		0	.
2,4,5-T	SL	Pond C	C-05	SW8150	>	0.3	0.25	mg/kg	X@	.	.
2,4,5-T	SL	Pond C	C-4	SW8150	ND	0.015	0.03	mg/kg		0	.
2,4,5-T	SL	Pond C	C-1	SW8150	ND	0.016	0.032	mg/kg		0	.
2,4,5-T	SL	Pond C	C-6	SW8150	ND	0.014	0.028	mg/kg		0	.
2-Methylnaphthalene	SL	Pond C	C-4	SW8270	ND	0.2	0.4	mg/kg		0	.
2-Methylnaphthalene	SL	Pond C	C-5	SW8270	>	14	.	mg/kg	@	0	.
2-Methylnaphthalene	SL	Pond C	C-2	SW8270	ND	0.18	0.36	mg/kg		0	.
2-Methylnaphthalene	SL	Pond C	C-1	SW8270	>	1.1	.	mg/kg	@	0	.
2-Methylnaphthalene	SL	Pond C	C-06	SW8270	ND	2.7	5.4	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-04	SW8270	ND	4.3	8.6	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-03	SW8270	ND	3.7	7.4	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-02	SW8270	ND	3.75	7.5	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-01	SW8270	ND	0.65	1.3	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-05	SW8270	ND	6	12	mg/kg		.	.
2-Methylnaphthalene	SL	Pond C	C-6	SW8270	ND	0.19	0.38	mg/kg		0	.
2-Methylnaphthalene	SL	Pond C	C-3	SW8270	ND	0.21	0.42	mg/kg		0	.
4,4'-DDD	SL	Pond C	C-03	SW8080	>	0.31	0.077	mg/kg	C@	.	.
4,4'-DDD	SL	Pond C	C-2	SW8080	>	0.08	.	mg/kg	C@	0	.
4,4'-DDD	SL	Pond C	C-6	SW8080	>	0.18	.	mg/kg	C	0	.
4,4'-DDD	SL	Pond C	C-06	SW8080	>	1.6	0.054	mg/kg	C	.	.
4,4'-DDD	SL	Pond C	C-3	SW8080	>	1.9	.	mg/kg	C	0	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	SL	Pond C	C-05	SW8080	>	0.42	0.12	mg/kg	C@	.	.
4,4'-DDD	SL	Pond C	C-4	SW8080	>	0.43	.	mg/kg	C	0	.
4,4'-DDD	SL	Pond C	C-04	SW8080	>	0.58	0.086	mg/kg	C	.	.
4,4'-DDD	SL	Pond C	C-1	SW8080	>	6	.	mg/kg	C	0	.
4,4'-DDD	SL	Pond C	C-5	SW8080	>	16	.	mg/kg	C	0	.
4,4'-DDD	SL	Pond C	C-01	SW8080	<	0.013	0.013	mg/kg		.	.
4,4'-DDD	SL	Pond C	C-02	SW8080	>	0.36	0.075	mg/kg	C@	.	.
4,4'-DDE	SL	Pond C	C-05	SW8080	>	0.29	0.12	mg/kg	C@	.	.
4,4'-DDE	SL	Pond C	C-04	SW8080	>	0.46	0.086	mg/kg	C	.	.
4,4'-DDE	SL	Pond C	C-03	SW8080	>	0.32	0.077	mg/kg	C@	.	.
4,4'-DDE	SL	Pond C	C-02	SW8080	>	0.57	0.075	mg/kg	C	.	.
4,4'-DDE	SL	Pond C	C-4	SW8080	>	0.095	.	mg/kg	C@	0	.
4,4'-DDE	SL	Pond C	C-5	SW8080	>	8.1	.	mg/kg	CG	0	.
4,4'-DDE	SL	Pond C	C-06	SW8080	>	1.3	0.054	mg/kg	C	.	.
4,4'-DDE	SL	Pond C	C-3	SW8080	>	0.4	.	mg/kg	XG	0	.
4,4'-DDE	SL	Pond C	C-2	SW8080	ND	0.0345	0.069	mg/kg		0	.
4,4'-DDE	SL	Pond C	C-1	SW8080	>	0.24	.	mg/kg	C@	0	.
4,4'-DDE	SL	Pond C	C-01	SW8080	>	0.049	0.013	mg/kg	X@	.	.
4,4'-DDE	SL	Pond C	C-6	SW8080	>	0.057	.	mg/kg	C@	0	.
4,4'-DDT	SL	Pond C	C-01	SW8080	<	0.023	0.026	mg/kg	JC	.	.
4,4'-DDT	SL	Pond C	C-06	SW8080	>	0.14	0.11	mg/kg	C@	.	.
4,4'-DDT	SL	Pond C	C-02	SW8080	<	0.13	0.15	mg/kg	JC	.	.
4,4'-DDT	SL	Pond C	C-05	SW8080	>	0.36	0.24	mg/kg	X@	.	.
4,4'-DDT	SL	Pond C	C-04	SW8080	>	0.21	0.17	mg/kg	X@	.	.
4,4'-DDT	SL	Pond C	C-03	SW8080	<	0.15	0.15	mg/kg		.	.
Acetone	SL	Pond C	C-03	SW8240	>	2.3	0.76	mg/kg	@	.	.
Acetone	SL	Pond C	C-02	SW8240	>	1.5	0.76	mg/kg	@	.	.
Acetone	SL	Pond C	C-04	SW8240	<	0.56	0.87	mg/kg	J	.	.
Acetone	SL	Pond C	C-01	SW8240	>	0.31	0.13	mg/kg	@	.	.
Acetone	SL	Pond C	C-6	SW8240	>	0.0045	.	mg/kg	JB	0	.
Acetone	SL	Pond C	C-2	SW8240	ND	0.007	0.014	mg/kg		0	.
Acetone	SL	Pond C	C-4	SW8240	>	0.009	.	mg/kg	J	0	.
Acetone	SL	Pond C	C-5	SW8240	>	0.032	.	mg/kg	J	0	.
Acetone	SL	Pond C	C-1	SW8240	>	0.045	.	mg/kg	B@	0	.
Acetone	SL	Pond C	C-05	SW8240	>	1.9	1.2	mg/kg	@	.	.
Acetone	SL	Pond C	C-3	SW8240	>	0.021	.	mg/kg	B@	0	.
Acetone	SL	Pond C	C-06	SW8240	>	0.72	0.55	mg/kg	@	.	.
Acetophenone	SL	Pond C	C-05	SW8270	<	12	12	mg/kg		.	.
Acetophenone	SL	Pond C	C-01	SW8270	<	0.1	1.3	mg/kg	J	.	.
Acetophenone	SL	Pond C	C-04	SW8270	<	3.2	8.6	mg/kg	J	.	.
Acetophenone	SL	Pond C	C-06	SW8270	<	5.4	5.4	mg/kg		.	.
Acetophenone	SL	Pond C	C-03	SW8270	<	7.4	7.4	mg/kg		.	.
Acetophenone	SL	Pond C	C-02	SW8270	<	7.5	7.5	mg/kg		.	.
alpha-Chlordane	SL	Pond C	C-06	SW8080	<	0.054	0.054	mg/kg		.	.
alpha-Chlordane	SL	Pond C	C-03	SW8080	<	0.066	0.077	mg/kg	JC	.	.
alpha-Chlordane	SL	Pond C	C-04	SW8080	<	0.086	0.086	mg/kg		.	.
alpha-Chlordane	SL	Pond C	C-01	SW8080	<	0.013	0.013	mg/kg		.	.
alpha-Chlordane	SL	Pond C	C-02	SW8080	<	0.075	0.075	mg/kg		.	.
alpha-Chlordane	SL	Pond C	C-05	SW8080	<	0.12	0.12	mg/kg		.	.
Aluminum	SL	Pond C	C-2	SW6010	>	8900	.	mg/kg		0	.
Aluminum	SL	Pond C	C-1	SW6010	>	11000	.	mg/kg		0	.
Aluminum	SL	Pond C	C-6	SW6010	>	10000	.	mg/kg		0	.
Aluminum	SL	Pond C	C-5	SW6010	>	9500	.	mg/kg		0	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Aluminum	SL	Pond C	C-4	SW6010	>	6800	.	mg/kg		0	.
Aluminum	SL	Pond C	C-3	SW6010	>	13000	.	mg/kg		0	.
Arsenic	SL	Pond C	C-4	SW7060	ND	0.35	0.7	mg/kg		0	.
Arsenic	SL	Pond C	C-3	SW7060	ND	0.75	1.5	mg/kg		0	.
Arsenic	SL	Pond C	C-2	SW7060	>	1.5	.	mg/kg	@	0	.
Arsenic	SL	Pond C	C-1	SW7060	ND	0.8	1.6	mg/kg		0	.
Arsenic	SL	Pond C	C-06	SW7060	>	3.5	1.7	mg/kg	@	.	.
Arsenic	SL	Pond C	C-05	SW7060	ND	2.85	3.8	mg/kg		.	.
Arsenic	SL	Pond C	C-04	SW7060	ND	1.875	2.5	mg/kg		.	.
Arsenic	SL	Pond C	C-03	SW7060	ND	1.875	2.5	mg/kg		.	.
Arsenic	SL	Pond C	C-6	SW7060	>	1.2	.	mg/kg	@	0	.
Arsenic	SL	Pond C	C-5	SW7060	ND	0.6	1.2	mg/kg		0	.
Arsenic	SL	Pond C	C-02	SW7060	ND	1.95	2.6	mg/kg		.	.
Arsenic	SL	Pond C	C-01	SW7060	ND	2.55	3.4	mg/kg		.	.
Barium	SL	Pond C	C-02	SW6010	>	110	5.9	mg/kg		.	.
Barium	SL	Pond C	C-1	SW6010	>	93	.	mg/kg		0	.
Barium	SL	Pond C	C-3	SW6010	>	92	.	mg/kg		0	.
Barium	SL	Pond C	C-04	SW6010	>	80	7.1	mg/kg		.	.
Barium	SL	Pond C	C-4	SW6010	>	69	.	mg/kg		0	.
Barium	SL	Pond C	C-01	SW6010	>	130	9.2	mg/kg		.	.
Barium	SL	Pond C	C-2	SW6010	>	74	.	mg/kg		0	.
Barium	SL	Pond C	C-06	SW6010	>	85	4	mg/kg		.	.
Barium	SL	Pond C	C-6	SW6010	>	92	.	mg/kg		0	.
Barium	SL	Pond C	C-03	SW6010	>	61	5.6	mg/kg		.	.
Barium	SL	Pond C	C-05	SW6010	>	100	10	mg/kg		.	.
Barium	SL	Pond C	C-5	SW6010	>	100	.	mg/kg		0	.
Benzene	SL	Pond C	C-03	SW8240	<	0.038	0.038	mg/kg		.	.
Benzene	SL	Pond C	C-02	SW8240	<	0.038	0.038	mg/kg		.	.
Benzene	SL	Pond C	C-01	SW8240	<	0.0065	0.0065	mg/kg		.	.
Benzene	SL	Pond C	C-06	SW8240	<	0.001	0.027	mg/kg	J	.	.
Benzene	SL	Pond C	C-05	SW8240	<	0.06	0.06	mg/kg		.	.
Benzene	SL	Pond C	C-04	SW8240	<	0.043	0.043	mg/kg		.	.
Beryllium	SL	Pond C	C-5	SW6010	ND	0.26	0.52	mg/kg		0	.
Beryllium	SL	Pond C	C-06	SW6010	ND	0.4	0.8	mg/kg		.	.
Beryllium	SL	Pond C	C-6	SW6010	>	0.38	.	mg/kg	@	0	.
Beryllium	SL	Pond C	C-4	SW6010	ND	0.17	0.34	mg/kg		0	.
Beryllium	SL	Pond C	C-3	SW6010	>	0.43	.	mg/kg	@	0	.
Beryllium	SL	Pond C	C-2	SW6010	ND	0.135	0.27	mg/kg		0	.
Beryllium	SL	Pond C	C-1	SW6010	>	0.46	.	mg/kg	@	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-01	SW8270	>	11	1.3	mg/kg	B	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-3	SW8270	>	0.65	.	mg/kg	@	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-6	SW8270	ND	0.24	0.48	mg/kg		0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-5	SW8270	>	6.2	.	mg/kg	J	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-4	SW8270	>	0.91	.	mg/kg	@	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-2	SW8270	>	0.75	.	mg/kg	@	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-1	SW8270	>	1.2	.	mg/kg	@	0	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-06	SW8270	>	6.3	5.4	mg/kg	B@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-05	SW8270	>	21	12	mg/kg	B@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-04	SW8270	ND	6.45	8.6	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-03	SW8270	>	25	7.4	mg/kg	B@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond C	C-02	SW8270	>	36	7.5	mg/kg	B@	.	.
Cadmium	SL	Pond C	C-05	SW6010	>	6	5	mg/kg	@	.	.
Cadmium	SL	Pond C	C-04	SW6010	>	4.2	3.6	mg/kg	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cadmium	SL	Pond C	C-03	SW6010	>	4	2.8	mg/kg	@	.	.
Cadmium	SL	Pond C	C-02	SW6010	>	4.2	2.9	mg/kg	@	.	.
Cadmium	SL	Pond C	C-06	SW6010	ND	1.5	2	mg/kg		.	.
Cadmium	SL	Pond C	C-01	SW6010	ND	3.45	4.6	mg/kg		.	.
Calcium	SL	Pond C	C-1	SW6010	>	110000	.	mg/kg		0	.
Calcium	SL	Pond C	C-2	SW6010	>	74000	.	mg/kg		0	.
Calcium	SL	Pond C	C-3	SW6010	>	120000	.	mg/kg		0	.
Calcium	SL	Pond C	C-6	SW6010	>	110000	.	mg/kg		0	.
Calcium	SL	Pond C	C-4	SW6010	>	110000	.	mg/kg		0	.
Calcium	SL	Pond C	C-5	SW6010	>	120000	.	mg/kg		0	.
Carbon disulfide	SL	Pond C	C-05	SW8240	>	0.11	0.06	mg/kg	@	.	.
Carbon disulfide	SL	Pond C	C-3	SW8240	ND	0.004	0.008	mg/kg		0	.
Carbon disulfide	SL	Pond C	C-04	SW8240	>	0.05	0.043	mg/kg	@	.	.
Carbon disulfide	SL	Pond C	C-06	SW8240	>	0.071	0.027	mg/kg	@	.	.
Carbon disulfide	SL	Pond C	C-4	SW8240	>	0.014	.	mg/kg	@	0	.
Carbon disulfide	SL	Pond C	C-02	SW8240	<	0.024	0.038	mg/kg	J	.	.
Carbon disulfide	SL	Pond C	C-2	SW8240	>	0.0071	.	mg/kg	@	0	.
Carbon disulfide	SL	Pond C	C-03	SW8240	>	0.047	0.038	mg/kg	@	.	.
Carbon disulfide	SL	Pond C	C-6	SW8240	ND	0.00365	0.0073	mg/kg		0	.
Carbon disulfide	SL	Pond C	C-5	SW8240	>	0.014	.	mg/kg	J	0	.
Carbon disulfide	SL	Pond C	C-01	SW8240	<	0.0065	0.0065	mg/kg		.	.
Carbon disulfide	SL	Pond C	C-1	SW8240	ND	0.0044	0.0088	mg/kg		0	.
Chromium	SL	Pond C	C-1	SW6010	>	34	.	mg/kg		0	.
Chromium	SL	Pond C	C-6	SW6010	>	9.3	.	mg/kg		0	.
Chromium	SL	Pond C	C-01	SW6010	>	120	9.2	mg/kg		.	.
Chromium	SL	Pond C	C-3	SW6010	>	27	.	mg/kg		0	.
Chromium	SL	Pond C	C-2	SW6010	>	18	.	mg/kg		0	.
Chromium	SL	Pond C	C-5	SW6010	>	25	.	mg/kg		0	.
Chromium	SL	Pond C	C-06	SW6010	>	63	4	mg/kg		.	.
Chromium	SL	Pond C	C-05	SW6010	>	76	10	mg/kg		.	.
Chromium	SL	Pond C	C-4	SW6010	>	7.9	.	mg/kg	@	0	.
Chromium	SL	Pond C	C-04	SW6010	>	91	7.1	mg/kg		.	.
Chromium	SL	Pond C	C-03	SW6010	>	46	5.6	mg/kg		.	.
Chromium	SL	Pond C	C-02	SW6010	>	86	5.9	mg/kg		.	.
Cobalt	SL	Pond C	C-02	SW6010	<	5.9	5.9	mg/kg		.	.
Cobalt	SL	Pond C	C-03	SW6010	<	5.6	5.6	mg/kg		.	.
Cobalt	SL	Pond C	C-01	SW6010	<	9.2	9.2	mg/kg		.	.
Cobalt	SL	Pond C	C-5	SW6010	>	3.6	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-6	SW6010	>	3.3	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-2	SW6010	>	3.3	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-1	SW6010	>	3.8	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-3	SW6010	>	4.2	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-06	SW6010	>	4.3	4	mg/kg	@	.	.
Cobalt	SL	Pond C	C-4	SW6010	>	2.7	.	mg/kg	@	0	.
Cobalt	SL	Pond C	C-04	SW6010	<	7.1	7.1	mg/kg		.	.
Cobalt	SL	Pond C	C-05	SW6010	<	10	10	mg/kg		.	.
Copper	SL	Pond C	C-06	SW6010	>	67	8	mg/kg		.	.
Copper	SL	Pond C	C-05	SW6010	>	260	20	mg/kg		.	.
Copper	SL	Pond C	C-04	SW6010	>	130	14	mg/kg		.	.
Copper	SL	Pond C	C-03	SW6010	>	250	11	mg/kg		.	.
Copper	SL	Pond C	C-5	SW6010	>	44	.	mg/kg		0	.
Copper	SL	Pond C	C-02	SW6010	>	190	12	mg/kg		.	.
Copper	SL	Pond C	C-6	SW6010	>	7.4	.	mg/kg	@	0	.

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Copper	SL	Pond C	C-01	SW6010	>	220	18	mg/kg		.	.
Copper	SL	Pond C	C-4	SW6010	>	15	.	mg/kg	@	0	.
Copper	SL	Pond C	C-3	SW6010	>	31	.	mg/kg		0	.
Copper	SL	Pond C	C-2	SW6010	>	16	.	mg/kg		0	.
Copper	SL	Pond C	C-1	SW6010	>	28	.	mg/kg		0	.
Cyanide	SL	Pond C	C-01	SW9012	>	330	13	mg/kg		.	.
Cyanide	SL	Pond C	C-03	SW9012	>	6.5	1.6	mg/kg	@	.	.
Cyanide	SL	Pond C	C-06	SW9012	<	1.1	1.1	mg/kg		.	.
Cyanide	SL	Pond C	C-05	SW9012	<	2.6	2.6	mg/kg		.	.
Cyanide	SL	Pond C	C-04	SW9012	<	1.7	1.7	mg/kg		.	.
Cyanide	SL	Pond C	C-02	SW9012	<	1.6	1.6	mg/kg		.	.
delta-BHC	SL	Pond C	C-06	SW8080	>	1.6	0.054	mg/kg	X	.	.
delta-BHC	SL	Pond C	C-04	SW8080	>	1.6	0.086	mg/kg	X	.	.
delta-BHC	SL	Pond C	C-03	SW8080	<	0.077	0.077	mg/kg		.	.
delta-BHC	SL	Pond C	C-02	SW8080	=	0.75	0.75	mg/kg	D	.	.
delta-BHC	SL	Pond C	C-05	SW8080	>	5	0.12	mg/kg	X	.	.
delta-BHC	SL	Pond C	C-01	SW8080	<	0.013	0.013	mg/kg		.	.
Dibenzofuran	SL	Pond C	C-4	SW8270	ND	0.1	0.2	mg/kg		0	.
Dibenzofuran	SL	Pond C	C-3	SW8270	ND	0.105	0.21	mg/kg		0	.
Dibenzofuran	SL	Pond C	C-2	SW8270	ND	0.09	0.18	mg/kg		0	.
Dibenzofuran	SL	Pond C	C-6	SW8270	ND	0.095	0.19	mg/kg		0	.
Dibenzofuran	SL	Pond C	C-1	SW8270	>	0.31	.	mg/kg	@	0	.
Dibutylphthalate	SL	Pond C	C-04	SW8270	ND	6.45	8.6	mg/kg		.	.
Dibutylphthalate	SL	Pond C	C-6	SW8270	ND	0.12	0.24	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-05	SW8270	ND	9	12	mg/kg		.	.
Dibutylphthalate	SL	Pond C	C-3	SW8270	ND	0.13	0.26	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-02	SW8270	<	0.35	7.5	mg/kg	J	.	.
Dibutylphthalate	SL	Pond C	C-03	SW8270	ND	5.55	7.4	mg/kg		.	.
Dibutylphthalate	SL	Pond C	C-2	SW8270	ND	0.11	0.22	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-5	SW8270	ND	3.9	7.8	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-4	SW8270	ND	0.125	0.25	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-1	SW8270	ND	0.145	0.29	mg/kg		0	.
Dibutylphthalate	SL	Pond C	C-06	SW8270	ND	4.05	5.4	mg/kg		.	.
Dibutylphthalate	SL	Pond C	C-01	SW8270	<	0.046	1.3	mg/kg	J	.	.
Endosulfan I	SL	Pond C	C-03	SW8080	<	0.077	0.077	mg/kg		.	.
Endosulfan I	SL	Pond C	C-02	SW8080	<	0.075	0.075	mg/kg		.	.
Endosulfan I	SL	Pond C	C-4	SW8080	>	0.85	.	mg/kg	X	0	.
Endosulfan I	SL	Pond C	C-04	SW8080	<	0.086	0.086	mg/kg		.	.
Endosulfan I	SL	Pond C	C-5	SW8080	>	4.4	.	mg/kg	X	0	.
Endosulfan I	SL	Pond C	C-01	SW8080	<	0.013	0.013	mg/kg		.	.
Endosulfan I	SL	Pond C	C-2	SW8080	>	1.5	.	mg/kg	X	0	.
Endosulfan I	SL	Pond C	C-06	SW8080	<	0.054	0.054	mg/kg		.	.
Endosulfan I	SL	Pond C	C-05	SW8080	>	0.38	0.12	mg/kg	X@	.	.
Ethyl benzene	SL	Pond C	C-01	SW8240	<	0.0039	0.0065	mg/kg	J	.	.
Ethyl benzene	SL	Pond C	C-03	SW8240	<	0.016	0.038	mg/kg	J	.	.
Ethyl benzene	SL	Pond C	C-06	SW8240	<	0.025	0.027	mg/kg	J	.	.
Ethyl benzene	SL	Pond C	C-05	SW8240	<	0.02	0.06	mg/kg	J	.	.
Ethyl benzene	SL	Pond C	C-04	SW8240	=	0.043	0.043	mg/kg	@	.	.
Ethyl benzene	SL	Pond C	C-02	SW8240	<	0.015	0.038	mg/kg	J	.	.
Fluoranthene	SL	Pond C	C-06	SW8270	ND	4.05	5.4	mg/kg		.	.
Fluoranthene	SL	Pond C	C-04	SW8270	ND	6.45	8.6	mg/kg		.	.
Fluoranthene	SL	Pond C	C-03	SW8270	ND	5.55	7.4	mg/kg		.	.
Fluoranthene	SL	Pond C	C-02	SW8270	<	0.34	7.5	mg/kg	J	.	.

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Fluoranthene	SL	Pond C	C-05	SW8270	ND	9	12	mg/kg		.	.
Fluoranthene	SL	Pond C	C-01	SW8270	<	0.085	1.3	mg/kg	J	.	.
gamma-Chlordane	SL	Pond C	C-06	SW8080	<	0.051	0.054	mg/kg	JX	.	.
gamma-Chlordane	SL	Pond C	C-05	SW8080	>	0.21	0.12	mg/kg	C@	.	.
gamma-Chlordane	SL	Pond C	C-02	SW8080	<	0.075	0.075	mg/kg		.	.
gamma-Chlordane	SL	Pond C	C-04	SW8080	>	0.15	0.086	mg/kg	C@	.	.
gamma-Chlordane	SL	Pond C	C-03	SW8080	>	0.14	0.077	mg/kg	C@	.	.
gamma-Chlordane	SL	Pond C	C-01	SW8080	<	0.013	0.013	mg/kg		.	.
Iron	SL	Pond C	C-1	SW6010	>	8500	.	mg/kg		0	.
Iron	SL	Pond C	C-6	SW6010	>	6900	.	mg/kg		0	.
Iron	SL	Pond C	C-4	SW6010	>	4900	.	mg/kg		0	.
Iron	SL	Pond C	C-2	SW6010	>	6400	.	mg/kg		0	.
Iron	SL	Pond C	C-3	SW6010	>	9000	.	mg/kg		0	.
Iron	SL	Pond C	C-5	SW6010	>	7200	.	mg/kg		0	.
Kepone (Mirex)	SL	Pond C	C-5	SW8080	>	95.7	0.68	mg/kg	C	.	.
Kepone (Mirex)	SL	Pond C	C-05	SW8080	ND	0.06	0.12	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-04	SW8080	ND	0.043	0.086	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-03	SW8080	ND	0.0385	0.077	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-06	SW8080	ND	0.027	0.054	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-01	SW8080	ND	0.0065	0.013	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-02	SW8080	ND	0.0375	0.075	mg/kg		.	.
Kepone (Mirex)	SL	Pond C	C-4	SW8080	>	5.79	0.078	mg/kg	C	.	.
Lead	SL	Pond C	C-01	SW7421	>	48	2.6	mg/kg	Z	.	.
Lead	SL	Pond C	C-3	SW7421	>	17	.	mg/kg		0	.
Lead	SL	Pond C	C-6	SW7421	>	5.6	.	mg/kg		0	.
Lead	SL	Pond C	C-5	SW7421	>	12	.	mg/kg		0	.
Lead	SL	Pond C	C-4	SW7421	>	4.7	.	mg/kg		0	.
Lead	SL	Pond C	C-2	SW7421	>	6.4	.	mg/kg		0	.
Lead	SL	Pond C	C-1	SW7421	>	12	.	mg/kg		0	.
Lead	SL	Pond C	C-06	SW7421	>	13	1.3	mg/kg		.	.
Lead	SL	Pond C	C-05	SW7421	>	64	11	mg/kg		.	.
Lead	SL	Pond C	C-04	SW7421	>	22	1.9	mg/kg		.	.
Lead	SL	Pond C	C-03	SW7421	>	27	1.9	mg/kg		.	.
Lead	SL	Pond C	C-02	SW7421	>	36	1.9	mg/kg		.	.
Magnesium	SL	Pond C	C-6	SW6010	>	8200	.	mg/kg		0	.
Magnesium	SL	Pond C	C-4	SW6010	>	7200	.	mg/kg		0	.
Magnesium	SL	Pond C	C-3	SW6010	>	13000	.	mg/kg		0	.
Magnesium	SL	Pond C	C-2	SW6010	>	10000	.	mg/kg		0	.
Magnesium	SL	Pond C	C-5	SW6010	>	11000	.	mg/kg		0	.
Magnesium	SL	Pond C	C-1	SW6010	>	13000	.	mg/kg		0	.
Manganese	SL	Pond C	C-2	SW6010	>	120	.	mg/kg		0	.
Manganese	SL	Pond C	C-6	SW6010	>	110	.	mg/kg		0	.
Manganese	SL	Pond C	C-4	SW6010	>	92	.	mg/kg		0	.
Manganese	SL	Pond C	C-3	SW6010	>	180	.	mg/kg		0	.
Manganese	SL	Pond C	C-1	SW6010	>	210	.	mg/kg		0	.
Manganese	SL	Pond C	C-5	SW6010	>	170	.	mg/kg		0	.
Mercury	SL	Pond C	C-05	SW7471	>	1	0.56	mg/kg	@	.	.
Mercury	SL	Pond C	C-01	SW7471	>	1.6	0.5	mg/kg	@	.	.
Mercury	SL	Pond C	C-03	SW7471	>	0.84	0.35	mg/kg	@	.	.
Mercury	SL	Pond C	C-04	SW7471	>	0.94	0.37	mg/kg	@	.	.
Mercury	SL	Pond C	C-06	SW7471	>	0.54	0.25	mg/kg	@	.	.
Mercury	SL	Pond C	C-02	SW7471	>	0.83	0.35	mg/kg	@	.	.
Methyl ethyl ketone	SL	Pond C	C-02	SW8240	<	0.19	0.76	mg/kg	J	.	.

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Methyl ethyl ketone	SL	Pond C	C-6	SW8240	ND	0.0075	0.015	mg/kg		0	.
Methyl ethyl ketone	SL	Pond C	C-01	SW8240	<	0.043	0.13	mg/kg	J	.	.
Methyl ethyl ketone	SL	Pond C	C-5	SW8240	>	0.016	.	mg/kg	J	0	.
Methyl ethyl ketone	SL	Pond C	C-3	SW8240	ND	0.008	0.016	mg/kg		0	.
Methyl ethyl ketone	SL	Pond C	C-2	SW8240	ND	0.007	0.014	mg/kg		0	.
Methyl ethyl ketone	SL	Pond C	C-1	SW8240	ND	0.009	0.018	mg/kg		0	.
Methyl ethyl ketone	SL	Pond C	C-06	SW8240	<	0.13	0.55	mg/kg	J	.	.
Methyl ethyl ketone	SL	Pond C	C-4	SW8240	ND	0.008	0.016	mg/kg		0	.
Methyl ethyl ketone	SL	Pond C	C-05	SW8240	<	0.31	1.2	mg/kg	J	.	.
Methyl ethyl ketone	SL	Pond C	C-04	SW8240	<	0.072	0.87	mg/kg	J	.	.
Methyl ethyl ketone	SL	Pond C	C-03	SW8240	<	0.29	0.76	mg/kg	J	.	.
Methylene chloride	SL	Pond C	C-4	SW8240	ND	0.0039	0.0078	mg/kg		0	.
Methylene chloride	SL	Pond C	C-3	SW8240	>	0.0022	.	mg/kg	JB	0	.
Methylene chloride	SL	Pond C	C-2	SW8240	>	0.0019	.	mg/kg	J	0	.
Methylene chloride	SL	Pond C	C-1	SW8240	>	0.0045	.	mg/kg	JB	0	.
Methylene chloride	SL	Pond C	C-5	SW8240	>	0.0073	.	mg/kg	J	0	.
Methylene chloride	SL	Pond C	C-6	SW8240	>	0.0027	.	mg/kg	JB	0	.
Methylene chloride	SL	Pond C	C-01	SW8240	ND	0.00325	0.0065	mg/kg		.	.
Nickel	SL	Pond C	C-3	SW6010	>	9.1	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-02	SW6010	>	15	12	mg/kg	@	.	.
Nickel	SL	Pond C	C-5	SW6010	>	7.9	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-03	SW6010	ND	8.25	11	mg/kg		.	.
Nickel	SL	Pond C	C-04	SW6010	ND	10.5	14	mg/kg		.	.
Nickel	SL	Pond C	C-1	SW6010	>	7.5	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-2	SW6010	>	6.2	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-6	SW6010	>	6	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-05	SW6010	ND	15	20	mg/kg		.	.
Nickel	SL	Pond C	C-4	SW6010	>	4.4	.	mg/kg	@	0	.
Nickel	SL	Pond C	C-01	SW6010	ND	13.5	18	mg/kg		.	.
Nickel	SL	Pond C	C-06	SW6010	>	12	8	mg/kg	@	.	.
Phenanthrene	SL	Pond C	C-03	SW8270	<	0.74	7.4	mg/kg	J	.	.
Phenanthrene	SL	Pond C	C-02	SW8270	<	1	7.5	mg/kg	J	.	.
Phenanthrene	SL	Pond C	C-01	SW8270	<	0.097	1.3	mg/kg	J	.	.
Phenanthrene	SL	Pond C	C-6	SW8270	ND	0.26	0.52	mg/kg		0	.
Phenanthrene	SL	Pond C	C-4	SW8270	ND	0.27	0.54	mg/kg		0	.
Phenanthrene	SL	Pond C	C-3	SW8270	>	0.3	.	mg/kg	J	0	.
Phenanthrene	SL	Pond C	C-2	SW8270	ND	0.24	0.48	mg/kg		0	.
Phenanthrene	SL	Pond C	C-1	SW8270	>	1.8	.	mg/kg	@	0	.
Phenanthrene	SL	Pond C	C-06	SW8270	<	1.3	5.4	mg/kg	J	.	.
Phenanthrene	SL	Pond C	C-5	SW8270	>	11	.	mg/kg	@	0	.
Phenanthrene	SL	Pond C	C-05	SW8270	<	0.76	12	mg/kg	J	.	.
Phenanthrene	SL	Pond C	C-04	SW8270	<	1.1	8.6	mg/kg	J	.	.
Phenol	SL	Pond C	C-2	SW8270	ND	0.115	0.23	mg/kg		0	.
Phenol	SL	Pond C	C-6	SW8270	>	0.15	.	mg/kg	J	0	.
Phenol	SL	Pond C	C-1	SW8270	ND	0.15	0.3	mg/kg		0	.
Phenol	SL	Pond C	C-3	SW8270	ND	0.135	0.27	mg/kg		0	.
Phenol	SL	Pond C	C-4	SW8270	ND	0.13	0.26	mg/kg		0	.
Potassium	SL	Pond C	C-5	SW6010	>	1700	.	mg/kg	@	0	.
Potassium	SL	Pond C	C-6	SW6010	>	2600	.	mg/kg		0	.
Potassium	SL	Pond C	C-4	SW6010	>	1500	.	mg/kg	@	0	.
Potassium	SL	Pond C	C-2	SW6010	>	2100	.	mg/kg		0	.
Potassium	SL	Pond C	C-3	SW6010	>	2700	.	mg/kg		0	.
Potassium	SL	Pond C	C-1	SW6010	>	2700	.	mg/kg	@	0	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Pyrene	SL	Pond C	C-03	SW8270	ND	5.55	7.4	mg/kg		.	.
Pyrene	SL	Pond C	C-1	SW8270	ND	0.12	0.24	mg/kg		0	.
Pyrene	SL	Pond C	C-06	SW8270	ND	4.05	5.4	mg/kg		.	.
Pyrene	SL	Pond C	C-3	SW8270	ND	0.11	0.22	mg/kg		0	.
Pyrene	SL	Pond C	C-5	SW8270	ND	3.3	6.6	mg/kg		0	.
Pyrene	SL	Pond C	C-4	SW8270	ND	0.105	0.21	mg/kg		0	.
Pyrene	SL	Pond C	C-2	SW8270	ND	0.095	0.19	mg/kg		0	.
Pyrene	SL	Pond C	C-05	SW8270	ND	9	12	mg/kg		.	.
Pyrene	SL	Pond C	C-02	SW8270	<	0.57	7.5	mg/kg	J	.	.
Pyrene	SL	Pond C	C-6	SW8270	>	0.2	.	mg/kg	@	0	.
Pyrene	SL	Pond C	C-01	SW8270	<	0.092	1.3	mg/kg	J	.	.
Pyrene	SL	Pond C	C-04	SW8270	ND	6.45	8.6	mg/kg		.	.
Selenium	SL	Pond C	C-01	SW7740	>	6.3	4.3	mg/kg	@	.	.
Selenium	SL	Pond C	C-3	SW7740	ND	0.47	0.94	mg/kg		0	.
Selenium	SL	Pond C	C-6	SW7740	ND	0.38	0.76	mg/kg		0	.
Selenium	SL	Pond C	C-5	SW7740	ND	0.75	1.5	mg/kg		0	.
Selenium	SL	Pond C	C-4	SW7740	ND	0.44	0.88	mg/kg		0	.
Selenium	SL	Pond C	C-2	SW7740	ND	0.37	0.74	mg/kg		0	.
Selenium	SL	Pond C	C-1	SW7740	ND	0.49	0.98	mg/kg		0	.
Selenium	SL	Pond C	C-06	SW7740	>	3	2.2	mg/kg	@	.	.
Selenium	SL	Pond C	C-05	SW7740	>	6.3	4.7	mg/kg	@	.	.
Selenium	SL	Pond C	C-04	SW7740	ND	2.4	3.2	mg/kg		.	.
Selenium	SL	Pond C	C-03	SW7740	ND	2.4	3.2	mg/kg		.	.
Selenium	SL	Pond C	C-02	SW7740	>	3.9	3.2	mg/kg	@	.	.
Silicon	SL	Pond C	C-4	SW6010	>	3900	.	mg/kg		0	.
Silicon	SL	Pond C	C-3	SW6010	>	820	.	mg/kg	@	0	.
Silicon	SL	Pond C	C-2	SW6010	>	2400	.	mg/kg		0	.
Silicon	SL	Pond C	C-5	SW6010	>	8200	.	mg/kg		0	.
Silicon	SL	Pond C	C-1	SW6010	>	800	.	mg/kg	@	0	.
Silicon	SL	Pond C	C-6	SW6010	>	500	.	mg/kg	@	0	.
Silver	SL	Pond C	C-01	SW6010	>	320	9.2	mg/kg		.	.
Silver	SL	Pond C	C-03	SW6010	>	190	5.6	mg/kg		.	.
Silver	SL	Pond C	C-1	SW6010	>	4.9	.	mg/kg	@	0	.
Silver	SL	Pond C	C-04	SW6010	>	170	7.1	mg/kg		.	.
Silver	SL	Pond C	C-06	SW6010	>	95	4	mg/kg		.	.
Silver	SL	Pond C	C-5	SW6010	ND	1.3	2.6	mg/kg		0	.
Silver	SL	Pond C	C-3	SW6010	ND	0.9	1.8	mg/kg		0	.
Silver	SL	Pond C	C-05	SW6010	>	160	10	mg/kg		.	.
Silver	SL	Pond C	C-2	SW6010	ND	0.7	1.4	mg/kg		0	.
Silver	SL	Pond C	C-4	SW6010	>	1.8	.	mg/kg	@	0	.
Silver	SL	Pond C	C-6	SW6010	ND	0.7	1.4	mg/kg		0	.
Silver	SL	Pond C	C-02	SW6010	>	200	5.9	mg/kg		.	.
Sodium	SL	Pond C	C-2	SW6010	>	750	.	mg/kg		0	.
Sodium	SL	Pond C	C-1	SW6010	>	1300	.	mg/kg		0	.
Sodium	SL	Pond C	C-3	SW6010	>	1400	.	mg/kg		0	.
Sodium	SL	Pond C	C-6	SW6010	>	640	.	mg/kg	@	0	.
Sodium	SL	Pond C	C-5	SW6010	>	2300	.	mg/kg		0	.
Sodium	SL	Pond C	C-4	SW6010	>	1000	.	mg/kg		0	.
Sulfide	SL	Pond C	C-05	SW9030	>	2100	310	mg/kg		.	.
Sulfide	SL	Pond C	C-01	SW9030	>	2800	250	mg/kg		.	.
Sulfide	SL	Pond C	C-06	SW9030	>	1400	140	mg/kg		.	.
Sulfide	SL	Pond C	C-04	SW9030	>	1600	210	mg/kg		.	.
Sulfide	SL	Pond C	C-03	SW9030	<	190	190	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Sulfide	SL	Pond C	C-02	SW9030	>	1100	190	mg/kg		.	.
Tetrachloroethene	SL	Pond C	C-05	SW8240	<	0.06	0.06	mg/kg		.	.
Tetrachloroethene	SL	Pond C	C-04	SW8240	<	0.043	0.043	mg/kg		.	.
Tetrachloroethene	SL	Pond C	C-03	SW8240	<	0.038	0.038	mg/kg		.	.
Tetrachloroethene	SL	Pond C	C-02	SW8240	<	0.038	0.038	mg/kg		.	.
Tetrachloroethene	SL	Pond C	C-06	SW8240	<	0.00081	0.027	mg/kg	J	.	.
Tetrachloroethene	SL	Pond C	C-01	SW8240	<	0.0065	0.0065	mg/kg		.	.
Toluene	SL	Pond C	C-01	SW8240	>	0.0072	0.0065	mg/kg	B@	.	.
Toluene	SL	Pond C	C-02	SW8240	<	0.0069	0.038	mg/kg	JB	.	.
Toluene	SL	Pond C	C-03	SW8240	<	0.0086	0.038	mg/kg	JB	.	.
Toluene	SL	Pond C	C-06	SW8240	<	0.015	0.027	mg/kg	JB	.	.
Toluene	SL	Pond C	C-04	SW8240	<	0.0065	0.043	mg/kg	JB	.	.
Toluene	SL	Pond C	C-05	SW8240	<	0.013	0.06	mg/kg	JB	.	.
Vanadium	SL	Pond C	C-05	SW6010	>	47	20	mg/kg	@	.	.
Vanadium	SL	Pond C	C-3	SW6010	>	28	.	mg/kg		0	.
Vanadium	SL	Pond C	C-04	SW6010	>	37	14	mg/kg	@	.	.
Vanadium	SL	Pond C	C-06	SW6010	>	32	8	mg/kg	@	.	.
Vanadium	SL	Pond C	C-4	SW6010	>	15	.	mg/kg	@	0	.
Vanadium	SL	Pond C	C-02	SW6010	>	48	12	mg/kg	@	.	.
Vanadium	SL	Pond C	C-2	SW6010	>	15	.	mg/kg		0	.
Vanadium	SL	Pond C	C-03	SW6010	>	40	11	mg/kg	@	.	.
Vanadium	SL	Pond C	C-6	SW6010	>	18	.	mg/kg		0	.
Vanadium	SL	Pond C	C-5	SW6010	>	24	.	mg/kg	@	0	.
Vanadium	SL	Pond C	C-01	SW6010	>	55	18	mg/kg	@	.	.
Vanadium	SL	Pond C	C-1	SW6010	>	27	.	mg/kg		0	.
Xylenes	SL	Pond C	C-1	SW8240	>	0.0024	.	mg/kg	J	0	.
Xylenes	SL	Pond C	C-6	SW8240	ND	0.00365	0.0073	mg/kg		0	.
Xylenes	SL	Pond C	C-01	SW8240	>	0.017	0.0065	mg/kg	@	.	.
Xylenes	SL	Pond C	C-3	SW8240	>	0.0026	.	mg/kg	JB	0	.
Xylenes	SL	Pond C	C-2	SW8240	ND	0.0035	0.007	mg/kg		0	.
Xylenes	SL	Pond C	C-5	SW8240	ND	0.0085	0.017	mg/kg		0	.
Xylenes	SL	Pond C	C-06	SW8240	>	0.045	0.027	mg/kg	@	.	.
Xylenes	SL	Pond C	C-05	SW8240	>	0.13	0.06	mg/kg	@	.	.
Xylenes	SL	Pond C	C-4	SW8240	ND	0.0039	0.0078	mg/kg		0	.
Xylenes	SL	Pond C	C-04	SW8240	>	0.071	0.043	mg/kg	@	.	.
Xylenes	SL	Pond C	C-03	SW8240	>	0.077	0.038	mg/kg	@	.	.
Xylenes	SL	Pond C	C-02	SW8240	>	0.082	0.038	mg/kg	@	.	.
Zinc	SL	Pond C	C-02	SW6010	>	240	12	mg/kg		.	.
Zinc	SL	Pond C	C-03	SW6010	>	250	11	mg/kg		.	.
Zinc	SL	Pond C	C-01	SW6010	>	330	18	mg/kg		.	.
Zinc	SL	Pond C	C-04	SW6010	>	170	14	mg/kg		.	.
Zinc	SL	Pond C	C-3	SW6010	>	65	.	mg/kg		0	.
Zinc	SL	Pond C	C-4	SW6010	>	34	.	mg/kg		0	.
Zinc	SL	Pond C	C-6	SW6010	>	25	.	mg/kg		0	.
Zinc	SL	Pond C	C-1	SW6010	>	66	.	mg/kg		0	.
Zinc	SL	Pond C	C-2	SW6010	>	37	.	mg/kg		0	.
Zinc	SL	Pond C	C-05	SW6010	>	240	20	mg/kg		.	.
Zinc	SL	Pond C	C-5	SW6010	>	130	.	mg/kg		0	.
Zinc	SL	Pond C	C-06	SW6010	>	110	8	mg/kg		.	.
4,4'-DDD	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDD	SO	Pond C	C-01	SW8080	>	0.061	0.021	mg/kg	X@	0	2
4,4'-DDD	SO	Pond C	C-06	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDD	SO	Pond C	C-1	SW8080	>	0.16	.	mg/kg	CG	0.5	1.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	SO	Pond C	C-5	SW8080	ND	0.026	0.052	mg/kg		0.5	1.5
4,4'-DDD	SO	Pond C	C-2	SW8080	>	0.18	.	mg/kg	C@	0.5	1.5
4,4'-DDD	SO	Pond C	C-05	SW8080	>	0.0075	0.0014	mg/kg	C	0	2
4,4'-DDD	SO	Pond C	C-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDD	SO	Pond C	C-03	SW8080	>	0.098	0.0027	mg/kg	C	0	2
4,4'-DDD	SO	Pond C	C-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDD	SO	Pond C	C-06	SW8080	>	0.0023	0.0013	mg/kg	C@	0	2
4,4'-DDD	SO	Pond C	C-6	SW8080	>	0.074	.	mg/kg	CG	0.5	1.5
4,4'-DDD	SO	Pond C	C-4	SW8080	>	0.078	.	mg/kg	C	0.5	1.5
4,4'-DDD	SO	Pond C	C-3	SW8080	>	0.16	.	mg/kg	CG	0.5	1.5
4,4'-DDE	SO	Pond C	C-1	SW8080	>	0.014	.	mg/kg	C@	0.5	1.5
4,4'-DDE	SO	Pond C	C-06	SW8080	>	0.0055	0.0013	mg/kg	X@	0	2
4,4'-DDE	SO	Pond C	C-06	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDE	SO	Pond C	C-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDE	SO	Pond C	C-03	SW8080	>	0.018	0.0027	mg/kg	C	0	2
4,4'-DDE	SO	Pond C	C-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond C	C-01	SW8080	>	0.062	0.021	mg/kg	C@	0	2
4,4'-DDE	SO	Pond C	C-3	SW8080	ND	0.012	0.024	mg/kg		0.5	1.5
4,4'-DDE	SO	Pond C	C-2	SW8080	>	0.24	.	mg/kg	C@	0.5	1.5
4,4'-DDE	SO	Pond C	C-05	SW8080	>	0.014	0.0014	mg/kg	X	0	2
4,4'-DDE	SO	Pond C	C-6	SW8080	ND	0.00255	0.0051	mg/kg		0.5	1.5
4,4'-DDE	SO	Pond C	C-5	SW8080	ND	0.026	0.052	mg/kg		0.5	1.5
4,4'-DDE	SO	Pond C	C-4	SW8080	>	0.021	.	mg/kg	C@	0.5	1.5
4,4'-DDT	SO	Pond C	C-05	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond C	C-06	SW8080	<	0.0025	0.0025	mg/kg		2	4
4,4'-DDT	SO	Pond C	C-03	SW8080	<	0.0026	0.0026	mg/kg		2	4
4,4'-DDT	SO	Pond C	C-01	SW8080	<	0.042	0.042	mg/kg		0	2
4,4'-DDT	SO	Pond C	C-04	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond C	C-02	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond C	C-06	SW8080	<	0.0024	0.0026	mg/kg	JC	0	2
4,4'-DDT	SO	Pond C	C-03	SW8080	>	0.0057	0.0055	mg/kg	X@	0	2
Acetone	SO	Pond C	C-03	SW8240	<	0.012	0.13	mg/kg	J	2	4
Acetone	SO	Pond C	C-02	SW8240	<	0.056	0.14	mg/kg	J	0	2
Acetone	SO	Pond C	C-03	SW8240	<	0.03	0.14	mg/kg	J	0	2
Acetone	SO	Pond C	C-6	SW8240	>	0.0091	.	mg/kg	JB	0.5	1.5
Acetone	SO	Pond C	C-01	SW8240	<	0.43	1.1	mg/kg	J	0	2
Acetone	SO	Pond C	C-5	SW8240	>	0.008	.	mg/kg	J	0.5	1.5
Acetone	SO	Pond C	C-3	SW8240	>	0.0078	.	mg/kg	JB	0.5	1.5
Acetone	SO	Pond C	C-2	SW8240	>	0.019	.	mg/kg	@	0.5	1.5
Acetone	SO	Pond C	C-1	SW8240	>	0.0073	.	mg/kg	JB	0.5	1.5
Acetone	SO	Pond C	C-06	SW8240	<	0.031	0.13	mg/kg	J	2	4
Acetone	SO	Pond C	C-4	SW8240	ND	0.0075	0.015	mg/kg		0.5	1.5
Acetone	SO	Pond C	C-06	SW8240	<	0.0084	0.13	mg/kg	J	0	2
Acetone	SO	Pond C	C-05	SW8240	ND	0.105	0.14	mg/kg		0	2
Acetone	SO	Pond C	C-04	SW8240	ND	0.105	0.14	mg/kg		0	2
Aldrin	SO	Pond C	C-04	SW8080	>	0.002	0.0014	mg/kg	C@	0	2
Aldrin	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
Aldrin	SO	Pond C	C-03	SW8080	<	0.0027	0.0027	mg/kg		0	2
Aldrin	SO	Pond C	C-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Aldrin	SO	Pond C	C-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
Aldrin	SO	Pond C	C-06	SW8080	>	0.0022	0.0013	mg/kg	C@	0	2
Aldrin	SO	Pond C	C-01	SW8080	<	0.021	0.021	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Aldrin	SO	Pond C	C-06	SW8080	>	0.0015	0.0013	mg/kg	C@	2	4
Aluminum	SO	Pond C	C-3	SW6010	>	11000	.	mg/kg		0.5	1.5
Aluminum	SO	Pond C	C-1	SW6010	>	10000	.	mg/kg		0.5	1.5
Aluminum	SO	Pond C	C-2	SW6010	>	11000	.	mg/kg		0.5	1.5
Aluminum	SO	Pond C	C-6	SW6010	>	9200	.	mg/kg		0.5	1.5
Aluminum	SO	Pond C	C-5	SW6010	>	11000	.	mg/kg		0.5	1.5
Aluminum	SO	Pond C	C-4	SW6010	>	9200	.	mg/kg		0.5	1.5
Arsenic	SO	Pond C	C-04	SW7060	>	1.1	0.45	mg/kg	@	0	2
Arsenic	SO	Pond C	C-03	SW7060	>	0.79	0.42	mg/kg	@	0	2
Arsenic	SO	Pond C	C-02	SW7060	>	2.2	0.51	mg/kg	@	0	2
Arsenic	SO	Pond C	C-05	SW7060	>	1	0.39	mg/kg	@	0	2
Arsenic	SO	Pond C	C-06	SW7060	>	2.6	0.39	mg/kg		0	2
Arsenic	SO	Pond C	C-5	SW7060	ND	0.55	1.1	mg/kg		0.5	1.5
Arsenic	SO	Pond C	C-01	SW7060	>	2.4	0.38	mg/kg		0	2
Arsenic	SO	Pond C	C-3	SW7060	ND	0.5	1	mg/kg		0.5	1.5
Arsenic	SO	Pond C	C-2	SW7060	ND	0.6	1.2	mg/kg		0.5	1.5
Arsenic	SO	Pond C	C-1	SW7060	>	1.7	.	mg/kg	@	0.5	1.5
Arsenic	SO	Pond C	C-4	SW7060	>	1.1	.	mg/kg	@	0.5	1.5
Arsenic	SO	Pond C	C-06	SW7060	>	2.4	0.42	mg/kg		2	4
Arsenic	SO	Pond C	C-6	SW7060	>	1.2	.	mg/kg	@	0.5	1.5
Arsenic	SO	Pond C	C-03	SW7060	>	1.3	0.36	mg/kg	@	2	4
Barium	SO	Pond C	C-5	SW6010	>	96	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-6	SW6010	>	160	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-4	SW6010	>	94	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-1	SW6010	>	84	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-06	SW6010	>	88	4.2	mg/kg		2	4
Barium	SO	Pond C	C-06	SW6010	>	59	4.4	mg/kg		0	2
Barium	SO	Pond C	C-05	SW6010	>	64	4.2	mg/kg		0	2
Barium	SO	Pond C	C-04	SW6010	>	44	4.2	mg/kg		0	2
Barium	SO	Pond C	C-03	SW6010	>	61	4	mg/kg		2	4
Barium	SO	Pond C	C-03	SW6010	>	54	4.4	mg/kg		0	2
Barium	SO	Pond C	C-3	SW6010	>	160	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-2	SW6010	>	110	.	mg/kg		0.5	1.5
Barium	SO	Pond C	C-02	SW6010	>	63	3.9	mg/kg		0	2
Barium	SO	Pond C	C-01	SW6010	>	110	3.8	mg/kg		0	2
Beryllium	SO	Pond C	C-4	SW6010	>	0.3	.	mg/kg	@	0.5	1.5
Beryllium	SO	Pond C	C-03	SW6010	ND	0.44	0.88	mg/kg		0	2
Beryllium	SO	Pond C	C-2	SW6010	>	0.41	.	mg/kg	@	0.5	1.5
Beryllium	SO	Pond C	C-02	SW6010	ND	0.39	0.78	mg/kg		0	2
Beryllium	SO	Pond C	C-01	SW6010	ND	0.385	0.77	mg/kg		0	2
Beryllium	SO	Pond C	C-06	SW6010	ND	0.42	0.84	mg/kg		2	4
Beryllium	SO	Pond C	C-04	SW6010	ND	0.42	0.84	mg/kg		0	2
Beryllium	SO	Pond C	C-1	SW6010	>	0.42	.	mg/kg	@	0.5	1.5
Beryllium	SO	Pond C	C-03	SW6010	ND	0.405	0.81	mg/kg		2	4
Beryllium	SO	Pond C	C-5	SW6010	>	0.38	.	mg/kg	@	0.5	1.5
Beryllium	SO	Pond C	C-3	SW6010	>	0.44	.	mg/kg	@	0.5	1.5
Beryllium	SO	Pond C	C-05	SW6010	ND	0.42	0.84	mg/kg		0	2
Beryllium	SO	Pond C	C-6	SW6010	>	0.37	.	mg/kg	@	0.5	1.5
beta-BHC	SO	Pond C	C-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
beta-BHC	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
beta-BHC	SO	Pond C	C-01	SW8080	>	0.063	0.021	mg/kg	X@	0	2
beta-BHC	SO	Pond C	C-03	SW8080	<	0.0027	0.0027	mg/kg		0	2
beta-BHC	SO	Pond C	C-05	SW8080	<	0.0014	0.0014	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
beta-BHC	SO	Pond C	C-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Pond C	C-02	SW8080	>	0.002	0.0014	mg/kg	C@	0	2
beta-BHC	SO	Pond C	C-06	SW8080	<	0.0013	0.0013	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-02	SW8270	<	0.16	1.4	mg/kg	JB	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-01	SW8270	<	1.8	11	mg/kg	JB	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-03	SW8270	<	0.38	1.3	mg/kg	JB	2	4
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-6	SW8270	ND	0.21	0.42	mg/kg		0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-03	SW8270	<	0.16	1.4	mg/kg	JB	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-04	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-4	SW8270	>	0.21	.	mg/kg	J	0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-3	SW8270	ND	0.205	0.41	mg/kg		0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-2	SW8270	>	0.5	.	mg/kg	@	0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-1	SW8270	ND	0.215	0.43	mg/kg		0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-06	SW8270	<	0.28	1.3	mg/kg	JB	2	4
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-5	SW8270	>	0.14	.	mg/kg	J	0.5	1.5
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-06	SW8270	>	7.9	1.3	mg/kg	B	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond C	C-05	SW8270	<	0.18	1.4	mg/kg	JB	0	2
Calcium	SO	Pond C	C-4	SW6010	>	98000	.	mg/kg		0.5	1.5
Calcium	SO	Pond C	C-5	SW6010	>	100000	.	mg/kg		0.5	1.5
Calcium	SO	Pond C	C-2	SW6010	>	110000	.	mg/kg		0.5	1.5
Calcium	SO	Pond C	C-3	SW6010	>	190000	.	mg/kg		0.5	1.5
Calcium	SO	Pond C	C-1	SW6010	>	81000	.	mg/kg		0.5	1.5
Calcium	SO	Pond C	C-6	SW6010	>	120000	.	mg/kg		0.5	1.5
Carbon disulfide	SO	Pond C	C-06	SW8240	ND	0.0048	0.0064	mg/kg		2	4
Carbon disulfide	SO	Pond C	C-06	SW8240	ND	0.005025	0.0067	mg/kg		0	2
Carbon disulfide	SO	Pond C	C-05	SW8240	<	0.0016	0.0068	mg/kg	J	0	2
Carbon disulfide	SO	Pond C	C-04	SW8240	<	0.0067	0.0068	mg/kg	J	0	2
Carbon disulfide	SO	Pond C	C-03	SW8240	<	0.0029	0.0065	mg/kg	J	2	4
Carbon disulfide	SO	Pond C	C-03	SW8240	>	0.0085	0.007	mg/kg	@	0	2
Carbon disulfide	SO	Pond C	C-02	SW8240	>	0.0076	0.0068	mg/kg	@	0	2
Carbon disulfide	SO	Pond C	C-1	SW8240	ND	0.00335	0.0067	mg/kg		0.5	1.5
Carbon disulfide	SO	Pond C	C-2	SW8240	>	0.027	.	mg/kg	@	0.5	1.5
Carbon disulfide	SO	Pond C	C-01	SW8240	ND	0.03975	0.053	mg/kg		0	2
Carbon disulfide	SO	Pond C	C-6	SW8240	ND	0.0032	0.0064	mg/kg		0.5	1.5
Carbon disulfide	SO	Pond C	C-3	SW8240	ND	0.00315	0.0063	mg/kg		0.5	1.5
Carbon disulfide	SO	Pond C	C-4	SW8240	>	0.019	.	mg/kg	@	0.5	1.5
Carbon disulfide	SO	Pond C	C-5	SW8240	>	0.027	.	mg/kg	@	0.5	1.5
Chromium	SO	Pond C	C-06	SW6010	>	6.7	4.2	mg/kg	@	2	4
Chromium	SO	Pond C	C-05	SW6010	ND	3.15	4.2	mg/kg		0	2
Chromium	SO	Pond C	C-02	SW6010	>	4.7	3.9	mg/kg	@	0	2
Chromium	SO	Pond C	C-01	SW6010	>	4.4	3.8	mg/kg	@	0	2
Chromium	SO	Pond C	C-2	SW6010	>	15	.	mg/kg		0.5	1.5
Chromium	SO	Pond C	C-03	SW6010	>	5	4.4	mg/kg	@	0	2
Chromium	SO	Pond C	C-04	SW6010	ND	3.15	4.2	mg/kg		0	2
Chromium	SO	Pond C	C-5	SW6010	>	11	.	mg/kg		0.5	1.5
Chromium	SO	Pond C	C-3	SW6010	>	10	.	mg/kg		0.5	1.5
Chromium	SO	Pond C	C-06	SW6010	>	8.5	4.4	mg/kg	@	0	2
Chromium	SO	Pond C	C-4	SW6010	>	8.2	.	mg/kg		0.5	1.5
Chromium	SO	Pond C	C-03	SW6010	>	6.9	4	mg/kg	@	2	4
Chromium	SO	Pond C	C-1	SW6010	>	9.6	.	mg/kg		0.5	1.5
Chromium	SO	Pond C	C-6	SW6010	>	8.9	.	mg/kg		0.5	1.5
Cobalt	SO	Pond C	C-4	SW6010	>	3	.	mg/kg	@	0.5	1.5
Cobalt	SO	Pond C	C-3	SW6010	>	3.9	.	mg/kg	@	0.5	1.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cobalt	SO	Pond C	C-2	SW6010	>	3.9	.	mg/kg	@	0.5	1.5
Cobalt	SO	Pond C	C-06	SW6010	ND	2.1	4.2	mg/kg		2	4
Cobalt	SO	Pond C	C-06	SW6010	ND	2.2	4.4	mg/kg		0	2
Cobalt	SO	Pond C	C-05	SW6010	ND	2.1	4.2	mg/kg		0	2
Cobalt	SO	Pond C	C-04	SW6010	ND	2.1	4.2	mg/kg		0	2
Cobalt	SO	Pond C	C-1	SW6010	>	3.6	.	mg/kg	@	0.5	1.5
Cobalt	SO	Pond C	C-03	SW6010	ND	2	4	mg/kg		2	4
Cobalt	SO	Pond C	C-03	SW6010	ND	2.2	4.4	mg/kg		0	2
Cobalt	SO	Pond C	C-6	SW6010	>	3.4	.	mg/kg	@	0.5	1.5
Cobalt	SO	Pond C	C-5	SW6010	>	3.5	.	mg/kg	@	0.5	1.5
Cobalt	SO	Pond C	C-02	SW6010	ND	1.95	3.9	mg/kg		0	2
Cobalt	SO	Pond C	C-01	SW6010	ND	1.9	3.8	mg/kg		0	2
Copper	SO	Pond C	C-02	SW6010	ND	3.9	7.8	mg/kg		0	2
Copper	SO	Pond C	C-4	SW6010	>	6.6	.	mg/kg	@	0.5	1.5
Copper	SO	Pond C	C-2	SW6010	>	18	.	mg/kg		0.5	1.5
Copper	SO	Pond C	C-03	SW6010	ND	4.05	8.1	mg/kg		2	4
Copper	SO	Pond C	C-6	SW6010	>	5.1	.	mg/kg	@	0.5	1.5
Copper	SO	Pond C	C-05	SW6010	ND	4.2	8.4	mg/kg		0	2
Copper	SO	Pond C	C-06	SW6010	ND	4.2	8.4	mg/kg		2	4
Copper	SO	Pond C	C-04	SW6010	ND	4.2	8.4	mg/kg		0	2
Copper	SO	Pond C	C-3	SW6010	>	7	.	mg/kg	@	0.5	1.5
Copper	SO	Pond C	C-1	SW6010	>	7.6	.	mg/kg	@	0.5	1.5
Copper	SO	Pond C	C-01	SW6010	ND	3.85	7.7	mg/kg		0	2
Copper	SO	Pond C	C-03	SW6010	ND	4.4	8.8	mg/kg		0	2
Copper	SO	Pond C	C-06	SW6010	ND	4.45	8.9	mg/kg		0	2
Copper	SO	Pond C	C-5	SW6010	>	8.1	.	mg/kg	@	0.5	1.5
Cyanide	SO	Pond C	C-05	SW9012	<	0.33	0.33	mg/kg		0	2
Cyanide	SO	Pond C	C-06	SW9012	<	0.31	0.31	mg/kg		0	2
Cyanide	SO	Pond C	C-02	SW9012	>	0.59	0.33	mg/kg	@	0	2
Cyanide	SO	Pond C	C-04	SW9012	<	0.34	0.34	mg/kg		0	2
Cyanide	SO	Pond C	C-03	SW9012	>	1.2	0.32	mg/kg	@	2	4
Cyanide	SO	Pond C	C-03	SW9012	>	0.75	0.31	mg/kg	@	0	2
Cyanide	SO	Pond C	C-01	SW9012	>	0.37	0.31	mg/kg	@	0	2
Cyanide	SO	Pond C	C-06	SW9012	<	0.3	0.3	mg/kg		2	4
delta-BHC	SO	Pond C	C-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond C	C-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
delta-BHC	SO	Pond C	C-03	SW8080	<	0.0027	0.0027	mg/kg		0	2
delta-BHC	SO	Pond C	C-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond C	C-06	SW8080	>	0.0023	0.0013	mg/kg	X@	0	2
delta-BHC	SO	Pond C	C-06	SW8080	<	0.0013	0.0013	mg/kg		2	4
delta-BHC	SO	Pond C	C-01	SW8080	<	0.021	0.021	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-05	SW8270	<	1.4	1.4	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-06	SW8270	<	1.3	1.3	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-02	SW8270	<	0.22	1.4	mg/kg	J	0	2
Di-n-octylphthalate	SO	Pond C	C-04	SW8270	<	1.4	1.4	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-03	SW8270	<	1.3	1.3	mg/kg		2	4
Di-n-octylphthalate	SO	Pond C	C-03	SW8270	<	1.4	1.4	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-01	SW8270	<	11	11	mg/kg		0	2
Di-n-octylphthalate	SO	Pond C	C-06	SW8270	<	1.3	1.3	mg/kg		2	4
Dibutylphthalate	SO	Pond C	C-2	SW8270	ND	0.12	0.24	mg/kg		0.5	1.5
Dibutylphthalate	SO	Pond C	C-1	SW8270	ND	0.11	0.22	mg/kg		0.5	1.5
Dibutylphthalate	SO	Pond C	C-6	SW8270	ND	0.105	0.21	mg/kg		0.5	1.5

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Dibutylphthalate	SO	Pond C	C-3	SW8270	ND	0.1	0.2	mg/kg		0.5	1.5
Dibutylphthalate	SO	Pond C	C-5	SW8270	>	0.21	.	mg/kg	J	0.5	1.5
Dibutylphthalate	SO	Pond C	C-4	SW8270	>	0.26	.	mg/kg	@	0.5	1.5
Dichloroprop	SO	Pond C	C-3	SW8150	ND	0.0425	0.085	mg/kg		0.5	1.5
Dichloroprop	SO	Pond C	C-4	SW8150	ND	0.0455	0.091	mg/kg		0.5	1.5
Dichloroprop	SO	Pond C	C-2	SW8150	>	0.153	.	mg/kg	C@	0.5	1.5
Dichloroprop	SO	Pond C	C-5	SW8150	ND	0.0425	0.085	mg/kg		0.5	1.5
Dichloroprop	SO	Pond C	C-1	SW8150	ND	0.0425	0.085	mg/kg		0.5	1.5
Dichloroprop	SO	Pond C	C-6	SW8150	ND	0.039	0.078	mg/kg		0.5	1.5
Endosulfan I	SO	Pond C	C-02	SW8080	ND	0.0007	0.0014	mg/kg		0	2
Endosulfan I	SO	Pond C	C-01	SW8080	ND	0.0105	0.021	mg/kg		0	2
Endosulfan I	SO	Pond C	C-03	SW8080	ND	0.00065	0.0013	mg/kg		2	4
Endosulfan I	SO	Pond C	C-6	SW8080	ND	0.00255	0.0051	mg/kg		0.5	1.5
Endosulfan I	SO	Pond C	C-03	SW8080	ND	0.00135	0.0027	mg/kg		0	2
Endosulfan I	SO	Pond C	C-04	SW8080	ND	0.0007	0.0014	mg/kg		0	2
Endosulfan I	SO	Pond C	C-4	SW8080	>	0.17	.	mg/kg	X	0.5	1.5
Endosulfan I	SO	Pond C	C-3	SW8080	ND	0.012	0.024	mg/kg		0.5	1.5
Endosulfan I	SO	Pond C	C-2	SW8080	>	0.44	.	mg/kg	X	0.5	1.5
Endosulfan I	SO	Pond C	C-1	SW8080	ND	0.0065	0.013	mg/kg		0.5	1.5
Endosulfan I	SO	Pond C	C-06	SW8080	ND	0.00065	0.0013	mg/kg		2	4
Endosulfan I	SO	Pond C	C-5	SW8080	>	0.44	.	mg/kg	X	0.5	1.5
Endosulfan I	SO	Pond C	C-06	SW8080	ND	0.00065	0.0013	mg/kg		0	2
Endosulfan I	SO	Pond C	C-05	SW8080	ND	0.0007	0.0014	mg/kg		0	2
Endosulfan sulfate	SO	Pond C	C-05	SW8080	<	0.0068	0.0068	mg/kg		0	2
Endosulfan sulfate	SO	Pond C	C-04	SW8080	<	0.0068	0.0068	mg/kg		0	2
Endosulfan sulfate	SO	Pond C	C-03	SW8080	<	0.00052	0.0065	mg/kg	JX	2	4
Endosulfan sulfate	SO	Pond C	C-03	SW8080	<	0.014	0.014	mg/kg		0	2
Endosulfan sulfate	SO	Pond C	C-02	SW8080	<	0.0014	0.0068	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond C	C-06	SW8080	<	0.0065	0.0065	mg/kg		0	2
Endosulfan sulfate	SO	Pond C	C-06	SW8080	<	0.0063	0.0063	mg/kg		2	4
Endosulfan sulfate	SO	Pond C	C-01	SW8080	<	0.0011	0.11	mg/kg	JX	0	2
Endrin aldehyde	SO	Pond C	C-03	SW8080	<	0.0055	0.0055	mg/kg		0	2
Endrin aldehyde	SO	Pond C	C-05	SW8080	<	0.0027	0.0027	mg/kg		0	2
Endrin aldehyde	SO	Pond C	C-06	SW8080	>	0.0026	0.0025	mg/kg	C@	2	4
Endrin aldehyde	SO	Pond C	C-06	SW8080	<	0.0026	0.0026	mg/kg		0	2
Endrin aldehyde	SO	Pond C	C-03	SW8080	<	0.0026	0.0026	mg/kg		2	4
Endrin aldehyde	SO	Pond C	C-01	SW8080	<	0.042	0.042	mg/kg		0	2
Endrin aldehyde	SO	Pond C	C-04	SW8080	<	0.0027	0.0027	mg/kg		0	2
Endrin aldehyde	SO	Pond C	C-02	SW8080	<	0.0027	0.0027	mg/kg		0	2
Ethyl benzene	SO	Pond C	C-06	SW8240	<	0.0067	0.0067	mg/kg		0	2
Ethyl benzene	SO	Pond C	C-03	SW8240	<	0.0065	0.0065	mg/kg		2	4
Ethyl benzene	SO	Pond C	C-02	SW8240	<	0.0068	0.0068	mg/kg		0	2
Ethyl benzene	SO	Pond C	C-03	SW8240	<	0.00066	0.007	mg/kg	J	0	2
Ethyl benzene	SO	Pond C	C-05	SW8240	<	0.0068	0.0068	mg/kg		0	2
Ethyl benzene	SO	Pond C	C-01	SW8240	<	0.053	0.053	mg/kg		0	2
Ethyl benzene	SO	Pond C	C-06	SW8240	<	0.0064	0.0064	mg/kg		2	4
Ethyl benzene	SO	Pond C	C-04	SW8240	<	0.0068	0.0068	mg/kg		0	2
Heptachlor epoxide	SO	Pond C	C-06	SW8080	<	0.00083	0.0013	mg/kg	JX	2	4
Heptachlor epoxide	SO	Pond C	C-01	SW8080	<	0.021	0.021	mg/kg		0	2
Heptachlor epoxide	SO	Pond C	C-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor epoxide	SO	Pond C	C-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor epoxide	SO	Pond C	C-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
Heptachlor epoxide	SO	Pond C	C-06	SW8080	>	0.0014	0.0013	mg/kg	C@	0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Heptachlor epoxide	SO	Pond C	C-03	SW8080	<	0.0027	0.0027	mg/kg		0	2
Heptachlor epoxide	SO	Pond C	C-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Iron	SO	Pond C	C-4	SW6010	>	6100	.	mg/kg		0.5	1.5
Iron	SO	Pond C	C-5	SW6010	>	7000	.	mg/kg		0.5	1.5
Iron	SO	Pond C	C-2	SW6010	>	8200	.	mg/kg		0.5	1.5
Iron	SO	Pond C	C-3	SW6010	>	7500	.	mg/kg		0.5	1.5
Iron	SO	Pond C	C-1	SW6010	>	7300	.	mg/kg		0.5	1.5
Iron	SO	Pond C	C-6	SW6010	>	6500	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-6	SW7421	>	4.4	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-2	SW7421	>	5.3	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-4	SW7421	>	3.5	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-5	SW7421	>	3.2	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-1	SW7421	>	3.9	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-06	SW7421	>	2.3	0.29	mg/kg		0	2
Lead	SO	Pond C	C-3	SW7421	>	4	.	mg/kg		0.5	1.5
Lead	SO	Pond C	C-06	SW7421	>	3.3	0.31	mg/kg		2	4
Lead	SO	Pond C	C-05	SW7421	>	0.51	0.29	mg/kg	@	0	2
Lead	SO	Pond C	C-04	SW7421	>	1.6	0.34	mg/kg	@	0	2
Magnesium	SO	Pond C	C-5	SW6010	>	25000	.	mg/kg		0.5	1.5
Magnesium	SO	Pond C	C-1	SW6010	>	9700	.	mg/kg		0.5	1.5
Magnesium	SO	Pond C	C-4	SW6010	>	8000	.	mg/kg		0.5	1.5
Magnesium	SO	Pond C	C-6	SW6010	>	5400	.	mg/kg		0.5	1.5
Magnesium	SO	Pond C	C-3	SW6010	>	7000	.	mg/kg		0.5	1.5
Magnesium	SO	Pond C	C-2	SW6010	>	11000	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-2	SW6010	>	140	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-1	SW6010	>	150	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-6	SW6010	>	78	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-5	SW6010	>	88	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-4	SW6010	>	97	.	mg/kg		0.5	1.5
Manganese	SO	Pond C	C-3	SW6010	>	77	.	mg/kg		0.5	1.5
Methylene chloride	SO	Pond C	C-2	SW8240	ND	0.0037	0.0074	mg/kg		0.5	1.5
Methylene chloride	SO	Pond C	C-1	SW8240	>	0.0049	.	mg/kg	JB	0.5	1.5
Methylene chloride	SO	Pond C	C-06	SW8240	ND	0.0048	0.0064	mg/kg		2	4
Methylene chloride	SO	Pond C	C-06	SW8240	<	0.004	0.0067	mg/kg	JB	0	2
Methylene chloride	SO	Pond C	C-05	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Methylene chloride	SO	Pond C	C-04	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Methylene chloride	SO	Pond C	C-03	SW8240	<	0.00025	0.0065	mg/kg	J	2	4
Methylene chloride	SO	Pond C	C-03	SW8240	ND	0.00525	0.007	mg/kg		0	2
Methylene chloride	SO	Pond C	C-4	SW8240	>	0.0017	.	mg/kg	J	0.5	1.5
Methylene chloride	SO	Pond C	C-3	SW8240	>	0.0033	.	mg/kg	JB	0.5	1.5
Methylene chloride	SO	Pond C	C-02	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Methylene chloride	SO	Pond C	C-01	SW8240	ND	0.03975	0.053	mg/kg		0	2
Methylene chloride	SO	Pond C	C-5	SW8240	>	0.0015	.	mg/kg	J	0.5	1.5
Methylene chloride	SO	Pond C	C-6	SW8240	>	0.0048	.	mg/kg	JB	0.5	1.5
Molybdenum	SO	Pond C	C-2	SW6010	>	12	.	mg/kg	@	0.5	1.5
Molybdenum	SO	Pond C	C-4	SW6010	ND	3.05	6.1	mg/kg		0.5	1.5
Molybdenum	SO	Pond C	C-6	SW6010	ND	3.2	6.4	mg/kg		0.5	1.5
Molybdenum	SO	Pond C	C-5	SW6010	ND	3.15	6.3	mg/kg		0.5	1.5
Molybdenum	SO	Pond C	C-1	SW6010	ND	3	6	mg/kg		0.5	1.5
Molybdenum	SO	Pond C	C-3	SW6010	ND	3.2	6.4	mg/kg		0.5	1.5
Nickel	SO	Pond C	C-06	SW6010	ND	4.45	8.9	mg/kg		0	2
Nickel	SO	Pond C	C-04	SW6010	ND	4.2	8.4	mg/kg		0	2
Nickel	SO	Pond C	C-03	SW6010	ND	4.05	8.1	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Nickel	SO	Pond C	C-05	SW6010	ND	4.2	8.4	mg/kg		0	2
Nickel	SO	Pond C	C-03	SW6010	ND	4.4	8.8	mg/kg		0	2
Nickel	SO	Pond C	C-4	SW6010	>	5	.	mg/kg	@	0.5	1.5
Nickel	SO	Pond C	C-02	SW6010	ND	3.9	7.8	mg/kg		0	2
Nickel	SO	Pond C	C-3	SW6010	>	6.1	.	mg/kg	@	0.5	1.5
Nickel	SO	Pond C	C-2	SW6010	>	8.3	.	mg/kg	@	0.5	1.5
Nickel	SO	Pond C	C-1	SW6010	>	6.2	.	mg/kg	@	0.5	1.5
Nickel	SO	Pond C	C-06	SW6010	ND	4.2	8.4	mg/kg		2	4
Nickel	SO	Pond C	C-5	SW6010	>	5.8	.	mg/kg	@	0.5	1.5
Nickel	SO	Pond C	C-01	SW6010	ND	3.85	7.7	mg/kg		0	2
Nickel	SO	Pond C	C-6	SW6010	>	5.6	.	mg/kg	@	0.5	1.5
Phenanthrene	SO	Pond C	C-1	SW8270	ND	0.235	0.47	mg/kg		0.5	1.5
Phenanthrene	SO	Pond C	C-6	SW8270	ND	0.225	0.45	mg/kg		0.5	1.5
Phenanthrene	SO	Pond C	C-2	SW8270	>	0.37	.	mg/kg	J	0.5	1.5
Phenanthrene	SO	Pond C	C-5	SW8270	ND	0.235	0.47	mg/kg		0.5	1.5
Phenanthrene	SO	Pond C	C-4	SW8270	ND	0.265	0.53	mg/kg		0.5	1.5
Phenanthrene	SO	Pond C	C-3	SW8270	ND	0.22	0.44	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-5	SW6010	>	2700	.	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-6	SW6010	>	2300	.	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-3	SW6010	>	2800	.	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-2	SW6010	>	2700	.	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-4	SW6010	>	2400	.	mg/kg		0.5	1.5
Potassium	SO	Pond C	C-1	SW6010	>	2700	.	mg/kg		0.5	1.5
Pyrene	SO	Pond C	C-6	SW8270	>	0.12	.	mg/kg	J	0.5	1.5
Pyrene	SO	Pond C	C-4	SW8270	ND	0.1	0.2	mg/kg		0.5	1.5
Pyrene	SO	Pond C	C-5	SW8270	ND	0.09	0.18	mg/kg		0.5	1.5
Pyrene	SO	Pond C	C-1	SW8270	ND	0.09	0.18	mg/kg		0.5	1.5
Pyrene	SO	Pond C	C-2	SW8270	ND	0.1	0.2	mg/kg		0.5	1.5
Pyrene	SO	Pond C	C-3	SW8270	ND	0.085	0.17	mg/kg		0.5	1.5
Silicon	SO	Pond C	C-5	SW6010	>	1800	.	mg/kg		0.5	1.5
Silicon	SO	Pond C	C-1	SW6010	>	460	.	mg/kg	@	0.5	1.5
Silicon	SO	Pond C	C-4	SW6010	>	4000	.	mg/kg		0.5	1.5
Silicon	SO	Pond C	C-6	SW6010	>	530	.	mg/kg	@	0.5	1.5
Silicon	SO	Pond C	C-3	SW6010	>	490	.	mg/kg	@	0.5	1.5
Silicon	SO	Pond C	C-2	SW6010	>	1700	.	mg/kg		0.5	1.5
Sodium	SO	Pond C	C-2	SW6010	>	1000	.	mg/kg		0.5	1.5
Sodium	SO	Pond C	C-1	SW6010	>	600	.	mg/kg		0.5	1.5
Sodium	SO	Pond C	C-6	SW6010	>	380	.	mg/kg	@	0.5	1.5
Sodium	SO	Pond C	C-5	SW6010	>	1200	.	mg/kg		0.5	1.5
Sodium	SO	Pond C	C-4	SW6010	>	480	.	mg/kg	@	0.5	1.5
Sodium	SO	Pond C	C-3	SW6010	>	740	.	mg/kg		0.5	1.5
Sulfide	SO	Pond C	C-01	SW9030	>	130	31	mg/kg	@	0	2
Sulfide	SO	Pond C	C-06	SW9030	<	32	32	mg/kg		2	4
Sulfide	SO	Pond C	C-03	SW9030	<	31	31	mg/kg		2	4
Sulfide	SO	Pond C	C-06	SW9030	<	33	33	mg/kg		0	2
Sulfide	SO	Pond C	C-05	SW9030	<	34	34	mg/kg		0	2
Sulfide	SO	Pond C	C-04	SW9030	<	34	34	mg/kg		0	2
Sulfide	SO	Pond C	C-03	SW9030	<	34	34	mg/kg		0	2
Sulfide	SO	Pond C	C-02	SW9030	>	60	34	mg/kg	@	0	2
Toluene	SO	Pond C	C-06	SW8240	<	0.00049	0.0067	mg/kg	J	0	2
Toluene	SO	Pond C	C-04	SW8240	<	0.0017	0.0068	mg/kg	JB	0	2
Toluene	SO	Pond C	C-06	SW8240	<	0.00045	0.0064	mg/kg	JB	2	4
Toluene	SO	Pond C	C-05	SW8240	<	0.0068	0.0068	mg/kg		0	2

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Toluene	SO	Pond C	C-03	SW8240	<	0.0005	0.007	mg/kg	JB	0	2
Toluene	SO	Pond C	C-02	SW8240	<	0.0013	0.0068	mg/kg	JB	0	2
Toluene	SO	Pond C	C-03	SW8240	<	0.00043	0.0065	mg/kg	JB	2	4
Toluene	SO	Pond C	C-01	SW8240	<	0.0023	0.053	mg/kg	JB	0	2
Total organic carbon	SO	Pond C	C-06		>	2000	1100	mg/kg	@	0	2
Total organic carbon	SO	Pond C	C-01		>	3200	1100	mg/kg	@	0	2
Vanadium	SO	Pond C	C-02	SW6010	>	16	7.8	mg/kg	@	0	2
Vanadium	SO	Pond C	C-05	SW6010	ND	6.3	8.4	mg/kg		0	2
Vanadium	SO	Pond C	C-04	SW6010	ND	6.3	8.4	mg/kg		0	2
Vanadium	SO	Pond C	C-01	SW6010	>	19	7.7	mg/kg	@	0	2
Vanadium	SO	Pond C	C-06	SW6010	>	20	8.9	mg/kg	@	0	2
Vanadium	SO	Pond C	C-03	SW6010	>	12	8.1	mg/kg	@	2	4
Vanadium	SO	Pond C	C-1	SW6010	>	20	.	mg/kg		0.5	1.5
Vanadium	SO	Pond C	C-4	SW6010	>	18	.	mg/kg		0.5	1.5
Vanadium	SO	Pond C	C-3	SW6010	>	30	.	mg/kg		0.5	1.5
Vanadium	SO	Pond C	C-2	SW6010	>	23	.	mg/kg		0.5	1.5
Vanadium	SO	Pond C	C-03	SW6010	>	11	8.8	mg/kg	@	0	2
Vanadium	SO	Pond C	C-5	SW6010	>	25	.	mg/kg		0.5	1.5
Vanadium	SO	Pond C	C-06	SW6010	>	14	8.4	mg/kg	@	2	4
Vanadium	SO	Pond C	C-6	SW6010	>	20	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-2	SW6010	>	210	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-1	SW6010	>	26	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-06	SW6010	>	13	8.4	mg/kg	@	2	4
Zinc	SO	Pond C	C-06	SW6010	>	17	8.9	mg/kg	@	0	2
Zinc	SO	Pond C	C-05	SW6010	ND	6.3	8.4	mg/kg		0	2
Zinc	SO	Pond C	C-04	SW6010	ND	6.3	8.4	mg/kg		0	2
Zinc	SO	Pond C	C-03	SW6010	>	12	8.1	mg/kg	@	2	4
Zinc	SO	Pond C	C-03	SW6010	>	11	8.8	mg/kg	@	0	2
Zinc	SO	Pond C	C-4	SW6010	>	21	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-3	SW6010	>	24	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-02	SW6010	>	10	7.8	mg/kg	@	0	2
Zinc	SO	Pond C	C-01	SW6010	>	14	7.7	mg/kg	@	0	2
Zinc	SO	Pond C	C-5	SW6010	>	22	.	mg/kg		0.5	1.5
Zinc	SO	Pond C	C-6	SW6010	>	20	.	mg/kg		0.5	1.5
4,4'-DDE	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
4,4'-DDE	WG	Pond C	MW-02	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
4,4'-DDE	WG	Pond C	MW-02	SW8080	>	0.000016	9.60E-06	mg/L	X@	.	.
4,4'-DDT	WG	Pond C	MW-02	SW8080	<	0.000014	0.000019	mg/L	J	.	.
4,4'-DDT	WG	Pond C	MW-02	SW8080	ND	0.00001	0.00002	mg/L		.	.
4,4'-DDT	WG	Pond C	MW-02	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Aldrin	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Aldrin	WG	Pond C	MW-02	SW8080	>	0.000015	0.00001	mg/L	X@	.	.
Aldrin	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
alpha-Chlordane	WG	Pond C	MW-02	SW8080	<	8.30E-06	9.60E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond C	MW-02	SW8080	>	0.000062	9.60E-06	mg/L	X	.	.
delta-BHC	WG	Pond C	MW-02	SW8080	>	0.000012	9.60E-06	mg/L	G@	.	.
delta-BHC	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
delta-BHC	WG	Pond C	MW-02	SW8080	>	0.00003	0.00001	mg/L	C@	.	.
Dieldrin	WG	Pond C	MW-02	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Dieldrin	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Dieldrin	WG	Pond C	MW-02	SW8080	>	0.000017	9.60E-06	mg/L	@	.	.
Endosulfan II	WG	Pond C	MW-02	SW8080	<	9.80E-06	0.000029	mg/L	JX	.	.
Endosulfan II	WG	Pond C	MW-02	SW8080	<	0.000017	0.000029	mg/L	J	.	.

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Endosulfan II	WG	Pond C	MW-02	SW8080	ND	0.000015	0.00003	mg/L		.	.
Endosulfan sulfate	WG	Pond C	MW-02	SW8080	<	5.10E-06	0.00005	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond C	MW-02	SW8080	<	0.000018	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond C	MW-02	SW8080	<	0.000013	0.000048	mg/L	J	.	.
Endrin	WG	Pond C	MW-02	SW8080	>	0.000018	9.60E-06	mg/L	@	.	.
Endrin	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Endrin	WG	Pond C	MW-02	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Endrin aldehyde	WG	Pond C	MW-02	SW8080	<	4.40E-06	0.000019	mg/L	JX	.	.
Endrin aldehyde	WG	Pond C	MW-02	SW8080	<	3.50E-06	0.000019	mg/L	JX	.	.
gamma-BHC	WG	Pond C	MW-02	SW8080	>	0.000016	9.60E-06	mg/L	X@	.	.
gamma-BHC	WG	Pond C	MW-02	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
gamma-BHC	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
gamma-Chlordane	WG	Pond C	MW-02	SW8080	>	0.00074	9.60E-06	mg/L	G	.	.
gamma-Chlordane	WG	Pond C	MW-02	SW8080	>	0.000042	9.60E-06	mg/L	X@	.	.
Isodrin	WG	Pond C	MW-02	SW8080	<	5.10E-06	9.60E-06	mg/L	JX	.	.
Isodrin	WG	Pond C	MW-02	SW8080	ND	4.80E-06	9.60E-06	mg/L		.	.
Aluminum	WS	Pond C	C-5	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond C	C-1	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond C	C-2	SW6010	>	0.053	.	mg/L	@	.	.
Aluminum	WS	Pond C	C-4	SW6010	ND	0.012	0.024	mg/L		.	.
Aluminum	WS	Pond C	C-3	SW6010	ND	0.012	0.024	mg/L		.	.
Arsenic	WS	Pond C	C-3	SW7060	ND	0.0015	0.003	mg/L		.	.
Arsenic	WS	Pond C	C-5	SW7060	>	0.0035	.	mg/L	@	.	.
Arsenic	WS	Pond C	C-2	SW7060	ND	0.0015	0.003	mg/L		.	.
Arsenic	WS	Pond C	C-1	SW7060	>	0.0041	.	mg/L	@	.	.
Arsenic	WS	Pond C	C-4	SW7060	ND	0.0015	0.003	mg/L		.	.
Barium	WS	Pond C	C-1	SW6010	>	0.038	.	mg/L	@	.	.
Barium	WS	Pond C	C-5	SW6010	>	0.03	.	mg/L	@	.	.
Barium	WS	Pond C	C-3	SW6010	>	0.027	.	mg/L	@	.	.
Barium	WS	Pond C	C-4	SW6010	ND	0.013	0.026	mg/L		.	.
Barium	WS	Pond C	C-2	SW6010	>	0.038	.	mg/L	@	.	.
beta-BHC	WS	Pond C	C-1	SW8080	>	0.00003	.	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond C	C-2	SW8270	>	0.004	.	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond C	C-1	SW8270	>	0.004	.	mg/L	J	.	.
Boron	WS	Pond C	C-5	SW6010	>	0.21	.	mg/L	@	.	.
Boron	WS	Pond C	C-4	SW6010	>	0.17	.	mg/L	@	.	.
Boron	WS	Pond C	C-3	SW6010	>	0.18	.	mg/L	@	.	.
Boron	WS	Pond C	C-2	SW6010	>	0.26	.	mg/L	@	.	.
Boron	WS	Pond C	C-1	SW6010	>	0.3	.	mg/L	@	.	.
Calcium	WS	Pond C	C-5	SW6010	>	290	.	mg/L		.	.
Calcium	WS	Pond C	C-3	SW6010	>	250	.	mg/L		.	.
Calcium	WS	Pond C	C-2	SW6010	>	350	.	mg/L		.	.
Calcium	WS	Pond C	C-1	SW6010	>	350	.	mg/L		.	.
Calcium	WS	Pond C	C-4	SW6010	>	240	.	mg/L		.	.
Chromium VI	WS	Pond C	C-3	SW7196	>	0.013	.	mg/L		.	.
Chromium VI	WS	Pond C	C-2	SW7196	>	0.014	.	mg/L		.	.
Chromium VI	WS	Pond C	C-1	SW7196	ND	0.0001	0.0002	mg/L		.	.
Chromium VI	WS	Pond C	C-4	SW7196	ND	0.0001	0.0002	mg/L		.	.
Chromium VI	WS	Pond C	C-5	SW7196	ND	0.0001	0.0002	mg/L		.	.
Hardness, as CaC03	WS	Pond C	C-01	E130.2	>	1900	83	mg/L		.	.
Iron	WS	Pond C	C-2	SW6010	>	0.076	.	mg/L		.	.
Iron	WS	Pond C	C-3	SW6010	>	0.057	.	mg/L	@	.	.
Iron	WS	Pond C	C-1	SW6010	>	0.053	.	mg/L	@	.	.

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Iron	WS	Pond C	C-4	SW6010	>	0.036	.	mg/L	@	.	.
Iron	WS	Pond C	C-5	SW6010	>	0.041	.	mg/L	@	.	.
Lead	WS	Pond C	C-1	SW7421	>	0.0045	.	mg/L	@	.	.
Lead	WS	Pond C	C-5	SW7421	>	0.0058	.	mg/L	@	.	.
Lead	WS	Pond C	C-3	SW7421	>	0.0073	.	mg/L	@	.	.
Lead	WS	Pond C	C-4	SW7421	>	0.0051	.	mg/L	@	.	.
Lead	WS	Pond C	C-2	SW7421	>	0.0045	.	mg/L	@	.	.
Magnesium	WS	Pond C	C-3	SW6010	>	120	.	mg/L		.	.
Magnesium	WS	Pond C	C-2	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond C	C-4	SW6010	>	120	.	mg/L		.	.
Magnesium	WS	Pond C	C-1	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond C	C-5	SW6010	>	140	.	mg/L		.	.
Manganese	WS	Pond C	C-3	SW6010	>	0.056	.	mg/L		.	.
Manganese	WS	Pond C	C-4	SW6010	>	0.053	.	mg/L		.	.
Manganese	WS	Pond C	C-2	SW6010	>	0.077	.	mg/L		.	.
Manganese	WS	Pond C	C-1	SW6010	>	0.076	.	mg/L		.	.
Manganese	WS	Pond C	C-5	SW6010	>	0.063	.	mg/L		.	.
Potassium	WS	Pond C	C-1	SW6010	>	11	.	mg/L		.	.
Potassium	WS	Pond C	C-2	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond C	C-5	SW6010	>	9.3	.	mg/L		.	.
Potassium	WS	Pond C	C-4	SW6010	>	7.7	.	mg/L		.	.
Potassium	WS	Pond C	C-3	SW6010	>	7.8	.	mg/L		.	.
Silicon	WS	Pond C	C-4	SW6010	>	11	.	mg/L		.	.
Silicon	WS	Pond C	C-3	SW6010	>	11	.	mg/L		.	.
Silicon	WS	Pond C	C-2	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond C	C-5	SW6010	>	13	.	mg/L		.	.
Silicon	WS	Pond C	C-1	SW6010	>	16	.	mg/L		.	.
Sodium	WS	Pond C	C-1	SW6010	>	490	.	mg/L		.	.
Sodium	WS	Pond C	C-3	SW6010	>	350	.	mg/L		.	.
Sodium	WS	Pond C	C-5	SW6010	>	410	.	mg/L		.	.
Sodium	WS	Pond C	C-2	SW6010	>	520	.	mg/L		.	.
Sodium	WS	Pond C	C-4	SW6010	>	340	.	mg/L		.	.
Total dissolved solids	WS	Pond C	C-01	E160.1	>	4400	10	mg/L		.	.
Vanadium	WS	Pond C	C-1	SW6010	>	0.0062	.	mg/L	@	.	.
Vanadium	WS	Pond C	C-5	SW6010	>	0.0054	.	mg/L	@	.	.
Vanadium	WS	Pond C	C-4	SW6010	>	0.0049	.	mg/L	@	.	.
Vanadium	WS	Pond C	C-3	SW6010	>	0.0056	.	mg/L	@	.	.
Vanadium	WS	Pond C	C-2	SW6010	>	0.0078	.	mg/L	@	.	.
Zinc	WS	Pond C	C-4	SW6010	ND	0.0015	0.003	mg/L		.	.
Zinc	WS	Pond C	C-3	SW6010	ND	0.0015	0.003	mg/L		.	.
Zinc	WS	Pond C	C-2	SW6010	>	0.013	.	mg/L	@	.	.
Zinc	WS	Pond C	C-5	SW6010	ND	0.0015	0.003	mg/L		.	.
Zinc	WS	Pond C	C-1	SW6010	>	0.012	.	mg/L	@	.	.
2-Hexanone	SO	Pond D	BH-02	SW8240	<	0.004	0.069	mg/kg	JB	8.5	12.5
3-Methyl pentane	SO	Pond D	BH-02	SW8240	>	0.02	.	mg/kg		8.5	12.5
4,4'-DDD	SO	Pond D	D-05	SW8080	>	0.0036	0.0014	mg/kg	C@	0	2
4,4'-DDD	SO	Pond D	D-01	SW8080	>	0.00315	0.0015	mg/kg	X@	0	2
4,4'-DDD	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDD	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDD	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDD	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDD	SO	Pond D	D-01	SW8080	<	0.00135	0.0014	mg/kg		2	4
4,4'-DDD	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	SO	Pond D	D-04	SW8080	>	0.24	0.013	mg/kg	C	0	2
4,4'-DDE	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
4,4'-DDE	SO	Pond D	D-01	SW8080	<	0.00135	0.0014	mg/kg		2	4
4,4'-DDE	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDE	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDE	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond D	D-04	SW8080	>	0.035	0.013	mg/kg	X@	0	2
4,4'-DDE	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDT	SO	Pond D	D-05	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond D	D-03	SW8080	>	0.0052	0.0027	mg/kg	X@	2	4
4,4'-DDT	SO	Pond D	D-01	SW8080	<	0.00265	0.0027	mg/kg		2	4
4,4'-DDT	SO	Pond D	D-04	SW8080	>	0.052	0.026	mg/kg	C@	0	2
4,4'-DDT	SO	Pond D	D-03	SW8080	<	0.0026	0.0026	mg/kg		0	2
4,4'-DDT	SO	Pond D	D-02	SW8080	<	0.0028	0.0028	mg/kg		0	2
4,4'-DDT	SO	Pond D	D-05	SW8080	>	0.0034	0.0027	mg/kg	X@	2	4
4,4'-DDT	SO	Pond D	D-01	SW8080	<	0.003	0.003	mg/kg		0	2
4,4'-DDT	SO	Pond D	D-06	SW8080	<	0.0027	0.0027	mg/kg		0	2
4-Hydroxy-4-methyl-2-pentano	SO	Pond D	D-01	SW8270	>	13	.	mg/kg		2	4
Acetone	SO	Pond D	D-01	SW8240	ND	0.1125	0.15	mg/kg		0	2
Acetone	SO	Pond D	D-06	SW8240	<	0.035	0.13	mg/kg	J	0	2
Acetone	SO	Pond D	D-05	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Pond D	D-05	SW8240	<	0.05	0.14	mg/kg	J	0	2
Acetone	SO	Pond D	D-04	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Pond D	D-03	SW8240	ND	0.0975	0.13	mg/kg		2	4
Acetone	SO	Pond D	D-03	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Pond D	D-02	SW8240	ND	0.105	0.14	mg/kg		0	2
Acetone	SO	Pond D	D-01	SW8240	ND	0.0773333	0.14	mg/kg		2	4
alpha-Chlordane	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-Chlordane	SO	Pond D	D-04	SW8080	<	0.013	0.013	mg/kg		0	2
alpha-Chlordane	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-Chlordane	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-Chlordane	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-Chlordane	SO	Pond D	D-01	SW8080	<	0.00135	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Pond D	D-03	SW8080	>	0.0015	0.0013	mg/kg	X@	2	4
alpha-Chlordane	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Arsenic	SO	Pond D	D-03	SW7060	>	0.78	0.41	mg/kg	@	0	2
Arsenic	SO	Pond D	D-02	SW7060	>	0.8	0.47	mg/kg	@	0	2
Arsenic	SO	Pond D	D-01	SW7060	>	2.8	0.46	mg/kg		2	4
Arsenic	SO	Pond D	D-03	SW7060	>	0.78	0.43	mg/kg	@	2	4
Arsenic	SO	Pond D	D-04	SW7060	>	0.9	0.43	mg/kg	@	0	2
Arsenic	SO	Pond D	D-01	SW7060	>	0.795	0.51	mg/kg	@	0	2
Arsenic	SO	Pond D	D-05	SW7060	>	1.2	0.48	mg/kg	@	2	4
Arsenic	SO	Pond D	D-06	SW7060	>	2.1	0.44	mg/kg	@	0	2
Arsenic	SO	Pond D	D-05	SW7060	>	0.9	0.38	mg/kg	@	0	2
Barium	SO	Pond D	D-01	SW6010	>	74.5	4.3	mg/kg		2	4
Barium	SO	Pond D	BH-02	SW6010	>	30	3.9	mg/kg		8.5	12.5
Barium	SO	Pond D	D-06	SW6010	>	82	4.5	mg/kg		0	2
Barium	SO	Pond D	D-03	SW6010	>	64	3.8	mg/kg		2	4
Barium	SO	Pond D	D-05	SW6010	>	38	5.1	mg/kg		0	2
Barium	SO	Pond D	D-01	SW6010	>	29	4.8	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Barium	SO	Pond D	D-04	SW6010	>	44	3.5	mg/kg		0	2
Barium	SO	Pond D	D-03	SW6010	>	21	4.1	mg/kg		0	2
Barium	SO	Pond D	D-05	SW6010	>	31	5.6	mg/kg		2	4
Barium	SO	Pond D	D-02	SW6010	>	23	4.5	mg/kg		0	2
beta-BHC	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
beta-BHC	SO	Pond D	D-05	SW8080	>	0.0033	0.0014	mg/kg	X@	2	4
beta-BHC	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Pond D	D-05	SW8080	>	0.0081	0.0014	mg/kg	C	0	2
beta-BHC	SO	Pond D	D-04	SW8080	<	0.013	0.013	mg/kg		0	2
beta-BHC	SO	Pond D	D-03	SW8080	>	0.026	0.0013	mg/kg	X	2	4
beta-BHC	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
beta-BHC	SO	Pond D	D-01	SW8080	<	0.00135	0.0014	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-01	SW8270	ND	1.1333333	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-05	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-05	SW8270	ND	1.05	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-02	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-04	SW8270	<	1.1	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-03	SW8270	ND	0.975	1.3	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-03	SW8270	<	0.64	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-01	SW8270	ND	0.7866667	1.5	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond D	D-06	SW8270	<	0.82	1.3	mg/kg	JB	0	2
Chromium	SO	Pond D	BH-02	SW6010	>	4.6	3.9	mg/kg	@	8.5	12.5
Chromium	SO	Pond D	D-01	SW6010	ND	3.375	4.8	mg/kg		0	2
Chromium	SO	Pond D	D-05	SW6010	ND	4.2	5.6	mg/kg		2	4
Chromium	SO	Pond D	D-05	SW6010	ND	3.825	5.1	mg/kg		0	2
Chromium	SO	Pond D	D-04	SW6010	>	3.6	3.5	mg/kg	@	0	2
Chromium	SO	Pond D	D-03	SW6010	>	7.9	3.8	mg/kg	@	2	4
Chromium	SO	Pond D	D-03	SW6010	ND	3.075	4.1	mg/kg		0	2
Chromium	SO	Pond D	D-02	SW6010	ND	3.375	4.5	mg/kg		0	2
Chromium	SO	Pond D	D-06	SW6010	ND	3.375	4.5	mg/kg		0	2
Chromium	SO	Pond D	D-01	SW6010	>	11.7	4.3	mg/kg	@	2	4
Cobalt	SO	Pond D	D-05	SW6010	ND	3.825	5.1	mg/kg		0	2
Cobalt	SO	Pond D	D-04	SW6010	ND	2.625	3.5	mg/kg		0	2
Cobalt	SO	Pond D	D-03	SW6010	ND	2.85	3.8	mg/kg		2	4
Cobalt	SO	Pond D	D-03	SW6010	ND	3.075	4.1	mg/kg		0	2
Cobalt	SO	Pond D	D-02	SW6010	ND	3.375	4.5	mg/kg		0	2
Cobalt	SO	Pond D	D-01	SW6010	ND	3.5833333	4.3	mg/kg		2	4
Cobalt	SO	Pond D	D-05	SW6010	ND	4.2	5.6	mg/kg		2	4
Cobalt	SO	Pond D	D-06	SW6010	ND	3.375	4.5	mg/kg		0	2
Cobalt	SO	Pond D	D-01	SW6010	ND	3.375	4.8	mg/kg		0	2
Cyanide	SO	Pond D	D-04	SW9012	<	0.31	0.31	mg/kg		0	2
Cyanide	SO	Pond D	D-05	SW9012	<	0.33	0.33	mg/kg		2	4
Cyanide	SO	Pond D	D-03	SW9012	<	0.27	0.27	mg/kg		0	2
Cyanide	SO	Pond D	D-01	SW9012	<	0.275	0.29	mg/kg		2	4
Cyanide	SO	Pond D	D-02	SW9012	<	0.35	0.35	mg/kg		0	2
Cyanide	SO	Pond D	D-01	SW9012	>	2.78	0.28	mg/kg		0	2
Cyanide	SO	Pond D	D-03	SW9012	<	0.29	0.29	mg/kg		2	4
Cyanide	SO	Pond D	D-06	SW9012	<	0.3	0.3	mg/kg		0	2
Cyanide	SO	Pond D	D-05	SW9012	<	0.34	0.34	mg/kg		0	2
delta-BHC	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond D	D-04	SW8080	<	0.013	0.013	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
delta-BHC	SO	Pond D	D-03	SW8080	>	0.017	0.0013	mg/kg	X	2	4
delta-BHC	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
delta-BHC	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond D	D-01	SW8080	<	0.00135	0.0014	mg/kg		2	4
delta-BHC	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
delta-BHC	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Endosulfan sulfate	SO	Pond D	BH-02	SW8080	<	0.0049	0.0069	mg/kg	JC	8.5	12.5
Endosulfan sulfate	SO	Pond D	D-01	SW8080	<	0.0066	0.0068	mg/kg		2	4
Endosulfan sulfate	SO	Pond D	D-02	SW8080	<	0.0024	0.007	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond D	D-03	SW8080	<	0.00053	0.0066	mg/kg	JX	0	2
Endosulfan sulfate	SO	Pond D	D-01	SW8080	<	0.003815	0.0074	mg/kg	JX	0	2
Endosulfan sulfate	SO	Pond D	D-05	SW8080	<	0.0069	0.0069	mg/kg		2	4
Endosulfan sulfate	SO	Pond D	D-05	SW8080	<	0.0068	0.0068	mg/kg		0	2
Endosulfan sulfate	SO	Pond D	D-04	SW8080	<	0.064	0.064	mg/kg		0	2
Endosulfan sulfate	SO	Pond D	D-06	SW8080	<	0.0067	0.0067	mg/kg		0	2
Endosulfan sulfate	SO	Pond D	D-03	SW8080	<	0.0067	0.0067	mg/kg		2	4
gamma-BHC	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
gamma-BHC	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
gamma-BHC	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
gamma-BHC	SO	Pond D	D-04	SW8080	<	0.013	0.013	mg/kg		0	2
gamma-BHC	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
gamma-BHC	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		2	4
gamma-BHC	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
gamma-BHC	SO	Pond D	D-01	SW8080	<	0.0112	0.0014	mg/kg		2	4
Heptachlor	SO	Pond D	D-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Heptachlor	SO	Pond D	D-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
Heptachlor	SO	Pond D	D-03	SW8080	>	0.0018	0.0013	mg/kg	X@	2	4
Heptachlor	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor	SO	Pond D	D-05	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond D	D-04	SW8080	<	0.013	0.013	mg/kg		0	2
Heptachlor	SO	Pond D	D-03	SW8080	<	0.0013	0.0013	mg/kg		0	2
Heptachlor	SO	Pond D	D-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond D	D-01	SW8080	>	0.0018	0.0014	mg/kg	X@	2	4
Lead	SO	Pond D	D-02	SW7421	>	0.89	0.35	mg/kg	@	0	2
Lead	SO	Pond D	D-01	SW7421	>	5	0.35	mg/kg		2	4
Lead	SO	Pond D	D-03	SW7421	>	1.1	0.31	mg/kg	@	0	2
Lead	SO	Pond D	D-01	SW7421	>	1.35	0.38	mg/kg	@	0	2
Lead	SO	Pond D	D-06	SW7421	>	1.5	0.33	mg/kg	@	0	2
Lead	SO	Pond D	D-03	SW7421	>	2.9	0.32	mg/kg		2	4
Lead	SO	Pond D	D-05	SW7421	>	1.7	0.28	mg/kg		0	2
Lead	SO	Pond D	D-04	SW7421	>	2.2	0.32	mg/kg		0	2
Lead	SO	Pond D	D-05	SW7421	>	1.8	0.36	mg/kg		2	4
Nickel	SO	Pond D	D-05	SW6010	ND	8.25	11	mg/kg		2	4
Nickel	SO	Pond D	D-01	SW6010	ND	6.675	9.5	mg/kg		0	2
Nickel	SO	Pond D	D-05	SW6010	ND	7.5	10	mg/kg		0	2
Nickel	SO	Pond D	D-04	SW6010	ND	5.25	7	mg/kg		0	2
Nickel	SO	Pond D	D-02	SW6010	ND	6.75	9	mg/kg		0	2
Nickel	SO	Pond D	D-03	SW6010	ND	5.625	7.5	mg/kg		2	4
Nickel	SO	Pond D	D-01	SW6010	>	12.5	8.7	mg/kg	@	2	4
Nickel	SO	Pond D	D-03	SW6010	ND	6.15	8.2	mg/kg		0	2
Nickel	SO	Pond D	D-06	SW6010	ND	6.75	9	mg/kg		0	2
Selenium	SO	Pond D	D-01	SW7740	ND	0.435	0.64	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Selenium	SO	Pond D	D-05	SW7740	ND	0.45	0.6	mg/kg		2	4
Selenium	SO	Pond D	D-05	SW7740	>	0.59	0.47	mg/kg	@	0	2
Selenium	SO	Pond D	D-04	SW7740	ND	0.3975	0.53	mg/kg		0	2
Selenium	SO	Pond D	D-03	SW7740	ND	0.3975	0.53	mg/kg		2	4
Selenium	SO	Pond D	D-03	SW7740	ND	0.39	0.52	mg/kg		0	2
Selenium	SO	Pond D	D-02	SW7740	ND	0.4425	0.59	mg/kg		0	2
Selenium	SO	Pond D	D-06	SW7740	ND	0.4125	0.55	mg/kg		0	2
Selenium	SO	Pond D	D-01	SW7740	ND	0.41625	0.58	mg/kg		2	4
Sulfide	SO	Pond D	D-05	SW9030	<	34	34	mg/kg		0	2
Sulfide	SO	Pond D	D-04	SW9030	>	82	32	mg/kg	@	0	2
Sulfide	SO	Pond D	D-03	SW9030	<	30	30	mg/kg		2	4
Sulfide	SO	Pond D	D-03	SW9030	<	33	33	mg/kg		0	2
Sulfide	SO	Pond D	D-02	SW9030	<	31	31	mg/kg		0	2
Sulfide	SO	Pond D	D-01	SW9030	<	32.5	34	mg/kg		2	4
Sulfide	SO	Pond D	D-05	SW9030	<	34	34	mg/kg		2	4
Sulfide	SO	Pond D	D-06	SW9030	<	32	32	mg/kg		0	2
Sulfide	SO	Pond D	D-01	SW9030	<	35.5	37	mg/kg		0	2
Total organic carbon	SO	Pond D	BH-02		>	2700	1100	mg/kg	@	12.5	14.5
Total organic carbon	SO	Pond D	BH-02		>	2600	1100	mg/kg	@	8.5	12.5
Total organic carbon	SO	Pond D	BH-02		>	8800	1100	mg/kg		2.5	4.5
Total organic carbon	SO	Pond D	BH-02		>	2200	1100	mg/kg	@	22.5	24.5
Total organic carbon	SO	Pond D	D-01		>	1650	1100	mg/kg	@	2	4
Total organic carbon	SO	Pond D	BH-02		=	1100	1100	mg/kg	@	18.5	20.5
Total organic carbon	SO	Pond D	D-01		>	2950	1100	mg/kg	@	0	2
Vanadium	SO	Pond D	D-05	SW6010	ND	7.5	10	mg/kg		0	2
Vanadium	SO	Pond D	D-03	SW6010	ND	6.15	8.2	mg/kg		0	2
Vanadium	SO	Pond D	D-05	SW6010	ND	8.25	11	mg/kg		2	4
Vanadium	SO	Pond D	D-02	SW6010	ND	6.75	9	mg/kg		0	2
Vanadium	SO	Pond D	D-04	SW6010	>	9.4	7	mg/kg	@	0	2
Vanadium	SO	Pond D	D-01	SW6010	>	24	8.7	mg/kg	@	2	4
Vanadium	SO	Pond D	D-03	SW6010	>	15	7.5	mg/kg	@	2	4
Vanadium	SO	Pond D	D-01	SW6010	ND	6.675	9.5	mg/kg		0	2
Vanadium	SO	Pond D	D-06	SW6010	>	11	9	mg/kg	@	0	2
Vanadium	SO	Pond D	BH-02	SW6010	>	8.4	7.8	mg/kg	@	8.5	12.5
Zinc	SO	Pond D	BH-02	SW6010	>	8.9	7.8	mg/kg	@	8.5	12.5
Zinc	SO	Pond D	D-04	SW6010	>	10	7	mg/kg	@	0	2
Zinc	SO	Pond D	D-06	SW6010	>	11	9	mg/kg	@	0	2
Zinc	SO	Pond D	D-05	SW6010	ND	8.25	11	mg/kg		2	4
Zinc	SO	Pond D	D-05	SW6010	ND	7.5	10	mg/kg		0	2
Zinc	SO	Pond D	D-03	SW6010	>	18	7.5	mg/kg	@	2	4
Zinc	SO	Pond D	D-03	SW6010	ND	6.15	8.2	mg/kg		0	2
Zinc	SO	Pond D	D-02	SW6010	ND	6.75	9	mg/kg		0	2
Zinc	SO	Pond D	D-01	SW6010	>	27	8.7	mg/kg	@	2	4
Zinc	SO	Pond D	D-01	SW6010	>	8.15	9.5	mg/kg	@	0	2
4,4'-DDD	WS	Pond D	D-01	SW8080	>	0.00003	9.50E-06	mg/L	X@	.	.
Arsenic	WS	Pond D	D-5	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond D	D-4	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond D	D-6	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond D	D-1	SW7060	>	0.0039	.	mg/L	@	.	.
Arsenic	WS	Pond D	D-2	SW7060	>	0.0056	.	mg/L	@	.	.
Arsenic	WS	Pond D	D-3	SW7060	>	0.0062	.	mg/L	@	.	.
Barium	WS	Pond D	D-6	SW6010	>	0.035	.	mg/L	@	.	.
Barium	WS	Pond D	D-5	SW6010	>	0.035	.	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Barium	WS	Pond D	D-4	SW6010	>	0.036	.	mg/L	@	.	.
Barium	WS	Pond D	D-3	SW6010	>	0.039	.	mg/L	@	.	.
Barium	WS	Pond D	D-2	SW6010	>	0.038	.	mg/L	@	.	.
Barium	WS	Pond D	D-1	SW6010	>	0.038	.	mg/L	@	.	.
Benzoic acid	WS	Pond D	D-6	SW8270	ND	0.025	0.05	mg/L		.	.
Benzoic acid	WS	Pond D	D-5	SW8270	ND	0.025	0.05	mg/L		.	.
Benzoic acid	WS	Pond D	D-4	SW8270	>	0.028	.	mg/L	J	.	.
Benzoic acid	WS	Pond D	D-3	SW8270	ND	0.025	0.05	mg/L		.	.
Benzoic acid	WS	Pond D	D-2	SW8270	ND	0.025	0.05	mg/L		.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-3	SW8270	>	0.013	.	mg/L	@B	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-2	SW8270	ND	0.005	0.01	mg/L		.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-4	SW8270	>	0.02	.	mg/L	@	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-1	SW8270	>	0.004	.	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-5	SW8270	>	0.01	.	mg/L	@B	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond D	D-6	SW8270	>	0.01	.	mg/L	@B	.	.
Boron	WS	Pond D	D-4	SW6010	>	0.3	.	mg/L	@	.	.
Boron	WS	Pond D	D-2	SW6010	>	0.25	.	mg/L	@	.	.
Boron	WS	Pond D	D-1	SW6010	>	0.28	.	mg/L	@	.	.
Boron	WS	Pond D	D-6	SW6010	>	0.3	.	mg/L	@	.	.
Boron	WS	Pond D	D-5	SW6010	>	0.3	.	mg/L	@	.	.
Boron	WS	Pond D	D-3	SW6010	>	0.25	.	mg/L	@	.	.
Butylbenzylphthalate	WS	Pond D	D-4	SW8270	>	0.004	.	mg/L	J	.	.
Calcium	WS	Pond D	D-4	SW6010	>	340	.	mg/L		.	.
Calcium	WS	Pond D	D-2	SW6010	>	330	.	mg/L		.	.
Calcium	WS	Pond D	D-1	SW6010	>	330	.	mg/L		.	.
Calcium	WS	Pond D	D-3	SW6010	>	340	.	mg/L		.	.
Calcium	WS	Pond D	D-6	SW6010	>	330	.	mg/L		.	.
Calcium	WS	Pond D	D-5	SW6010	>	330	.	mg/L		.	.
delta-BHC	WS	Pond D	D-01	SW8080	>	0.000021	9.50E-06	mg/L	X@	.	.
Dibutylphthalate	WS	Pond D	D-4	SW8270	>	0.004	.	mg/L	J	.	.
Dieldrin	WS	Pond D	D-01	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
Diethylphthalate	WS	Pond D	D-4	SW8270	>	0.002	.	mg/L	J	.	.
Endosulfan sulfate	WS	Pond D	D-01	SW8080	<	0.000013	0.000048	mg/L	JB	.	.
gamma-BHC	WS	Pond D	D-01	SW8080	>	0.00001	9.50E-06	mg/L	@	.	.
gamma-Chlordane	WS	Pond D	D-01	SW8080	<	5.80E-06	9.50E-06	mg/L	J	.	.
Hardness, as CaC03	WS	Pond D	D-01	E130.2	>	2100	120	mg/L		.	.
Heptachlor epoxide	WS	Pond D	D-01	SW8080	>	0.00001	9.50E-06	mg/L	X@	.	.
Iron	WS	Pond D	D-2	SW6010	>	0.031	.	mg/L	@	.	.
Iron	WS	Pond D	D-1	SW6010	>	0.028	.	mg/L	@	.	.
Iron	WS	Pond D	D-3	SW6010	>	0.042	.	mg/L	@	.	.
Iron	WS	Pond D	D-6	SW6010	>	0.054	.	mg/L	@	.	.
Iron	WS	Pond D	D-5	SW6010	>	0.034	.	mg/L	@	.	.
Iron	WS	Pond D	D-4	SW6010	>	0.02	.	mg/L	@	.	.
Lead	WS	Pond D	D-5	SW7421	>	0.0054	.	mg/L	@	.	.
Lead	WS	Pond D	D-1	SW7421	>	0.0038	.	mg/L	@	.	.
Lead	WS	Pond D	D-6	SW7421	>	0.0044	.	mg/L	@	.	.
Lead	WS	Pond D	D-4	SW7421	>	0.0027	.	mg/L	@	.	.
Lead	WS	Pond D	D-3	SW7421	>	0.0041	.	mg/L	@	.	.
Lead	WS	Pond D	D-2	SW7421	>	0.0047	.	mg/L	@	.	.
Lead (organic)	WS	Pond D	D-5	E239.1	>	0.12	.	mg/L	@	.	.
Lead (organic)	WS	Pond D	D-4	E239.1	>	0.11	.	mg/L	@	.	.
Lead (organic)	WS	Pond D	D-3	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond D	D-2	E239.1	ND	0.05	0.1	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Lead (organic)	WS	Pond D	D-6	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond D	D-1	E239.1	ND	0.05	0.1	mg/L		.	.
Magnesium	WS	Pond D	D-1	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond D	D-3	SW6010	>	180	.	mg/L		.	.
Magnesium	WS	Pond D	D-2	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond D	D-6	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond D	D-4	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond D	D-5	SW6010	>	170	.	mg/L		.	.
Manganese	WS	Pond D	D-1	SW6010	>	0.074	.	mg/L		.	.
Manganese	WS	Pond D	D-2	SW6010	>	0.072	.	mg/L		.	.
Manganese	WS	Pond D	D-5	SW6010	>	0.039	.	mg/L	@	.	.
Manganese	WS	Pond D	D-3	SW6010	>	0.074	.	mg/L		.	.
Manganese	WS	Pond D	D-6	SW6010	>	0.04	.	mg/L		.	.
Manganese	WS	Pond D	D-4	SW6010	>	0.04	.	mg/L		.	.
Mercury	WS	Pond D	D-4	SW7470	>	0.00051	.	mg/L	@	.	.
Mercury	WS	Pond D	D-3	SW7470	ND	0.0001	0.0002	mg/L		.	.
Mercury	WS	Pond D	D-2	SW7470	ND	0.0001	0.0002	mg/L		.	.
Mercury	WS	Pond D	D-5	SW7470	>	0.00074	.	mg/L	@	.	.
Mercury	WS	Pond D	D-1	SW7470	ND	0.0001	0.0002	mg/L		.	.
Mercury	WS	Pond D	D-6	SW7470	>	0.00062	.	mg/L	@	.	.
Methoxychlor	WS	Pond D	D-5	SW8080	>	0.00002	.	mg/L	J	.	.
Phenol	WS	Pond D	D-2	SW8270	ND	0.005	0.01	mg/L		.	.
Phenol	WS	Pond D	D-6	SW8270	ND	0.005	0.01	mg/L		.	.
Phenol	WS	Pond D	D-5	SW8270	ND	0.005	0.01	mg/L		.	.
Phenol	WS	Pond D	D-4	SW8270	>	0.007	.	mg/L	J	.	.
Phenol	WS	Pond D	D-3	SW8270	ND	0.005	0.01	mg/L		.	.
Potassium	WS	Pond D	D-2	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond D	D-6	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond D	D-1	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond D	D-4	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond D	D-3	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond D	D-5	SW6010	>	12	.	mg/L		.	.
Selenium	WS	Pond D	D-2	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond D	D-3	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond D	D-1	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond D	D-4	SW7740	>	0.0025	.	mg/L	@	.	.
Selenium	WS	Pond D	D-6	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond D	D-5	SW7740	>	0.003	.	mg/L	@	.	.
Silicon	WS	Pond D	D-4	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond D	D-2	SW6010	>	17	.	mg/L		.	.
Silicon	WS	Pond D	D-6	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond D	D-3	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond D	D-5	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond D	D-1	SW6010	>	17	.	mg/L		.	.
Sodium	WS	Pond D	D-6	SW6010	>	480	.	mg/L		.	.
Sodium	WS	Pond D	D-5	SW6010	>	480	.	mg/L		.	.
Sodium	WS	Pond D	D-4	SW6010	>	490	.	mg/L		.	.
Sodium	WS	Pond D	D-3	SW6010	>	520	.	mg/L		.	.
Sodium	WS	Pond D	D-1	SW6010	>	500	.	mg/L		.	.
Sodium	WS	Pond D	D-2	SW6010	>	500	.	mg/L		.	.
Total dissolved solids	WS	Pond D	D-01	E160.1	>	4600	10	mg/L		.	.
Vanadium	WS	Pond D	D-4	SW6010	ND	0.0025	0.005	mg/L		.	.
Vanadium	WS	Pond D	D-5	SW6010	ND	0.0025	0.005	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Vanadium	WS	Pond D	D-2	SW6010	>	0.006	.	mg/L	@	.	.
Vanadium	WS	Pond D	D-3	SW6010	>	0.0063	.	mg/L	@	.	.
Vanadium	WS	Pond D	D-1	SW6010	>	0.0051	.	mg/L	@	.	.
Vanadium	WS	Pond D	D-6	SW6010	ND	0.0025	0.005	mg/L		.	.
Zinc	WS	Pond D	D-1	SW6010	>	0.0038	.	mg/L	@	.	.
Zinc	WS	Pond D	D-6	SW6010	>	0.0076	.	mg/L	@	.	.
Zinc	WS	Pond D	D-2	SW6010	ND	0.0015	0.003	mg/L		.	.
Zinc	WS	Pond D	D-5	SW6010	>	0.0081	.	mg/L	@	.	.
Zinc	WS	Pond D	D-4	SW6010	>	0.0052	.	mg/L	@	.	.
Zinc	WS	Pond D	D-3	SW6010	ND	0.0015	0.003	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-15	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-03	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-03	SW8080	>	0.00024	0.00002	mg/L	C	.	.
4,4'-DDT	WG	Pond D/E/	MWS-05	SW8080	>	0.000049	0.000019	mg/L	X@	.	.
4,4'-DDT	WG	Pond D/E/	MWS-05	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-03	SW8080	>	0.000091	0.000019	mg/L	G@	.	.
4,4'-DDT	WG	Pond D/E/	MWS-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MWS-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MWD-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-15	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MWS-04	SW8080	ND	0.00001	0.00002	mg/L		.	.
4,4'-DDT	WG	Pond D/E/	MW-14	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Aldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-14	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-03	SW8080	>	0.00003	9.50E-06	mg/L	@	.	.
Aldrin	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Aldrin	WG	Pond D/E/	MW-03	SW8080	>	0.000097	0.00001	mg/L	C	.	.
Aldrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-14	SW8080	>	0.00005	9.70E-06	mg/L	X	.	.
alpha-BHC	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-14	SW8080	>	0.0000535	9.50E-06	mg/L	X@	.	.
alpha-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-03	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
alpha-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.388E-05	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond D/E/	MW-03	SW8080	>	0.000015	9.50E-06	mg/L	X@	.	.
alpha-Chlordane	WG	Pond D/E/	MW-14	SW8080	<	1.20E-06	9.70E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond D/E/	MWS-05	SW8080	<	6.00E-06	9.50E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
alpha-Chlordane	WG	Pond D/E/	MWD-04	SW8080	<	5.50E-06	9.50E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond D/E/	MW-15	SW8080	<	2.60E-06	9.70E-06	mg/L	JX	.	.
alpha-Chlordane	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-Chlordane	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Barium	WG	Pond D/E/	MW-14	SW6010	>	0.035	0.01	mg/L	@	.	.
Barium	WG	Pond D/E/	MW-15	SW6010	>	0.042	0.01	mg/L	@	.	.
Barium	WG	Pond D/E/	MWS-05	SW6010	>	0.021	0.01	mg/L	@	.	.
Barium	WG	Pond D/E/	MWD-04	SW6010	>	0.074	0.01	mg/L		.	.
Beryllium	WG	Pond D/E/	MW-15	SW6010	<	-0.00004	0.002	mg/L	J	.	.
beta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MW-14	SW8080	>	0.000013	9.70E-06	mg/L	X@	.	.
beta-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.000017	9.50E-06	mg/L	X@	.	.
beta-BHC	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MW-03	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
beta-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
beta-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
bis(2-Ethylhexyl)phthalate	WG	Pond D/E/	MW-15	SW8270	<	0.0024	0.0096	mg/L	J	.	.
Cadmium	WG	Pond D/E/	MWS-05	SW6010	>	0.014	0.005	mg/L	@	.	.
Cadmium	WG	Pond D/E/	MW-15	SW6010	>	0.011	0.005	mg/L	@	.	.
delta-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.000035	9.50E-06	mg/L	X@	.	.
delta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.000032	0.00001	mg/L	@C	.	.
delta-BHC	WG	Pond D/E/	MW-14	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
delta-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-03	SW8080	>	0.00002	9.50E-06	mg/L	X@	.	.
Dieldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-03	SW8080	>	0.00025	0.00001	mg/L	C	.	.
Dieldrin	WG	Pond D/E/	MW-14	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MW-03	SW8080	>	0.000012	9.50E-06	mg/L	X@	.	.
Dieldrin	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MWS-05	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MWS-04	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MWS-04	SW8080	ND	0.0000145	0.000029	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Endosulfan II	WG	Pond D/E/	MWD-04	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-15	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-15	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-14	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MWS-04	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-14	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-03	SW8080	>	0.000067	0.000029	mg/L	@	.	.
Endosulfan II	WG	Pond D/E/	MW-03	SW8080	<	0.000022	0.000029	mg/L	J	.	.
Endosulfan II	WG	Pond D/E/	MWS-05	SW8080	ND	0.0000145	0.000029	mg/L		.	.
Endosulfan II	WG	Pond D/E/	MW-03	SW8080	ND	0.000015	0.00003	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MW-14	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MW-15	SW8080	ND	0.000027	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MW-15	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MWS-04	SW8080	<	9.40E-06	0.000049	mg/L	J	.	.
Endosulfan sulfate	WG	Pond D/E/	MW-14	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MWS-05	SW8080	<	0.000018	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond D/E/	MWS-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MWS-05	SW8080	<	0.000028	0.000048	mg/L	JB	.	.
Endosulfan sulfate	WG	Pond D/E/	MWS-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond D/E/	MW-03	SW8080	<	0.000018	0.000048	mg/L	J	.	.
Endosulfan sulfate	WG	Pond D/E/	MWD-04	SW8080	<	0.000013	0.000048	mg/L	JB	.	.
Endosulfan sulfate	WG	Pond D/E/	MW-03	SW8080	<	0.000036	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond D/E/	MW-03	SW8080	ND	0.000025	0.00005	mg/L		.	.
Endrin	WG	Pond D/E/	MW-03	SW8080	>	0.00015	9.50E-06	mg/L	G	.	.
Endrin	WG	Pond D/E/	MW-03	SW8080	>	0.00002	9.50E-06	mg/L	X@	.	.
Endrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond D/E/	MW-14	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Endrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond D/E/	MW-03	SW8080	>	0.00028	0.00001	mg/L	C	.	.
Endrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Endrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MWS-05	SW8080	<	4.00E-06	0.000019	mg/L	JX	.	.
Endrin aldehyde	WG	Pond D/E/	MWS-05	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MWS-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MWD-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-15	SW8080	ND	8.60E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-15	SW8080	<	9.70E-06	0.000019	mg/L	JX	.	.
Endrin aldehyde	WG	Pond D/E/	MW-14	SW8080	ND	6.80E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-14	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-03	SW8080	>	0.000077	0.000019	mg/L	GB@	.	.
Endrin aldehyde	WG	Pond D/E/	MWS-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MWS-04	SW8080	ND	0.00001	0.00002	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-03	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond D/E/	MW-03	SW8080	ND	0.00001	0.00002	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.00015	0.00001	mg/L	C	.	.
gamma-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MW-15	SW8080	>	0.00001	9.70E-06	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
gamma-BHC	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond D/E/	MW-14	SW8080	>	0.000027	9.70E-06	mg/L	@	.	.
gamma-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.000085	9.50E-06	mg/L	X	.	.
gamma-BHC	WG	Pond D/E/	MW-03	SW8080	>	0.000018	9.50E-06	mg/L	X@	.	.
gamma-Chlordane	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MW-15	SW8080	<	3.00E-06	9.70E-06	mg/L	JX	.	.
gamma-Chlordane	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond D/E/	MW-03	SW8080	>	0.00016	9.50E-06	mg/L	G	.	.
gamma-Chlordane	WG	Pond D/E/	MW-14	SW8080	<	2.40E-06	9.70E-06	mg/L	J	.	.
gamma-Chlordane	WG	Pond D/E/	MW-03	SW8080	>	0.000026	9.50E-06	mg/L	X@	.	.
Hardness, as CaC03	WG	Pond D/E/	MWD-04	E130.2	>	10000	120	mg/L		.	.
Hardness, as CaC03	WG	Pond D/E/	MWS-05	E130.2	>	20000	250	mg/L		.	.
Hardness, as CaC03	WG	Pond D/E/	MW-15	E130.2	>	16000	500	mg/L		.	.
Hardness, as CaC03	WG	Pond D/E/	MW-14	E130.2	>	14000	250	mg/L		.	.
Heptachlor	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond D/E/	MW-15	SW8080	>	0.000025	9.70E-06	mg/L	G@	.	.
Heptachlor	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond D/E/	MW-14	SW8080	>	0.00002	9.70E-06	mg/L	G@	.	.
Heptachlor	WG	Pond D/E/	MW-03	SW8080	>	0.000082	0.00001	mg/L	C	.	.
Heptachlor	WG	Pond D/E/	MW-03	SW8080	>	0.000032	9.50E-06	mg/L	@	.	.
Heptachlor	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond D/E/	MW-14	SW8080	>	0.000015	9.50E-06	mg/L	G@	.	.
Heptachlor	WG	Pond D/E/	MWS-04	SW8080	<	4.10E-06	9.50E-06	mg/L	J	.	.
Heptachlor	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond D/E/	MW-15	SW8080	>	0.0000155	9.50E-06	mg/L	G@	.	.
Heptachlor	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-03	SW8080	ND	5.00E-06	0.00001	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-14	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond D/E/	MW-03	SW8080	>	0.000011	9.50E-06	mg/L	@	.	.
Isodrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MW-15	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MWS-05	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MWD-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.90E-06	9.80E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MWS-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MW-14	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MW-14	SW8080	>	0.00002	9.70E-06	mg/L	X@	.	.
Isodrin	WG	Pond D/E/	MW-03	SW8080	>	0.000054	9.50E-06	mg/L	X	.	.
Isodrin	WG	Pond D/E/	MW-15	SW8080	ND	4.85E-06	9.70E-06	mg/L		.	.
Isodrin	WG	Pond D/E/	MW-03	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Lead	WG	Pond D/E/	MW-14	SW7421	<	-0.008	0.006	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Lead	WG	Pond D/E/	MW-15	SW7421	<	-0.022	0.006	mg/L	@	.	.
Mercury	WG	Pond D/E/	MW-14	SW7470	<	0.00002	0.00036	mg/L	J	.	.
Mercury	WG	Pond D/E/	MW-15	SW7470	<	0.00001	0.00018	mg/L	J	.	.
Methoxychlor	WG	Pond D/E/	MW-14	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MW-03	SW8080	ND	0.000025	0.00005	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MW-03	SW8080	>	0.00021	0.000048	mg/L	G@	.	.
Methoxychlor	WG	Pond D/E/	MW-14	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MW-03	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWS-05	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWS-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWS-04	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWS-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWD-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MW-15	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MWS-05	SW8080	ND	0.000024	0.000048	mg/L		.	.
Methoxychlor	WG	Pond D/E/	MW-15	SW8080	ND	0.0000245	0.000049	mg/L		.	.
Sulfide	WG	Pond D/E/	MWS-05	SW9030	<	0.99	1	mg/L	@	.	.
Sulfide	WG	Pond D/E/	MWD-04	SW9030	<	0.84	1	mg/L	@	.	.
Thallium	WG	Pond D/E/	MW-14	SW7841	<	-0.0008	0.01	mg/L	J	.	.
Total dissolved solids	WG	Pond D/E/	MWD-04	E160.1	>	14000	10	mg/L		.	.
Total dissolved solids	WG	Pond D/E/	MW-15	E160.1	>	51000	10	mg/L		.	.
Total dissolved solids	WG	Pond D/E/	MW-14	E160.1	>	35000	10	mg/L		.	.
Total dissolved solids	WG	Pond D/E/	MWS-05	E160.1	>	55000	10	mg/L		.	.
Vanadium	WG	Pond D/E/	MW-15	SW6010	<	0.0066	0.02	mg/L	@	.	.
Zinc	WG	Pond D/E/	MW-15	SW6010	<	0.011	0.02	mg/L	@	.	.
Antimony	SE	Pond E	E-01	SW6010	<	6.6	11	mg/kg	@	0	0.5
Arsenic	SE	Pond E	E-01	SW7060	>	2.7	1.2	mg/kg	@	0	0.5
Barium	SE	Pond E	E-01	SW6010	>	36	1.1	mg/kg		0	0.5
bis(2-Ethylhexyl)phthalate	SE	Pond E	E-01	SW8270	<	0.66	6.7	mg/kg	J	0	0.5
Cadmium	SE	Pond E	E-01	SW6010	<	0.082	0.56	mg/kg	@	0	0.5
Chromium	SE	Pond E	E-01	SW6010	>	2.9	1.1	mg/kg	@	0	0.5
Copper	SE	Pond E	E-01	SW6010	>	5.2	2.2	mg/kg	@	0	0.5
Diethylphthalate	SE	Pond E	E-01	SW8270	<	0.12	6.7	mg/kg	J	0	0.5
gamma-Chlordane	SE	Pond E	E-01	SW8080	<	0.54	0.67	mg/kg	J	0	0.5
Heptachlor	SE	Pond E	E-01	SW8080	<	0.59	0.67	mg/kg	J	0	0.5
Heptachlor epoxide	SE	Pond E	E-01	SW8080	>	78	0.67	mg/kg	X	0	0.5
Lead	SE	Pond E	E-01	SW7421	>	21	0.45	mg/kg		0	0.5
Molecular sulfur	SE	Pond E	E-01	SW8270	>	53	.	mg/kg		0	0.5
Nickel	SE	Pond E	E-01	SW6010	>	3.1	2.2	mg/kg	@	0	0.5
Selenium	SE	Pond E	E-01	SW7740	<	0.67	0.76	mg/kg	@	0	0.5
Silver	SE	Pond E	E-01	SW6010	<	0.8	1.1	mg/kg	@	0	0.5
Tin	SE	Pond E	E-01	SW6010	<	0.27	67	mg/kg	@	0	0.5
Vanadium	SE	Pond E	E-01	SW6010	>	7.1	2.2	mg/kg	@	0	0.5
Zinc	SE	Pond E	E-01	SW6010	>	8.3	2.2	mg/kg	@	0	0.5
4,4'-DDD	SL	Pond E	E-03	SW8080	>	4.085	0.051	mg/kg	CD	.	.
4,4'-DDD	SL	Pond E	E-02	SW8080	>	0.24	0.05	mg/kg	C@	.	.
4,4'-DDD	SL	Pond E	E-05	SW8080	>	0.16	0.059	mg/kg	X@	.	.
4,4'-DDD	SL	Pond E	E-01	SW8080	>	0.38	0.066	mg/kg	C	.	.
4,4'-DDD	SL	Pond E	E-04	SW8080	>	0.15	0.054	mg/kg	X@	.	.
4,4'-DDE	SL	Pond E	E-02	SW8080	>	0.17	0.05	mg/kg	X@	.	.
4,4'-DDE	SL	Pond E	E-03	SW8080	>	1.205	0.051	mg/kg	CD	.	.
4,4'-DDE	SL	Pond E	E-01	SW8080	>	0.25	0.066	mg/kg	X@	.	.
4,4'-DDE	SL	Pond E	E-05	SW8080	<	0.059	0.059	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDE	SL	Pond E	E-04	SW8080	>	0.16	0.054	mg/kg	X@	.	.
4,4'-DDT	SL	Pond E	E-04	SW8080	<	0.093	0.11	mg/kg	JX	.	.
4,4'-DDT	SL	Pond E	E-05	SW8080	<	0.12	0.12	mg/kg		.	.
4,4'-DDT	SL	Pond E	E-02	SW8080	<	0.1	0.1	mg/kg		.	.
4,4'-DDT	SL	Pond E	E-03	SW8080	<	0.063	0.076	mg/kg		.	.
4,4'-DDT	SL	Pond E	E-01	SW8080	<	0.13	0.13	mg/kg		.	.
Arsenic	SL	Pond E	E-05	SW7060	>	2.3	1.8	mg/kg	@	.	.
Arsenic	SL	Pond E	E-02	SW7060	ND	1.05	1.4	mg/kg		.	.
Arsenic	SL	Pond E	E-01	SW7060	ND	1.425	1.9	mg/kg		.	.
Arsenic	SL	Pond E	E-04	SW7060	>	1.9	1.6	mg/kg	@	.	.
Arsenic	SL	Pond E	E-03	SW7060	=	1.35	1.4	mg/kg	@	.	.
Barium	SL	Pond E	E-02	SW6010	>	61	3.8	mg/kg		.	.
Barium	SL	Pond E	E-01	SW6010	>	81	4.8	mg/kg		.	.
Barium	SL	Pond E	E-05	SW6010	>	110	4.5	mg/kg		.	.
Barium	SL	Pond E	E-04	SW6010	>	83	4.3	mg/kg		.	.
Barium	SL	Pond E	E-03	SW6010	>	66	3.9	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Pond E	E-05	SW8270	>	12	5.9	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond E	E-03	SW8270	>	6.25	3.8	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond E	E-04	SW8270	>	6.6	5.4	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond E	E-01	SW8270	>	9	6.5	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond E	E-02	SW8270	<	3.6	5	mg/kg	J	.	.
Cadmium	SL	Pond E	E-04	SW6010	ND	1.65	2.2	mg/kg		.	.
Cadmium	SL	Pond E	E-01	SW6010	>	2.9	2.4	mg/kg	@	.	.
Cadmium	SL	Pond E	E-05	SW6010	ND	1.725	2.3	mg/kg		.	.
Cadmium	SL	Pond E	E-03	SW6010	ND	1.3875	2	mg/kg		.	.
Cadmium	SL	Pond E	E-02	SW6010	ND	1.425	1.9	mg/kg		.	.
Chromium	SL	Pond E	E-03	SW6010	>	16	3.9	mg/kg	@	.	.
Chromium	SL	Pond E	E-04	SW6010	>	23	4.3	mg/kg		.	.
Chromium	SL	Pond E	E-02	SW6010	>	26	3.8	mg/kg		.	.
Chromium	SL	Pond E	E-01	SW6010	>	28	4.8	mg/kg		.	.
Chromium	SL	Pond E	E-05	SW6010	>	21	4.5	mg/kg	@	.	.
Cobalt	SL	Pond E	E-03	SW6010	<	4.35	3.9	mg/kg		.	.
Cobalt	SL	Pond E	E-05	SW6010	>	5.2	4.5	mg/kg	@	.	.
Cobalt	SL	Pond E	E-04	SW6010	<	4.3	4.3	mg/kg		.	.
Cobalt	SL	Pond E	E-02	SW6010	<	3.8	3.8	mg/kg		.	.
Cobalt	SL	Pond E	E-01	SW6010	<	4.8	4.8	mg/kg		.	.
Copper	SL	Pond E	E-01	SW6010	>	75	9.5	mg/kg		.	.
Copper	SL	Pond E	E-04	SW6010	>	48	8.7	mg/kg		.	.
Copper	SL	Pond E	E-02	SW6010	>	28	7.7	mg/kg	@	.	.
Copper	SL	Pond E	E-03	SW6010	>	23	7.8	mg/kg	@	.	.
Copper	SL	Pond E	E-05	SW6010	>	45	9.1	mg/kg	@	.	.
Cyanide	SL	Pond E	E-04	SW9012	>	2.5	1.2	mg/kg	@	.	.
Cyanide	SL	Pond E	E-01	SW9012	>	180	5	mg/kg		.	.
Cyanide	SL	Pond E	E-05	SW9012	>	3	1.3	mg/kg	@	.	.
Cyanide	SL	Pond E	E-03	SW9012	<	0.675	0.85	mg/kg		.	.
Cyanide	SL	Pond E	E-02	SW9012	>	6.1	0.87	mg/kg		.	.
Dibutylphthalate	SL	Pond E	E-02	SW8270	ND	3.75	5	mg/kg		.	.
Dibutylphthalate	SL	Pond E	E-01	SW8270	ND	4.875	6.5	mg/kg		.	.
Dibutylphthalate	SL	Pond E	E-05	SW8270	ND	4.425	5.9	mg/kg		.	.
Dibutylphthalate	SL	Pond E	E-04	SW8270	ND	4.05	5.4	mg/kg		.	.
Dibutylphthalate	SL	Pond E	E-03	SW8270	ND	1.9766667	3.8	mg/kg		.	.
gamma-BHC	SL	Pond E	E-01	SW8080	>	0.11	0.066	mg/kg	C@	.	.
gamma-BHC	SL	Pond E	E-02	SW8080	>	0.082	0.05	mg/kg	X@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
gamma-BHC	SL	Pond E	E-05	SW8080	<	0.059	0.059	mg/kg		.	.
gamma-BHC	SL	Pond E	E-04	SW8080	<	0.054	0.054	mg/kg		.	.
gamma-BHC	SL	Pond E	E-03	SW8080	<	0.032	0.038	mg/kg		.	.
gamma-Chlordane	SL	Pond E	E-05	SW8080	>	0.062	0.059	mg/kg	X@	.	.
gamma-Chlordane	SL	Pond E	E-04	SW8080	<	0.054	0.054	mg/kg		.	.
gamma-Chlordane	SL	Pond E	E-03	SW8080	>	0.1595	0.038	mg/kg	X@	.	.
gamma-Chlordane	SL	Pond E	E-02	SW8080	<	0.05	0.05	mg/kg		.	.
gamma-Chlordane	SL	Pond E	E-01	SW8080	<	0.066	0.066	mg/kg		.	.
Lead	SL	Pond E	E-01	SW7421	>	13	1.4	mg/kg		.	.
Lead	SL	Pond E	E-05	SW7421	>	11	1.3	mg/kg		.	.
Lead	SL	Pond E	E-04	SW7421	>	10	1.2	mg/kg		.	.
Lead	SL	Pond E	E-03	SW7421	>	10.2	1	mg/kg		.	.
Lead	SL	Pond E	E-02	SW7421	>	8.2	1.1	mg/kg		.	.
Mercury	SL	Pond E	E-01	SW7471	>	0.31	0.3	mg/kg	@	.	.
Mercury	SL	Pond E	E-05	SW7471	ND	0.195	0.26	mg/kg		.	.
Mercury	SL	Pond E	E-02	SW7471	>	0.29	0.22	mg/kg	@	.	.
Mercury	SL	Pond E	E-04	SW7471	>	0.44	0.25	mg/kg	@	.	.
Mercury	SL	Pond E	E-03	SW7471	ND	0.10875	0.17	mg/kg		.	.
Nickel	SL	Pond E	E-05	SW6010	ND	6.825	9.1	mg/kg		.	.
Nickel	SL	Pond E	E-03	SW6010	ND	7.1666667	7.8	mg/kg		.	.
Nickel	SL	Pond E	E-02	SW6010	ND	5.775	7.7	mg/kg		.	.
Nickel	SL	Pond E	E-04	SW6010	ND	6.525	8.7	mg/kg		.	.
Nickel	SL	Pond E	E-01	SW6010	>	12	9.5	mg/kg	@	.	.
Phenanthrene	SL	Pond E	E-01	SW8270	<	0.81	6.5	mg/kg	J	.	.
Phenanthrene	SL	Pond E	E-03	SW8270	<	1.5933333	3.8	mg/kg	J	.	.
Phenanthrene	SL	Pond E	E-04	SW8270	<	0.34	5.4	mg/kg	J	.	.
Phenanthrene	SL	Pond E	E-02	SW8270	<	0.54	5	mg/kg	J	.	.
Phenanthrene	SL	Pond E	E-05	SW8270	ND	4.425	5.9	mg/kg		.	.
Selenium	SL	Pond E	E-01	SW7740	>	2.7	2.4	mg/kg	@	.	.
Selenium	SL	Pond E	E-05	SW7740	ND	1.65	2.2	mg/kg		.	.
Selenium	SL	Pond E	E-02	SW7740	ND	1.35	1.8	mg/kg		.	.
Selenium	SL	Pond E	E-04	SW7740	ND	1.5	2	mg/kg		.	.
Selenium	SL	Pond E	E-03	SW7740	ND	1.00875	1.7	mg/kg		.	.
Silver	SL	Pond E	E-03	SW6010	>	14.5	3.9	mg/kg	@	.	.
Silver	SL	Pond E	E-02	SW6010	>	27	3.8	mg/kg		.	.
Silver	SL	Pond E	E-04	SW6010	>	34	4.3	mg/kg		.	.
Silver	SL	Pond E	E-05	SW6010	>	18	4.5	mg/kg	@	.	.
Silver	SL	Pond E	E-01	SW6010	>	39	4.8	mg/kg		.	.
Sulfide	SL	Pond E	E-04	SW9030	<	130	130	mg/kg		.	.
Sulfide	SL	Pond E	E-02	SW9030	>	720	120	mg/kg		.	.
Sulfide	SL	Pond E	E-05	SW9030	>	850	150	mg/kg		.	.
Sulfide	SL	Pond E	E-01	SW9030	<	160	160	mg/kg		.	.
Sulfide	SL	Pond E	E-03	SW9030	>	590	94	mg/kg		.	.
Toluene	SL	Pond E	E-01	SW8240	<	0.66	0.66	mg/kg		.	.
Toluene	SL	Pond E	E-05	SW8240	<	0.59	0.59	mg/kg		.	.
Toluene	SL	Pond E	E-04	SW8240	<	0.54	0.54	mg/kg		.	.
Toluene	SL	Pond E	E-03	SW8240	<	0.227	0.38	mg/kg		.	.
Toluene	SL	Pond E	E-02	SW8240	<	0.5	0.5	mg/kg		.	.
Vanadium	SL	Pond E	E-04	SW6010	>	28	8.7	mg/kg	@	.	.
Vanadium	SL	Pond E	E-03	SW6010	>	25	7.8	mg/kg	@	.	.
Vanadium	SL	Pond E	E-02	SW6010	>	24	7.7	mg/kg	@	.	.
Vanadium	SL	Pond E	E-05	SW6010	>	33	9.1	mg/kg	@	.	.
Vanadium	SL	Pond E	E-01	SW6010	>	34	9.5	mg/kg	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Xylenes	SL	Pond E	E-01	SW8240	<	0.25	0.66	mg/kg	J	.	.
Xylenes	SL	Pond E	E-04	SW8240	<	0.54	0.54	mg/kg		.	.
Xylenes	SL	Pond E	E-03	SW8240	<	0.32	0.38	mg/kg		.	.
Xylenes	SL	Pond E	E-02	SW8240	<	0.5	0.5	mg/kg		.	.
Xylenes	SL	Pond E	E-05	SW8240	<	0.59	0.59	mg/kg		.	.
Zinc	SL	Pond E	E-03	SW6010	>	52	7.8	mg/kg	@	.	.
Zinc	SL	Pond E	E-02	SW6010	>	48	7.7	mg/kg		.	.
Zinc	SL	Pond E	E-04	SW6010	>	63	8.7	mg/kg		.	.
Zinc	SL	Pond E	E-01	SW6010	>	86	9.5	mg/kg		.	.
Zinc	SL	Pond E	E-05	SW6010	>	67	9.1	mg/kg		.	.
1,1,2-Trichlorotrifluoroethane	SO	Pond E	E-05	SW8240	>	0.017	.	mg/kg		0	2
4,4'-DDD	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDD	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDD	SO	Pond E	E-03	SW8080	>	0.0815	0.0013	mg/kg	C	0	2
4,4'-DDD	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDD	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDD	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDD	SO	Pond E	E-03	SW8080	>	0.0216	0.0014	mg/kg	C	2	4
4,4'-DDD	SO	Pond E	E-04	SW8080	>	0.0036	0.0014	mg/kg	X@	0	2
4,4'-DDD	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Pond E	E-03	SW8080	>	0.00705	0.0013	mg/kg	C	0	2
4,4'-DDE	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
4,4'-DDE	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDE	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond E	E-03	SW8080	>	0.0053	0.0014	mg/kg	C@	2	4
4,4'-DDE	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDT	SO	Pond E	E-03	SW8080	>	0.00275	0.0026	mg/kg	X@	0	2
4,4'-DDT	SO	Pond E	E-01	SW8080	<	0.0028	0.0028	mg/kg		2	4
4,4'-DDT	SO	Pond E	E-01	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond E	E-05	SW8080	<	0.0025	0.0025	mg/kg		2	4
4,4'-DDT	SO	Pond E	E-02	SW8080	>	0.004	0.0029	mg/kg	X@	2	4
4,4'-DDT	SO	Pond E	E-05	SW8080	<	0.0026	0.0026	mg/kg		0	2
4,4'-DDT	SO	Pond E	E-04	SW8080	<	0.0027	0.0027	mg/kg		0	2
4,4'-DDT	SO	Pond E	E-03	SW8080	>	0.0033	0.0028	mg/kg	X@	2	4
4,4'-DDT	SO	Pond E	E-02	SW8080	<	0.0028	0.0028	mg/kg		0	2
Acetone	SO	Pond E	E-02	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Pond E	E-05	SW8240	ND	0.0975	0.13	mg/kg		2	4
Acetone	SO	Pond E	E-01	SW8240	ND	0.105	0.14	mg/kg		0	2
Acetone	SO	Pond E	E-04	SW8240	<	0.062	0.14	mg/kg	JB	0	2
Acetone	SO	Pond E	E-03	SW8240	ND	0.105	0.14	mg/kg		2	4
Acetone	SO	Pond E	E-03	SW8240	ND	0.09375	0.13	mg/kg		0	2
Acetone	SO	Pond E	E-05	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Pond E	E-02	SW8240	ND	0.105	0.14	mg/kg		0	2
Acetone	SO	Pond E	E-01	SW8240	ND	0.105	0.14	mg/kg		2	4
Aldrin	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
Aldrin	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
Aldrin	SO	Pond E	E-02	SW8080	>	0.0024	0.0014	mg/kg	X@	2	4
Aldrin	SO	Pond E	E-03	SW8080	<	0.00125	0.0013	mg/kg		0	2
Aldrin	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
Aldrin	SO	Pond E	E-03	SW8080	<	0.0014	0.0014	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Aldrin	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
Aldrin	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Aldrin	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-BHC	SO	Pond E	E-03	SW8080	>	0.0019	0.0014	mg/kg	C@	2	4
alpha-BHC	SO	Pond E	E-03	SW8080	>	0.00175	0.0013	mg/kg	C@	0	2
alpha-BHC	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-BHC	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-BHC	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-BHC	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-BHC	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
alpha-Chlordane	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-Chlordane	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
alpha-Chlordane	SO	Pond E	E-03	SW8080	<	0.0013	0.0014	mg/kg	JX	2	4
alpha-Chlordane	SO	Pond E	E-03	SW8080	=	0.00125	0.0013	mg/kg	X@	0	2
alpha-Chlordane	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
alpha-Chlordane	SO	Pond E	E-05	SW8080	<	0.00052	0.0013	mg/kg	JX	2	4
alpha-Chlordane	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-Chlordane	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
Arsenic	SO	Pond E	E-05	SW7060	>	2	0.35	mg/kg		2	4
Arsenic	SO	Pond E	E-03	SW7060	>	2.65	0.55	mg/kg		2	4
Arsenic	SO	Pond E	E-02	SW7060	>	2.6	0.43	mg/kg		2	4
Arsenic	SO	Pond E	E-03	SW7060	>	0.71	0.47	mg/kg	@	0	2
Arsenic	SO	Pond E	E-04	SW7060	>	1	0.41	mg/kg	@	0	2
Arsenic	SO	Pond E	E-02	SW7060	>	2.4	0.41	mg/kg		0	2
Arsenic	SO	Pond E	E-05	SW7060	>	1.2	0.39	mg/kg	@	0	2
Arsenic	SO	Pond E	E-01	SW7060	>	1.1	0.38	mg/kg	@	2	4
Arsenic	SO	Pond E	E-01	SW7060	>	1.1	0.34	mg/kg	@	0	2
Barium	SO	Pond E	E-05	SW6010	>	130	4.1	mg/kg		2	4
Barium	SO	Pond E	E-01	SW6010	>	94	4.3	mg/kg		0	2
Barium	SO	Pond E	E-04	SW6010	>	67	4.2	mg/kg		0	2
Barium	SO	Pond E	E-03	SW6010	>	62.5	5.1	mg/kg		2	4
Barium	SO	Pond E	E-03	SW6010	>	30.5	4.4	mg/kg		0	2
Barium	SO	Pond E	E-02	SW6010	>	45	4.3	mg/kg		2	4
Barium	SO	Pond E	E-05	SW6010	>	47	3.9	mg/kg		0	2
Barium	SO	Pond E	E-02	SW6010	>	86	3.9	mg/kg		0	2
Barium	SO	Pond E	E-01	SW6010	>	74	4.5	mg/kg		2	4
beta-BHC	SO	Pond E	E-01	SW8080	>	0.0041	0.0014	mg/kg	X@	0	2
beta-BHC	SO	Pond E	E-01	SW8080	<	0.0013	0.0014	mg/kg	JX	2	4
beta-BHC	SO	Pond E	E-02	SW8080	>	0.0044	0.0014	mg/kg	C@	0	2
beta-BHC	SO	Pond E	E-02	SW8080	>	0.0096	0.0014	mg/kg	C	2	4
beta-BHC	SO	Pond E	E-03	SW8080	>	0.0194	0.0014	mg/kg	X@	2	4
beta-BHC	SO	Pond E	E-05	SW8080	>	0.0027	0.0013	mg/kg	X@	2	4
beta-BHC	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
beta-BHC	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
beta-BHC	SO	Pond E	E-03	SW8080	>	0.0013	0.0013	mg/kg	X@	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-01	SW8270	ND	0.975	1.3	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-05	SW8270	ND	0.975	1.3	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-03	SW8270	<	2.005	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-05	SW8270	ND	0.975	1.3	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-04	SW8270	ND	1.05	1.4	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-03	SW8270	ND	0.78	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-02	SW8270	>	5.4	1.4	mg/kg	@	2	4
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-02	SW8270	ND	1.05	1.4	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond E	E-01	SW8270	ND	1.05	1.4	mg/kg		2	4
Carbon disulfide	SO	Pond E	E-05	SW8240	ND	0.004725	0.0063	mg/kg		2	4
Carbon disulfide	SO	Pond E	E-03	SW8240	>	0.012	0.007	mg/kg	@	2	4
Carbon disulfide	SO	Pond E	E-03	SW8240	>	0.018	0.0066	mg/kg	@	0	2
Carbon disulfide	SO	Pond E	E-02	SW8240	ND	0.0054	0.0072	mg/kg		2	4
Carbon disulfide	SO	Pond E	E-02	SW8240	ND	0.00525	0.007	mg/kg		0	2
Carbon disulfide	SO	Pond E	E-01	SW8240	ND	0.00525	0.007	mg/kg		2	4
Carbon disulfide	SO	Pond E	E-04	SW8240	=	0.0069	0.0069	mg/kg	@	0	2
Carbon disulfide	SO	Pond E	E-05	SW8240	ND	0.00495	0.0066	mg/kg		0	2
Carbon disulfide	SO	Pond E	E-01	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Chromium	SO	Pond E	E-02	SW6010	>	5	3.9	mg/kg	@	0	2
Chromium	SO	Pond E	E-01	SW6010	ND	3.225	4.3	mg/kg		0	2
Chromium	SO	Pond E	E-03	SW6010	>	8.45	5.1	mg/kg	@	2	4
Chromium	SO	Pond E	E-03	SW6010	ND	3.4333333	4.4	mg/kg		0	2
Chromium	SO	Pond E	E-01	SW6010	ND	3.375	4.5	mg/kg		2	4
Chromium	SO	Pond E	E-05	SW6010	>	4.2	3.9	mg/kg	@	0	2
Chromium	SO	Pond E	E-05	SW6010	>	4.2	4.1	mg/kg	@	2	4
Chromium	SO	Pond E	E-02	SW6010	ND	3.225	4.3	mg/kg		2	4
Chromium	SO	Pond E	E-04	SW6010	ND	3.15	4.2	mg/kg		0	2
Cobalt	SO	Pond E	E-01	SW6010	ND	3.225	4.3	mg/kg		0	2
Cobalt	SO	Pond E	E-01	SW6010	ND	3.375	4.5	mg/kg		2	4
Cobalt	SO	Pond E	E-02	SW6010	>	7	3.9	mg/kg	@	0	2
Cobalt	SO	Pond E	E-02	SW6010	ND	3.225	4.3	mg/kg		2	4
Cobalt	SO	Pond E	E-03	SW6010	ND	3.675	5.1	mg/kg		2	4
Cobalt	SO	Pond E	E-05	SW6010	ND	3.075	4.1	mg/kg		2	4
Cobalt	SO	Pond E	E-05	SW6010	ND	2.925	3.9	mg/kg		0	2
Cobalt	SO	Pond E	E-04	SW6010	ND	3.15	4.2	mg/kg		0	2
Cobalt	SO	Pond E	E-03	SW6010	ND	2.9625	4.4	mg/kg		0	2
Cyanide	SO	Pond E	E-01	SW9012	<	0.33	0.33	mg/kg		0	2
Cyanide	SO	Pond E	E-05	SW9012	>	0.72	0.3	mg/kg	@	2	4
Cyanide	SO	Pond E	E-03	SW9012	<	0.31	0.32	mg/kg		0	2
Cyanide	SO	Pond E	E-05	SW9012	>	1.2	0.3	mg/kg	@	0	2
Cyanide	SO	Pond E	E-04	SW9012	>	2.9	0.32	mg/kg		0	2
Cyanide	SO	Pond E	E-03	SW9012	<	0.325	0.33	mg/kg		2	4
Cyanide	SO	Pond E	E-02	SW9012	>	0.88	0.35	mg/kg	@	2	4
Cyanide	SO	Pond E	E-02	SW9012	>	0.69	0.35	mg/kg	@	0	2
Cyanide	SO	Pond E	E-01	SW9012	>	0.93	0.35	mg/kg	@	2	4
delta-BHC	SO	Pond E	E-03	SW8080	<	0.00125	0.0013	mg/kg		0	2
delta-BHC	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
delta-BHC	SO	Pond E	E-03	SW8080	>	0.0054	0.0014	mg/kg	X	2	4
delta-BHC	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
delta-BHC	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
delta-BHC	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
delta-BHC	SO	Pond E	E-02	SW8080	>	0.011	0.0014	mg/kg	X	2	4
delta-BHC	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
Endosulfan II	SO	Pond E	E-05	SW8080	<	0.0038	0.0038	mg/kg		2	4
Endosulfan II	SO	Pond E	E-03	SW8080	<	0.00385	0.004	mg/kg		0	2
Endosulfan II	SO	Pond E	E-04	SW8080	<	0.0041	0.0041	mg/kg		0	2
Endosulfan II	SO	Pond E	E-03	SW8080	<	0.0042	0.0042	mg/kg		2	4

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Endosulfan II	SO	Pond E	E-05	SW8080	<	0.0039	0.0039	mg/kg		0	2
Endosulfan II	SO	Pond E	E-02	SW8080	<	0.0042	0.0042	mg/kg		0	2
Endosulfan II	SO	Pond E	E-01	SW8080	<	0.0042	0.0042	mg/kg		2	4
Endosulfan II	SO	Pond E	E-02	SW8080	<	0.0017	0.0043	mg/kg	JX	2	4
Endosulfan II	SO	Pond E	E-01	SW8080	<	0.00069	0.0041	mg/kg	JX	0	2
Endosulfan sulfate	SO	Pond E	E-05	SW8080	<	0.0016	0.0065	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond E	E-01	SW8080	<	0.0068	0.0068	mg/kg		0	2
Endosulfan sulfate	SO	Pond E	E-04	SW8080	<	0.0019	0.0068	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond E	E-03	SW8080	<	0.007	0.007	mg/kg		2	4
Endosulfan sulfate	SO	Pond E	E-02	SW8080	<	0.0011	0.007	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond E	E-03	SW8080	<	0.00335	0.0066	mg/kg		0	2
Endosulfan sulfate	SO	Pond E	E-01	SW8080	<	0.00089	0.007	mg/kg	JX	2	4
Endosulfan sulfate	SO	Pond E	E-02	SW8080	<	0.0072	0.0072	mg/kg		2	4
Endosulfan sulfate	SO	Pond E	E-05	SW8080	<	0.00092	0.0063	mg/kg	JX	2	4
gamma-Chlordane	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
gamma-Chlordane	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
gamma-Chlordane	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
gamma-Chlordane	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Pond E	E-03	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Pond E	E-03	SW8080	>	0.00565	0.0013	mg/kg	X@	0	2
gamma-Chlordane	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-Chlordane	SO	Pond E	E-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
gamma-Chlordane	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		0	2
Heptachlor	SO	Pond E	E-04	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond E	E-03	SW8080	>	0.0016	0.0014	mg/kg	X@	2	4
Heptachlor	SO	Pond E	E-03	SW8080	<	0.00125	0.0013	mg/kg		0	2
Heptachlor	SO	Pond E	E-02	SW8080	<	0.00086	0.0014	mg/kg	JX	2	4
Heptachlor	SO	Pond E	E-02	SW8080	>	0.0021	0.0014	mg/kg	X@	0	2
Heptachlor	SO	Pond E	E-05	SW8080	<	0.0013	0.0013	mg/kg		2	4
Heptachlor	SO	Pond E	E-01	SW8080	<	0.0014	0.0014	mg/kg		2	4
Lead	SO	Pond E	E-04	SW7421	>	0.89	0.31	mg/kg	@	0	2
Lead	SO	Pond E	E-03	SW7421	>	4.2	0.41	mg/kg		2	4
Lead	SO	Pond E	E-03	SW7421	>	1.6	0.36	mg/kg	@	0	2
Lead	SO	Pond E	E-02	SW7421	>	1.3	0.32	mg/kg	@	2	4
Lead	SO	Pond E	E-02	SW7421	>	1.6	0.31	mg/kg		0	2
Lead	SO	Pond E	E-01	SW7421	>	0.87	0.28	mg/kg	@	2	4
Lead	SO	Pond E	E-05	SW7421	>	2.7	0.29	mg/kg		0	2
Lead	SO	Pond E	E-05	SW7421	>	2.3	0.27	mg/kg		2	4
Lead	SO	Pond E	E-01	SW7421	ND	0.1875	0.25	mg/kg		0	2
Methylene chloride	SO	Pond E	E-03	SW8240	ND	0.00525	0.007	mg/kg		2	4
Methylene chloride	SO	Pond E	E-01	SW8240	ND	0.00525	0.007	mg/kg		2	4
Methylene chloride	SO	Pond E	E-05	SW8240	ND	0.00495	0.0066	mg/kg		0	2
Methylene chloride	SO	Pond E	E-01	SW8240	ND	0.0051	0.0068	mg/kg		0	2
Methylene chloride	SO	Pond E	E-03	SW8240	ND	0.0048	0.0066	mg/kg		0	2
Methylene chloride	SO	Pond E	E-04	SW8240	<	0.0024	0.0069	mg/kg	J	0	2
Methylene chloride	SO	Pond E	E-05	SW8240	ND	0.004725	0.0063	mg/kg		2	4
Methylene chloride	SO	Pond E	E-02	SW8240	ND	0.0054	0.0072	mg/kg		2	4
Methylene chloride	SO	Pond E	E-02	SW8240	ND	0.00525	0.007	mg/kg		0	2
Selenium	SO	Pond E	E-03	SW7740	ND	0.46875	0.68	mg/kg		2	4
Selenium	SO	Pond E	E-02	SW7740	ND	0.3825	0.51	mg/kg		0	2
Selenium	SO	Pond E	E-03	SW7740	ND	0.405	0.59	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Selenium	SO	Pond E	E-01	SW7740	ND	0.6375	0.85	mg/kg		0	2
Selenium	SO	Pond E	E-04	SW7740	ND	0.3825	0.51	mg/kg		0	2
Selenium	SO	Pond E	E-05	SW7740	ND	0.3675	0.49	mg/kg		0	2
Selenium	SO	Pond E	E-01	SW7740	>	1	0.95	mg/kg	@	2	4
Selenium	SO	Pond E	E-02	SW7740	ND	0.405	0.54	mg/kg		2	4
Selenium	SO	Pond E	E-05	SW7740	ND	0.33	0.44	mg/kg		2	4
Sulfide	SO	Pond E	E-01	SW9030	>	59	31	mg/kg	@	0	2
Sulfide	SO	Pond E	E-03	SW9030	>	82	34	mg/kg	@	2	4
Sulfide	SO	Pond E	E-05	SW9030	<	31	31	mg/kg		2	4
Sulfide	SO	Pond E	E-05	SW9030	<	33	33	mg/kg		0	2
Sulfide	SO	Pond E	E-04	SW9030	<	34	34	mg/kg		0	2
Sulfide	SO	Pond E	E-03	SW9030	>	56.5	31	mg/kg	@	0	2
Sulfide	SO	Pond E	E-02	SW9030	<	34	34	mg/kg		2	4
Sulfide	SO	Pond E	E-02	SW9030	>	90	33	mg/kg	@	0	2
Sulfide	SO	Pond E	E-01	SW9030	<	33	33	mg/kg		2	4
Toluene	SO	Pond E	E-02	SW8240	<	0.0072	0.0072	mg/kg		2	4
Toluene	SO	Pond E	E-02	SW8240	<	0.00012	0.007	mg/kg	J	0	2
Toluene	SO	Pond E	E-01	SW8240	<	0.007	0.007	mg/kg		2	4
Toluene	SO	Pond E	E-03	SW8240	<	0.003395	0.0066	mg/kg		0	2
Toluene	SO	Pond E	E-01	SW8240	<	0.0068	0.0068	mg/kg		0	2
Toluene	SO	Pond E	E-05	SW8240	<	0.00027	0.0066	mg/kg	J	0	2
Toluene	SO	Pond E	E-05	SW8240	<	0.0063	0.0063	mg/kg		2	4
Toluene	SO	Pond E	E-04	SW8240	<	0.0018	0.0069	mg/kg	J	0	2
Toluene	SO	Pond E	E-03	SW8240	<	0.007	0.007	mg/kg		2	4
Total organic carbon	SO	Pond E	E-02		>	2000	1100	mg/kg	@	0	2
Total organic carbon	SO	Pond E	E-02		>	1400	1100	mg/kg	@	2	4
Vanadium	SO	Pond E	E-05	SW6010	>	13	8.2	mg/kg	@	2	4
Vanadium	SO	Pond E	E-03	SW6010	>	19	10	mg/kg	@	2	4
Vanadium	SO	Pond E	E-02	SW6010	ND	6.375	8.5	mg/kg		2	4
Vanadium	SO	Pond E	E-03	SW6010	ND	7.15	8.9	mg/kg		0	2
Vanadium	SO	Pond E	E-04	SW6010	>	9.5	8.4	mg/kg	@	0	2
Vanadium	SO	Pond E	E-02	SW6010	>	13	7.8	mg/kg	@	0	2
Vanadium	SO	Pond E	E-05	SW6010	>	11	7.8	mg/kg	@	0	2
Vanadium	SO	Pond E	E-01	SW6010	ND	6.75	9	mg/kg		2	4
Vanadium	SO	Pond E	E-01	SW6010	>	9.9	8.6	mg/kg	@	0	2
Zinc	SO	Pond E	E-05	SW6010	>	11	8.2	mg/kg	@	2	4
Zinc	SO	Pond E	E-01	SW6010	>	12	8.6	mg/kg	@	0	2
Zinc	SO	Pond E	E-04	SW6010	>	15	8.4	mg/kg	@	0	2
Zinc	SO	Pond E	E-03	SW6010	>	22	10	mg/kg	@	2	4
Zinc	SO	Pond E	E-03	SW6010	>	8.8	8.9	mg/kg	@	0	2
Zinc	SO	Pond E	E-02	SW6010	>	12	8.5	mg/kg	@	2	4
Zinc	SO	Pond E	E-05	SW6010	>	11	7.8	mg/kg	@	0	2
Zinc	SO	Pond E	E-02	SW6010	>	14	7.8	mg/kg	@	0	2
Zinc	SO	Pond E	E-01	SW6010	>	14	9	mg/kg	@	2	4
4,4'-DDD	WS	Pond E	E-01	SW8080	>	0.000026	9.50E-06	mg/L	X@	.	.
4,4'-DDE	WS	Pond E	E-01	SW8080	ND	4.77E-06	9.60E-06	mg/L		.	.
4,4'-DDE	WS	Pond E	E-5	SW8080	ND	0.0003	0.0006	mg/L		.	.
4,4'-DDE	WS	Pond E	E-4	SW8080	ND	0.0003	0.0006	mg/L		.	.
4,4'-DDE	WS	Pond E	E-1	SW8080	>	0.0004	.	mg/L	J	.	.
Barium	WS	Pond E	E-2	SW6010	>	0.027	.	mg/L	@	.	.
Barium	WS	Pond E	E-6	SW6010	>	0.037	.	mg/L	@	.	.
Barium	WS	Pond E	E-1	SW6010	>	0.037	.	mg/L	@	.	.
Barium	WS	Pond E	E-3	SW6010	>	0.034	.	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Barium	WS	Pond E	E-4	SW6010	>	0.036	.	mg/L	@	.	.
Barium	WS	Pond E	E-5	SW6010	>	0.035	.	mg/L	@	.	.
Benzoic acid	WS	Pond E	E-1	SW8270	>	0.01	.	mg/L	J	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-1	SW8270	>	0.011	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-6	SW8270	>	0.005	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-5	SW8270	>	0.003	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-4	SW8270	>	0.015	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-3	SW8270	>	0.005	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond E	E-2	SW8270	>	0.007	.	mg/L	JB	.	.
Boron	WS	Pond E	E-4	SW6010	>	0.32	.	mg/L	@	.	.
Boron	WS	Pond E	E-2	SW6010	>	0.24	.	mg/L	@	.	.
Boron	WS	Pond E	E-1	SW6010	>	0.33	.	mg/L	@	.	.
Boron	WS	Pond E	E-5	SW6010	>	0.28	.	mg/L	@	.	.
Boron	WS	Pond E	E-3	SW6010	>	0.29	.	mg/L	@	.	.
Boron	WS	Pond E	E-6	SW6010	>	0.3	.	mg/L	@	.	.
Calcium	WS	Pond E	E-2	SW6010	>	250	.	mg/L		.	.
Calcium	WS	Pond E	E-4	SW6010	>	350	.	mg/L		.	.
Calcium	WS	Pond E	E-3	SW6010	>	310	.	mg/L		.	.
Calcium	WS	Pond E	E-1	SW6010	>	340	.	mg/L		.	.
Calcium	WS	Pond E	E-5	SW6010	>	330	.	mg/L		.	.
Calcium	WS	Pond E	E-6	SW6010	>	35	.	mg/L		.	.
Dieldrin	WS	Pond E	E-01	SW8080	>	0.0000145	9.50E-06	mg/L	X@	.	.
gamma-BHC	WS	Pond E	E-01	SW8080	>	0.0000145	9.50E-06	mg/L	@	.	.
gamma-Chlordane	WS	Pond E	E-01	SW8080	<	5.20E-06	9.50E-06	mg/L	J	.	.
Hardness, as CaC03	WS	Pond E	E-01	E130.2	>	2133.3333	83	mg/L		.	.
Heptachlor epoxide	WS	Pond E	E-01	SW8080	>	0.00001	9.50E-06	mg/L	@	.	.
Iron	WS	Pond E	E-6	SW6010	>	0.035	.	mg/L	@	.	.
Iron	WS	Pond E	E-5	SW6010	>	0.022	.	mg/L	@	.	.
Iron	WS	Pond E	E-4	SW6010	>	0.02	.	mg/L	@	.	.
Iron	WS	Pond E	E-3	SW6010	>	0.024	.	mg/L	@	.	.
Iron	WS	Pond E	E-1	SW6010	>	0.017	.	mg/L	@	.	.
Iron	WS	Pond E	E-2	SW6010	>	0.016	.	mg/L	@	.	.
Lead	WS	Pond E	E-5	SW7421	ND	0.001	0.002	mg/L		.	.
Lead	WS	Pond E	E-2	SW7421	>	0.0028	.	mg/L	@	.	.
Lead	WS	Pond E	E-6	SW7421	ND	0.001	0.002	mg/L		.	.
Lead	WS	Pond E	E-1	SW7421	>	0.0029	.	mg/L	@	.	.
Lead	WS	Pond E	E-4	SW7421	ND	0.001	0.002	mg/L		.	.
Lead	WS	Pond E	E-3	SW7421	>	0.0048	.	mg/L	@	.	.
Lead (organic)	WS	Pond E	E-1	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond E	E-3	E239.1	>	0.1	.	mg/L	@	.	.
Lead (organic)	WS	Pond E	E-6	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond E	E-5	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond E	E-4	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond E	E-2	E239.1	ND	0.05	0.1	mg/L		.	.
Magnesium	WS	Pond E	E-4	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond E	E-3	SW6010	>	160	.	mg/L		.	.
Magnesium	WS	Pond E	E-2	SW6010	>	130	.	mg/L		.	.
Magnesium	WS	Pond E	E-5	SW6010	>	160	.	mg/L		.	.
Magnesium	WS	Pond E	E-1	SW6010	>	170	.	mg/L		.	.
Magnesium	WS	Pond E	E-6	SW6010	>	170	.	mg/L		.	.
Manganese	WS	Pond E	E-4	SW6010	>	0.038	.	mg/L	@	.	.
Manganese	WS	Pond E	E-5	SW6010	>	0.034	.	mg/L	@	.	.
Manganese	WS	Pond E	E-6	SW6010	>	0.037	.	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Manganese	WS	Pond E	E-3	SW6010	>	0.033	.	mg/L	@	.	.
Manganese	WS	Pond E	E-1	SW6010	>	0.039	.	mg/L	@	.	.
Manganese	WS	Pond E	E-2	SW6010	>	0.021	.	mg/L	@	.	.
Mercury	WS	Pond E	E-5	SW7470	>	0.0004	.	mg/L	@	.	.
Mercury	WS	Pond E	E-3	SW7470	>	0.00051	.	mg/L	@	.	.
Mercury	WS	Pond E	E-1	SW7470	>	0.00062	.	mg/L		.	.
Mercury	WS	Pond E	E-4	SW7470	>	0.00051	.	mg/L	@	.	.
Mercury	WS	Pond E	E-6	SW7470	>	0.0004	.	mg/L	@	.	.
Mercury	WS	Pond E	E-2	SW7470	>	0.00051	.	mg/L	@	.	.
Potassium	WS	Pond E	E-2	SW6010	>	8.6	.	mg/L		.	.
Potassium	WS	Pond E	E-1	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond E	E-3	SW6010	>	11	.	mg/L		.	.
Potassium	WS	Pond E	E-6	SW6010	>	12	.	mg/L		.	.
Potassium	WS	Pond E	E-5	SW6010	>	11	.	mg/L		.	.
Potassium	WS	Pond E	E-4	SW6010	>	12	.	mg/L		.	.
Selenium	WS	Pond E	E-5	SW7740	>	0.0024	.	mg/L	@	.	.
Selenium	WS	Pond E	E-1	SW7740	>	0.0055	.	mg/L	@	.	.
Selenium	WS	Pond E	E-6	SW7740	ND	0.001	0.002	mg/L		.	.
Selenium	WS	Pond E	E-4	SW7740	>	0.0035	.	mg/L	@	.	.
Selenium	WS	Pond E	E-3	SW7740	>	0.0042	.	mg/L	@	.	.
Selenium	WS	Pond E	E-2	SW7740	>	0.0025	.	mg/L	@	.	.
Silicon	WS	Pond E	E-5	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond E	E-4	SW6010	>	15	.	mg/L		.	.
Silicon	WS	Pond E	E-3	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond E	E-2	SW6010	>	10	.	mg/L		.	.
Silicon	WS	Pond E	E-6	SW6010	>	15	.	mg/L		.	.
Silicon	WS	Pond E	E-1	SW6010	>	14	.	mg/L		.	.
Sodium	WS	Pond E	E-2	SW6010	>	360	.	mg/L		.	.
Sodium	WS	Pond E	E-4	SW6010	>	500	.	mg/L		.	.
Sodium	WS	Pond E	E-6	SW6010	>	500	.	mg/L		.	.
Sodium	WS	Pond E	E-3	SW6010	>	450	.	mg/L		.	.
Sodium	WS	Pond E	E-5	SW6010	>	470	.	mg/L		.	.
Sodium	WS	Pond E	E-1	SW6010	>	490	.	mg/L		.	.
Total dissolved solids	WS	Pond E	E-01	E160.1	>	4633.3333	10	mg/L		.	.
4,4'-DDD	SL	Pond F	F-02	SW8080	>	1.4	0.053	mg/kg	C	.	.
4,4'-DDD	SL	Pond F	F-01	SW8080	>	11	0.065	mg/kg	C	.	.
4,4'-DDE	SL	Pond F	F-02	SW8080	>	0.87	0.053	mg/kg	X	.	.
4,4'-DDE	SL	Pond F	F-01	SW8080	>	1.9	0.065	mg/kg	C	.	.
4,4'-DDT	SL	Pond F	F-02	SW8080	=	0.11	0.11	mg/kg	X@	.	.
4,4'-DDT	SL	Pond F	F-01	SW8080	>	0.16	0.13	mg/kg	C@	.	.
Acetone	SL	Pond F	F-01	SW8240	>	1.4	0.65	mg/kg	@	.	.
Acetone	SL	Pond F	F-02	SW8240	<	0.41	0.53	mg/kg	J	.	.
alpha-Chlordane	SL	Pond F	F-01	SW8080	>	0.25	0.065	mg/kg	X@	.	.
alpha-Chlordane	SL	Pond F	F-02	SW8080	<	0.053	0.053	mg/kg		.	.
Arsenic	SL	Pond F	F-01	SW7060	>	4	2.3	mg/kg	@	.	.
Arsenic	SL	Pond F	F-02	SW7060	>	2.3	1.7	mg/kg	@	.	.
Barium	SL	Pond F	F-01	SW6010	>	59	5.3	mg/kg		.	.
Barium	SL	Pond F	F-02	SW6010	>	39	4.2	mg/kg		.	.
bis(2-Ethylhexyl)phthalate	SL	Pond F	F-02	SW8270	<	3.6	5.2	mg/kg	JB	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond F	F-01	SW8270	<	5.4	6.4	mg/kg	JB	.	.
Carbon disulfide	SL	Pond F	F-01	SW8240	>	0.037	0.033	mg/kg	@	.	.
Carbon disulfide	SL	Pond F	F-02	SW8240	>	0.038	0.027	mg/kg	@	.	.
Chromium	SL	Pond F	F-01	SW6010	>	33	5.3	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Chromium	SL	Pond F	F-02	SW6010	>	26	4.2	mg/kg		.	.
Copper	SL	Pond F	F-01	SW6010	>	75	11	mg/kg		.	.
Copper	SL	Pond F	F-02	SW6010	>	42	8.3	mg/kg		.	.
delta-BHC	SL	Pond F	F-02	SW8080	>	2.2	0.053	mg/kg	X	.	.
delta-BHC	SL	Pond F	F-01	SW8080	>	5	0.065	mg/kg	X	.	.
Dibenzofuran	SL	Pond F	F-02	SW8270	ND	3.9	5.2	mg/kg		.	.
Dibenzofuran	SL	Pond F	F-01	SW8270	<	0.86	6.4	mg/kg	J	.	.
Ethyl benzene	SL	Pond F	F-02	SW8240	<	0.012	0.027	mg/kg	J	.	.
Ethyl benzene	SL	Pond F	F-01	SW8240	<	0.033	0.033	mg/kg		.	.
Fluorene	SL	Pond F	F-02	SW8270	<	5.2	5.2	mg/kg		.	.
Fluorene	SL	Pond F	F-01	SW8270	<	0.82	6.4	mg/kg	J	.	.
gamma-BHC	SL	Pond F	F-01	SW8080	<	0.065	0.065	mg/kg		.	.
gamma-BHC	SL	Pond F	F-02	SW8080	>	0.076	0.053	mg/kg	C@	.	.
gamma-Chlordane	SL	Pond F	F-02	SW8080	<	0.048	0.053	mg/kg	JX	.	.
gamma-Chlordane	SL	Pond F	F-01	SW8080	<	0.064	0.065	mg/kg	JX	.	.
Heptachlor	SL	Pond F	F-01	SW8080	<	0.05	0.065	mg/kg	JC	.	.
Heptachlor	SL	Pond F	F-02	SW8080	<	0.053	0.053	mg/kg		.	.
Lead	SL	Pond F	F-02	SW7421	>	9.6	1.3	mg/kg		.	.
Lead	SL	Pond F	F-01	SW7421	>	17	1.7	mg/kg		.	.
Mercury	SL	Pond F	F-01	SW7471	>	0.43	0.3	mg/kg	@	.	.
Mercury	SL	Pond F	F-02	SW7471	>	0.28	0.24	mg/kg	@	.	.
Methyl ethyl ketone	SL	Pond F	F-02	SW8240	<	0.053	0.53	mg/kg	J	.	.
Methyl ethyl ketone	SL	Pond F	F-01	SW8240	<	0.22	0.65	mg/kg	J	.	.
Nickel	SL	Pond F	F-02	SW6010	ND	6.225	8.3	mg/kg		.	.
Nickel	SL	Pond F	F-01	SW6010	>	13	11	mg/kg	@	.	.
Phenanthrene	SL	Pond F	F-01	SW8270	<	4.6	6.4	mg/kg	J	.	.
Phenanthrene	SL	Pond F	F-02	SW8270	<	0.55	5.2	mg/kg	J	.	.
Selenium	SL	Pond F	F-01	SW7740	ND	2.1	2.8	mg/kg		.	.
Selenium	SL	Pond F	F-02	SW7740	>	2.5	2.2	mg/kg	@	.	.
Silver	SL	Pond F	F-02	SW6010	>	38	4.2	mg/kg		.	.
Silver	SL	Pond F	F-01	SW6010	>	59	5.3	mg/kg		.	.
Sulfide	SL	Pond F	F-02	SW9030	>	1100	130	mg/kg		.	.
Sulfide	SL	Pond F	F-01	SW9030	>	1800	160	mg/kg		.	.
Toluene	SL	Pond F	F-01	SW8240	<	0.005	0.033	mg/kg	JB	.	.
Toluene	SL	Pond F	F-02	SW8240	<	0.01	0.027	mg/kg	JB	.	.
Vanadium	SL	Pond F	F-01	SW6010	>	36	11	mg/kg	@	.	.
Vanadium	SL	Pond F	F-02	SW6010	>	19	8.3	mg/kg	@	.	.
Xylenes	SL	Pond F	F-02	SW8240	>	0.038	0.027	mg/kg	@	.	.
Xylenes	SL	Pond F	F-01	SW8240	<	0.014	0.033	mg/kg	J	.	.
Zinc	SL	Pond F	F-02	SW6010	>	57	8.3	mg/kg		.	.
Zinc	SL	Pond F	F-01	SW6010	>	98	11	mg/kg		.	.
4,4'-DDD	SO	Pond F	F-01	SW8080	>	0.037	0.0014	mg/kg	C	0	2
4,4'-DDE	SO	Pond F	F-01	SW8080	>	0.015	0.0014	mg/kg	X	0	2
4,4'-DDT	SO	Pond F	F-01	SW8080	>	0.0058	0.0029	mg/kg	X@	0	2
Arsenic	SO	Pond F	F-01	SW7060	>	0.96	0.41	mg/kg	@	0	2
Barium	SO	Pond F	F-01	SW6010	>	28	4.1	mg/kg		0	2
delta-BHC	SO	Pond F	F-01	SW8080	>	0.0027	0.0014	mg/kg	X@	0	2
gamma-Chlordane	SO	Pond F	F-01	SW8080	<	0.00045	0.0014	mg/kg	JC	0	2
Lead	SO	Pond F	F-01	SW7421	>	0.5	0.31	mg/kg	@	0	2
Sulfide	SO	Pond F	F-01	SW9030	>	60	34	mg/kg	@	0	2
Toluene	SO	Pond F	F-01	SW8240	<	0.00094	0.0073	mg/kg	JB	0	2
Total organic carbon	SO	Pond F	F-01		>	1600	1100	mg/kg	@	0	2
4,4'-DDD	WS	Pond F	F-01	SW8080	>	0.000035	9.50E-06	mg/L	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDE	WS	Pond F	F-01	SW8080	>	0.00012	9.50E-06	mg/L	G	.	.
alpha-Chlordane	WS	Pond F	F-01	SW8080	>	0.00003	9.50E-06	mg/L	G@	.	.
gamma-BHC	WS	Pond F	F-01	SW8080	>	0.000012	9.50E-06	mg/L	X@	.	.
gamma-Chlordane	WS	Pond F	F-01	SW8080	>	0.00001	9.50E-06	mg/L	@	.	.
Hardness, as CaC03	WS	Pond F	F-01	E130.2	>	1800	120	mg/L		.	.
Total dissolved solids	WS	Pond F	F-01	E160.1	>	4200	10	mg/L		.	.
4,4'-DDD	SL	Pond G	G-03	SW8080	>	0.3	0.041	mg/kg	C	.	.
4,4'-DDD	SL	Pond G	G-04	SW8080	>	0.98	0.037	mg/kg	C	.	.
4,4'-DDD	SL	Pond G	G-02	SW8080	>	3.1	0.032	mg/kg	C	.	.
4,4'-DDD	SL	Pond G	G-01	SW8080	>	0.4	0.0016	mg/kg	C	.	.
4,4'-DDD	SL	Pond G	G-05	SW8080	>	0.1	0.025	mg/kg	C@	.	.
4,4'-DDD	SL	Pond G	G-06	SW8080	<	0.07	0.07	mg/kg		.	.
4,4'-DDE	SL	Pond G	G-06	SW8080	<	0.07	0.07	mg/kg		.	.
4,4'-DDE	SL	Pond G	G-01	SW8080	>	0.036	0.0016	mg/kg	C	.	.
4,4'-DDE	SL	Pond G	G-03	SW8080	>	0.14	0.041	mg/kg	C@	.	.
4,4'-DDE	SL	Pond G	G-04	SW8080	>	0.29	0.037	mg/kg	X	.	.
4,4'-DDE	SL	Pond G	G-02	SW8080	>	0.45	0.032	mg/kg	X	.	.
4,4'-DDE	SL	Pond G	G-05	SW8080	>	0.083	0.025	mg/kg	C@	.	.
4,4'-DDT	SL	Pond G	G-04	SW8080	<	0.074	0.074	mg/kg		.	.
4,4'-DDT	SL	Pond G	G-05	SW8080	<	0.049	0.049	mg/kg		.	.
4,4'-DDT	SL	Pond G	G-01	SW8080	>	0.027	0.0032	mg/kg	C	.	.
4,4'-DDT	SL	Pond G	G-03	SW8080	<	0.083	0.083	mg/kg		.	.
4,4'-DDT	SL	Pond G	G-02	SW8080	>	0.12	0.064	mg/kg	C@	.	.
4,4'-DDT	SL	Pond G	G-06	SW8080	<	0.14	0.14	mg/kg		.	.
Acetone	SL	Pond G	G-02	SW8240	ND	3.5625	6.4	mg/kg		.	.
Acetone	SL	Pond G	G-01	SW8240	<	0.087	0.16	mg/kg	J	.	.
Acetone	SL	Pond G	G-06	SW8240	ND	10.5	14	mg/kg		.	.
Acetone	SL	Pond G	G-05	SW8240	ND	3.675	4.9	mg/kg		.	.
Acetone	SL	Pond G	G-04	SW8240	ND	5.625	7.5	mg/kg		.	.
Acetone	SL	Pond G	G-03	SW8240	ND	6.225	8.3	mg/kg		.	.
Acetophenone	SL	Pond G	G-01	SW8270	<	1.6	1.6	mg/kg		.	.
Acetophenone	SL	Pond G	G-06	SW8270	<	6.9	6.9	mg/kg		.	.
Acetophenone	SL	Pond G	G-05	SW8270	<	2.4	2.4	mg/kg		.	.
Acetophenone	SL	Pond G	G-04	SW8270	<	3.7	3.7	mg/kg		.	.
Acetophenone	SL	Pond G	G-03	SW8270	<	4.1	4.1	mg/kg		.	.
Acetophenone	SL	Pond G	G-02	SW8270	<	0.85	3.2	mg/kg	J	.	.
alpha-BHC	SL	Pond G	G-04	SW8080	>	0.077	0.037	mg/kg	C@	.	.
alpha-BHC	SL	Pond G	G-03	SW8080	>	0.079	0.041	mg/kg	C@	.	.
alpha-BHC	SL	Pond G	G-02	SW8080	<	0.032	0.032	mg/kg		.	.
alpha-BHC	SL	Pond G	G-05	SW8080	<	0.025	0.025	mg/kg		.	.
alpha-BHC	SL	Pond G	G-06	SW8080	<	0.07	0.07	mg/kg		.	.
alpha-BHC	SL	Pond G	G-01	SW8080	<	0.0016	0.0016	mg/kg		.	.
alpha-Chlordane	SL	Pond G	G-03	SW8080	<	0.041	0.041	mg/kg		.	.
alpha-Chlordane	SL	Pond G	G-01	SW8080	>	0.0096	0.0016	mg/kg	X	.	.
alpha-Chlordane	SL	Pond G	G-06	SW8080	<	0.07	0.07	mg/kg		.	.
alpha-Chlordane	SL	Pond G	G-05	SW8080	<	0.011	0.025	mg/kg	JX	.	.
alpha-Chlordane	SL	Pond G	G-02	SW8080	>	0.11	0.032	mg/kg	X@	.	.
alpha-Chlordane	SL	Pond G	G-04	SW8080	<	0.037	0.037	mg/kg		.	.
Arsenic	SL	Pond G	G-04	SW7060	>	1.8	1.3	mg/kg	@	.	.
Arsenic	SL	Pond G	G-03	SW7060	>	2.3	1.1	mg/kg	@	.	.
Arsenic	SL	Pond G	G-02	SW7060	>	3.3	0.95	mg/kg	@	.	.
Arsenic	SL	Pond G	G-05	SW7060	>	1.3	0.83	mg/kg	@	.	.
Arsenic	SL	Pond G	G-06	SW7060	>	2.4	2.1	mg/kg	@	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Arsenic	SL	Pond G	G-01	SW7060	>	1.4	0.47	mg/kg	@	.	.
Barium	SL	Pond G	G-02	SW6010	>	120	2.4	mg/kg		.	.
Barium	SL	Pond G	G-04	SW6010	>	85	3	mg/kg		.	.
Barium	SL	Pond G	G-01	SW6010	>	81	4.8	mg/kg		.	.
Barium	SL	Pond G	G-05	SW6010	>	65	1.8	mg/kg		.	.
Barium	SL	Pond G	G-03	SW6010	>	92	3	mg/kg		.	.
Barium	SL	Pond G	G-06	SW6010	>	83	6.2	mg/kg		.	.
Beryllium	SL	Pond G	G-01	SW6010	ND	0.7125	0.95	mg/kg		.	.
Beryllium	SL	Pond G	G-04	SW6010	ND	0.4575	0.61	mg/kg		.	.
Beryllium	SL	Pond G	G-05	SW6010	ND	0.27	0.36	mg/kg		.	.
Beryllium	SL	Pond G	G-06	SW6010	ND	0.9	1.2	mg/kg		.	.
Beryllium	SL	Pond G	G-03	SW6010	ND	0.4575	0.61	mg/kg		.	.
Beryllium	SL	Pond G	G-02	SW6010	>	0.68	0.49	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-01	SW8270	<	0.69	1.6	mg/kg	JB	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-06	SW8270	<	3.8	6.9	mg/kg	J	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-05	SW8270	<	1.7	2.4	mg/kg	J	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-04	SW8270	>	3.9	3.7	mg/kg	@	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-03	SW8270	<	0.58	4.1	mg/kg	J	.	.
bis(2-Ethylhexyl)phthalate	SL	Pond G	G-02	SW8270	<	1.3	3.2	mg/kg	J	.	.
Carbon disulfide	SL	Pond G	G-03	SW8240	<	0.41	0.41	mg/kg		.	.
Carbon disulfide	SL	Pond G	G-02	SW8240	<	0.235	0.32	mg/kg		.	.
Carbon disulfide	SL	Pond G	G-01	SW8240	>	0.037	0.0079	mg/kg	@	.	.
Carbon disulfide	SL	Pond G	G-06	SW8240	<	0.7	0.7	mg/kg		.	.
Carbon disulfide	SL	Pond G	G-05	SW8240	<	0.25	0.25	mg/kg		.	.
Carbon disulfide	SL	Pond G	G-04	SW8240	<	0.37	0.37	mg/kg		.	.
Chromium	SL	Pond G	G-06	SW6010	>	16	6.2	mg/kg	@	.	.
Chromium	SL	Pond G	G-01	SW6010	>	9	4.8	mg/kg	@	.	.
Chromium	SL	Pond G	G-05	SW6010	>	10	1.8	mg/kg		.	.
Chromium	SL	Pond G	G-04	SW6010	>	15	3	mg/kg		.	.
Chromium	SL	Pond G	G-03	SW6010	>	15	3	mg/kg		.	.
Chromium	SL	Pond G	G-02	SW6010	>	18	2.4	mg/kg		.	.
Cobalt	SL	Pond G	G-04	SW6010	>	3.6	3	mg/kg	@	.	.
Cobalt	SL	Pond G	G-05	SW6010	>	2.7	1.8	mg/kg	@	.	.
Cobalt	SL	Pond G	G-02	SW6010	>	5.4	2.4	mg/kg	@	.	.
Cobalt	SL	Pond G	G-03	SW6010	>	3.4	3	mg/kg	@	.	.
Cobalt	SL	Pond G	G-01	SW6010	<	4.8	4.8	mg/kg		.	.
Cobalt	SL	Pond G	G-06	SW6010	<	6.2	6.2	mg/kg		.	.
Copper	SL	Pond G	G-06	SW6010	>	23	12	mg/kg	@	.	.
Copper	SL	Pond G	G-05	SW6010	>	19	3.6	mg/kg		.	.
Copper	SL	Pond G	G-04	SW6010	>	21	6.1	mg/kg	@	.	.
Copper	SL	Pond G	G-03	SW6010	>	20	6.1	mg/kg	@	.	.
Copper	SL	Pond G	G-02	SW6010	>	24	4.9	mg/kg	@	.	.
Copper	SL	Pond G	G-01	SW6010	ND	7.125	9.5	mg/kg		.	.
Cyanide	SL	Pond G	G-03	SW9012	<	0.91	0.91	mg/kg		.	.
Cyanide	SL	Pond G	G-02	SW9012	<	0.66	0.66	mg/kg		.	.
Cyanide	SL	Pond G	G-06	SW9012	>	5.6	1.6	mg/kg	@	.	.
Cyanide	SL	Pond G	G-01	SW9012	>	1.1	0.28	mg/kg	@	.	.
Cyanide	SL	Pond G	G-04	SW9012	<	0.81	0.81	mg/kg		.	.
Cyanide	SL	Pond G	G-05	SW9012	<	0.5	0.5	mg/kg		.	.
gamma-Chlordane	SL	Pond G	G-03	SW8080	>	0.06	0.041	mg/kg	X@	.	.
gamma-Chlordane	SL	Pond G	G-02	SW8080	>	0.31	0.032	mg/kg	X	.	.
gamma-Chlordane	SL	Pond G	G-06	SW8080	<	0.07	0.07	mg/kg		.	.
gamma-Chlordane	SL	Pond G	G-05	SW8080	<	0.025	0.025	mg/kg		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
gamma-Chlordane	SL	Pond G	G-04	SW8080	<	0.037	0.037	mg/kg		.	.
gamma-Chlordane	SL	Pond G	G-01	SW8080	>	0.028	0.0016	mg/kg	X	.	.
Kepone (Mirex)	SL	Pond G	G-05	SW8080	ND	0.01875	0.025	mg/kg		.	.
Kepone (Mirex)	SL	Pond G	G-04	SW8080	ND	0.02775	0.037	mg/kg		.	.
Kepone (Mirex)	SL	Pond G	G-03	SW8080	ND	0.03075	0.041	mg/kg		.	.
Kepone (Mirex)	SL	Pond G	G-02	SW8080	ND	0.024	0.032	mg/kg		.	.
Kepone (Mirex)	SL	Pond G	G-06	SW8080	ND	0.0525	0.07	mg/kg		.	.
Kepone (Mirex)	SL	Pond G	G-01	SW8080	>	0.0017	0.0016	mg/kg	X@	.	.
Lead	SL	Pond G	G-04	SW7421	>	38	1.9	mg/kg		.	.
Lead	SL	Pond G	G-05	SW7421	>	15	1.2	mg/kg		.	.
Lead	SL	Pond G	G-02	SW7421	>	280.5	28	mg/kg		.	.
Lead	SL	Pond G	G-03	SW7421	>	23	1.7	mg/kg		.	.
Lead	SL	Pond G	G-01	SW7421	>	5.8	0.36	mg/kg		.	.
Lead	SL	Pond G	G-06	SW7421	>	27	1.6	mg/kg		.	.
Mercury	SL	Pond G	G-01	SW7471	ND	0.05325	0.071	mg/kg		.	.
Mercury	SL	Pond G	G-06	SW7471	ND	0.24	0.32	mg/kg		.	.
Mercury	SL	Pond G	G-02	SW7471	=	0.15	0.15	mg/kg	@	.	.
Mercury	SL	Pond G	G-05	SW7471	ND	0.0825	0.11	mg/kg		.	.
Mercury	SL	Pond G	G-04	SW7471	>	0.18	0.17	mg/kg	@	.	.
Mercury	SL	Pond G	G-03	SW7471	ND	0.1425	0.19	mg/kg		.	.
Nickel	SL	Pond G	G-05	SW6010	>	5.6	3.6	mg/kg	@	.	.
Nickel	SL	Pond G	G-06	SW6010	ND	9	12	mg/kg		.	.
Nickel	SL	Pond G	G-03	SW6010	>	6.9	6.1	mg/kg	@	.	.
Nickel	SL	Pond G	G-02	SW6010	>	12	4.9	mg/kg	@	.	.
Nickel	SL	Pond G	G-04	SW6010	>	10	6.1	mg/kg	@	.	.
Nickel	SL	Pond G	G-01	SW6010	ND	7.125	9.5	mg/kg		.	.
Selenium	SL	Pond G	G-06	SW7740	ND	1.95	2.6	mg/kg		.	.
Selenium	SL	Pond G	G-01	SW7740	ND	0.4425	0.59	mg/kg		.	.
Selenium	SL	Pond G	G-03	SW7740	ND	1.05	1.4	mg/kg		.	.
Selenium	SL	Pond G	G-04	SW7740	ND	1.2	1.6	mg/kg		.	.
Selenium	SL	Pond G	G-02	SW7740	ND	1.0333333	1.2	mg/kg		.	.
Selenium	SL	Pond G	G-05	SW7740	ND	0.75	1	mg/kg		.	.
Sulfide	SL	Pond G	G-04	SW9030	>	2000	91	mg/kg		.	.
Sulfide	SL	Pond G	G-05	SW9030	<	61	61	mg/kg		.	.
Sulfide	SL	Pond G	G-01	SW9030	>	50	39	mg/kg	@	.	.
Sulfide	SL	Pond G	G-03	SW9030	>	540	100	mg/kg		.	.
Sulfide	SL	Pond G	G-02	SW9030	>	780	77	mg/kg		.	.
Sulfide	SL	Pond G	G-06	SW9030	>	1300	170	mg/kg		.	.
Vanadium	SL	Pond G	G-02	SW6010	>	30	4.9	mg/kg		.	.
Vanadium	SL	Pond G	G-01	SW6010	>	15	9.5	mg/kg	@	.	.
Vanadium	SL	Pond G	G-06	SW6010	>	24	12	mg/kg	@	.	.
Vanadium	SL	Pond G	G-05	SW6010	>	15	3.6	mg/kg	@	.	.
Vanadium	SL	Pond G	G-04	SW6010	>	26	6.1	mg/kg	@	.	.
Vanadium	SL	Pond G	G-03	SW6010	>	25	6.1	mg/kg	@	.	.
Zinc	SL	Pond G	G-01	SW6010	>	26	9.5	mg/kg	@	.	.
Zinc	SL	Pond G	G-06	SW6010	>	50	12	mg/kg	@	.	.
Zinc	SL	Pond G	G-05	SW6010	>	30	3.6	mg/kg		.	.
Zinc	SL	Pond G	G-04	SW6010	>	53	6.1	mg/kg		.	.
Zinc	SL	Pond G	G-03	SW6010	>	49	6.1	mg/kg		.	.
Zinc	SL	Pond G	G-02	SW6010	>	66	4.9	mg/kg		.	.
4,4'-DDD	SO	Pond G	G-05	SW8080	<	0.0016	0.0016	mg/kg		0	2
4,4'-DDD	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDD	SO	Pond G	G-03	SW8080	>	0.0048	0.0016	mg/kg	C@	0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	SO	Pond G	G-02	SW8080	>	0.0038	0.0014	mg/kg	C@	0	2
4,4'-DDD	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
4,4'-DDD	SO	Pond G	G-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
4,4'-DDD	SO	Pond G	G-01	SW8080	>	0.0075	0.0015	mg/kg	C	0	2
4,4'-DDD	SO	Pond G	G-04	SW8080	>	0.0069	0.0015	mg/kg	C@	0	2
4,4'-DDE	SO	Pond G	G-06	SW8080	>	0.0025	0.0013	mg/kg	X@	0	2
4,4'-DDE	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
4,4'-DDE	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
4,4'-DDE	SO	Pond G	G-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
4,4'-DDE	SO	Pond G	G-05	SW8080	<	0.0016	0.0016	mg/kg		0	2
4,4'-DDE	SO	Pond G	G-04	SW8080	>	0.0031	0.0015	mg/kg	X@	0	2
4,4'-DDE	SO	Pond G	G-03	SW8080	<	0.0016	0.0016	mg/kg		0	2
4,4'-DDE	SO	Pond G	G-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Acetone	SO	Pond G	G-02	SW8240	ND	0.10875	0.15	mg/kg		2	4
Acetone	SO	Pond G	G-03	SW8240	ND	0.12	0.16	mg/kg		0	2
Acetone	SO	Pond G	G-06	SW8240	ND	0.0975	0.13	mg/kg		0	2
Acetone	SO	Pond G	G-04	SW8240	<	0.047	0.15	mg/kg	J	0	2
Acetone	SO	Pond G	G-05	SW8240	<	0.063	0.14	mg/kg	J	2	4
Acetone	SO	Pond G	G-05	SW8240	ND	0.12	0.16	mg/kg		0	2
Acetone	SO	Pond G	G-01	SW8240	<	0.14	0.15	mg/kg	J	0	2
Acetone	SO	Pond G	G-02	SW8240	<	0.103	0.15	mg/kg	J	0	2
alpha-BHC	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
alpha-BHC	SO	Pond G	G-06	SW8080	>	0.0024	0.0013	mg/kg	C@	0	2
alpha-BHC	SO	Pond G	G-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
alpha-BHC	SO	Pond G	G-02	SW8080	>	0.0033	0.0014	mg/kg	X@	0	2
alpha-BHC	SO	Pond G	G-05	SW8080	<	0.0016	0.0016	mg/kg		0	2
alpha-BHC	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
alpha-BHC	SO	Pond G	G-04	SW8080	>	0.0027	0.0015	mg/kg	X@	0	2
alpha-BHC	SO	Pond G	G-03	SW8080	<	0.0016	0.0016	mg/kg		0	2
Arsenic	SO	Pond G	G-03	SW7060	>	1.6	0.49	mg/kg	@	0	2
Arsenic	SO	Pond G	G-02	SW7060	>	1.85	0.45	mg/kg	@	0	2
Arsenic	SO	Pond G	G-01	SW7060	>	1.7	0.51	mg/kg	@	0	2
Arsenic	SO	Pond G	G-04	SW7060	>	3.1	0.91	mg/kg	@	0	2
Arsenic	SO	Pond G	G-02	SW7060	>	1.85	0.53	mg/kg	@	2	4
Arsenic	SO	Pond G	G-06	SW7060	>	1.3	0.38	mg/kg	@	0	2
Arsenic	SO	Pond G	G-05	SW7060	>	1.5	0.94	mg/kg	@	2	4
Arsenic	SO	Pond G	G-05	SW7060	>	1.6	0.51	mg/kg	@	0	2
Barium	SO	Pond G	G-01	SW6010	>	100	4.5	mg/kg		0	2
Barium	SO	Pond G	G-06	SW6010	>	100	4	mg/kg		0	2
Barium	SO	Pond G	G-05	SW6010	>	180	4.2	mg/kg		2	4
Barium	SO	Pond G	G-05	SW6010	>	120	4.5	mg/kg		0	2
Barium	SO	Pond G	G-04	SW6010	>	180	4.3	mg/kg		0	2
Barium	SO	Pond G	G-03	SW6010	>	140	5.4	mg/kg		0	2
Barium	SO	Pond G	G-02	SW6010	>	130	4.8	mg/kg		2	4
Barium	SO	Pond G	G-02	SW6010	>	130	4.3	mg/kg		0	2
beta-BHC	SO	Pond G	G-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
beta-BHC	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
beta-BHC	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
beta-BHC	SO	Pond G	G-06	SW8080	=	0.0013	0.0013	mg/kg	CB@	0	2
beta-BHC	SO	Pond G	G-01	SW8080	>	0.0019	0.0015	mg/kg	X@	0	2
beta-BHC	SO	Pond G	G-05	SW8080	>	0.011	0.0016	mg/kg	XB	0	2
beta-BHC	SO	Pond G	G-04	SW8080	>	0.0046	0.0015	mg/kg	CB@	0	2
beta-BHC	SO	Pond G	G-03	SW8080	<	0.0016	0.0016	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-02	SW8270	ND	1.125	1.5	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-06	SW8270	<	0.15	1.3	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-01	SW8270	<	0.29	1.5	mg/kg	JB	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-05	SW8270	<	0.31	1.6	mg/kg	J	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-04	SW8270	ND	1.125	1.5	mg/kg		0	2
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-03	SW8270	>	3.6	1.6	mg/kg	@	0	2
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-05	SW8270	ND	1.05	1.4	mg/kg		2	4
bis(2-Ethylhexyl)phthalate	SO	Pond G	G-02	SW8270	>	2.1	1.4	mg/kg	@	0	2
Butylbenzylphthalate	SO	Pond G	G-03	SW8270	<	1.6	1.6	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-02	SW8270	<	0.88	1.5	mg/kg	J	2	4
Butylbenzylphthalate	SO	Pond G	G-02	SW8270	<	1.4	1.4	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-04	SW8270	<	1.5	1.5	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-05	SW8270	<	1.6	1.6	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-01	SW8270	<	1.5	1.5	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-06	SW8270	<	1.3	1.3	mg/kg		0	2
Butylbenzylphthalate	SO	Pond G	G-05	SW8270	<	1.4	1.4	mg/kg		2	4
Carbon disulfide	SO	Pond G	G-02	SW8240	ND	0.00555	0.0077	mg/kg		2	4
Carbon disulfide	SO	Pond G	G-03	SW8240	<	0.0034	0.0079	mg/kg	J	0	2
Carbon disulfide	SO	Pond G	G-06	SW8240	>	0.013	0.0067	mg/kg	@	0	2
Carbon disulfide	SO	Pond G	G-04	SW8240	<	0.002	0.0075	mg/kg	J	0	2
Carbon disulfide	SO	Pond G	G-05	SW8240	ND	0.0054	0.0072	mg/kg		2	4
Carbon disulfide	SO	Pond G	G-05	SW8240	ND	0.006	0.008	mg/kg		0	2
Carbon disulfide	SO	Pond G	G-01	SW8240	ND	0.005625	0.0075	mg/kg		0	2
Carbon disulfide	SO	Pond G	G-02	SW8240	>	0.015	0.0073	mg/kg	@	0	2
Chromium	SO	Pond G	G-03	SW6010	>	11	5.4	mg/kg	@	0	2
Chromium	SO	Pond G	G-02	SW6010	>	9.3	4.3	mg/kg	@	0	2
Chromium	SO	Pond G	G-01	SW6010	>	10	4.5	mg/kg	@	0	2
Chromium	SO	Pond G	G-04	SW6010	>	14	4.3	mg/kg	@	0	2
Chromium	SO	Pond G	G-02	SW6010	>	14	4.8	mg/kg	@	2	4
Chromium	SO	Pond G	G-06	SW6010	>	11	4	mg/kg	@	0	2
Chromium	SO	Pond G	G-05	SW6010	>	16	4.2	mg/kg	@	2	4
Chromium	SO	Pond G	G-05	SW6010	>	8.5	4.5	mg/kg	@	0	2
Cobalt	SO	Pond G	G-01	SW6010	ND	3.375	4.5	mg/kg		0	2
Cobalt	SO	Pond G	G-06	SW6010	ND	3	4	mg/kg		0	2
Cobalt	SO	Pond G	G-05	SW6010	>	4.6	4.2	mg/kg	@	2	4
Cobalt	SO	Pond G	G-05	SW6010	ND	3.375	4.5	mg/kg		0	2
Cobalt	SO	Pond G	G-04	SW6010	>	4.4	4.3	mg/kg	@	0	2
Cobalt	SO	Pond G	G-03	SW6010	ND	4.05	5.4	mg/kg		0	2
Cobalt	SO	Pond G	G-02	SW6010	ND	3.6	4.8	mg/kg		2	4
Cobalt	SO	Pond G	G-02	SW6010	ND	3.225	4.3	mg/kg		0	2
Copper	SO	Pond G	G-03	SW6010	ND	8.25	11	mg/kg		0	2
Copper	SO	Pond G	G-02	SW6010	ND	7.2	9.6	mg/kg		2	4
Copper	SO	Pond G	G-02	SW6010	ND	6.525	8.7	mg/kg		0	2
Copper	SO	Pond G	G-04	SW6010	ND	6.45	8.6	mg/kg		0	2
Copper	SO	Pond G	G-05	SW6010	ND	6.75	9	mg/kg		0	2
Copper	SO	Pond G	G-01	SW6010	ND	6.75	9	mg/kg		0	2
Copper	SO	Pond G	G-05	SW6010	>	9.8	8.3	mg/kg	@	2	4
Copper	SO	Pond G	G-06	SW6010	ND	6	8	mg/kg		0	2
Cyanide	SO	Pond G	G-02	SW9012	<	0.28	0.28	mg/kg		0	2
Cyanide	SO	Pond G	G-05	SW9012	<	0.29	0.29	mg/kg		2	4
Cyanide	SO	Pond G	G-01	SW9012	>	0.59	0.27	mg/kg	@	0	2
Cyanide	SO	Pond G	G-02	SW9012	<	0.33	0.33	mg/kg		2	4
Cyanide	SO	Pond G	G-03	SW9012	<	0.3	0.3	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Cyanide	SO	Pond G	G-06	SW9012	>	0.61	0.29	mg/kg	@	0	2
Cyanide	SO	Pond G	G-04	SW9012	>	0.61	0.36	mg/kg	@	0	2
Cyanide	SO	Pond G	G-05	SW9012	<	0.31	0.31	mg/kg		0	2
Cyclohexenone	SO	Pond G	G-05	SW8270	>	1.2	.	mg/kg		2	4
Di-n-octylphthalate	SO	Pond G	G-03	SW8270	<	1.6	1.6	mg/kg		0	2
Di-n-octylphthalate	SO	Pond G	G-02	SW8270	<	1.4	1.4	mg/kg		0	2
Di-n-octylphthalate	SO	Pond G	G-01	SW8270	<	1.5	1.5	mg/kg		0	2
Di-n-octylphthalate	SO	Pond G	G-04	SW8270	<	1.5	1.5	mg/kg		0	2
Di-n-octylphthalate	SO	Pond G	G-02	SW8270	<	0.23	1.5	mg/kg	J	2	4
Di-n-octylphthalate	SO	Pond G	G-06	SW8270	<	1.3	1.3	mg/kg		0	2
Di-n-octylphthalate	SO	Pond G	G-05	SW8270	<	1.4	1.4	mg/kg		2	4
Di-n-octylphthalate	SO	Pond G	G-05	SW8270	<	1.6	1.6	mg/kg		0	2
Endosulfan sulfate	SO	Pond G	G-01	SW8080	<	0.00019	0.0074	mg/kg	JX	0	2
Endosulfan sulfate	SO	Pond G	G-04	SW8080	<	0.0012	0.0075	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond G	G-06	SW8080	<	0.0009	0.0066	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond G	G-05	SW8080	<	0.00075	0.0072	mg/kg	JX	2	4
Endosulfan sulfate	SO	Pond G	G-05	SW8080	<	0.0012	0.0079	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond G	G-03	SW8080	<	0.0012	0.0078	mg/kg	JC	0	2
Endosulfan sulfate	SO	Pond G	G-02	SW8080	<	0.0021	0.0077	mg/kg	JC	2	4
Endosulfan sulfate	SO	Pond G	G-02	SW8080	<	0.0007	0.0072	mg/kg	JX	0	2
gamma-BHC	SO	Pond G	G-05	SW8080	<	0.0016	0.0016	mg/kg		0	2
gamma-BHC	SO	Pond G	G-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
gamma-BHC	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
gamma-BHC	SO	Pond G	G-04	SW8080	<	0.0015	0.0015	mg/kg		0	2
gamma-BHC	SO	Pond G	G-03	SW8080	>	0.003	0.0016	mg/kg	C@	0	2
gamma-BHC	SO	Pond G	G-02	SW8080	>	0.0031	0.0014	mg/kg	X@	0	2
gamma-BHC	SO	Pond G	G-02	SW8080	>	0.0027	0.0015	mg/kg	X@	2	4
gamma-BHC	SO	Pond G	G-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Heptachlor	SO	Pond G	G-03	SW8080	<	0.0016	0.0016	mg/kg		0	2
Heptachlor	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
Heptachlor	SO	Pond G	G-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Heptachlor	SO	Pond G	G-04	SW8080	>	0.0033	0.0015	mg/kg	X@	0	2
Heptachlor	SO	Pond G	G-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Heptachlor	SO	Pond G	G-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
Heptachlor	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
Heptachlor	SO	Pond G	G-05	SW8080	<	0.0016	0.0016	mg/kg		0	2
Isodrin	SO	Pond G	G-01	SW8080	<	0.0015	0.0015	mg/kg		0	2
Isodrin	SO	Pond G	G-05	SW8080	<	0.0014	0.0014	mg/kg		2	4
Isodrin	SO	Pond G	G-06	SW8080	<	0.0013	0.0013	mg/kg		0	2
Isodrin	SO	Pond G	G-04	SW8080	<	0.0015	0.0015	mg/kg		0	2
Isodrin	SO	Pond G	G-05	SW8080	>	0.0047	0.0016	mg/kg	X@	0	2
Isodrin	SO	Pond G	G-02	SW8080	<	0.0014	0.0014	mg/kg		0	2
Isodrin	SO	Pond G	G-02	SW8080	<	0.0015	0.0015	mg/kg		2	4
Isodrin	SO	Pond G	G-03	SW8080	<	0.0016	0.0016	mg/kg		0	2
Lead	SO	Pond G	G-03	SW7421	>	4.5	0.37	mg/kg		0	2
Lead	SO	Pond G	G-02	SW7421	>	2.8	0.33	mg/kg		0	2
Lead	SO	Pond G	G-01	SW7421	>	3.9	0.38	mg/kg		0	2
Lead	SO	Pond G	G-04	SW7421	>	120	13	mg/kg		0	2
Lead	SO	Pond G	G-02	SW7421	>	5.3	0.4	mg/kg		2	4
Lead	SO	Pond G	G-06	SW7421	>	4.8	0.29	mg/kg		0	2
Lead	SO	Pond G	G-05	SW7421	>	5.7	0.35	mg/kg		2	4
Lead	SO	Pond G	G-05	SW7421	>	3.9	0.38	mg/kg		0	2
Methylene chloride	SO	Pond G	G-01	SW8240	ND	0.005625	0.0075	mg/kg		0	2

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Methylene chloride	SO	Pond G	G-04	SW8240	>	0.015	0.0075	mg/kg	@	0	2
Methylene chloride	SO	Pond G	G-06	SW8240	>	0.031	0.0067	mg/kg	@	0	2
Methylene chloride	SO	Pond G	G-05	SW8240	ND	0.0054	0.0072	mg/kg		2	4
Methylene chloride	SO	Pond G	G-05	SW8240	>	0.02	0.008	mg/kg	@	0	2
Methylene chloride	SO	Pond G	G-03	SW8240	>	0.031	0.0079	mg/kg	@	0	2
Methylene chloride	SO	Pond G	G-02	SW8240	>	0.0355	0.0077	mg/kg	@	2	4
Methylene chloride	SO	Pond G	G-02	SW8240	ND	0.0143167	0.0073	mg/kg		0	2
Nickel	SO	Pond G	G-05	SW6010	>	9.3	8.3	mg/kg	@	2	4
Nickel	SO	Pond G	G-06	SW6010	ND	6	8	mg/kg		0	2
Nickel	SO	Pond G	G-05	SW6010	ND	6.75	9	mg/kg		0	2
Nickel	SO	Pond G	G-03	SW6010	ND	8.25	11	mg/kg		0	2
Nickel	SO	Pond G	G-02	SW6010	ND	7.2	9.6	mg/kg		2	4
Nickel	SO	Pond G	G-02	SW6010	ND	6.525	8.7	mg/kg		0	2
Nickel	SO	Pond G	G-04	SW6010	>	9	8.6	mg/kg	@	0	2
Nickel	SO	Pond G	G-01	SW6010	>	9.7	9	mg/kg	@	0	2
Sulfide	SO	Pond G	G-01	SW9030	>	46	36	mg/kg	@	0	2
Sulfide	SO	Pond G	G-03	SW9030	>	47	37	mg/kg	@	0	2
Sulfide	SO	Pond G	G-02	SW9030	>	48	38	mg/kg	@	2	4
Sulfide	SO	Pond G	G-04	SW9030	>	100	36	mg/kg	@	0	2
Sulfide	SO	Pond G	G-05	SW9030	>	82	39	mg/kg	@	0	2
Sulfide	SO	Pond G	G-06	SW9030	>	92	32	mg/kg	@	0	2
Sulfide	SO	Pond G	G-02	SW9030	<	36	36	mg/kg		0	2
Sulfide	SO	Pond G	G-05	SW9030	>	45	35	mg/kg	@	2	4
Toluene	SO	Pond G	G-02	SW8240	<	0.0074	0.0077	mg/kg		2	4
Toluene	SO	Pond G	G-02	SW8240	<	0.0073	0.0073	mg/kg		0	2
Toluene	SO	Pond G	G-01	SW8240	<	0.0075	0.0075	mg/kg		0	2
Toluene	SO	Pond G	G-03	SW8240	<	0.0044	0.0079	mg/kg	J	0	2
Toluene	SO	Pond G	G-04	SW8240	<	0.0026	0.0075	mg/kg	J	0	2
Toluene	SO	Pond G	G-06	SW8240	<	0.0028	0.0067	mg/kg	J	0	2
Toluene	SO	Pond G	G-05	SW8240	<	0.00058	0.0072	mg/kg	J	2	4
Toluene	SO	Pond G	G-05	SW8240	<	0.0041	0.008	mg/kg	J	0	2
Total organic carbon	SO	Pond G	G-05		>	4700	1100	mg/kg	@	2	4
Total organic carbon	SO	Pond G	G-05		>	4900	1100	mg/kg	@	0	2
Vanadium	SO	Pond G	G-02	SW6010	>	22	9.6	mg/kg	@	2	4
Vanadium	SO	Pond G	G-06	SW6010	>	18	8	mg/kg	@	0	2
Vanadium	SO	Pond G	G-01	SW6010	>	20	9	mg/kg	@	0	2
Vanadium	SO	Pond G	G-05	SW6010	>	16	9	mg/kg	@	0	2
Vanadium	SO	Pond G	G-04	SW6010	>	29	8.6	mg/kg	@	0	2
Vanadium	SO	Pond G	G-03	SW6010	>	23	11	mg/kg	@	0	2
Vanadium	SO	Pond G	G-05	SW6010	>	29	8.3	mg/kg	@	2	4
Vanadium	SO	Pond G	G-02	SW6010	>	17	8.7	mg/kg	@	0	2
Zinc	SO	Pond G	G-06	SW6010	>	24	8	mg/kg	@	0	2
Zinc	SO	Pond G	G-03	SW6010	>	29	11	mg/kg	@	0	2
Zinc	SO	Pond G	G-05	SW6010	>	43	8.3	mg/kg		2	4
Zinc	SO	Pond G	G-04	SW6010	>	44	8.6	mg/kg		0	2
Zinc	SO	Pond G	G-05	SW6010	>	23	9	mg/kg	@	0	2
Zinc	SO	Pond G	G-02	SW6010	>	24	8.7	mg/kg	@	0	2
Zinc	SO	Pond G	G-02	SW6010	>	32	9.6	mg/kg	@	2	4
Zinc	SO	Pond G	G-01	SW6010	>	29	9	mg/kg	@	0	2
4,4'-DDD	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond G	MW-04	SW8080	>	0.000047	9.50E-06	mg/L	@	.	.
4,4'-DDD	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
4,4'-DDD	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
4,4'-DDD	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond G	MW-04	SW8080	>	0.0001	9.50E-06	mg/L	X	.	.
alpha-BHC	WG	Pond G	MW-06	SW8080	>	0.000013	9.50E-06	mg/L	@	.	.
alpha-BHC	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
alpha-BHC	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond G	MW-04	SW8080	>	0.000016	9.50E-06	mg/L	G@	.	.
Dieldrin	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Dieldrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond G	MW-04	SW8080	>	0.000024	9.50E-06	mg/L	@	.	.
Endosulfan I	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan I	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endosulfan sulfate	WG	Pond G	MW-06	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond G	MW-06	SW8080	<	7.30E-06	0.000048	mg/L	JX	.	.
Endosulfan sulfate	WG	Pond G	MW-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond G	MW-04	SW8080	<	0.000038	0.000048	mg/L	J	.	.
Endosulfan sulfate	WG	Pond G	MW-04	SW8080	ND	0.000024	0.000048	mg/L		.	.
Endosulfan sulfate	WG	Pond G	MW-06	SW8080	<	0.000018	0.000048	mg/L	J	.	.
Endrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Endrin	WG	Pond G	MW-06	SW8080	>	0.000018	9.50E-06	mg/L	X@	.	.
Endrin aldehyde	WG	Pond G	MW-06	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond G	MW-04	SW8080	<	2.90E-06	0.000019	mg/L	J	.	.
Endrin aldehyde	WG	Pond G	MW-04	SW8080	>	0.00004	0.000019	mg/L	G@	.	.
Endrin aldehyde	WG	Pond G	MW-06	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond G	MW-04	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
Endrin aldehyde	WG	Pond G	MW-06	SW8080	ND	9.50E-06	0.000019	mg/L		.	.
gamma-BHC	WG	Pond G	MW-04	SW8080	>	0.000059	9.50E-06	mg/L	X	.	.
gamma-BHC	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-BHC	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
gamma-Chlordane	WG	Pond G	MW-04	SW8080	>	0.000016	9.50E-06	mg/L	G@	.	.
gamma-Chlordane	WG	Pond G	MW-04	SW8080	>	0.000072	9.50E-06	mg/L	X	.	.
Heptachlor	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor	WG	Pond G	MW-04	SW8080	<	8.00E-06	9.50E-06	mg/L	J	.	.
Heptachlor	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond G	MW-04	SW8080	>	0.00037	9.50E-06	mg/L	G	.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Heptachlor epoxide	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond G	MW-06	SW8080	<	4.50E-06	9.50E-06	mg/L	J	.	.
Heptachlor epoxide	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Heptachlor epoxide	WG	Pond G	MW-04	SW8080	>	0.000043	9.50E-06	mg/L	@	.	.
Isodrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond G	MW-04	SW8080	>	0.000015	9.50E-06	mg/L	G@	.	.
Isodrin	WG	Pond G	MW-04	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Isodrin	WG	Pond G	MW-06	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
Methoxychlor	WG	Pond G	MW-04	SW8080	<	0.000016	0.000048	mg/L	JX	.	.
alpha-BHC	WS	Pond G	G-01	SW8080	<	7.60E-06	9.50E-06	mg/L	J	.	.
alpha-BHC	WS	Pond G	G-3	SW8080	>	0.0002	.	mg/L	J	.	.
Arsenic	WS	Pond G	G-5	SW7060	ND	0.003	0.006	mg/L		.	.
Arsenic	WS	Pond G	G-1	SW7060	>	0.0072	.	mg/L	@	.	.
Arsenic	WS	Pond G	G-2	SW7060	>	0.0055	.	mg/L	@	.	.
Arsenic	WS	Pond G	G-3	SW7060	>	0.0052	.	mg/L	@	.	.
Arsenic	WS	Pond G	G-4	SW7060	ND	0.0015	0.003	mg/L		.	.
Barium	WS	Pond G	G-3	SW6010	>	0.036	.	mg/L	@	.	.
Barium	WS	Pond G	G-1	SW6010	>	0.033	.	mg/L	@	.	.
Barium	WS	Pond G	G-5	SW6010	>	0.035	.	mg/L	@	.	.
Barium	WS	Pond G	G-2	SW6010	>	0.04	.	mg/L	@	.	.
Barium	WS	Pond G	G-4	SW6010	>	0.036	.	mg/L	@	.	.
beta-BHC	WS	Pond G	G-3	SW8080	>	0.0006	.	mg/L	J	.	.
beta-BHC	WS	Pond G	G-01	SW8080	ND	4.75E-06	9.50E-06	mg/L		.	.
bis(2-Ethylhexyl)phthalate	WS	Pond G	G-5	SW8270	>	0.01	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond G	G-4	SW8270	>	0.005	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond G	G-1	SW8270	>	0.006	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond G	G-3	SW8270	>	0.005	.	mg/L	JB	.	.
bis(2-Ethylhexyl)phthalate	WS	Pond G	G-2	SW8270	>	0.008	.	mg/L	JB	.	.
Boron	WS	Pond G	G-5	SW6010	>	0.27	.	mg/L	@	.	.
Boron	WS	Pond G	G-4	SW6010	>	0.33	.	mg/L	@	.	.
Boron	WS	Pond G	G-3	SW6010	>	0.36	.	mg/L	@	.	.
Boron	WS	Pond G	G-2	SW6010	>	0.36	.	mg/L	@	.	.
Boron	WS	Pond G	G-1	SW6010	>	0.33	.	mg/L	@	.	.
Calcium	WS	Pond G	G-5	SW6010	>	390	.	mg/L		.	.
Calcium	WS	Pond G	G-4	SW6010	>	400	.	mg/L		.	.
Calcium	WS	Pond G	G-3	SW6010	>	390	.	mg/L		.	.
Calcium	WS	Pond G	G-2	SW6010	>	440	.	mg/L		.	.
Calcium	WS	Pond G	G-1	SW6010	>	37	.	mg/L		.	.
Endosulfan II	WS	Pond G	G-01	SW8080	<	9.00E-07	0.000029	mg/L	J	.	.
gamma-BHC	WS	Pond G	G-01	SW8080	>	9.90E-06	9.50E-06	mg/L	@	.	.
Hardness, as CaC03	WS	Pond G	G-01	E130.2	>	2000	120	mg/L		.	.
Lead	WS	Pond G	G-4	SW7421	>	0.0029	.	mg/L	@	.	.
Lead	WS	Pond G	G-5	SW7421	>	0.0026	.	mg/L	@	.	.
Lead	WS	Pond G	G-1	SW7421	>	0.0027	.	mg/L		.	.
Lead	WS	Pond G	G-2	SW7421	>	0.0032	.	mg/L	@	.	.
Lead	WS	Pond G	G-3	SW7421	>	0.003	.	mg/L	@	.	.
Lead (organic)	WS	Pond G	G-2	E239.1	>	0.27	.	mg/L	@	.	.
Lead (organic)	WS	Pond G	G-3	E239.1	ND	0.05	0.1	mg/L		.	.
Lead (organic)	WS	Pond G	G-1	E239.1	>	0.31	.	mg/L	@	.	.
Lead (organic)	WS	Pond G	G-4	E239.1	>	0.14	.	mg/L	@	.	.
Lead (organic)	WS	Pond G	G-5	E239.1	>	0.14	.	mg/L	@	.	.
Magnesium	WS	Pond G	G-1	SW6010	>	200	.	mg/L		.	.
Magnesium	WS	Pond G	G-5	SW6010	>	210	.	mg/L		.	.

analyte	matrix	site_id	loc_id	method	rslt_flag	rslt	rl	units	foot	top_dpth	bot_dpth
Magnesium	WS	Pond G	G-3	SW6010	>	220	.	mg/L		.	.
Magnesium	WS	Pond G	G-4	SW6010	>	220	.	mg/L		.	.
Magnesium	WS	Pond G	G-2	SW6010	>	240	.	mg/L		.	.
Manganese	WS	Pond G	G-3	SW6010	>	0.064	.	mg/L		.	.
Manganese	WS	Pond G	G-2	SW6010	>	0.071	.	mg/L		.	.
Manganese	WS	Pond G	G-4	SW6010	>	0.072	.	mg/L		.	.
Manganese	WS	Pond G	G-1	SW6010	>	0.064	.	mg/L		.	.
Manganese	WS	Pond G	G-5	SW6010	>	0.061	.	mg/L		.	.
Mercury	WS	Pond G	G-3	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Pond G	G-4	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Pond G	G-2	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Pond G	G-1	SW7470	>	0.00022	.	mg/L	@	.	.
Mercury	WS	Pond G	G-5	SW7470	>	0.00022	.	mg/L	@	.	.
Potassium	WS	Pond G	G-1	SW6010	>	14	.	mg/L		.	.
Potassium	WS	Pond G	G-2	SW6010	>	17	.	mg/L		.	.
Potassium	WS	Pond G	G-5	SW6010	>	14	.	mg/L		.	.
Potassium	WS	Pond G	G-4	SW6010	>	15	.	mg/L		.	.
Potassium	WS	Pond G	G-3	SW6010	>	14	.	mg/L		.	.
Silicon	WS	Pond G	G-4	SW6010	>	15	.	mg/L		.	.
Silicon	WS	Pond G	G-3	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond G	G-2	SW6010	>	16	.	mg/L		.	.
Silicon	WS	Pond G	G-5	SW6010	>	15	.	mg/L		.	.
Silicon	WS	Pond G	G-1	SW6010	>	14	.	mg/L		.	.
Sodium	WS	Pond G	G-2	SW6010	>	740	.	mg/L		.	.
Sodium	WS	Pond G	G-1	SW6010	>	620	.	mg/L		.	.
Sodium	WS	Pond G	G-3	SW6010	>	660	.	mg/L		.	.
Sodium	WS	Pond G	G-5	SW6010	>	630	.	mg/L		.	.
Sodium	WS	Pond G	G-4	SW6010	>	660	.	mg/L		.	.
Total dissolved solids	WS	Pond G	G-01	E160.1	>	4600	10	mg/L		.	.
Vanadium	WS	Pond G	G-5	SW6010	>	0.0033	.	mg/L	@	.	.
Vanadium	WS	Pond G	G-4	SW6010	>	0.0047	.	mg/L	@	.	.
Vanadium	WS	Pond G	G-2	SW6010	>	0.0045	.	mg/L	@	.	.
Vanadium	WS	Pond G	G-1	SW6010	ND	0.001	0.002	mg/L		.	.
Vanadium	WS	Pond G	G-3	SW6010	ND	0.0015	0.003	mg/L		.	.
Zinc	WS	Pond G	G-3	SW6010	>	0.0063	.	mg/L	@	.	.
Zinc	WS	Pond G	G-2	SW6010	>	0.0057	.	mg/L	@	.	.
Zinc	WS	Pond G	G-4	SW6010	>	0.014	.	mg/L	@	.	.
Zinc	WS	Pond G	G-5	SW6010	>	0.0072	.	mg/L	@	.	.
Zinc	WS	Pond G	G-1	SW6010	>	0.0062	.	mg/L	@	.	.

Column Headings:

analyte - Contaminant

matrix - Matrix from which sample was collected

site_id - Site from which sample was collected

loc_id - Area where sample was collected at the site

method - Analytical method

rslt_flag - Analytical result flag

rslt - Sample concentration result

rl - Sample reporting limit

units - Sample units

foot - Sample foot note

top_dpth - Top sample depth

bot_dpth - Bottom sample depth

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	foot
4,4'-DDD	Method Blank	L		SW8080	CHGC1_304131301	MB	>	0.00009	0.00001	mg/L	X@
4,4'-DDD	9304-MWS-05-01	WG	Pond D/E/F	SW8080	CHGC1_304131301	N	>	0.000017	9.50E-06	mg/L	X@
4,4'-DDD	9304-MW-04-01	WG	Pond G	SW8080	CHGC1_304131301	N	>	0.000018	9.50E-06	mg/L	@
4,4'-DDT	Method Blank	L		SW8080	CHGC5_304161201	MB	<	0.000095	0.00002	mg/L	JX
4,4'-DDT	9304-MW-15-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.00002	1.9E-05	mg/L	X@
4,4'-DDT	9304-MW-14-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.000024	1.9E-05	mg/L	X@
4,4'-DDT	9304-MW-14-01	WG	Pond D/E/F	SW8080	CHGC5_304161201	N	>	0.000023	1.9E-05	mg/L	X@
4,4'-DDT	9304-MW-13-01	WG	Pond A/B	SW8080	CHGC5_304161201	N	>	0.000021	1.9E-05	mg/L	X@
Antimony	Method Blank	S		SW6010	EMJA61303171001	MB	<	16	10	mg/kg	@
Antimony	9303-SLS-06-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-27	33	mg/kg	@
Antimony	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-15	36	mg/kg	@
Antimony	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.4	0.1	mg/L	@
Antimony	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.45	0.1	mg/L	@
Antimony	Method Blank	L		SW6010	EMJA61303301001	MB	<	0.4	0.1	mg/L	@
Antimony	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303301001	N	<	-0.77	1	mg/L	@
Antimony	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303301001	N	<	0.34	1	mg/L	@
Antimony	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303301001	N	<	-0.6	1	mg/L	@
Antimony	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303301001	N	<	-0.6	1	mg/L	@
Antimony	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303301001	N	<	-0.35	1	mg/L	@
Antimony	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303301001	N	<	-0.4	1	mg/L	@
Antimony	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303301001	N	<	-0.23	1	mg/L	@
Antimony	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303301001	N	<	-0.95	1	mg/L	@
Antimony	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303301001	FD	<	-0.15	1	mg/L	@
Antimony	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303301001	N	<	0.053	1	mg/L	@
Antimony	Method Blank	L		SW6010	EMJA61303301002	MB	<	0.09	0.1	mg/L	@
Antimony	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303301002	N	<	-0.34	1	mg/L	@
Arsenic	Method Blank	L		SW7060	AAZ3__304010901	MB	<	0.0036	0.004	mg/L	
Arsenic	9303-MW-17-03	WQ	Lake H	SW7060	AAZ3__304010901	EB	<	0.0008	0.004	mg/L	
Arsenic	9303-MWD-05-01	WG	Pond A/B	SW7060	AAZ3__304010901	N	<	0.0024	0.016	mg/L	@
Arsenic	9303-MWD-04-01	WG	Pond D/E/F	SW7060	AAZ3__304010901	N	<	-0.011	0.016	mg/L	@
Arsenic	9303-MW-18-01	WG	Lake S	SW7060	AAZ3__304010901	N	<	0.0024	0.016	mg/L	@
Arsenic	9303-MW-17-01	WG	Lake H	SW7060	AAZ3__304010901	N	<	-0.0032	0.016	mg/L	@
Arsenic	9303-MW-15-01	WG	Pond D/E/F	SW7060	AAZ3__304010901	N	<	-0.023	0.016	mg/L	@
Arsenic	9303-MW-14-01	WG	Pond D/E/F	SW7060	AAZ3__304010901	N	<	-0.029	0.016	mg/L	@
Arsenic	9303-MW-13-01	WG	Pond A/B	SW7060	AAZ3__304010901	N	<	-0.033	0.016	mg/L	@
Arsenic	9303-MW-12-02	WG	Pond A/B	SW7060	AAZ3__304010901	FD	<	-0.032	0.016	mg/L	@
Arsenic	9303-MW-12-01	WG	Pond A/B	SW7060	AAZ3__304010901	N	<	-0.011	0.016	mg/L	@
Arsenic	9303-MW-11-01	WG	Pond A/B	SW7060	AAZ3__304010901	N	<	-0.031	0.016	mg/L	@
Arsenic	Method Blank	L		SW7060	AAZ4__303260902	MB	<	0.0092	0.004	mg/L	@
Arsenic	9303-MWS-16-01	WG	Lake H	SW7060	AAZ4__303260902	N	<	-0.019	0.004	mg/L	@
Beryllium	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.00064	0.002	mg/L	
Beryllium	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.00092	0.002	mg/L	
Beryllium	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.00225	0.002	mg/L	@
Beryllium	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.00345	0.002	mg/L	@
Beryllium	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	0.0011	0.002	mg/L	@
Beryllium	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.00035	0.002	mg/L	@
Beryllium	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.0018	0.002	mg/L	@
Beryllium	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.00046	0.002	mg/L	@
Beryllium	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	>	0.0021	0.002	mg/L	@

Appendix B: Samples Eliminated Based on Blank Data

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	fc
Beryllium	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.00023	0.002	mg/L	
Beryllium	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.00016	0.002	mg/L	@
Beryllium	Method Blank	S		SW6010	EMJA61304061701	MB	<	0.135	0.2	mg/kg	@
Beryllium	9303-SEDE-01-01	SE	Pond E	SW6010	EMJA61304061701	N	<	0.082	0.22	mg/kg	@
Cadmium	Method Blank	S		SW6010	EMJA61303171001	MB	<	0.34	0.5	mg/kg	@
Cadmium	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	<	0.25	0.45	mg/kg	@
Cadmium	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.01	0.005	mg/L	@
Cadmium	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.0156	0.005	mg/L	@
Cadmium	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	>	0.0052	0.005	mg/L	@
Cadmium	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	>	0.0098	0.005	mg/L	@
Cadmium	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.004	0.005	mg/L	@
Cadmium	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.0035	0.005	mg/L	@
Cadmium	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	>	0.0054	0.005	mg/L	@
Cadmium	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	>	0.0079	0.005	mg/L	@
Chromium	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.056	0.01	mg/L	@
Chromium	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.022	0.01	mg/L	@
Chromium	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.00165	0.01	mg/L	@
Chromium	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.00385	0.01	mg/L	@
Chromium	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.012	0.01	mg/L	@
Chromium	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.00047	0.01	mg/L	@
Chromium	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.012	0.01	mg/L	@
Chromium	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.013	0.01	mg/L	@
Chromium	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0077	0.01	mg/L	@
Chromium	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.011	0.01	mg/L	@
Chromium	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.013	0.01	mg/L	@
Chromium	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0078	0.01	mg/L	@
Cobalt	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.004	0.01	mg/L	@
Cobalt	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.0046	0.01	mg/L	@
Cobalt	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.00005	0.01	mg/L	
Cobalt	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.0176	0.01	mg/L	@
Cobalt	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.0012	0.01	mg/L	@
Cobalt	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0068	0.01	mg/L	@
Cobalt	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0028	0.01	mg/L	@
Cobalt	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0055	0.01	mg/L	@
Cobalt	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.00006	0.01	mg/L	
Cobalt	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0055	0.01	mg/L	@
Cobalt	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.01	0.01	mg/L	@
Cobalt	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0088	0.01	mg/L	@
Cobalt	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.0069	0.01	mg/L	@
Cobalt	Method Blank	S		SW6010	EMJA61304061701	MB	<	2.75	1	mg/kg	@
Cobalt	9303-SEDE-01-01	SE	Pond E	SW6010	EMJA61304061701	N	>	1.8	1.1	mg/kg	@
Cobalt	9303-SEDA-01-01	SE	Pond A	SW6010	EMJA61304061701	N	>	2	1.1	mg/kg	@
Copper	Method Blank	S		SW6010	EMJA61303181801	MB	<	8.5	2	mg/kg	@
Copper	9303-SLS-06-01	SO	Lake S	SW6010	EMJA61303181801	N	>	7.1	1.7	mg/kg	@
Copper	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303181801	N	>	8.4	1.9	mg/kg	@
Copper	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.0292	0.02	mg/L	@
Copper	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.0012	0.02	mg/L	@
Copper	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.0296	0.02	mg/L	@
Copper	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.038	0.02	mg/L	@

Appendix B: Samples Eliminated Based on Blank Data

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	foot
Copper	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.0067	0.02	mg/L	@
Copper	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0094	0.02	mg/L	@
Copper	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.0037	0.02	mg/L	@
Copper	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.011	0.02	mg/L	@
Copper	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.00076	0.02	mg/L	
Copper	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	<	-0.0013	0.02	mg/L	@
Copper	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303291001	N	<	0.014	0.02	mg/L	@
Copper	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.012	0.02	mg/L	@
Copper	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.01	0.02	mg/L	@
Copper	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.01	0.02	mg/L	@
Copper	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.011	0.02	mg/L	@
Copper	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.011	0.02	mg/L	@
Copper	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.01	0.02	mg/L	@
Cyanide	Method Blank	S		SW9012	WLTRAC30316140	MB	<	0.0108	0.25	mg/kg	@
Cyanide	9303-SLS-06-01	SO	Lake S	SW9012	WLTRAC30316140	N	<	-0.14	0.33	mg/kg	@
Cyanide	9303-SLS-05-01	SO	Lake S	SW9012	WLTRAC30316140	N	<	-0.13	0.39	mg/kg	@
Cyanide	Method Blank	L		SW9012	WLTRAC30324140	MB	<	0.0115	0.01	mg/L	@
Cyanide	9303-MWS-16-01	WG	Lake H	SW9012	WLTRAC30324140	N	<	0.0077	0.01	mg/L	@
Cyanide	9303-MWS-09-01	WG	Lake S	SW9012	WLTRAC30330090	AD	<	0.0017	0.01	mg/L	@
Cyanide	Method Blank	L		SW9012	WLTRAC30330090	MB	<	0.0075	0.01	mg/L	@
Cyanide	9303-MW-17-03	WQ	Lake H	SW9012	WLTRAC30330090	EB	<	0.0055	0.01	mg/L	@
Cyanide	9303-MWS-09-01	WG	Lake S	SW9012	WLTRAC30330090	N	<	0.0016	0.01	mg/L	@
Cyanide	9303-MWD-05-01	WG	Pond A/B	SW9012	WLTRAC30330090	N	<	0.0023	0.01	mg/L	@
Cyanide	9303-MW-18-01	WG	Lake S	SW9012	WLTRAC30330090	N	<	0.0021	0.01	mg/L	@
Cyanide	9303-MW-17-01	WG	Lake H	SW9012	WLTRAC30330090	N	<	0.0048	0.01	mg/L	@
Cyanide	9303-MW-16-01	WG	Lake H	SW9012	WLTRAC30330090	N	<	0.0031	0.01	mg/L	@
Cyanide	9303-MW-15-01	WG	Pond D/E/F	SW9012	WLTRAC30330090	N	<	0.0059	0.01	mg/L	@
Cyanide	9303-MW-14-01	WG	Pond D/E/F	SW9012	WLTRAC30330090	N	<	0.0055	0.01	mg/L	@
Cyanide	9303-MW-13-01	WG	Pond A/B	SW9012	WLTRAC30330090	N	<	0.0011	0.01	mg/L	@
Cyanide	9303-MWS-05-01	WG	Pond D/E/F	SW9012	WLTRAC30401110	AD	<	0.0043	0.01	mg/L	@
Cyanide	Method Blank	L		SW9012	WLTRAC30401110	MB	<	0.01	0.01	mg/L	@
Cyanide	9303-MWS-05-01	WG	Pond D/E/F	SW9012	WLTRAC30401110	N	<	0.0045	0.01	mg/L	@
Cyanide	9303-MWD-04-01	WG	Pond D/E/F	SW9012	WLTRAC30401110	N	<	0.0006	0.01	mg/L	@
Endosulfan su	9303-WE-01-03	WS	Pond E	SW8080	CHGC6_303221201	EB	<	0.000165	4.8E-05	mg/L	J
Endosulfan su	9303-WF-01-01	WS	Pond F	SW8080	CHGC6_303221201	N	<	0.000016	4.8E-05	mg/L	JB
Endosulfan su	9303-WE-01-02	WS	Pond E	SW8080	CHGC6_303221201	FD	<	0.000015	4.8E-05	mg/L	JB
Endrin	Method Blank	L		SW8080	CHGC1_303251201	MB	<	1.00E-05	0.00001	mg/L	JX
Endrin	9303-MWS-16-01	WG	Lake H	SW8080	CHGC1_303251201	N	<	2.10E-06	9.70E-06	mg/L	JX
Endrin	9303-MW-18-01	WG	Lake S	SW8080	CHGC1_303251201	N	<	8.30E-06	9.50E-06	mg/L	JX
Endrin	9303-MW-17-01	WG	Lake H	SW8080	CHGC1_303251201	N	<	4.30E-06	9.50E-06	mg/L	J
Endrin	9303-MW-15-01	WG	Pond D/E/F	SW8080	CHGC1_303251201	N	<	2.40E-06	9.70E-06	mg/L	JX
Endrin	9303-MW-13-01	WG	Pond A/B	SW8080	CHGC1_303251201	N	<	5.00E-06	9.50E-06	mg/L	JX
Endrin	9303-MW-12-02	WG	Pond A/B	SW8080	CHGC1_303251201	FD	<	1.90E-06	9.60E-06	mg/L	JX
Endrin	Method Blank	L		SW8080	CHGC1_304131301	MB	<	2.65E-05	0.00001	mg/L	J
Endrin	9304-MWS-04-01	WG	Pond D/E/F	SW8080	CHGC1_304131301	N	<	5.20E-06	9.50E-06	mg/L	JB
Endrin	9304-MW-04-01	WG	Pond G	SW8080	CHGC1_304131301	N	<	9.30E-06	9.50E-06	mg/L	JB
Endrin	Method Blank	S		SW8080	CHGC5_303171201	MB	<	0.00065	0.00033	mg/kg	JX
Endrin	9303-SLS-06-01	SO	Lake S	SW8080	CHGC5_303171201	N	>	0.00053	0.00048	mg/kg	X@
Endrin	Method Blank	L		SW8080	CHGC5_304161201	MB	>	0.000085	0.00001	mg/L	@

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	fc
Endrin	9304-MW-15-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.000013	9.50E-06	mg/L	XB@
Endrin	9304-MW-15-01	WG	Pond D/E/F	SW8080	CHGC5_304161201	N	>	0.000024	9.50E-06	mg/L	B@
Endrin	9304-MW-14-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.000013	9.50E-06	mg/L	XB@
Endrin	9304-MW-14-01	WG	Pond D/E/F	SW8080	CHGC5_304161201	N	>	0.000013	9.50E-06	mg/L	XB@
Endrin	9304-MW-13-01	WG	Pond A/B	SW8080	CHGC5_304161201	N	>	0.000013	9.50E-06	mg/L	B@
Endrin	Method Blank	L		SW8080	CHGC6_303221201	MB	>	0.000055	0.00001	mg/L	X@
Endrin	9303-WE-01-03	WS	Pond E	SW8080	CHGC6_303221201	EB	<	0.000045	9.60E-06	mg/L	JX
Endrin	9303-WF-01-01	WS	Pond F	SW8080	CHGC6_303221201	N	>	0.00002	9.50E-06	mg/L	X@
Endrin	9303-WE-01-02	WS	Pond E	SW8080	CHGC6_303221201	FD	>	0.000011	9.50E-06	mg/L	X@
Endrin	9303-WE-01-01	WS	Pond E	SW8080	CHGC6_303221201	N	>	0.00001	9.50E-06	mg/L	X@
Endrin	9303-WD-01-01	WS	Pond D	SW8080	CHGC6_303221201	N	>	9.70E-06	9.50E-06	mg/L	X@
Endrin	9303-WB-01-01	WS	Pond B	SW8080	CHGC6_303221201	N	<	9.30E-06	9.50E-06	mg/L	JX
Endrin	9303-WA-01-01	WS	Pond A	SW8080	CHGC6_303221201	N	=	9.50E-06	9.50E-06	mg/L	X@
Heptachlor	9303-MW-17-03	WQ	Lake H	SW8080	CHGC1_3032512	EB	>	0.0009	9.60E-06	mg/L	X
Heptachlor	9303-MWD-05-01	WG	Pond A/B	SW8080	CHGC1_3032512	N	<	4.60E-06	9.50E-06	mg/L	JX
Heptachlor	9303-MW-17-01	WG	Lake H	SW8080	CHGC1_303251201	N	>	0.000026	9.50E-06	mg/L	G@
Heptachlor	Method Blank	L		SW8080	CHGC6_303291202	MB	<	0.000041	0.00001	mg/L	JX
Heptachlor	9303-MWS-04-01	WG	Pond D/E/F	SW8080	CHGC6_303291202	N	<	5.90E-06	9.80E-06	mg/L	JX
Heptachlor	9303-MW-08-01	WG	Pond A/B	SW8080	CHGC6_303291202	N	<	4.20E-06	9.60E-06	mg/L	JX
Heptachlor	9303-MW-05-02	WG	Pond A/B	SW8080	CHGC6_303291202	FD	>	0.000037	9.80E-06	mg/L	X@
Heptachlor	9303-MW-05-01	WG	Pond A/B	SW8080	CHGC6_303291202	N	>	0.000025	9.80E-06	mg/L	X@
Heptachlor ep	Method Blank	L		SW8080	CHGC1_303251201	MB	>	0.000085	0.00001	mg/L	X@
Heptachlor ep	9303-MWS-16-01	WG	Lake H	SW8080	CHGC1_303251201	N	<	5.70E-06	9.70E-06	mg/L	JX
Heptachlor ep	9303-MW-18-01	WG	Lake S	SW8080	CHGC1_303251201	N	>	0.000015	9.50E-06	mg/L	X
Heptachlor ep	9303-MW-17-01	WG	Lake H	SW8080	CHGC1_303251201	N	>	0.000023	9.50E-06	mg/L	X@
Heptachlor ep	9303-MW-16-01	WG	Lake H	SW8080	CHGC1_303251201	N	>	0.000022	9.50E-06	mg/L	X@
Heptachlor ep	9303-MW-13-01	WG	Pond A/B	SW8080	CHGC1_303251201	N	<	6.40E-06	9.50E-06	mg/L	JX
Heptachlor ep	9303-MW-12-02	WG	Pond A/B	SW8080	CHGC1_303251201	FD	<	5.00E-06	9.60E-06	mg/L	JX
Heptachlor ep	9303-MW-11-01	WG	Pond A/B	SW8080	CHGC1_303251201	N	<	5.10E-06	9.80E-06	mg/L	JX
Heptachlor ep	Method Blank	L		SW8080	CHGC6_303291202	MB	<	0.000048	0.00001	mg/L	JX
Heptachlor ep	9303-MWS-04-01	WG	Pond D/E/F	SW8080	CHGC6_303291202	N	>	0.000022	9.80E-06	mg/L	X@
Heptachlor ep	9303-MW-07-01	WG	Pond A/B	SW8080	CHGC6_303291202	N	>	0.000036	9.80E-06	mg/L	@
Heptachlor ep	9303-MW-06-01	WG	Pond G	SW8080	CHGC6_303291202	N	>	0.000018	9.50E-06	mg/L	X@
Heptachlor ep	9303-MW-05-01	WG	Pond A/B	SW8080	CHGC6_303291202	N	>	0.000033	9.80E-06	mg/L	@
Heptachlor ep	9303-MW-03-01	WG	Pond D/E/F	SW8080	CHGC6_303291202	N	>	0.000016	9.50E-06	mg/L	@
Heptachlor ep	9303-MW-02-01	WG	Pond C	SW8080	CHGC6_303291202	N	<	8.50E-06	9.60E-06	mg/L	J
Heptachlor ep	Method Blank	L		SW8080	CHGC6_304081201	MB	<	4.35E-05	0.00001	mg/L	JX
Heptachlor ep	9303-MWS-05-01	WG	Pond D/E/F	SW8080	CHGC6_304081201	N	<	8.10E-06	9.50E-06	mg/L	J
Heptachlor ep	9303-MWD-04-01	WG	Pond D/E/F	SW8080	CHGC6_304081201	N	<	8.10E-06	9.50E-06	mg/L	JX
Lead	Method Blank	L		SW7421	AAZ1__304071401	MB	<	0.004	0.003	mg/L	@
Lead	9303-MWS-05-01	WG	Pond D/E/F	SW7421	AAZ1__304071401	N	<	-0.02	0.012	mg/L	@
Lead	9303-MWD-04-01	WG	Pond D/E/F	SW7421	AAZ1__304071401	N	<	-0.012	0.012	mg/L	@
Lead	Method Blank	L		SW7421	AAZ2__303231401	MB	<	0.0024	0.003	mg/L	@
Lead	9303-MWS-16-01	WG	Lake H	SW7421	AAZ2__303231401	N	<	-0.012	0.012	mg/L	@
Lead	C-03-03	SO	Pond C	SW7421	Z1___022017-001			2.6	0.27	mg/kg	
Lead	C-03-02	SO	Pond C	SW7421	Z1___022017-001			1.7	0.31	mg/kg	
Lead	C-02-02	SO	Pond C	SW7421	Z1___022017-001			1.6	0.38	mg/kg	@
Lead	C-01-02	SO	Pond C	SW7421	Z1___022017-001			2.2	0.29	mg/kg	Z
Lead	BH-02-10	SO	Pond D/E/F	SW7421	Z1___022017-001			1.1	0.31	mg/kg	@

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	foot
Mercury	Method Blank	S		SW7471	AAZ3__304062001	MB	<	0.06	0.045	mg/kg	@
Mercury	9303-SEDE-01-01	SE	Pond E	SW7471	AAZ3__304062001	N	<	0.0076	0.068	mg/kg	@
Mercury	9303-DT-06-01	SO	Ditch - FP	SW7471	AAZ3__304062001	N	<	0.029	0.075	mg/kg	@
Mercury	Method Blank	S		SW7471	AAZ4__303081601	MB	<	0.072	0.045	mg/kg	@
Mercury	9303-SLS-06-01	SO	Lake S	SW7471	AAZ4__303081601	N	<	-0.031	0.062	mg/kg	@
Mercury	9303-SLS-05-01	SO	Lake S	SW7471	AAZ4__303081601	N	<	-0.029	0.074	mg/kg	@
Mercury	Method Blank	L		SW7470	AAZ4__303261901	MB	<	0.00016	0.00018	mg/L	
Mercury	9303-MWS-05-01	WG	Pond D/E/F	SW7470	AAZ4__303261901	N	<	-0.00005	0.00018	mg/L	
Mercury	9303-MWD-04-01	WG	Pond D/E/F	SW7470	AAZ4__303261901	N	<	-0.00005	0.00018	mg/L	
Nickel	Method Blank	S		SW6010	EMJA61303171001	MB	<	6.5	2	mg/kg	@
Nickel	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	>	5.2	1.8	mg/kg	@
Nickel	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.06	0.02	mg/L	@
Nickel	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.0072	0.02	mg/L	@
Nickel	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.1	0.02	mg/L	@
Nickel	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.084	0.02	mg/L	@
Nickel	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.0058	0.02	mg/L	@
Nickel	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.046	0.02	mg/L	@
Nickel	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.002	0.02	mg/L	@
Nickel	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.031	0.02	mg/L	@
Nickel	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303291001	N	<	0.00066	0.02	mg/L	@
Nickel	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	<	-0.012	0.02	mg/L	@
Nickel	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303291001	N	<	0.012	0.02	mg/L	@
Nickel	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.033	0.02	mg/L	@
Nickel	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.024	0.02	mg/L	@
Nickel	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.048	0.02	mg/L	@
Nickel	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.015	0.02	mg/L	@
Nickel	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.013	0.02	mg/L	@
Nickel	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.0026	0.02	mg/L	@
Selenium	Method Blank	S		SW7740	AAZ4__303180801	MB	<	0.52	0.5	mg/kg	@
Selenium	9303-SLS-05-01	SO	Lake S	SW7740	AAZ4__303180801	N	<	0.046	0.47	mg/kg	@
Selenium	Method Blank	L		SW7740	AAZ4__303290801	MB	<	0.003	0.005	mg/L	@
Selenium	9303-MWS-16-01	WG	Lake H	SW7740	AAZ4__303290801	N	<	-0.015	0.005	mg/L	@
Selenium	Method Blank	L		SW7740	AAZ4__304060701	MB	<	0.0072	0.005	mg/L	@
Selenium	9303-MW-17-03	WQ	Lake H	SW7740	AAZ4__304060701	EB	<	0.0104	0.01	mg/L	@
Selenium	9303-MWS-05-01	WG	Pond D/E/F	SW7740	AAZ4__304060701	N	<	-0.015	0.01	mg/L	@
Selenium	9303-MWD-04-01	WG	Pond D/E/F	SW7740	AAZ4__304060701	N	<	-0.0032	0.01	mg/L	@
Selenium	9303-MW-18-01	WG	Lake S	SW7740	AAZ4__304060701	N	<	-0.013	0.01	mg/L	@
Selenium	9303-MW-16-01	WG	Lake H	SW7740	AAZ4__304060701	N	<	-0.014	0.01	mg/L	@
Selenium	9303-MW-15-01	WG	Pond D/E/F	SW7740	AAZ4__304060701	N	<	0.0046	0.01	mg/L	@
Selenium	9303-MW-14-01	WG	Pond D/E/F	SW7740	AAZ4__304060701	N	<	0.0062	0.01	mg/L	@
Selenium	9303-MW-13-01	WG	Pond A/B	SW7740	AAZ4__304060701	N	<	-0.0092	0.01	mg/L	@
Selenium	9303-MW-12-02	WG	Pond A/B	SW7740	AAZ4__304060701	FD	<	-0.0082	0.01	mg/L	@
Selenium	9303-MW-11-01	WG	Pond A/B	SW7740	AAZ4__304060701	N	<	-0.019	0.01	mg/L	@
Silver	Method Blank	S		SW6010	EMJA61303171001	MB	<	0.96	1	mg/kg	@
Silver	9303-SLS-06-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-0.39	0.83	mg/kg	@
Silver	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-0.34	0.9	mg/kg	@
Silver	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.0268	0.01	mg/L	@
Silver	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.015	0.01	mg/L	@
Silver	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.019	0.01	mg/L	@

Appendix B: Samples Eliminated Based on Blank Data

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	fc
Silver	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.0044	0.01	mg/L	@
Silver	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.005	0.01	mg/L	@
Silver	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0074	0.01	mg/L	@
Silver	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0062	0.01	mg/L	@
Silver	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0068	0.01	mg/L	@
Silver	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.0017	0.01	mg/L	@
Silver	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	<	-0.0062	0.01	mg/L	@
Silver	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303291001	N	<	-0.0062	0.01	mg/L	@
Silver	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.011	0.01	mg/L	@
Silver	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0082	0.01	mg/L	@
Silver	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0082	0.01	mg/L	@
Silver	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.0088	0.01	mg/L	@
Silver	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0032	0.01	mg/L	@
Silver	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.007	0.01	mg/L	@
Sulfide	Method Blank	L		SW9030	WLH2S_303190801	MB	<	0.145	1	mg/L	@
Sulfide	9303-MWS-16-01	WG	Lake H	SW9030	WLH2S_303190801	N	<	-0.0096	1	mg/L	@
Sulfide	9303-MW-18-01	WG	Lake S	SW9030	WLH2S_303190801	N	<	-0.048	1	mg/L	@
Sulfide	9303-MW-15-01	WG	Pond D/E/F	SW9030	WLH2S_303190801	N	<	-0.0096	1	mg/L	@
Sulfide	9303-MW-13-01	WG	Pond A/B	SW9030	WLH2S_303190801	N	<	0.067	1	mg/L	@
Sulfide	9303-MW-12-02	WG	Pond A/B	SW9030	WLH2S_303190801	FD	<	-0.0096	1	mg/L	@
Sulfide	9303-MW-11-01	WG	Pond A/B	SW9030	WLH2S_303190801	N	<	-0.0096	1	mg/L	@
Sulfide	9303-SLS-06-01 A	SO	Lake S	SW9030	WLH2S_303191201	AD	<	14	36	mg/kg	@
Sulfide	Method Blank	S		SW9030	WLH2S_303191201	MB	<	96	25	mg/kg	@
Sulfide	9303-SLS-06-01	SO	Lake S	SW9030	WLH2S_303191201	N	<	-35	36	mg/kg	@
Sulfide	Method Blank	L		SW9030	WLH2S_303240801	MB	<	0.072	1	mg/L	@
Sulfide	9303-MW-17-03	WQ	Lake H	SW9030	WLH2S_303240801	EB	<	0.95	1	mg/L	@
Sulfide	9303-MW-17-01	WG	Lake H	SW9030	WLH2S_303240801	N	<	-0.22	1	mg/L	@
Sulfide	9303-MW-14-01	WG	Pond D/E/F	SW9030	WLH2S_303240801	N	<	-0.037	1	mg/L	@
Sulfide	9303-MW-12-01	WG	Pond A/B	SW9030	WLH2S_303240801	N	<	-0.059	1	mg/L	@
Sulfide	9303-MWS-09-01	WG	Lake S	SW9030	WLH2S_303240801	N	<	0.1	1	mg/L	@
Thallium	Method Blank	S		SW7841	AAZ1__303181601	MB	<	0.16	0.5	mg/kg	@
Thallium	9303-SLS-06-01	SO	Lake S	SW7841	AAZ1__303181601	N	<	0.0094	0.47	mg/kg	@
Thallium	9303-SLS-05-01	SO	Lake S	SW7841	AAZ1__303181601	N	<	0.018	0.47	mg/kg	@
Thallium	Method Blank	L		SW7841	AAZ1__303261501	MB	<	0.0024	0.005	mg/L	
Thallium	9303-MWS-16-01	WG	Lake H	SW7841	AAZ1__303261501	N	<	-0.0048	0.02	mg/L	@
Thallium	9303-MW-17-03	WQ	Lake H	SW7841	AAZ1__303291601	EB	<	0.0024	0.005	mg/L	
Thallium	9303-MWD-05-01	WG	Pond A/B	SW7841	AAZ1__303291601	N	<	-0.0013	0.005	mg/L	@
Thallium	9303-MW-17-01	WG	Lake H	SW7841	AAZ1__303291601	N	<	0.0014	0.01	mg/L	@
Thallium	Method Blank	L		SW7841	AAZ1__304011003	MB	<	0.0032	0.005	mg/L	
Thallium	9303-MW-15-01	WG	Pond D/E/F	SW7841	AAZ1__304011003	N	<	-0.006	0.02	mg/L	@
Thallium	Method Blank	S		SW7841	AAZ2__304211401	MB	<	0.08	0.5	mg/kg	@
Thallium	9303-SEDE-01-01	SE	Pond E	SW7841	AAZ2__304211401	N	<	0.061	0.76	mg/kg	@
Thallium	9303-SEDA-01-01	SE	Pond A	SW7841	AAZ2__304211401	N	<	0.065	0.65	mg/kg	@
Thallium	Method Blank	S		SW6010	EMJA61303171001	MB	<	35.6	10	mg/kg	@
Thallium	9303-SLS-06-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-6.4	8.3	mg/kg	@
Thallium	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	<	1.4	9	mg/kg	@
Thallium	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.112	0.1	mg/L	@
Thallium	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.063	0.1	mg/L	@
Thallium	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.136	0.1	mg/L	@

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	foot
Thallium	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	>	0.55	0.1	mg/L	@
Thallium	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303291001	N	<	0.048	0.1	mg/L	@
Thallium	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	>	0.2	0.1	mg/L	@
Thallium	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	>	0.21	0.1	mg/L	@
Thallium	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	>	0.3	0.1	mg/L	@
Thallium	Method Blank	S		SW6010	EMJA61304061701	MB	<	7	10	mg/kg	@
Thallium	9303-SEDE-01-01	SE	Pond E	SW6010	EMJA61304061701	N	<	1.3	11	mg/kg	@
Thallium	9303-SEDA-01-01	SE	Pond A	SW6010	EMJA61304061701	N	<	0.61	11	mg/kg	@
Thallium	9303-DT-06-01	SO	Ditch - FP	SW6010	EMJA61304061701	N	<	0.11	12	mg/kg	@
Tin	Method Blank	S		SW6010	EMJA61303171001	MB	<	1.15	60	mg/kg	@
Tin	9303-SLS-06-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-6.1	50	mg/kg	@
Tin	9303-SLS-05-01	SO	Lake S	SW6010	EMJA61303171001	N	<	-0.73	54	mg/kg	@
Tin	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.09	0.6	mg/L	@
Tin	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	-0.15	0.6	mg/L	@
Tin	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.12	0.6	mg/L	@
Tin	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.19	0.6	mg/L	@
Tin	9303-MWS-09-01	WG	Lake S	SW6010	EMJA61303291001	N	<	0.0052	0.6	mg/L	@
Tin	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.04	0.6	mg/L	@
Tin	9303-MWD-05-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.049	0.6	mg/L	@
Tin	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.018	0.6	mg/L	@
Tin	9303-MW-18-01	WG	Lake S	SW6010	EMJA61303291001	N	<	-0.03	0.6	mg/L	@
Tin	9303-MW-17-01	WG	Lake H	SW6010	EMJA61303291001	N	<	-0.018	0.6	mg/L	@
Tin	9303-MW-16-01	WG	Lake H	SW6010	EMJA61303291001	N	<	0.055	0.6	mg/L	@
Tin	9303-MW-15-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.073	0.6	mg/L	@
Tin	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.028	0.6	mg/L	@
Tin	9303-MW-13-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.038	0.6	mg/L	@
Tin	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	-0.05	0.6	mg/L	@
Tin	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.035	0.6	mg/L	@
Tin	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.021	0.6	mg/L	@
Vanadium	Method Blank	L		SW6010	EMJA61303231602	MB	<	0.048	0.02	mg/L	@
Vanadium	9303-MWS-16-01	WG	Lake H	SW6010	EMJA61303231602	N	<	0.011	0.02	mg/L	@
Vanadium	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.00284	0.02	mg/L	
Vanadium	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.01	0.02	mg/L	@
Vanadium	9303-MWD-04-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	-0.0015	0.02	mg/L	@
Vanadium	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.0019	0.02	mg/L	@
Zinc	Method Blank	L		SW6010	EMJA61303291001	MB	<	0.0064	0.02	mg/L	@
Zinc	9303-MW-17-03	WQ	Lake H	SW6010	EMJA61303291001	EB	<	0.0068	0.02	mg/L	@
Zinc	9303-MWS-05-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.0007	0.02	mg/L	@
Zinc	9303-MW-14-01	WG	Pond D/E/F	SW6010	EMJA61303291001	N	<	0.0054	0.02	mg/L	@
Zinc	9303-MW-12-02	WG	Pond A/B	SW6010	EMJA61303291001	FD	<	0.0021	0.02	mg/L	@
Zinc	9303-MW-12-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	-0.0049	0.02	mg/L	@
Zinc	9303-MW-11-01	WG	Pond A/B	SW6010	EMJA61303291001	N	<	0.0037	0.02	mg/L	@
alpha-BHC	9303-WE-01-03	WS	Pond E	SW8080	CHGC6_303221201	EB	>	0.00044	9.60E-06	mg/L	X
alpha-BHC	9303-WE-01-02	WS	Pond E	SW8080	CHGC6_303221201	FD	>	0.00001	9.50E-06	mg/L	@
alpha-Chlorda	Method Blank	L		SW8080	CHGC5_304141201	MB	<	2.25E-05	0.00001	mg/L	JX
alpha-Chlorda	9304-MW-08-01	WG	Pond A/B	SW8080	CHGC5_304141201	N	<	2.80E-06	9.50E-06	mg/L	JX
alpha-Chlorda	9304-MW-03-01	WG	Pond D/E/F	SW8080	CHGC5_304141201	N	<	1.10E-06	9.50E-06	mg/L	JX
beta-BHC	Method Blank	L		SW8080	CHGC5_304161201	MB	>	0.000055	0.00001	mg/L	X@
beta-BHC	9304-MW-15-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.000019	9.50E-06	mg/L	X@

Appendix B: Samples Eliminated Based on Blank Data

analyte	samp_id	matrix	site_id	method	batch_id	sample_type	rslt_flag	rslt	rl	units	fo
beta-BHC	9304-MW-15-01	WG	Pond D/E/F	SW8080	CHGC5_304161201	N	>	0.000018	9.50E-06	mg/L	X@
beta-BHC	9304-MW-14-02	WG	Pond D/E/F	SW8080	CHGC5_304161201	FD	>	0.00002	9.50E-06	mg/L	X@
beta-BHC	9304-MW-14-01	WG	Pond D/E/F	SW8080	CHGC5_304161201	N	>	0.00002	9.50E-06	mg/L	X@
beta-BHC	9304-MW-13-01	WG	Pond A/B	SW8080	CHGC5_304161201	N	>	0.00003	9.50E-06	mg/L	X@
delta-BHC	9303-MW-17-01	WG	Lake H	SW8080	CHGC1_303251201	N	>	0.000021	9.50E-06	mg/L	@
delta-BHC	9303-WE-01-03	WS	Pond E	SW8080	CHGC6_303221201	EB	>	0.00009	9.60E-06	mg/L	X@
delta-BHC	9303-WF-01-01	WS	Pond F	SW8080	CHGC6_303221201	N	>	0.000029	9.50E-06	mg/L	X@

Column Headings:

analyte - Contaminant

samp_id - Identification No. associated with that sample

site_id - Site from which sample was collected

matrix - Matrix from which sample was collected

method - Analytical method

batch_id - Identification No. associated with analytical batch of samples

samp_type - sample type

rslt_flag - Analytical result flag

rslt - Sample concentration result

rl - Sample reporting limit

units - Sample units

foot - Sample foot note

top_dpth - Top sample depth

bot_dpth - Bottom sample depth

APPENDIX C

STATISTICAL ANALYSES FOR RISK ASSESSMENT – HOLLOMAN AFB

1.0 INTRODUCTION

Metallic elements were detected in samples collected to represent the soils of the ditch and groundwater downgradient of the lakes and lagoon system at Holloman AFB. Because these elements occur naturally, statistical comparisons of the measurements from potentially contaminated areas and background were used to determine if metallic elements should be included in an assessment of the risk at these sites. These statistical comparisons are one of the criteria used to determine chemicals of potential concern for this assessment. Criteria used prior to the statistical analyses are discussed in Section 2.2 of the main body of this report and Appendix A. This appendix presents the results of statistical comparisons of soil and groundwater samples collected throughout the last several years of investigations at Holloman AFB.

1.1 Project Background

A risk assessment of the lakes and lagoons at Holloman AFB was performed as part of the RCRA Facility Investigation of these areas. Because no single field effort has characterized both soil and groundwater, data collected from 1988 to the present were compiled to characterize these potential source areas.

1.2 Objective

The objective of the analyses summarized in this appendix was to determine if concentrations of metals measured in samples from surface soil and groundwater in the ditch and lakes and lagoons areas, respectively, were greater than naturally-occurring background concentrations.

1.3 Scope of Study

The following activities were scoped and implemented to meet the objective of this study:

- Site data were compiled from the reports listed in Section 1.2.3 - Data Sources, in the main body of this risk assessment report to characterize metals concentrations in potentially contaminated areas. Quality control and data comparability issues for compiling data over this time period are addressed and summarized in Appendix A.

- Background data, as presented in the Background Report published in the *Phase 1 Groundwater Assessment Monitoring Report* (Radian, 1993) were used to characterize naturally-occurring concentrations.

- Statistical analyses were conducted to determine if concentrations in potentially contaminated areas exceed background concentrations.

Additional detail of the scope and technical approach to be used for activities related to a statistical characterization of source areas and background is provided in Section 3, Technical Approach, and Section 4, Use of Tests of Central Tendency and Individuals.

1.4 Contents of Report

The remainder of this report contains information regarding the methods used to conduct statistical tests, statistical results, and overall conclusions.

2.0 SUMMARY OF METHODS AND RESULTS

Statistical comparisons were used to determine if concentrations of naturally-occurring inorganic constituents were greater in the source areas under investigation than in background. Table C-1 provides a summary of the results of the statistical comparisons of measurements of metals concentrations in background and source areas. This summary is based on the results of the statistical analyses, but the statistical conclusions may be qualified by practical considerations in later stages of the risk assessment. (That is, concentrations detected at the site may be statistically greater than background, but are still less than health-based criteria.)

Two types of statistical analyses were used to compare results from downgradient wells to upgradient "background" wells and to compare results from soil samples collected in the ditch to background soils. Tests of central tendency (e.g., means comparisons) were used to determine if, on the average, concentrations of metals in the source areas were greater than background concentrations. Additionally, individual source area results were compared to upper tolerance limits (UTLs) for background [see Appendix B-1 of the *Phase 1 Groundwater Assessment Monitoring Report* (Radian, 1993) for information regarding background characterization and summary statistics useful for comparisons]. These comparisons were used to determine if individual sample results indicated the presence of hot-spots. The conclusions of these comparisons were confirmed or qualified by graphical analysis of the results.

A discussion of the applicability of individual comparisons and the tests of central tendency (e.g., means comparisons) is provided in Section 4.0. This discussion is provided as an explanation of the use of both methods to determine if metals concentrations in source areas exceed those of background. Because the conclusions of statistical comparisons are used as part of the process for determining chemicals of potential concern, this summary is also presented as Section 1.7 in Appendix A, "Identification of Chemicals of Potential Concern". Details for the approach and results of these statistical comparisons are provided in Sections 3 and 4 of this appendix.

Table C-1

Summary of Statistical Comparisons

Area Under Investigation	Analyte
Data Did Not Indicate Difference Between Study Area and Background Concentrations	
Ditch - Soil	None
Pond A/B	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Nickel
	Selenium
	Silver
	Thallium
	Vanadium
	Zinc
Pond D/E/F	Antimony
	Arsenic
	Barium
	Beryllium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Lake Holloman	Arsenic
	Barium
	Beryllium
	Chromium
	Copper
	Nickel
	Selenium
	Silver
	Thallium
	Tin
	Vanadium
	Zinc
Lake Stinky	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Copper
	Lead
	Mercury
	Nickel
	Selenium
	Silver

Table C-1

(Continued)

Area Under Investigation	Analyte
Lake Stinky (Cont'd)	Thallium
	Tin
	Vanadium
	Zinc
Statistical Comparisons Inconclusive	
Ditch	Arsenic by SW7060
	Barium
	Chromium
	Copper
	Lead by SW7421
	Nickel
	Selenium by SW7740
	Vanadium
	Zinc
Pond A/B	Antimony
	Mercury
	Tin
Pond D/E/F	Cadmium
Lake Holloman	Antimony
	Cobalt
	Lead
Data Indicated Statistical Difference Between Study Area and Background Concentrations	
Ditch	Antimony
	Beryllium
	Cadmium
	Cobalt
	Mercury
	Silver
	Thallium
	Tin
Pond A/B	Cadmium
Lake Holloman	Cadmium

3.0 TECHNICAL APPROACH

The technical approach used to statistically compare background and source area data for this risk assessment was to:

- Review raw data for representativeness and to identify outliers;
- Select the data set most appropriate for calculating summary statistics;
- Determine if the appropriate data set was normally distributed (which determines the appropriate statistical method for making comparisons) using a graphical approach; and
- Evaluate results of comparisons to reach practical conclusions.

These steps are described below. Table C-2 provides the results of the means and individual comparisons along with a conclusion based on both types of comparisons.

3.1 Define a Representative Data Set for Background

The data sets available for this investigation contained a mixture of censored data [i.e., data reported as "Not Detected" (ND)] at some sample specific detection limit and uncensored data (raw measurements not censored at a detection or reporting limit). To make the most use of the data, uncensored data were used as originally reported. Censored data were replaced with a proxy concentration of 1/2 the sample specific detection limit. This mixture of proxy and uncensored data was then used to represent the soil in the ditch and the groundwater around the lakes and lagoons. However, only measurements for total metals content in groundwater were used to represent groundwater. These data were then evaluated using EPA's (USEPA, 1989) process for determining chemicals of potential concern.

The criteria specified in *Risk Assessment Guidance for Superfund, Volume I* (USEPA, 1989) were used to determine the potential for false-positive measurements

Table C-2

Summary of Statistical Comparisons For Determining Chemicals of Concern

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Ditch	Soil	Antimony	S	2		Average site concentration was greater than average background concentration.
Ditch	Soil	Arsenic	Not Available			No SW7060 background.
Ditch	Soil	Barium	NS	1		Means and individuals tests were inconclusive, but possible migration.
Ditch	Soil	Beryllium	S	2		Average site concentration was greater than average background concentration.
Ditch	Soil	Cadmium	S	2		Average site concentration was greater than average background concentration.
Ditch	Soil	Chromium	NS	2		Means and individuals tests were inconclusive, but possible migration.
Ditch	Soil	Cobalt	S	2		Average site concentration was greater than average background concentration.
Ditch	Soil	Copper	NS	1		Means and individuals tests were inconclusive, but concentrations do not appear greater.
Ditch	Soil	Lead	Not Available			No SW7421 background.
Ditch	Soil	Mercury	S	3		Average site concentration was greater than average background concentration.
Ditch	Soil	Nickel	NS	1		Means and individuals tests were inconclusive, but possible migration.
Ditch	Soil	Selenium	Not Available			No SW7740 background.
Ditch	Soil	Silver	S	3		Average site concentration was greater than average background concentration.

Table C-2

(Continued)

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Ditch	Soil	Thallium	S			Inconclusive. Average concentrations were greater than background; however, no individual concentration exceeded the range of background concentration.
Ditch	Soil	Tin	S	3		Average site concentration was greater than average background concentration.
Ditch	Soil	Vanadium	NS	2		Means and individuals tests were inconclusive, but possible migration.
Ditch	Soil	Zinc	NS	2		Means and individuals tests were inconclusive, but possible migration.
Pond A/B	GW	Antimony	NS	1	3	Means and individuals tests were inconclusive, but concentrations do not appear greater.
Pond A/B	GW	Arsenic	NS		4	Not significantly different than background.
Pond A/B	GW	Barium	NS			Not significantly different than background.
Pond A/B	GW	Beryllium	NS		2	Not significantly different than background.
Pond A/B	GW	Cadmium	S	4	2	Average site concentration was greater than average background concentration.
Pond A/B	GW	Chromium	NS		3	Not significantly different than background.
Pond A/B	GW	Cobalt	NS		2	Not significantly different than background.
Pond A/B	GW	Copper	NS		4	Not significantly different than background.
Pond A/B	GW	Lead	NS			Not significantly different than background.
Pond A/B	GW	Mercury	S			All results within background.

Table C-2

(Continued)

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Pond A/B	GW	Nickel	NS		4	Not significantly different than background.
Pond A/B	GW	Selenium	NS		3	Not significantly different than background.
Pond A/B	GW	Silver	NS		4	Not significantly different than background.
Pond A/B	GW	Thallium	NS			Not significantly different than background.
Pond A/B	GW	Tin	S	3		Inconclusive. Average concentrations were greater than background, but individuals were within the range of background measurements.
Pond A/B	GW	Vanadium	NS			Not significantly different than background.
Pond A/B	GW	Zinc	NS		2	Not significantly different than background.
Pond D/E/F	GW	Antimony	NS	1	4	Not significantly different than background.
Pond D/E/F	GW	Arsenic	NS		3	Not significantly different than background.
Pond D/E/F	GW	Barium	NS			Not significantly different than background.
Pond D/E/F	GW	Beryllium	NS		3	Not significantly different than background.
Pond D/E/F	GW	Cadmium	NS	2	2	Means and individuals tests were inconclusive, but possible migration; 2 of 4 were greater than background.
Pond D/E/F	GW	Chromium	NS		4	Not significantly different than background.
Pond D/E/F	GW	Cobalt	NS		4	Not significantly different than background.
Pond D/E/F	GW	Copper	NS		4	Not significantly different than background.
Pond D/E/F	GW	Lead	NS		2	Not significantly different than background.

Table C-2

(Continued)

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Pond D/E/F	GW	Mercury	NS		2	Not significantly different than background.
Pond D/E/F	GW	Nickel	NS		4	Not significantly different than background.
Pond D/E/F	GW	Selenium	NS		4	Not significantly different than background.
Pond D/E/F	GW	Silver	NS		4	Not significantly different than background.
Pond D/E/F	GW	Thallium	NS		1	Not significantly different than background.
Pond D/E/F	GW	Tin	NS	2	4	Not significantly different than background.
Pond D/E/F	GW	Vanadium	NS		2	Not significantly different than background.
Pond D/E/F	GW	Zinc	NS		2	Not significantly different than background.
Lake Holloman	GW	Antimony	NS		2	Only one value exceeds background and blanks.
Lake Holloman	GW	Arsenic	NS		2	Not significantly different than background.
Lake Holloman	GW	Barium	NS			Not significantly different than background.
Lake Holloman	GW	Beryllium	NS		2	Not significantly different than background.
Lake Holloman	GW	Cadmium	S	3		Average site concentration was greater than average background concentration.
Lake Holloman	GW	Chromium	NS		1	Not significantly different than background.
Lake Holloman	GW	Cobalt	NS	1	1	1 of 3 greater than background.
Lake Holloman	GW	Copper	NS		3	Not significantly different than background.
Lake Holloman	GW	Lead	NS		1	1 of 3 greater than background.
Lake Holloman	GW	Mercury	S			All results within background.
Lake Holloman	GW	Nickel	NS		3	Not significantly different than background.

Table C-2

(Continued)

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Lake Holloman	GW	Selenium	NS		2	Not significantly different than background.
Lake Holloman	GW	Silver	NS		3	Not significantly different than background.
Lake Holloman	GW	Thallium	NS		3	Not significantly different than background.
Lake Holloman	GW	Tin	NS	1	3	Not significantly different than background.
Lake Holloman	GW	Vanadium	NS		1	Not significantly different than background.
Lake Holloman	GW	Zinc	NS			Not significantly different than background.
Lake Stinky	GW	Antimony	NS		2	Not significantly different than background.
Lake Stinky	GW	Arsenic	NS		1	Not significantly different than background.
Lake Stinky	GW	Barium	NS			Not significantly different than background.
Lake Stinky	GW	Beryllium	NS		1	Not significantly different than background.
Lake Stinky	GW	Cadmium	NS		2	Not significantly different than background.
Lake Stinky	GW	Chromium	NS			Not significantly different than background.
Lake Stinky	GW	Cobalt	NS		1	Not significantly different than background.
Lake Stinky	GW	Copper	NS		2	Not significantly different than background.
Lake Stinky	GW	Lead	NS			Not significantly different than background.
Lake Stinky	GW	Mercury	NS	1		Not significantly different than background.
Lake Stinky	GW	Nickel	NS		2	Not significantly different than background.
Lake Stinky	GW	Selenium	NS		1	Not significantly different than background.
Lake Stinky	GW	Silver	NS		2	Not significantly different than background.

Table C-2

(Continued)

Location	Matrix	Analyte	Means Comparisons [a]	Individuals Comparison [b]	Number of Results Excluded Based on Blank Criteria	Conclusions
Lake Stinky	GW	Thallium	NS			Not significantly different than background.
Lake Stinky	GW	Tin	NS		2	Not significantly different than background.
Lake Stinky	GW	Vanadium	NS			Not significantly different than background.
Lake Stinky	GW	Zinc	NS			Not significantly different than background.

[a] Means comparisons were either statistically significant at alpha = 0.05 (S) or not statistically significant (NS).

[b] The number of individual measurements exceeding the upper tolerance limit (UTL) for background is indicated. A blank space indicates no measurements exceeded the UTL.

because of laboratory or field contamination and then to determine if target analytes occurred frequently enough to pose a risk to human health or the environment.

The first step in the statistical data analysis was to review histograms of the raw data to determine if data were available to represent both the environmental matrices to be characterized (i.e., background and the potentially contaminated areas) and the analytical chemistry system used to make measurements (i.e., method blanks). Attachment 1 presents the histograms used at this stage. Proxy concentrations and uncensored data appeared to adequately represent the sites under investigation. (The use of proxy concentrations did not heavily weight the results available for comparisons.) No individual measurements were discarded as outliers at this step because "unusual" values may indicate hot-spots or other localized regions of contamination. The distributions of the sample data sets were then tested for normality to determine the appropriate statistical methods to summarize and compare concentrations.

3.2 Test for Normality and Calculate Summary Statistics

After determining an appropriate data set for estimating summary statistics, the data sets were evaluated with the Shapiro-Wilk test (Shapiro and Wilk, 1965) to determine if the data were normally distributed. Table C-3 presents the results of the Shapiro-Wilk test for soil and groundwater matrices. This test was performed because the assumption of normality is an underlying assumption for parametric statistical methods (i.e., statistical approaches which use estimates of means, standard deviations, and other population parameters to make comparisons). The common summary statistics were calculated, included summary statistics for both parametric and nonparametric methods to allow statistical comparisons. Tables C-4 and C-5 present the statistics for both site and background data.

Table C-3

Results of the Shapiro-Wilks Test for Normality

Area Under Investigation	Analyte	Method	Number of Samples	Probability[a]	Conclusion[b]
Ditch[c]	Antimony	SW6010	3	0.3631	Normal
Ditch	Arsenic	SW7060	3	0.7975	Normal
Ditch	Barium	SW6010	3	0.6658	Normal
Ditch	Beryllium	SW6010	3	0.2664	Normal
Ditch	Cadmium	SW6010	3	0.3631	Normal
Ditch	Chromium	SW6010	3	0.3391	Normal
Ditch	Cobalt	SW6010	3	0.2498	Normal
Ditch	Copper	SW6010	3	0.2401	Normal
Ditch	Lead	SW7421	3	0.7489	Normal
Ditch	Mercury	SW7471	3	0.0228	NP
Ditch	Nickel	SW6010	3	0.0587	Normal
Ditch	Selenium	SW7740	3	0.5098	Normal
Ditch	Silver	SW6010	3	0.3631	Normal
Ditch	Thallium	SW7841	3	0.5098	Normal
Ditch	Tin	SW6010	3	0.2982	Normal
Ditch	Vanadium	SW6010	3	0.2367	Normal
Ditch	Zinc	SW6010	3	0.1842	Normal
Pond A/B	Antimony	SW6010	4	0.7807	Normal
Pond A/B	Arsenic	SW7060	4	0.3870	Normal
Pond A/B	Barium	SW6010	4	0.0053	NP
Pond A/B	Beryllium	SW6010	4	0.2743	Normal
Pond A/B	Cadmium	SW6010	4	0.7679	Normal
Pond A/B	Chromium	SW6010	4	0.0549	Normal
Pond A/B	Cobalt	SW6010	4	0.1796	Normal
Pond A/B	Copper	SW6010	4	0.0088	NP
Pond A/B	Lead	SW7421	4	0.1578	Normal
Pond A/B	Mercury	SW7470	4	0.2724	Normal
Pond A/B	Nickel	SW6010	4	0.1460	Normal
Pond A/B	Selenium	SW7740	4	0.6646	Normal
Pond A/B	Silver	SW6010	4	0.6036	Normal
Pond A/B	Thallium	SW6010	4	0.7514	Normal
Pond A/B	Thallium	SW7841	4	0.4217	Normal
Pond A/B	Tin	SW6010	4	0.8591	Normal
Pond A/B	Vanadium	SW6010	4	0.2386	Normal
Pond A/B	Zinc	SW6010	4	0.0535	Normal
Pond D/E/F	Antimony	SW6010	4	0.5652	Normal
Pond D/E/F	Arsenic	SW7060	4	0.6619	Normal
Pond D/E/F	Barium	SW6010	4	0.6083	Normal
Pond D/E/F	Beryllium	SW6010	4	0.5338	Normal
Pond D/E/F	Cadmium	SW6010	4	0.5228	Normal
Pond D/E/F	Chromium	SW6010	4	0.0103	NP

Table C-3

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples	Probability[a]	Conclusion[b]
Pond D/E/F	Cobalt	SW6010	4	0.7578	Normal
Pond D/E/F	Copper	SW6010	4	0.8379	Normal
Pond D/E/F	Lead	SW7421	4	0.5098	Normal
Pond D/E/F	Mercury	SW7470	4	0.0849	Normal
Pond D/E/F	Nickel	SW6010	4	0.6513	Normal
Pond D/E/F	Selenium	SW7740	4	0.4086	Normal
Pond D/E/F	Silver	SW6010	4	0.3401	Normal
Pond D/E/F	Thallium	SW6010	4	0.9474	Normal
Pond D/E/F	Thallium	SW7841	4	0.5731	Normal
Pond D/E/F	Tin	SW6010	4	0.9532	Normal
Pond D/E/F	Vanadium	SW6010	4	0.4102	Normal
Pond D/E/F	Zinc	SW6010	4	0.6681	Normal
Lake Holloman	Antimony	SW6010	3	0.1879	Normal
Lake Holloman	Arsenic	SW7060	3	0.5870	Normal
Lake Holloman	Barium	SW6010	3	0.9017	Normal
Lake Holloman	Beryllium	SW6010	3	0.6337	Normal
Lake Holloman	Cadmium	SW6010	3	0.7261	Normal
Lake Holloman	Chromium	SW6010	3	0.9317	Normal
Lake Holloman	Cobalt	SW6010	3	0.3578	Normal
Lake Holloman	Copper	SW6010	3	0.0108	NP
Lake Holloman	Lead	SW7421	3	0.7469	Normal
Lake Holloman	Mercury	SW7470	3	0.9916	Normal
Lake Holloman	Nickel	SW6010	3	0.3631	Normal
Lake Holloman	Selenium	SW7740	3	0.0601	Normal
Lake Holloman	Silver	SW6010	3	0.0000	NP
Lake Holloman	Thallium	SW6010	3	0.5786	Normal
Lake Holloman	Thallium	SW7841	3	0.3321	Normal
Lake Holloman	Tin	SW6010	3	0.6854	Normal
Lake Holloman	Vanadium	SW6010	3	0.4379	Normal
Lake Holloman	Zinc	SW6010	3	0.5945	Normal
Lake Stinky	Antimony	SW6010	2	1.0000	Normal
Lake Stinky	Arsenic	SW7060	2	1.0000	Normal
Lake Stinky	Barium	SW6010	2	1.0000	Normal
Lake Stinky	Beryllium	SW6010	2	1.0000	Normal
Lake Stinky	Cadmium	SW6010	2	1.0000	Normal
Lake Stinky	Chromium	SW6010	2	1.0000	Normal
Lake Stinky	Cobalt	SW6010	2	1.0000	Normal
Lake Stinky	Copper	SW6010	2	1.0000	Normal
Lake Stinky	Lead	SW7421	2	1.0000	Normal
Lake Stinky	Mercury	SW7470	2	1.0000	Normal
Lake Stinky	Nickel	SW6010	2	1.0000	Normal

Table C-3

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples	Probability[a]	Conclusion[b]
Lake Stinky	Selenium	SW7740	2	1.0000	Normal
Lake Stinky	Silver	SW6010	2	1.0000	Normal
Lake Stinky	Thallium	SW6010	2	1.0000	Normal
Lake Stinky	Thallium	SW7841	2	1.0000	Normal
Lake Stinky	Tin	SW6010	2	1.0000	Normal
Lake Stinky	Vanadium	SW6010	2	1.0000	Normal
Lake Stinky	Zinc	SW6010	2	1.0000	Normal

[a] This value represents the probability of the sample population being drawn from a normal distribution. An alpha level of 0.05 was used to determine if the sample population was normal. Probability values less than 0.05 indicated that the sample populations were not likely to have been drawn from a normal distribution.

[b] Conclusions are either to use parametric statistics (Normal) or nonparametric statistics (NP).

[c] Ditch samples are soil; remaining results are groundwater.

Table C-4

Summary Statistics for the Ditch Area Being Investigated and Background

		Site Summary Statistics (mg/kg)							Background Summary Statistics (mg/kg)			
Analyte	Method	Min	Max	Number	Mean	Std. Dev.	Median	Max. Reporting Limit	Number	Mean	Std. Dev.	Median
Antimony	SW6010	18.5	23.5	3	21.5	2.646	22.5	47	58	-0.68	3.933	-0.21
Barium	SW6010	46	95	3	73	24.88	78	4.7	9	35.78	16.03	30
Beryllium	SW6010	0.365	0.465	3	0.427	0.054	0.45	0.93	9	0.132	0.115	0.11
Cadmium	SW6010	0.9	1.15	3	1.05	0.132	1.1	2.3	58	0.015	0.197	0.004
Chromium	SW6010	2.35	13	3	8.783	5.66	11	4.7	9	2.34	1.407	2.2
Cobalt	SW6010	2.35	6.6	3	4.983	2.3	6	4.7	9	0.916	0.518	0.76
Copper	SW6010	3.65	11	3	6.433	3.986	4.65	9.3	9	2.922	0.634	3.1
Mercury	SW7471	0.029	0.54	3	0.201	0.293	0.036	0.071	37	-0.03	0.012	-0.03
Nickel	SW6010	4.5	8.8	3	5.983	2.44	4.65	9.3	9	2.389	1.064	2.4
Silver	SW6010	1.85	2.35	3	2.15	0.265	2.25	4.7	59	-0.2	0.463	-0.18
Thallium	SW7841	0.235	0.29	3	0.258	0.028	0.25	0.58	13	22E-5	0.058	-0.01
Tin	SW6010	110	140	3	128.3	16.07	135	280	58	-0.01	1.574	-0.02
Vanadium	SW6010	4.65	27	3	18.55	12.13	24	9.3	9	6.633	2.912	6.7
Zinc	SW6010	4.65	33	3	22.55	15.57	30	9.3	9	6.724	4.461	5.6

Table C-5

Summary Statistics for Potential Groundwater Sources Being Investigated and Background

			Site Summary Statistics (mg/L)							Background Summary Statistics (mg/L)			
Site	Analyte	Method	Min	Max	#	Mean	Std. Dev.	Median	Max. Reporting Limit	#	Mean	Std. Dev.	Median
Pond A/B	Antimony	SW6010	-0.95	0.5	4	-0.2493	0.64982	-0.2735	1	71	0.00841	0.04096	0.0024
Pond A/B	Arsenic	SW7060	-0.033	0.0024	4	-0.0182	0.01692	-0.021	0.016	14	-0.0054	0.02971	-0.006
Pond A/B	Barium	SW6010	0.018	0.26	4	0.08375	0.11762	0.0285	0.01	14	0.14607	0.12985	0.11
Pond A/B	Beryllium	SW6010	-0.0007	0.0018	4	0.00016	0.00116	-0.0002	0.002	14	0.00098	0.00107	0.00066
Pond A/B	Cadmium	SW6010	0.0098	0.014	4	0.0122	0.0018	0.0125	0.005	14	0.00451	0.00144	0.00505
Pond A/B	Chromium	SW6010	-0.013	0.02	4	-0.0021	0.01496	-0.0078	0.01	14	0.0267	0.02749	0.016
Pond A/B	Cobalt	SW6010	-0.0088	0.0076	4	0.00005	0.00843	0.0007	0.01	74	0.00137	0.00498	0.00114
Pond A/B	Copper	SW6010	-0.011	0.0037	4	-0.0068	0.00703	-0.01	0.02	14	0.01448	0.00922	0.0105
Pond A/B	Lead	SW7421	-0.012	0.004	4	-0.0065	0.00719	-0.009	0.006	13	0.00119	0.007	0
Pond A/B	Mercury	SW7470	0	0.00002	4	0.00001	9.57E-6	0.00002	0.00036	50	-554E-7	0.00004	-55E-6
Pond A/B	Nickel	SW6010	-0.048	0.0026	4	-0.0141	0.02372	-0.0055	0.02	14	0.00944	0.01308	0.00615
Pond A/B	Selenium	SW7740	-0.019	0.044	4	0.00845	0.0284	0.0044	0.01	12	0.00888	0.02575	0.0076
Pond A/B	Silver	SW6010	-0.0082	-0.0032	4	-0.0062	0.00213	-0.0066	0.01	67	0.0003	0.00351	0.00022
Pond A/B	Thallium	SW7841	-0.0032	0.0024	4	-0.001	0.00241	-0.0017	0.02	13	0.00079	0.00158	0.0008
Pond A/B	Tin	SW6010	0.021	0.049	4	0.03575	0.01153	0.0365	0.6	75	0.00011	0.01549	-0.0013
Pond A/B	Vanadium	SW6010	0.013	0.043	4	0.0235	0.01392	0.019	0.02	14	0.08986	0.06074	0.0565
Pond A/B	Zinc	SW6010	-0.0049	0.069	4	0.01875	0.03388	0.00545	0.02	14	0.04679	0.04042	0.031
Pond D/E/F	Antimony	SW6010	-0.6	0.34	4	-0.2225	0.40434	-0.315	1	71	0.00841	0.04096	0.0024
Pond D/E/F	Arsenic	SW7060	-0.029	0.0072	4	-0.014	0.01596	-0.017	0.016	14	-0.0054	0.02971	-0.006
Pond D/E/F	Barium	SW6010	0.021	0.074	4	0.043	0.02244	0.0385	0.01	14	0.14607	0.12985	0.11
Pond D/E/F	Beryllium	SW6010	-0.0002	0.00046	4	0.00014	0.00032	0.00016	0.002	14	0.00098	0.00107	0.00066
Pond D/E/F	Cadmium	SW6010	0.004	0.014	4	0.0086	0.0047	0.0082	0.005	14	0.00451	0.00144	0.00505
Pond D/E/F	Chromium	SW6010	-0.013	0.00047	4	-0.0091	0.00642	-0.012	0.01	14	0.0267	0.02749	0.016

Table C-5

(Continued)

			Site Summary Statistics (mg/L)							Background Summary Statistics (mg/L)			
Site	Analyte	Method	Min	Max	#	Mean	Std. Dev.	Median	Max. Reporting Limit	#	Mean	Std. Dev.	Median
Pond D/E/F	Cobalt	SW6010	-0.0068	-6E-5	4	-0.0038	0.00299	-0.0042	0.01	74	0.00137	0.00498	0.00114
Pond D/E/F	Copper	SW6010	-0.012	-0.0094	4	-0.0106	0.00114	-0.0105	0.02	14	0.01448	0.00922	0.0105
Pond D/E/F	Lead	SW7421	-0.022	-0.008	4	-0.0155	0.00661	-0.016	0.012	13	0.00119	0.007	0
Pond D/E/F	Mercury	SW7470	-5E-5	0.00002	4	-175E-7	0.00004	-2E-5	0.00036	50	-554E-7	0.00004	-55E-6
Pond D/E/F	Nickel	SW6010	-0.046	-0.024	4	-0.0335	0.00918	-0.032	0.02	14	0.00944	0.01308	0.00615
Pond D/E/F	Selenium	SW7740	-0.015	0.0062	4	-0.0018	0.00968	0.0007	0.01	12	0.00888	0.02575	0.0076
Pond D/E/F	Silver	SW6010	-0.011	-0.0068	4	-0.0084	0.00186	-0.0078	0.01	67	0.0003	0.00351	0.00022
Pond D/E/F	Thallium	SW7841	-0.006	0.0028	4	-0.0012	0.00362	-0.0008	0.02	13	0.00079	0.00158	0.0008
Pond D/E/F	Tin	SW6010	-0.028	0.073	4	0.02575	0.04237	0.029	0.6	75	0.00011	0.01549	-0.0013
Pond D/E/F	Vanadium	SW6010	-0.0015	0.021	4	0.007	0.00991	0.00425	0.02	14	0.08986	0.06074	0.0565
Pond D/E/F	Zinc	SW6010	0.0007	0.013	4	0.00752	0.00557	0.0082	0.02	14	0.04679	0.04042	0.031
Lake Holloman	Antimony	SW6010	-0.45	0.57	3	-0.0733	0.55985	-0.34	1	71	0.00841	0.04096	0.0024
Lake Holloman	Arsenic	SW7060	-0.019	0.032	3	0.00327	0.02611	-0.0032	0.016	14	-0.0054	0.02971	-0.006
Lake Holloman	Barium	SW6010	0.029	0.58	3	0.29633	0.27586	0.28	0.01	14	0.14607	0.12985	0.11
Lake Holloman	Beryllium	SW6010	-0.0009	0.0036	3	0.00159	0.0023	0.0021	0.002	14	0.00098	0.00107	0.00066
Lake Holloman	Cadmium	SW6010	0.011	0.019	3	0.01467	0.00404	0.014	0.005	14	0.00451	0.00144	0.00505
Lake Holloman	Chromium	SW6010	-0.022	0.043	3	0.00983	0.03252	0.0085	0.01	14	0.0267	0.02749	0.016
Lake Holloman	Cobalt	SW6010	-0.0046	0.04	3	0.0132	0.02362	0.0042	0.01	74	0.00137	0.00498	0.00114
Lake Holloman	Copper	SW6010	-0.0013	0.014	3	0.00383	0.0088	-0.0012	0.02	14	0.01448	0.00922	0.0105
Lake Holloman	Lead	SW7421	-0.012	0.014	3	0	0.01311	-0.002	0.012	13	0.00119	0.007	0
Lake Holloman	Mercury	SW7470	0	0.00002	3	0.00001	0.00001	0.00001	0.00036	50	-554E-7	0.00004	-55E-6
Lake Holloman	Nickel	SW6010	-0.012	0.012	3	-0.0024	0.0127	-0.0072	0.02	14	0.00944	0.01308	0.00615
Lake Holloman	Selenium	SW7740	-0.015	0.013	3	-0.0053	0.01589	-0.014	0.01	12	0.00888	0.02575	0.0076

Table C-5

(Continued)

			Site Summary Statistics (mg/L)							Background Summary Statistics (mg/L)			
Site	Analyte	Method	Min	Max	#	Mean	Std. Dev.	Median	Max. Reporting Limit	#	Mean	Std. Dev.	Median
Lake Holloman	Silver	SW6010	-0.015	-0.0062	3	-0.0091	0.00508	-0.0062	0.01	67	0.0003	0.00351	0.00022
Lake Holloman	Thallium	SW7841	-0.0048	0.0028	3	-0.0002	0.00404	0.0014	0.02	13	0.00079	0.00158	0.0008
Lake Holloman	Tin	SW6010	-0.15	0.055	3	-0.0377	0.10391	-0.018	0.6	75	0.00011	0.01549	-0.0013
Lake Holloman	Vanadium	SW6010	0.011	0.091	3	0.044	0.0418	0.03	0.02	14	0.08986	0.06074	0.0565
Lake Holloman	Zinc	SW6010	0.01	0.16	3	0.07567	0.07672	0.057	0.02	14	0.04679	0.04042	0.031
Lake Stinky	Antimony	SW6010	-0.77	-0.35	2	-0.56	0.29698	-0.56	1	71	0.00841	0.04096	0.0024
Lake Stinky	Arsenic	SW7060	0.0024	0.0072	2	0.0048	0.00339	0.0048	0.016	14	-0.0054	0.02971	-0.006
Lake Stinky	Barium	SW6010	0.097	0.26	2	0.1785	0.11526	0.1785	0.01	14	0.14607	0.12985	0.11
Lake Stinky	Beryllium	SW6010	0.00057	0.0011	2	0.00084	0.00037	0.00084	0.002	14	0.00098	0.00107	0.00066
Lake Stinky	Cadmium	SW6010	-0.0035	0.0052	2	0.00085	0.00615	0.00085	0.005	14	0.00451	0.00144	0.00505
Lake Stinky	Chromium	SW6010	0.0029	0.017	2	0.00995	0.00997	0.00995	0.01	14	0.0267	0.02749	0.016
Lake Stinky	Cobalt	SW6010	-0.0012	0.0029	2	0.00085	0.0029	0.00085	0.01	74	0.00137	0.00498	0.00114
Lake Stinky	Copper	SW6010	-0.0067	-0.0008	2	-0.0037	0.0042	-0.0037	0.02	14	0.01448	0.00922	0.0105
Lake Stinky	Lead	SW7421	-0.006	0	2	-0.003	0.00424	-0.003	0.006	13	0.00119	0.007	0
Lake Stinky	Mercury	SW7470	0	0.00003	2	0.00002	0.00002	0.00002	0.00018	50	-554E-7	0.00004	-55E-6
Lake Stinky	Nickel	SW6010	-0.0058	0.00066	2	-0.0026	0.00457	-0.0026	0.02	14	0.00944	0.01308	0.00615
Lake Stinky	Selenium	SW7740	-0.013	0.017	2	0.002	0.02121	0.002	0.01	12	0.00888	0.02575	0.0076
Lake Stinky	Silver	SW6010	-0.005	-0.0017	2	-0.0034	0.00233	-0.0034	0.01	67	0.0003	0.00351	0.00022
Lake Stinky	Thallium	SW7841	-0.0017	0.0008	2	-0.0004	0.00177	-0.0004	0.02	13	0.00079	0.00158	0.0008
Lake Stinky	Tin	SW6010	-0.03	0.0052	2	-0.0124	0.02489	-0.0124	0.6	75	0.00011	0.01549	-0.0013
Lake Stinky	Vanadium	SW6010	0.007	0.021	2	0.014	0.0099	0.014	0.02	14	0.08986	0.06074	0.0565
Lake Stinky	Zinc	SW6010	0.021	0.057	2	0.039	0.02546	0.039	0.02	14	0.04679	0.04042	0.031

3.3 Determine Approach to Compare Background to Source Area Results

Conclusions of the Shapiro-Wilk test were used to determine an appropriate method for comparing potential source area results to background. The parametric Student's t-test (Proc test, SAS/Stat, 1989) was used to compare central tendencies (i.e., compare means) if results were normally distributed. The nonparametric Wilcoxon Rank-sum Test (Proc npar1way, SAS/Stat, 1989) was used to compare central tendencies if results were not normally distributed. The latter test compares the central tendency of the distributions of results by comparing the rank mean value for the source area to the rank mean value for background. Thus, the comparison can be made of the ranks of the data and it is not necessary for the background and source area results to follow the same distribution (as is the case for parametric procedures). Individual results were compared to the UTLs presented in the Base-wide Background Study (Radian, 1993) calculated using the appropriate parametric or nonparametric method. This approach is drawn from USEPA's RCRA (1992) guidance for statistical analyses in groundwater monitoring and is applicable to the situation described in this appendix. Tables C-6 and C-7 presents the results of means comparisons for ditch soils and groundwater downgradient of the lakes and lagoons, respectively. Tables C-8 and C-9 present the results of individuals comparisons for ditch soils and groundwater downgradient of the lakes and lagoons, respectively. A discussion of the use of these comparison methods and results is provided in Section 4.0 of this appendix.

3.4 Evaluation of Statistical Conclusions

Statistical conclusions were confirmed by reviewing histograms generated early in the process. This step was conducted because although a means comparison may indicate that the average concentration at a site is greater than the average background concentration, the difference between background and site averages may not be of practical importance. An example of this case would be when all results for the site are within the range of background measurements but are grouped in the upper tail of the distribution. Some statistical results were inconclusive and are so noted on an analyte-by-analyte basis in the summary presented in Table C-2.

Table C-6

Results of Tests of Central Tendency for Ditch Soils

Analyte	Method	Number of Samples From Background	Back-ground Mean (mg/kg)	Number of Samples From Site	Site Mean (mg/kg)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Antimony	SW6010	58	-0.676988	3	21.500000	Student's t	0.0022	S
Barium	SW6010	9	35.777778	3	73.000000	Student's t	0.0636	NS
Beryllium	SW6010	9	0.132333	3	0.426667	Student's t	0.0050	S
Cadmium	SW6010	58	29.5	3	60	Wilcoxon	0.0027	S
Chromium	SW6010	9	2.340000	3	8.783333	Student's t	0.0944	NS
Cobalt	SW6010	9	0.915556	3	4.983333	Student's t	0.0462	S
Copper	SW6010	9	2.922222	3	6.433333	Student's t	0.1337	NS
Mercury	SW7471	37	19	3	39	Wilcoxon	0.0035	S
Nickel	SW6010	9	2.388889	3	5.983333	Student's t	0.0639	NS
Silver	SW6010	59	-0.200921	3	2.150000	Student's t	0.0000	S
Thallium	SW7841	13	7	3	15	Wilcoxon	0.0109	S
Tin	SW6010	58	-0.012204	3	128.3333333	Student's t	0.0026	S
Vanadium	SW6010	9	6.633333	3	18.550000	Student's t	0.1163	NS
Zinc	SW6010	9	6.724444	3	22.550000	Student's t	0.1113	NS

[a] Wilcoxon Rank-sum Test or Student's t-test

[b] Conclusions: The concentration on site is statistically greater than background (S) or it is not statistically greater than background (NS).

Table C-7

Results of Tests of Central Tendency for Downgradient Groundwater Monitoring Wells

Area Under Investigation	Analyte	Method	Number of Samples From Background	Background Mean (mg/L)	Number of Samples From Site	Site Mean (mg/L)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Pond A/B	Antimony	SW6010	71	0.008411	4	-0.249250	Student's T	0.7572	NS
Pond A/B	Arsenic	SW7060	14	-0.005414	4	-0.018150	Student's T	0.7848	NS
Pond A/B	Barium	SW6010	14	10.5714286	4	5.75	Wilcoxon	0.9292	NS
Pond A/B	Beryllium	SW6010	14	0.000984	4	0.000163	Student's T	0.8589	NS
Pond A/B	Cadmium	SW6010	14	0.004507	4	0.012200	Student's T	0.0000	S
Pond A/B	Chromium	SW6010	14	10.8571429	4	4.75	Wilcoxon	0.9673	NS
Pond A/B	Cobalt	SW6010	74	39.6351351	4	37	Wilcoxon	0.5850	NS
Pond A/B	Copper	SW6010	14	11.5	4	2.5	Wilcoxon	0.9953	NS
Pond A/B	Lead	SW7421	13	0.001192	4	-0.006500	Student's T	0.9287	NS
Pond A/B	Mercury	SW7470	50	-0.000055	4	0.000013	Student's T	0.0003	S
Pond A/B	Nickel	SW6010	14	0.009443	4	-0.014100	Student's T	0.9259	NS
Pond A/B	Selenium	SW7740	12	0.008883	4	0.008450	Student's T	0.5112	NS
Pond A/B	Silver	SW6010	67	0.000299	4	-0.006150	Student's T	0.9956	NS
Pond A/B	Thallium	SW6010	75	0.010498	4	0.322500	Student's T	0.0060	S
Pond A/B	Thallium	SW7841	13	0.000792	4	-0.001025	Student's T	0.8774	NS
Pond A/B	Tin	SW6010	74	0.000264	4	0.035750	Student's T	0.0043	S
Pond A/B	Vanadium	SW6010	14	11.2142857	4	3.5	Wilcoxon	0.9885	NS

Table C-7

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples From Background	Background Mean (mg/L)	Number of Samples From Site	Site Mean (mg/L)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Pond A/B	Zinc	SW6010	14	10.7142857	4	5.25	Wilcoxon	0.9512	NS
Pond D/E/F	Antimony	SW6010	71	0.008411	4	-0.222500	Student's T	0.8318	NS
Pond D/E/F	Arsenic	SW7060	14	-0.005414	4	-0.013950	Student's T	0.7579	NS
Pond D/E	Barium	SW6010	14	10.9642857	4	4.375	Wilcoxon	0.9759	NS
Pond D/E/F	Beryllium	SW6010	14	0.000984	4	0.000135	Student's T	0.9280	NS
Pond D/E/F	Cadmium	SW6010	14	0.004507	4	0.008600	Student's T	0.0914	NS
Pond D/E	Chromium	SW6010	14	11.5	4	2.5	Wilcoxon	0.9953	NS
Pond D/E	Cobalt	SW6010	74	40.9189189	4	13.25	Wilcoxon	0.9898	NS
Pond D/E/F	Copper	SW6010	14	0.014479	4	-0.010600	Student's T	1.0000	NS
Pond D/E/F	Lead	SW7421	13	0.001192	4	-0.015500	Student's T	0.9919	NS
Pond D/E/F	Mercury	SW7470	50	-0.000055	4	-0.000017	Student's T	0.0722	NS
Pond D/E/F	Nickel	SW6010	14	0.009443	4	-0.033500	Student's T	0.9988	NS
Pond D/E/F	Selenium	SW7740	12	0.008883	4	-0.001850	Student's T	0.8637	NS
Pond D/E/F	Silver	SW6010	67	0.000299	4	-0.008350	Student's T	0.9988	NS
Pond D/E/F	Thallium	SW6010	75	0.010498	4	0.292500	Student's T	0.0032	S
Pond D/E/F	Thallium	SW7841	13	0.000792	4	-0.001200	Student's T	0.8197	NS
Pond D/E/F	Tin	SW6010	74	0.000264	4	0.025750	Student's T	0.1581	NS

Table C-7

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples From Background	Background Mean (mg/L)	Number of Samples From Site	Site Mean (mg/L)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Pond D/E	Vanadium	SW6010	14	11.5	4	2.5	Wilcoxon	0.9953	NS
Pond D/E	Zinc	SW6010	14	11.4285714	4	2.75	Wilcoxon	0.9941	NS
Lake Holloman	Antimony	SW6010	71	0.008411	3	-0.073333	Student's T	0.5880	NS
Lake Holloman	Arsenic	SW7060	14	-0.005414	3	0.003267	Student's T	0.3265	NS
Lake Holloman	Barium	SW6010	14	8.6071429	3	10.8333333	Wilcoxon	0.2685	NS
Lake Holloman	Beryllium	SW6010	14	0.000984	3	0.001593	Student's T	0.2371	NS
Lake Holloman	Cadmium	SW6010	14	0.004507	3	0.014667	Student's T	0.0245	S
Lake Holloman	Chromium	SW6010	14	9.35714286	3	7.3333333	Wilcoxon	0.7113	NS
Lake Holloman	Cobalt	SW6010	74	38.5540541	3	50	Wilcoxon	0.1974	NS
Lake Holloman	Copper	SW6010	14	9.92857143	3	4.6666666	Wilcoxon	0.9327	NS
Lake Holloman	Lead	SW7421	13	0.001192	3	0.000000	Student's T	0.5540	NS
Lake Holloman	Mercury	SW7470	50	-0.000055	3	0.000010	Student's T	0.0036	S
Lake Holloman	Nickel	SW6010	14	0.009443	3	-0.002400	Student's T	0.8667	NS
Lake Holloman	Selenium	SW7740	12	0.008883	3	-0.005333	Student's T	0.8400	NS
Lake Holloman	Silver	SW6010	67	36.880597	3	4.6666667	Wilcoxon	0.9953	NS
Lake Holloman	Thallium	SW6010	75	0.010498	3	0.095000	Student's T	0.2571	NS
Lake Holloman	Thallium	SW7841	13	0.000792	3	-0.000200	Student's T	0.6421	NS

Table C-7

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples From Background	Background Mean (mg/L)	Number of Samples From Site	Site Mean (mg/L)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Lake Holloman	Tin	SW6010	74	0.000264	3	-0.037667	Student's T	0.7040	NS
Lake Holloman	Vanadium	SW6010	14	9.78571429	3	5.3333333	Wilcoxon	0.8979	NS
Lake Holloman	Zinc	SW6010	14	8.82142857	3	9.8333333	Wilcoxon	0.4020	NS
Lake Stinky	Antimony	SW6010	71	0.008411	2	-0.560000	Student's T	0.8874	NS
Lake Stinky	Arsenic	SW7060	14	-0.005414	2	0.004800	Student's T	0.3222	NS
Lake Stinky	Barium	SW6010	14	8.1428571	2	11	Wilcoxon	0.2427	NS
Lake Stinky	Beryllium	SW6010	14	0.000984	2	0.000835	Student's T	0.6302	NS
Lake Stinky	Cadmium	SW6010	14	0.004507	2	0.000850	Student's T	0.7223	NS
Lake Stinky	Chromium	SW6010	14	8.85714286	2	6	Wilcoxon	0.7579	NS
Lake Stinky	Cobalt	SW6010	74	38.5945946	2	35	Wilcoxon	0.5833	NS
Lake Stinky	Copper	SW6010	14	0.014479	2	-0.003730	Student's T	0.9912	NS
Lake Stinky	Lead	SW7421	13	0.001192	2	-0.003000	Student's T	0.7834	NS
Lake Stinky	Mercury	SW7470	50	-0.000055	2	0.000015	Student's T	0.0654	NS
Lake Stinky	Nickel	SW6010	14	0.009443	2	-0.002570	Student's T	0.9173	NS
Lake Stinky	Selenium	SW7740	12	0.008883	2	0.002000	Student's T	0.6291	NS
Lake Stinky	Silver	SW6010	67	0.000299	2	-0.003350	Student's T	0.9249	NS
Lake Stinky	Thallium	SW6010	75	0.010498	2	0.210000	Student's T	0.0147	S

Table C-7

(Continued)

Area Under Investigation	Analyte	Method	Number of Samples From Background	Background Mean (mg/L)	Number of Samples From Site	Site Mean (mg/L)	Comparison Method[a]	Probability of Site Samples Differing from Background	Conclusion[b]
Lake Stinky	Thallium	SW7841	13	0.000792	2	-0.000450	Student's T	0.8386	NS
Lake Stinky	Tin	SW6010	74	0.000264	2	-0.012400	Student's T	0.6982	NS
Lake Stinky	Vanadium	SW6010	14	9.5	2	1.5	Wilcoxon	0.9757	NS
Lake Stinky	Zinc	SW6010	14	8.5	2	8.5	Wilcoxon	0.5000	NS

[a] Wilcoxon Ran-sum Test or Student's t-test.
[b] Conclusions: The concentration onsite is statistically greater than background (S) or it is not statistically greater than background (NS).

Table C-8

Individual Measurements in Soils Collected from the Ditch That Exceed Upper Tolerance Limits for Background

Area Under Investigation	Analyte	Sampling Location	Analytical Method	Measured Concentration in Sample (mg/kg)	Calculated Warning Limit for Background (mg/kg)	Calculated Upper Tolerance Limit for Background (mg/kg)
Ditch	Antimony	DT-04	SW6010	22.5	2.6865	7.2844
Ditch	Antimony	DT-03	SW6010	18.5	2.6865	7.2844
Ditch	Barium	DT-04	SW6010	95	50.797	84.363
Ditch	Beryllium	DT-04	SW6010	0.45	0.15	0.4
Ditch	Beryllium	DT-02	SW6010	0.465	0.15	0.4
Ditch	Cadmium	DT-04	SW6010	1.1	0.2538	1.0359
Ditch	Cadmium	DT-02	SW6010	1.15	0.2538	1.0359
Ditch	Chromium	DT-04	SW6010	11	3.6584	6.6049
Ditch	Chromium	DT-03	SW6010	13	3.6584	6.6049
Ditch	Cobalt	DT-04	SW6010	6.6	1.4008	2.4852
Ditch	Cobalt	DT-03	SW6010	6	1.4008	2.4852
Ditch	Copper	DT-04	SW6010	11	3.5163	4.8438
Ditch	Mercury	DT-02	SW7471	0.54	-0.016	-64E-5
Ditch	Mercury	DT-04	SW7471	0.0355	-0.016	-64E-5
Ditch	Mercury	DT-03	SW7471	0.0285	-0.016	-64E-5
Ditch	Nickel	DT-03	SW6010	8.8	3.3854	5.6125
Ditch	Silver	DT-04	SW6010	2.25	0.1948	0.7342
Ditch	Silver	DT-03	SW6010	1.85	0.1948	0.7342

Table C-8

(Continued)

Area Under Investigation	Analyte	Sampling Location	Analytical Method	Measured Concentration in Sample (mg/kg)	Calculated Warning Limit for Background (mg/kg)	Calculated Upper Tolerance Limit for Background (mg/kg)
Ditch	Silver	DT-02	SW6010	2.35	0.1948	0.7342
Ditch	Tin	DT-02	SW6010	140	1.334	3.1743
Ditch	Tin	DT-04	SW6010	135	1.334	3.1743
Ditch	Tin	DT-03	SW6010	110	1.334	3.1743
Ditch	Vanadium	DT-04	SW6010	27	9.3618	15.46
Ditch	Vanadium	DT-03	SW6010	24	9.3618	15.46
Ditch	Zinc	DT-04	SW6010	30	10.904	20.246
Ditch	Zinc	DT-03	SW6010	33	10.904	20.246

Table C-9
Individual Measurements in Groundwater Monitoring Wells Downgradient of the Lakes and Lagoons Which Exceed Upper Tolerance Limits for Background

Area Under Investigation	Analyte	Sampling Location	Analytical Method	Measured Concentration in Sample (mg/L)	Calculated Warning Limit for Background (mg/L)	Calculated Upper Tolerance Limit for Background (mg/L)
Pond A/B	Antimony	MW-11	SW6010	0.5	0.0433	0.0896
Pond A/B	Cadmium	MWD-05	SW6010	0.0098	0.0058	0.0083
Pond A/B	Cadmium	MW-13	SW6010	0.014	0.0058	0.0083
Pond A/B	Cadmium	MW-12	SW6010	0.013	0.0058	0.0083
Pond A/B	Cadmium	MW-11	SW6010	0.012	0.0058	0.0083
Pond A/B	Tin	MWD-05	SW6010	0.049	0.0133	0.0307
Pond A/B	Tin	MW-13	SW6010	0.038	0.0133	0.0307
Pond A/B	Tin	MW-12	SW6010	0.035	0.0133	0.0307
Pond D/E/F	Antimony	MWS-05	SW6010	0.34	0.0433	0.0896
Pond D/E/F	Cadmium	MWS-05	SW6010	0.014	0.0058	0.0083
Pond D/E/F	Cadmium	MW-15	SW6010	0.011	0.0058	0.0083
Pond D/E/F	Tin	MWS-05	SW6010	0.04	0.0133	0.0307
Pond D/E/F	Tin	MW-15	SW6010	0.073	0.0133	0.0307
Lake H	Cadmium	MWS-16	SW6010	0.011	0.0058	0.0083
Lake H	Cadmium	MW-17	SW6010	0.019	0.0058	0.0083
Lake H	Cadmium	MW-16	SW6010	0.014	0.0058	0.0083
Lake H	Cobalt	MW-16	SW6010	0.04	0.0062	0.02
Lake H	Tin	MW-16	SW6010	0.055	0.0133	0.0307
Lake S	Mercury	MW-18	SW7470	3E-5	-21E-6	269E-7

4.0 RATIONALE FOR THE USE OF TESTS OF CENTRAL TENDENCY AND INDIVIDUALS COMPARISONS

Two types of statistical comparisons may be used to compare results from different sample populations. Means comparisons may be used to compare the average background concentration to a corresponding average concentration for a site of interest (e.g., downgradient monitoring wells). Additionally, individual results from each of the wells may be compared to calculated UTLs for background concentration.

Means comparisons are the preferred approach to testing whether or not measurement results indicate a difference between two "sample populations" of interest. In this risk assessment, as in other similar studies, the two sample populations are "background" and "downgradient." Since these statistical concepts are more readily understood with examples, the following discussion will use the comparisons for groundwater as an example assessment to which these concepts may be applied. Conceptually, a means comparison tests the measurement results to determine the likelihood that they actually came from a single parent population, rather than from two different populations. The test assumes that there is no difference between the two populations (i.e., that downgradient is not different from background) as long as the observed difference between their averages is within the range that could be attributed to chance.

The amount of difference attributable to chance in a means comparison is a function of variability in the sample data and the number of sample results available. The difference attributable to chance reflects the uncertainty in the statistical test and becomes smaller as the sample size increases. It also becomes smaller as the variability among results within each of the two populations decreases. The uncertainty resulting from sample size and variability directly affects what is known as the power of the statistical comparison. As the power increases, it becomes possible to detect smaller and smaller differences between the true population means. Thus, with increased power there is less risk of failing to detect a difference that actually exists. This should not be confused with the confidence level of the test, which is related to the probability of erroneously concluding that a

difference exists between the population means, when in fact the population means are not different. (As the confidence level increases, the probability of incorrectly indicating a difference decreases.)

The comparison of individual results to UTLs of a given population is another way of testing the difference between two sample populations. The UTL used in these comparisons represents an estimate of the upper 95th percentile of the true background concentration of the analyte of interest. Thus, there is a relatively small chance, on the order of 1 in 20, of a sample of uncontaminated groundwater (i.e., groundwater that is no different from background) having a metal concentration greater than the UTL. When individual sample results are compared to UTLs, they are interpreted to indicate the presence of contamination when they exceed the UTLs. On the other hand, samples are considered to be not different from background as long as they do not exceed the UTL.

In most cases, means comparisons offer significant advantages over comparisons using individual results compared to UTLs. However, both types of comparisons are useful and they provide different information about the data and the parent populations. Mean comparisons offer greater statistical power than comparisons based on the UTL. Thus, means comparisons can detect smaller differences between two populations and are less likely to fail to detect a difference that actually exists. Used to compare monitoring well results to background data, means comparisons can detect lower levels of contamination and are less likely to fail to detect contamination when it actually exists. Comparisons using individual results compared to UTLs are less sensitive and more likely to fail to detect contamination because of the inherent uncertainty in individual measurements. Much of this uncertainty is attributable to random measurement error, which is effectively "averaged out" in means comparisons where multiple results are considered together as a set.

The strength of means comparisons can also be their weakness. In the same way that random measurement error gets averaged out in the calculation of a sample mean, so can actual, nonrandom effects be diluted and overlooked. For example, four wells might

be grouped together based on available hydrogeologic information. Whereas comparing average results for the four wells offers more power, it is important not to overlook cases in which results from one member of the initial group stand out as appreciably different from the others. When this occurs, comparison of this single anomalous result to the UTL for background offers an approach for evaluating it separately, and, for example, deciding if the initial well grouping should be reconsidered. Comparisons based on the UTL are also useful when there is only one result available for comparison. However, a conclusion that a downgradient well is not different from background based on a single downgradient result must acknowledge the significant risk that there actually is a difference that was not detected simply because of the paucity of downgradient data.

5.0 REFERENCES

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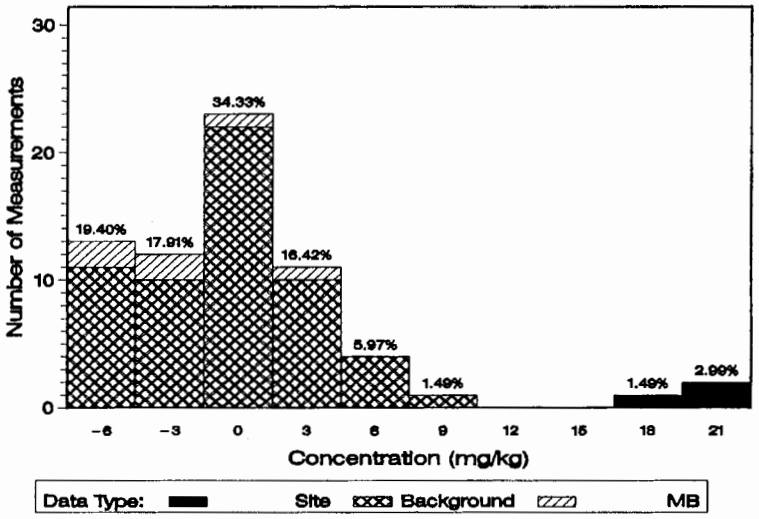
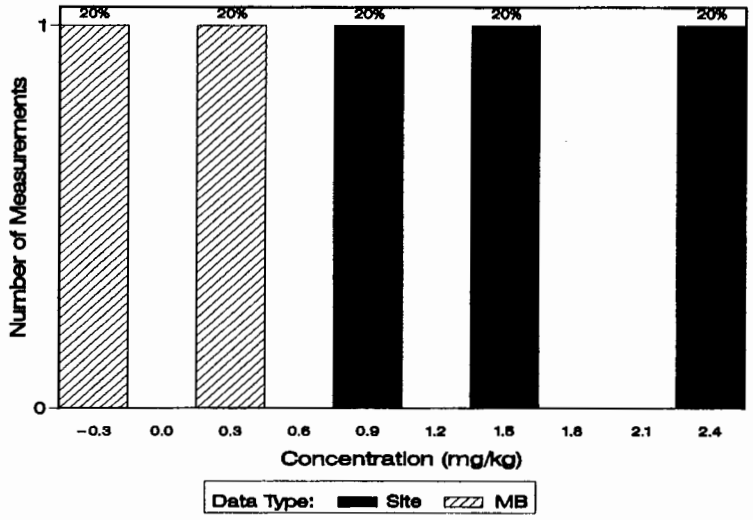
Holloman AFB L&L Site and Background Data
Frequency Distribution

Antimony -- SW6010
Ditch



Arsenic -- SW7060
Ditch



Barium -- SW6010
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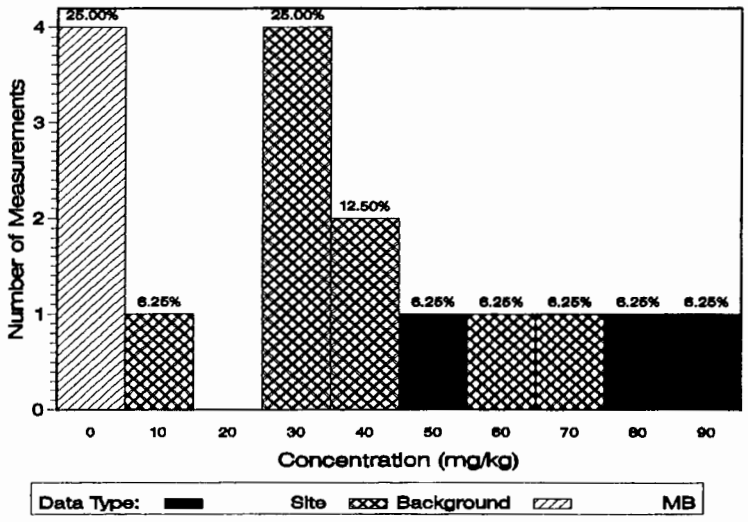
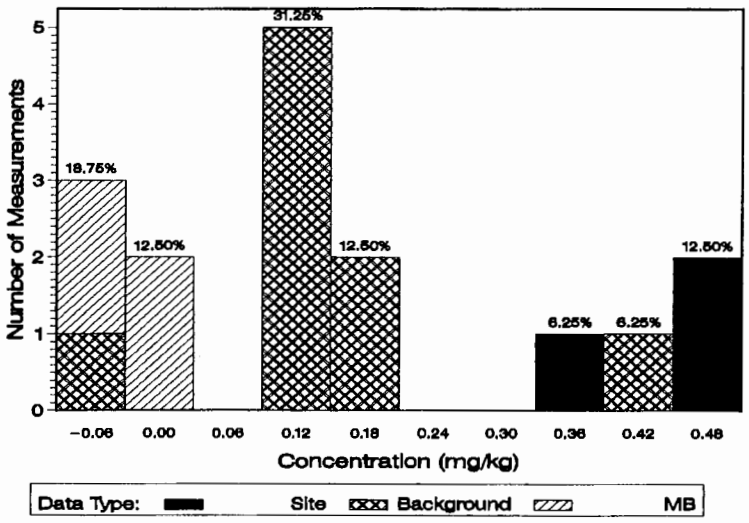


Beryllium -- SW6010
Ditch



Holloman AFB L&L Site and Background Data
Frequency Distribution

Cadmium -- SW6010
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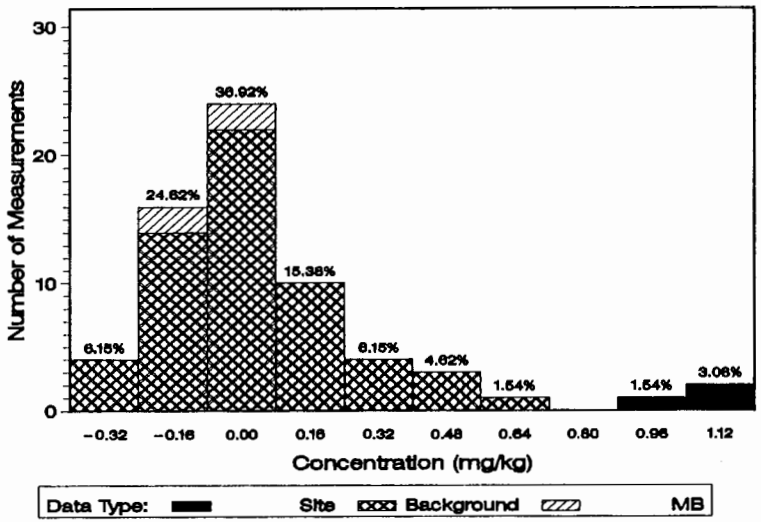

Chromium -- SW6010
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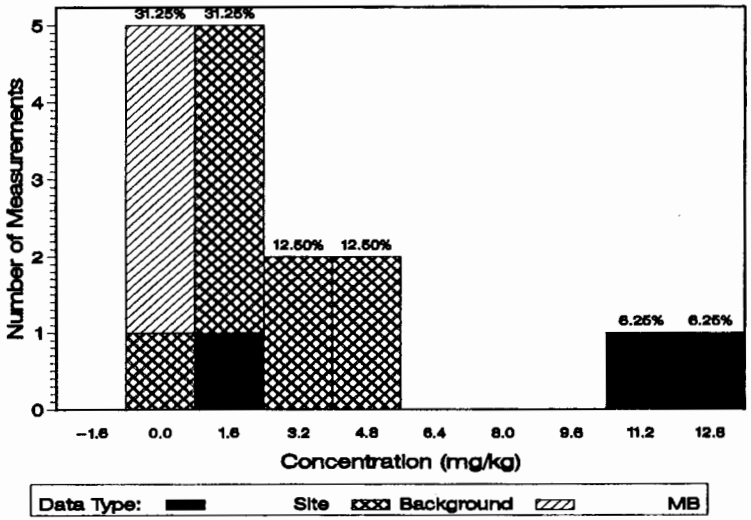
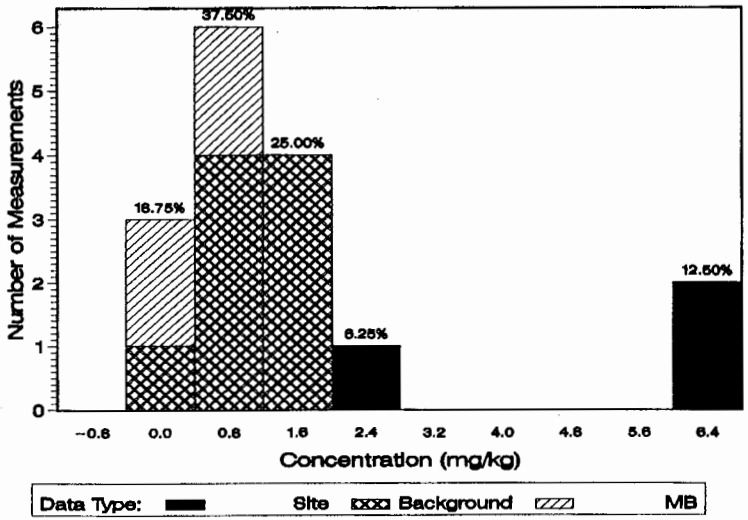
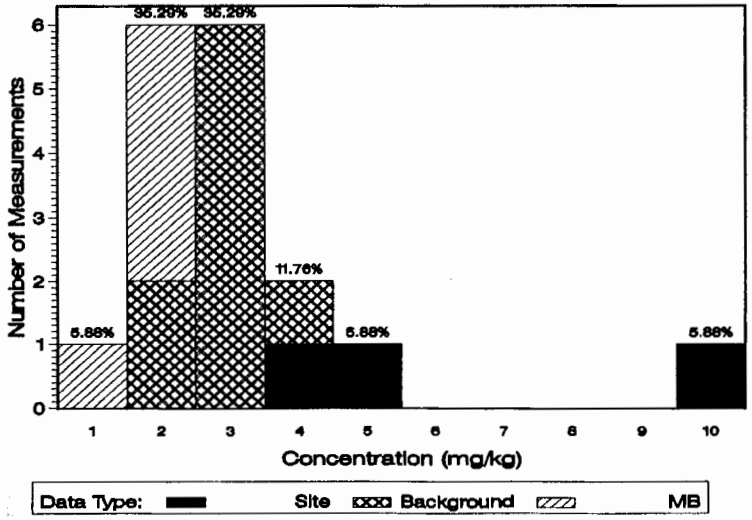


Cobalt -- SW6010
Ditch

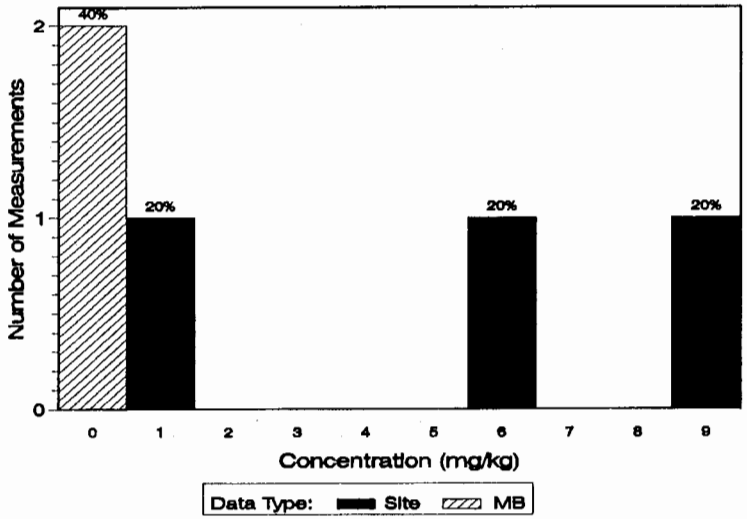


Copper -- SW6010
Ditch

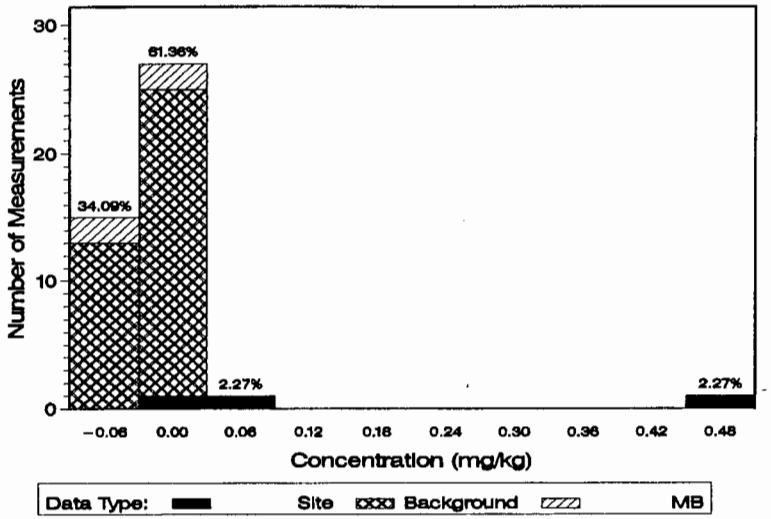


Holloman AFB L&L Site and Background Data
Frequency Distribution

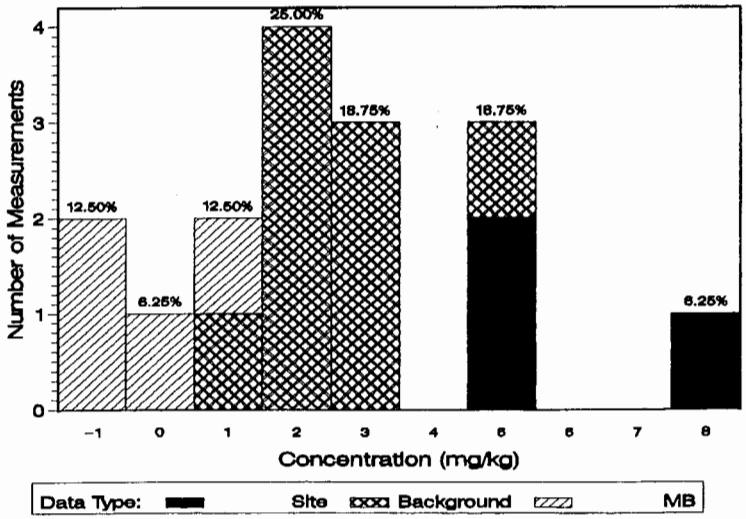
Lead -- SW7421
Ditch



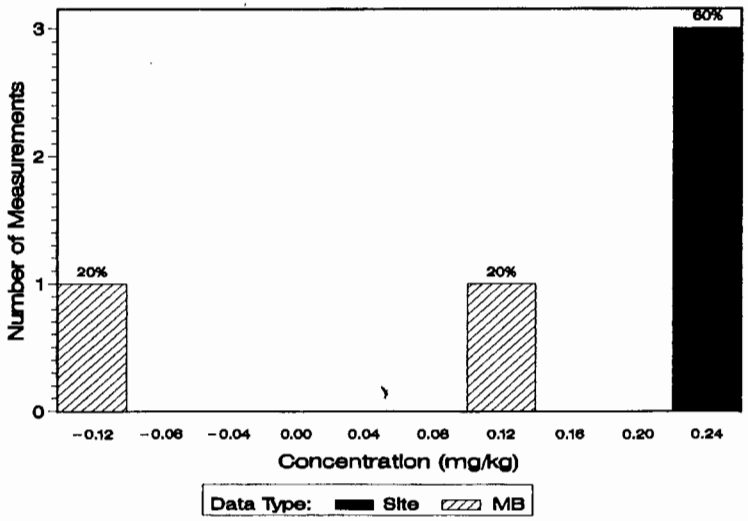
Mercury -- SW7471
Ditch



Nickel -- SW6010
Ditch

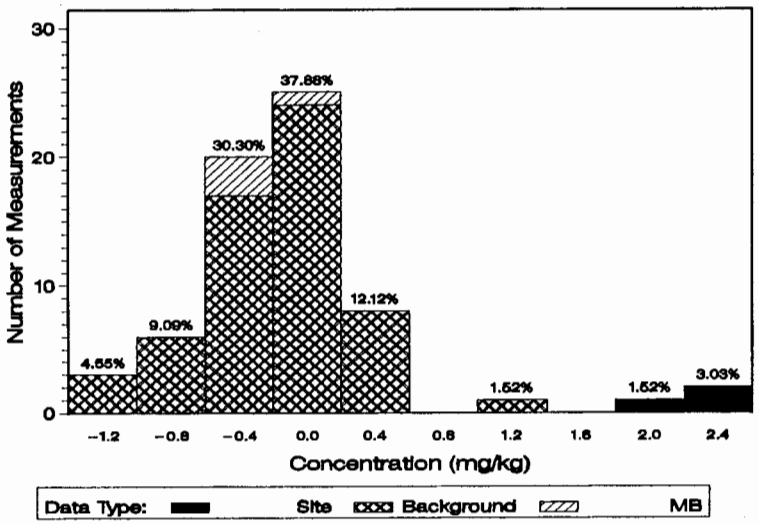


Selenium -- SW7740
Ditch

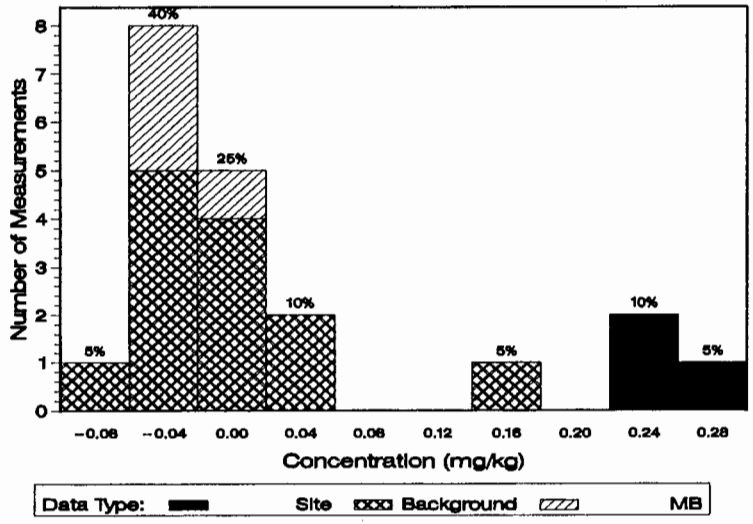


Holloman AFB L&L Site and Background Data
Frequency Distribution

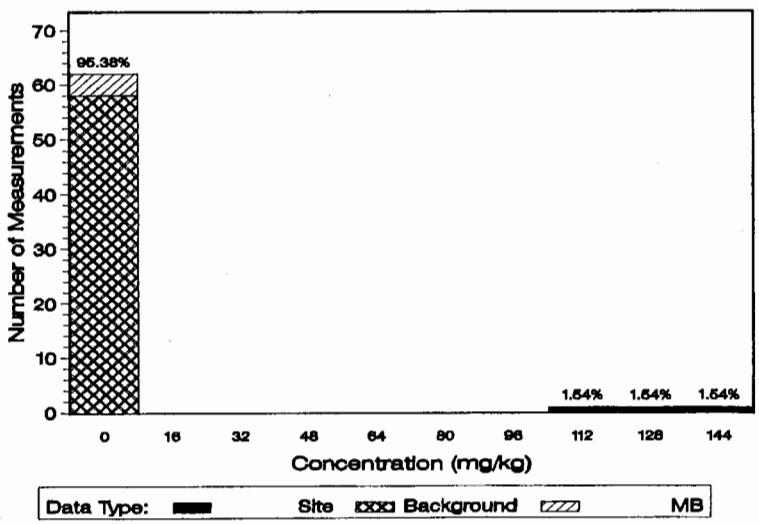
Silver -- SW6010
Ditch



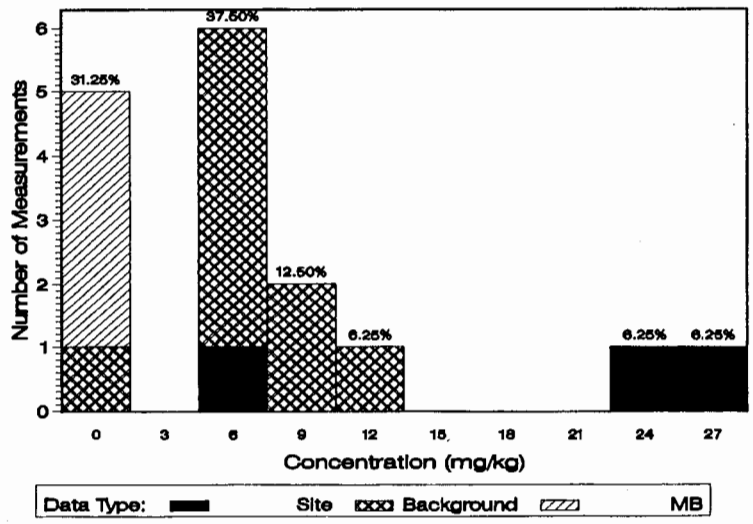
Thallium -- SW7841
Ditch



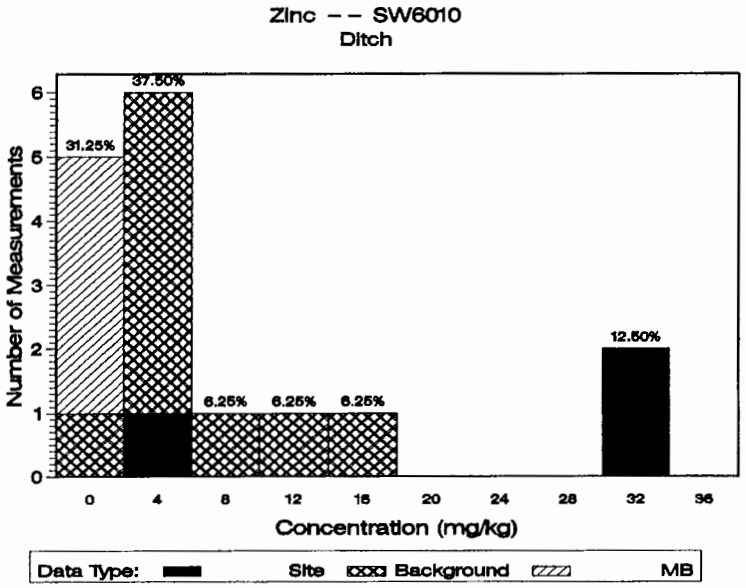
Tin -- SW6010
Ditch



Vanadium -- SW6010
Ditch

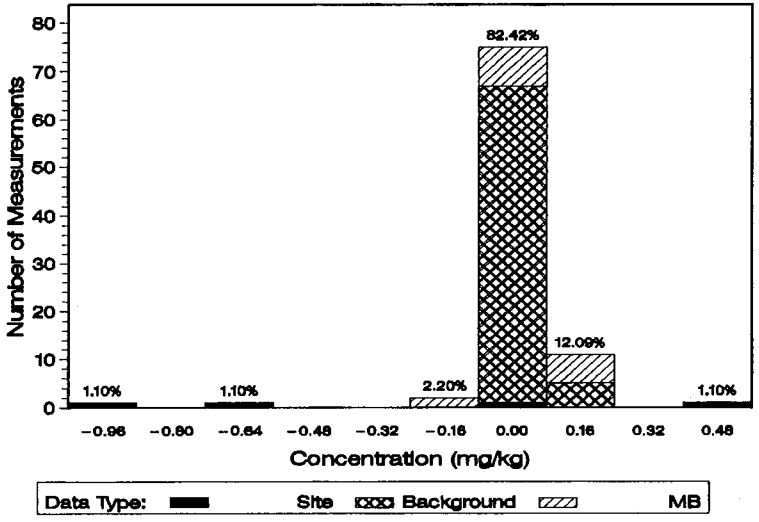


Holloman AFB L&L Site and Background Data
Frequency Distribution

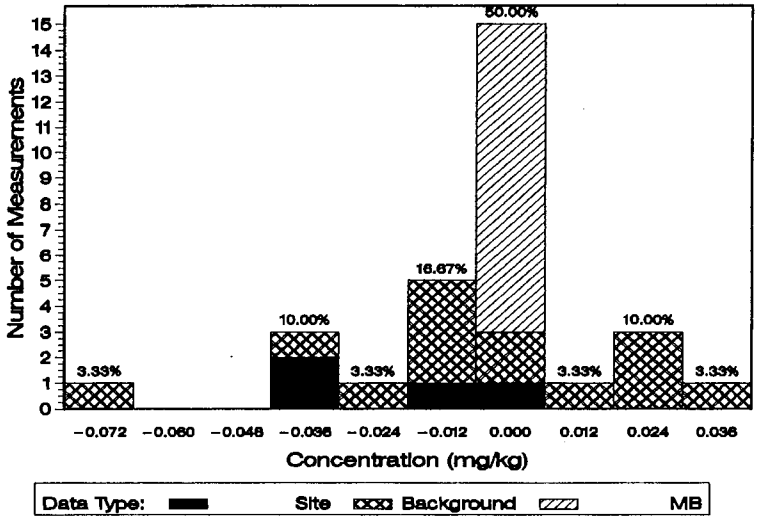


Holloman AFB L&L Site and Background Data
Frequency Distribution

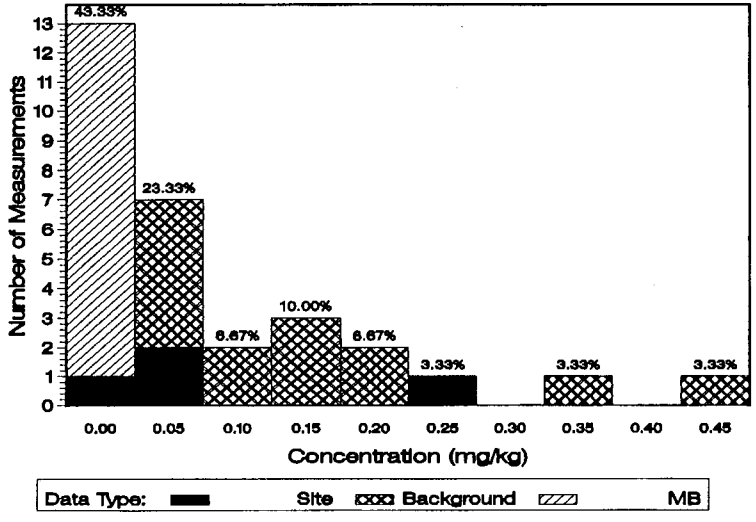
Antimony -- SW6010
Groundwater -- Pond A/B



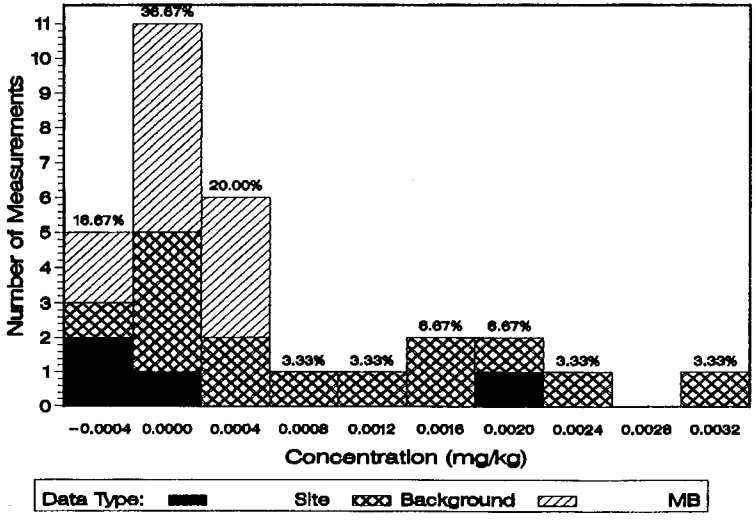
Arsenic -- SW7060
Groundwater -- Pond A/B



Barium -- SW6010
Groundwater -- Pond A/B

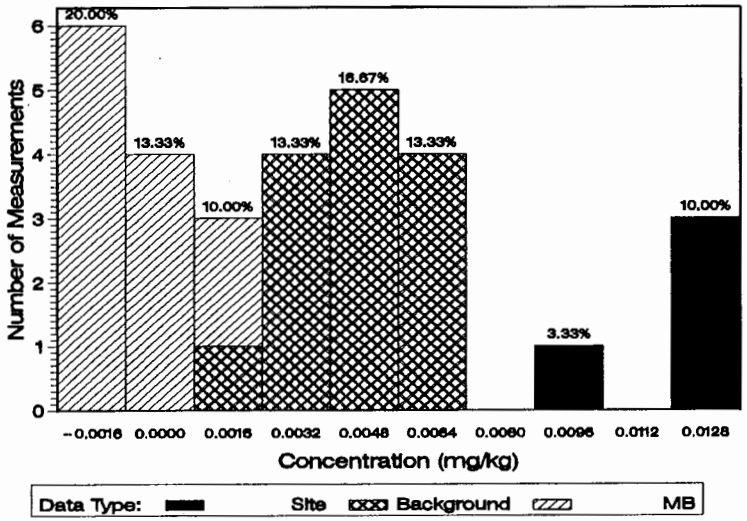


Beryllium -- SW6010
Groundwater -- Pond A/B

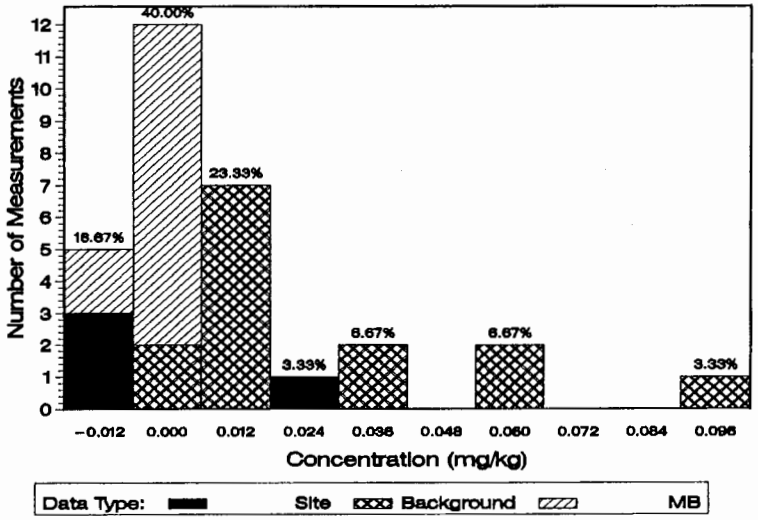


Holloman AFB L&L Site and Background Data
Frequency Distribution

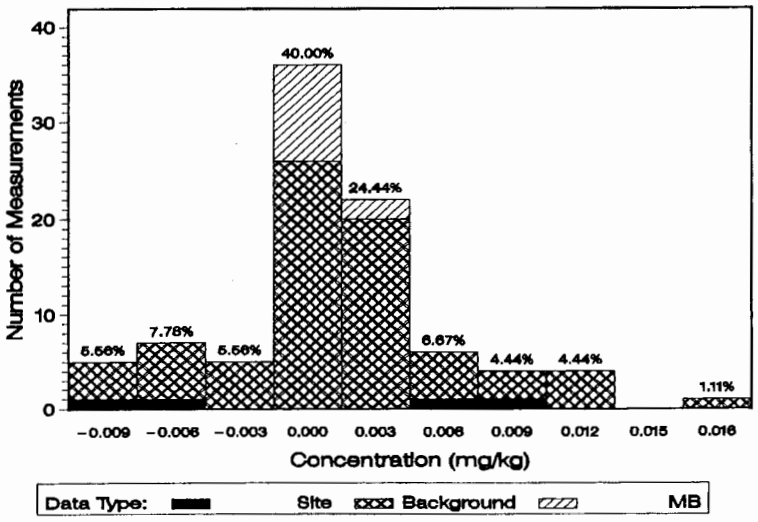
Cadmium -- SW6010
Groundwater -- Pond A/B



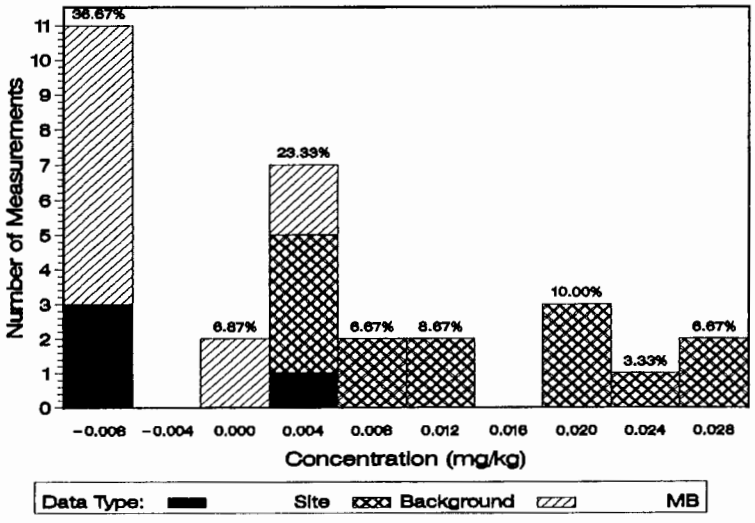
Chromium -- SW6010
Groundwater -- Pond A/B



Cobalt -- SW6010
Groundwater -- Pond A/B

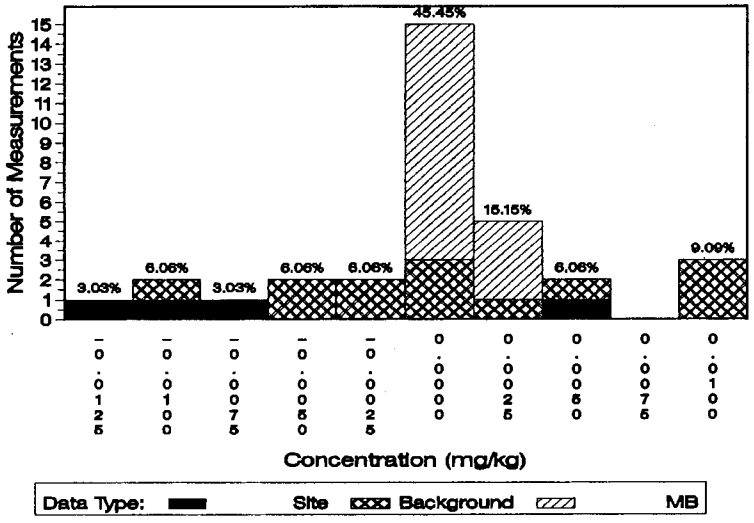


Copper -- SW6010
Groundwater -- Pond A/B

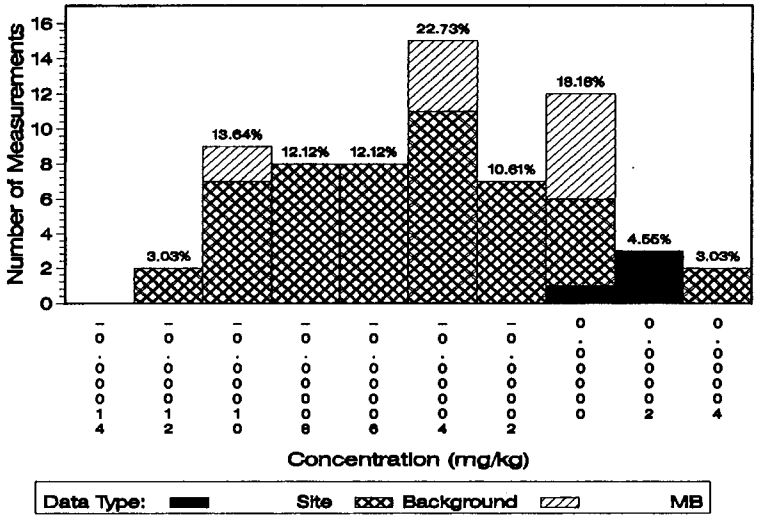


Holloman AFB L&L Site and Background Data
Frequency Distribution

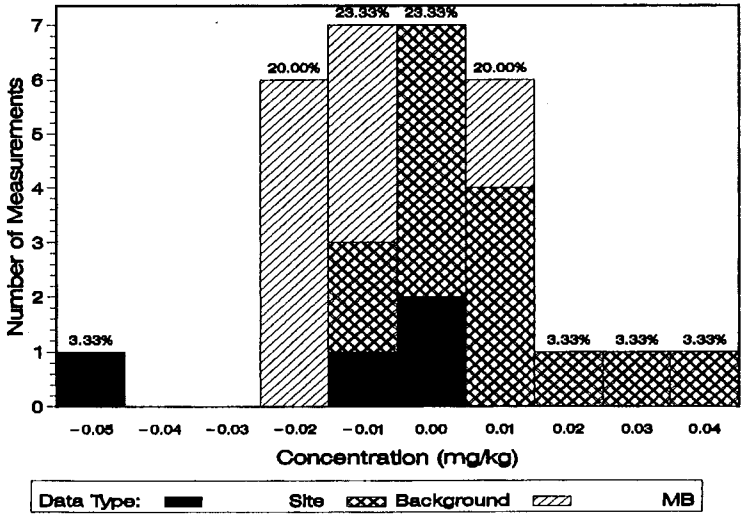
Lead -- SW7421
Groundwater -- Pond A/B



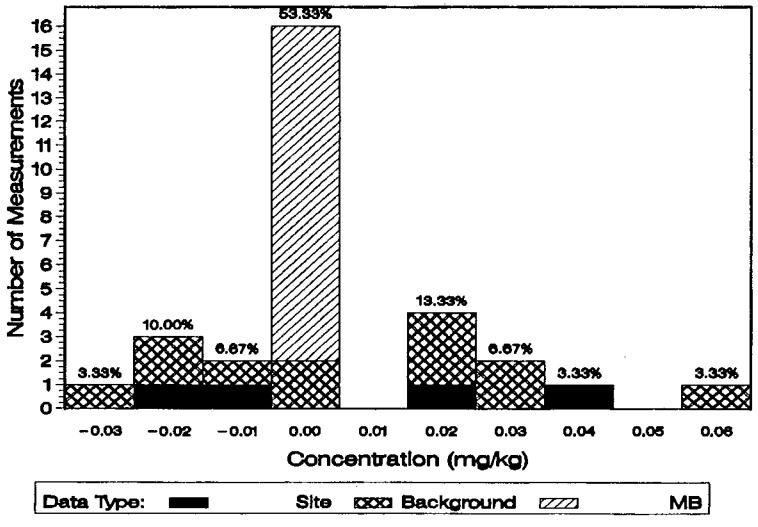
Mercury -- SW7470
Groundwater -- Pond A/B



Nickel -- SW6010
Groundwater -- Pond A/B

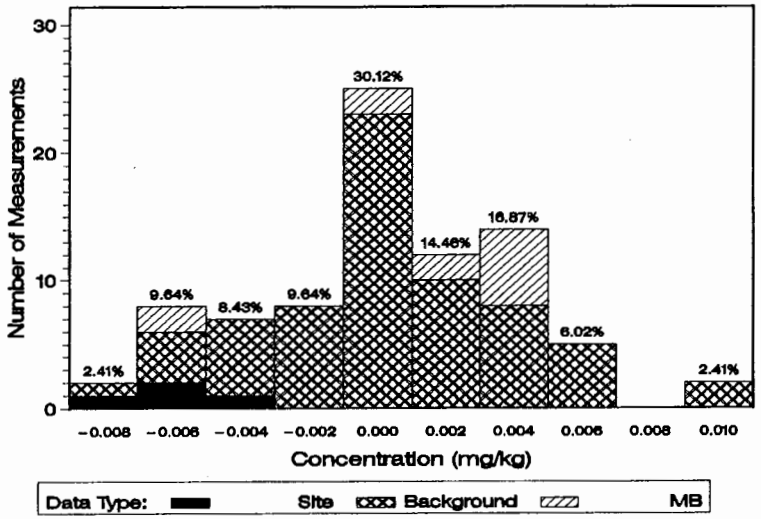


Selenium -- SW7740
Groundwater -- Pond A/B

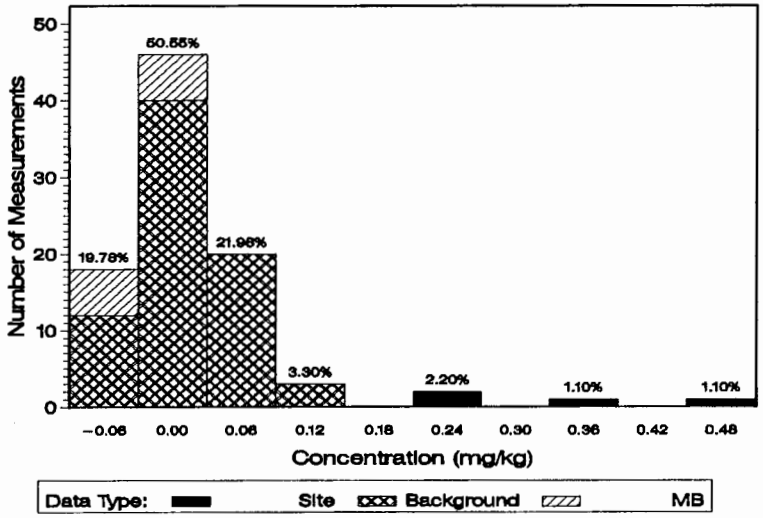


Holloman AFB L&L Site and Background Data
Frequency Distribution

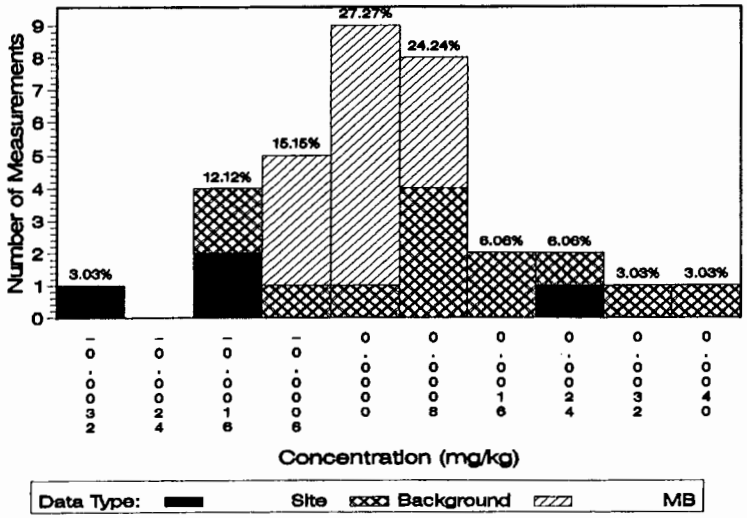
Silver -- SW6010
Groundwater -- Pond A/B



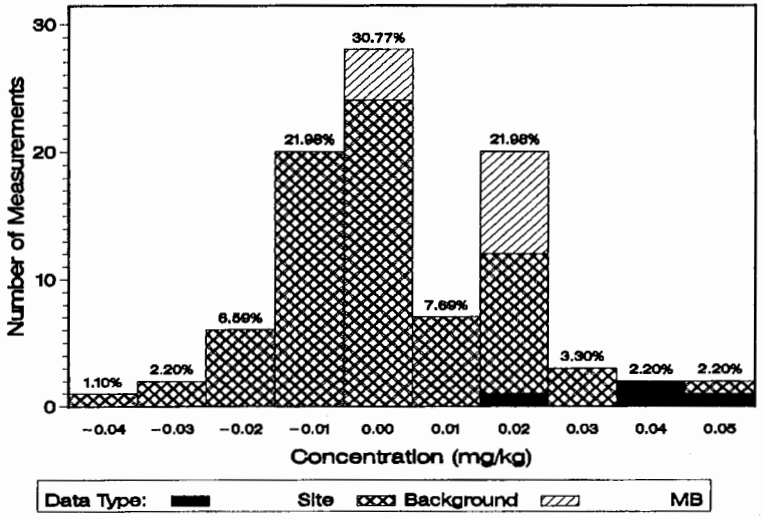
Thallium -- SW6010
Groundwater -- Pond A/B



Thallium -- SW7841
Groundwater -- Pond A/B

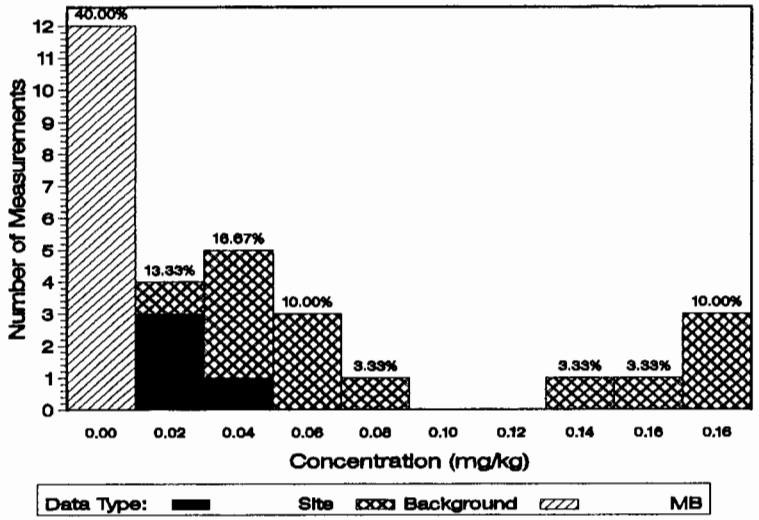


Tin -- SW6010
Groundwater -- Pond A/B

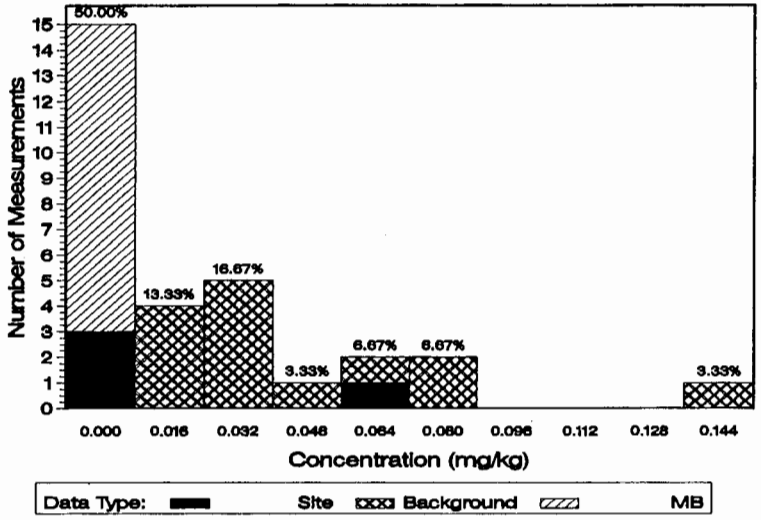


Holloman AFB L&L Site and Background Data
Frequency Distribution

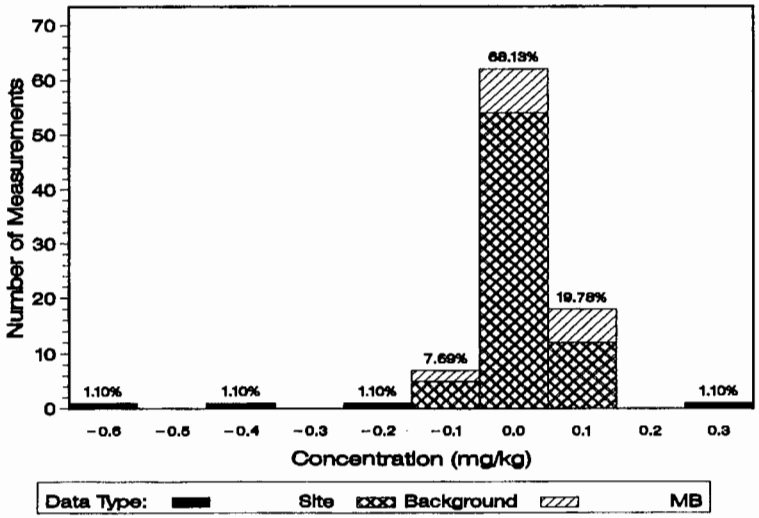
Vanadium -- SW6010
Groundwater -- Pond A/B



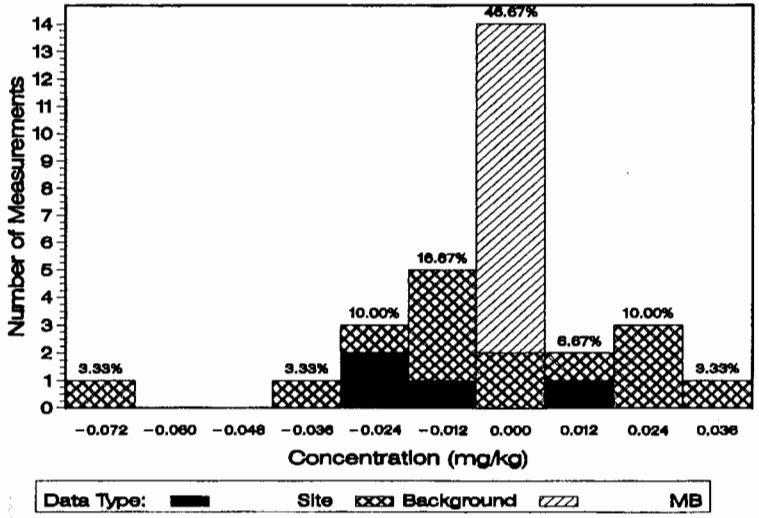
Zinc -- SW6010
Groundwater -- Pond A/B



Antimony -- SW6010
Groundwater -- Pond D/E/F

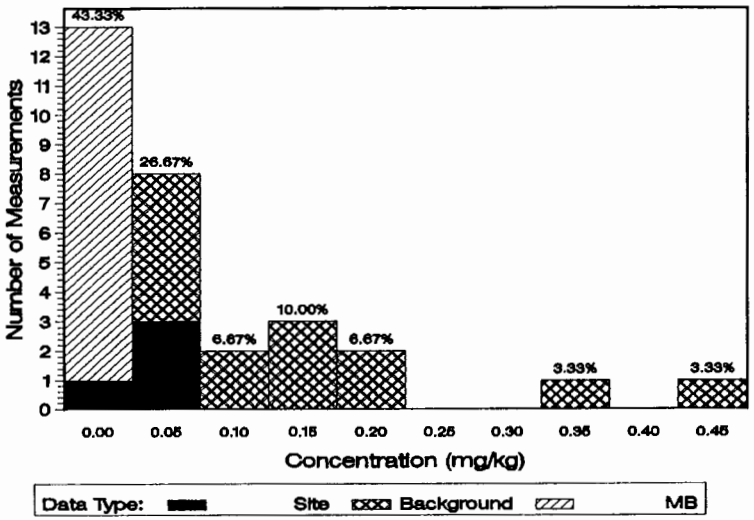


Arsenic -- SW7060
Groundwater -- Pond D/E/F

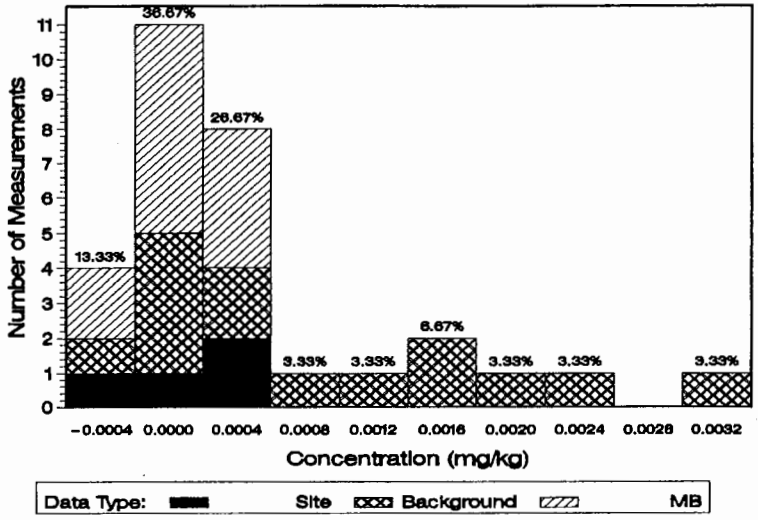


Holloman AFB L&L Site and Background Data
Frequency Distribution

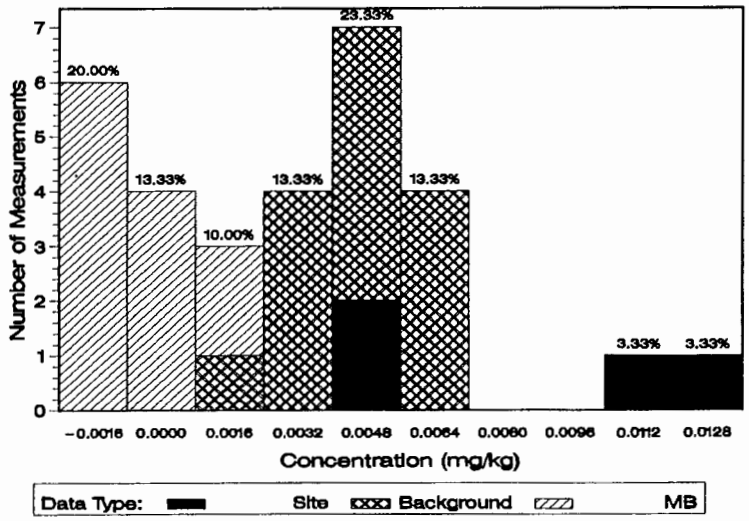
Barium -- SW6010
Groundwater -- Pond D/E/F



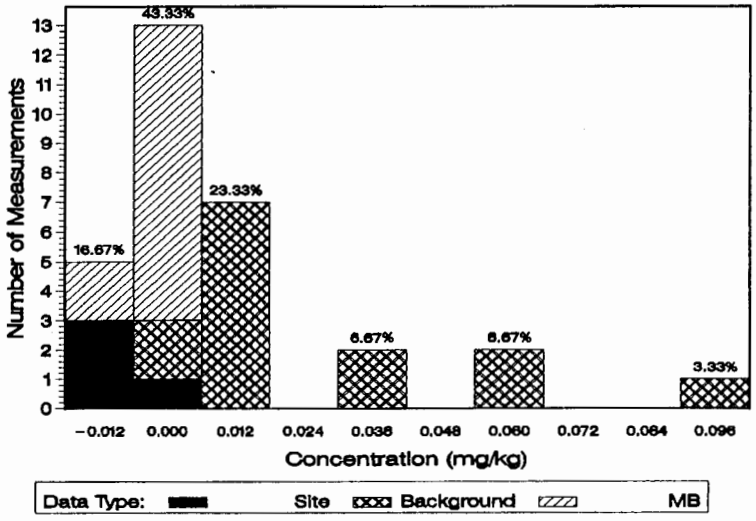
Beryllium -- SW6010
Groundwater -- Pond D/E/F



Cadmium -- SW6010
Groundwater -- Pond D/E/F

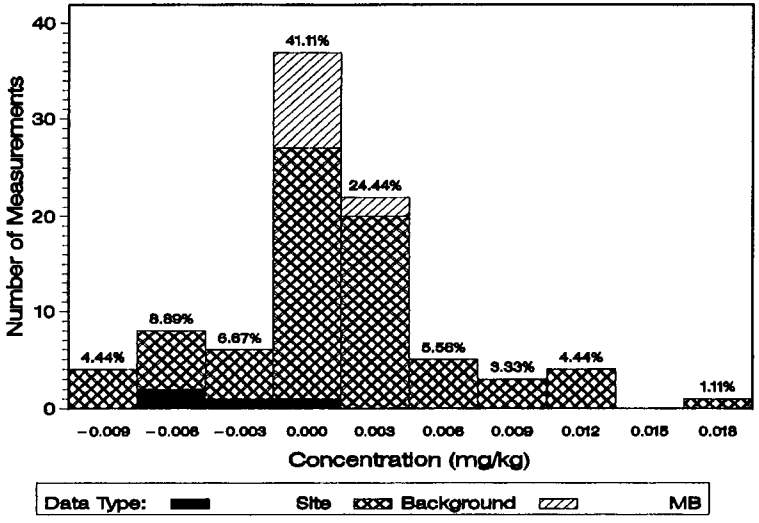


Chromium -- SW6010
Groundwater -- Pond D/E/F

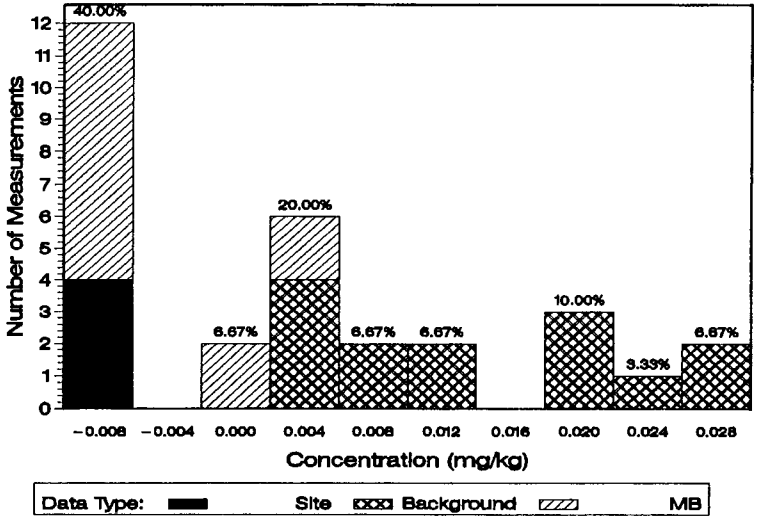


Holloman AFB L&L Site and Background Data
Frequency Distribution

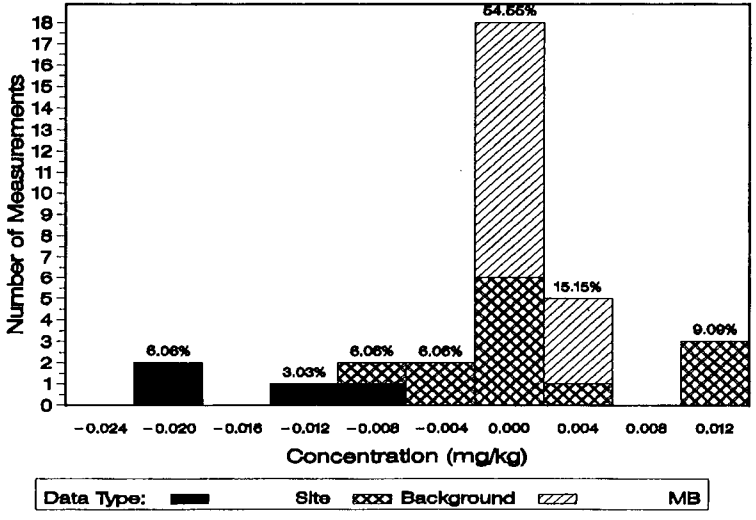
Cobalt -- SW6010
Groundwater -- Pond D/E/F



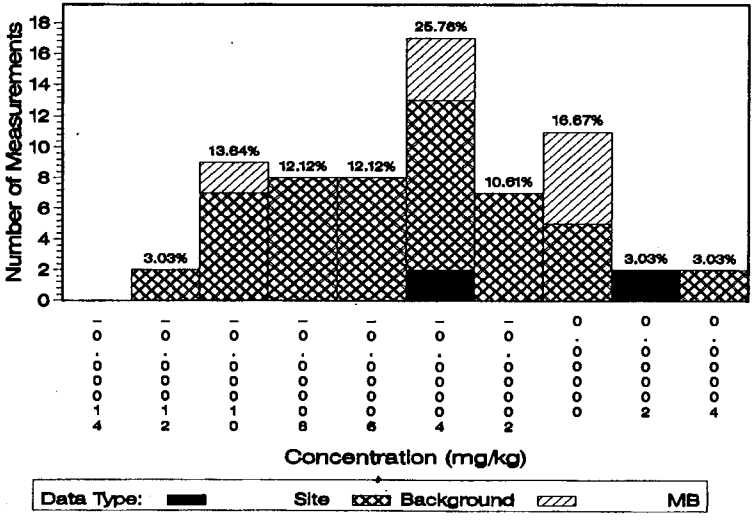
Copper -- SW6010
Groundwater -- Pond D/E/F



Lead -- SW7421
Groundwater -- Pond D/E/F

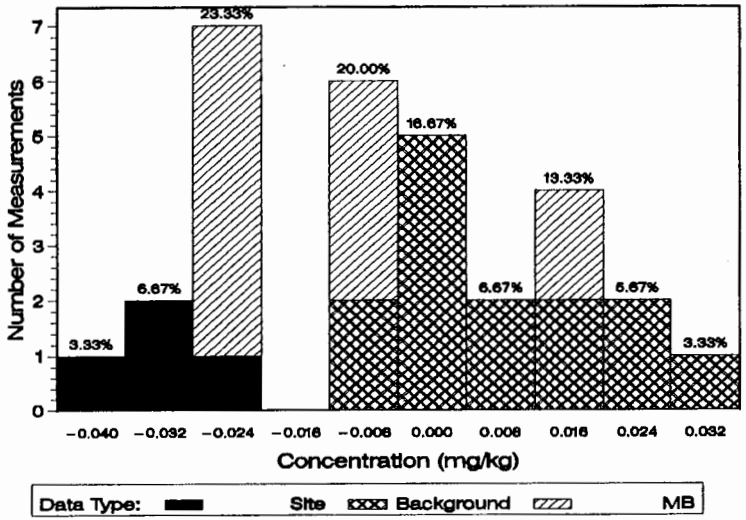


Mercury -- SW7470
Groundwater -- Pond D/E/F

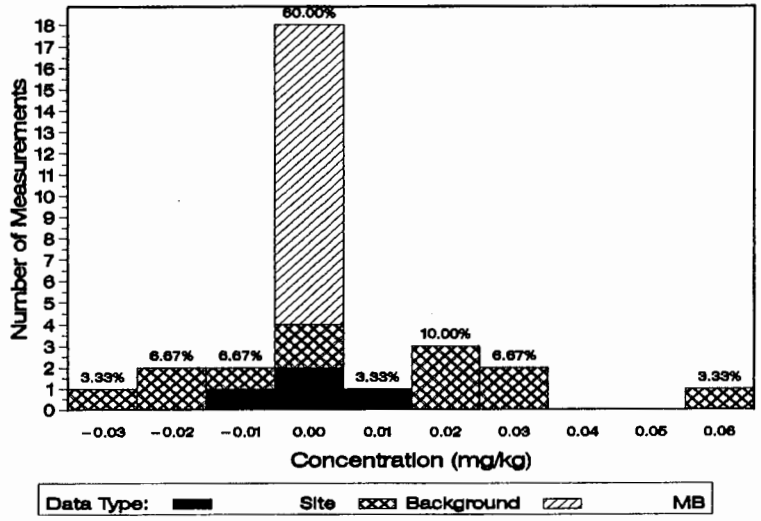


Holloman AFB L&L Site and Background Data
Frequency Distribution

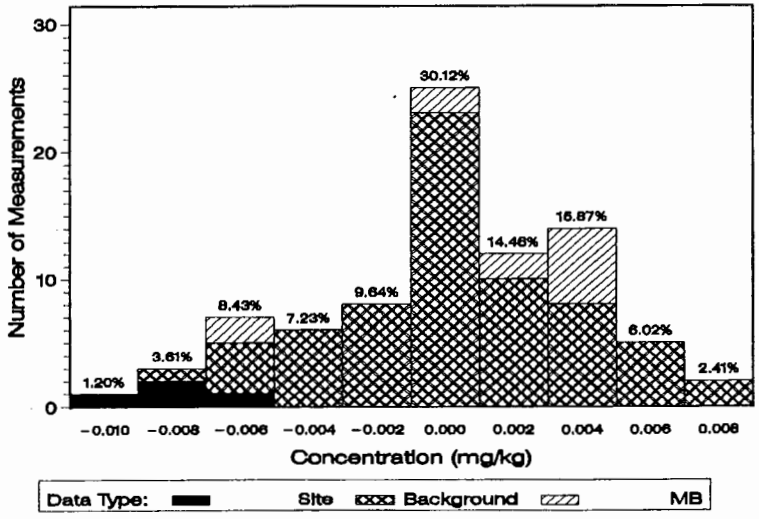
Nickel -- SW6010
Groundwater -- Pond D/E/F



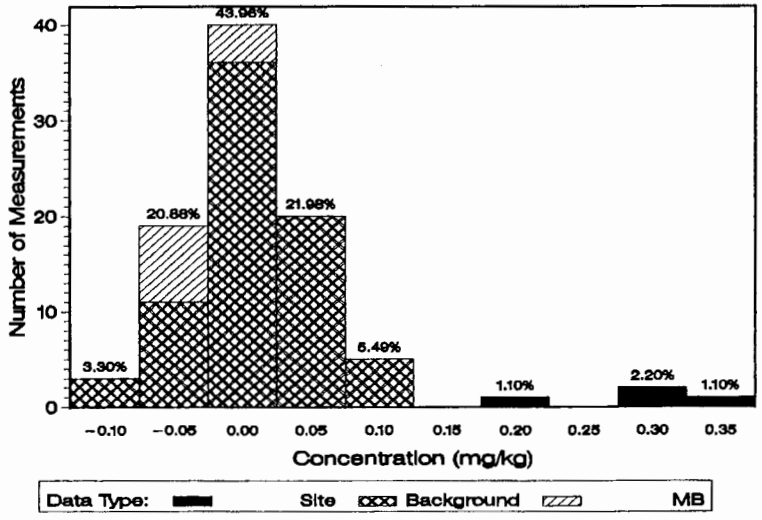
Selenium -- SW7740
Groundwater -- Pond D/E/F



Silver -- SW6010
Groundwater -- Pond D/E/F

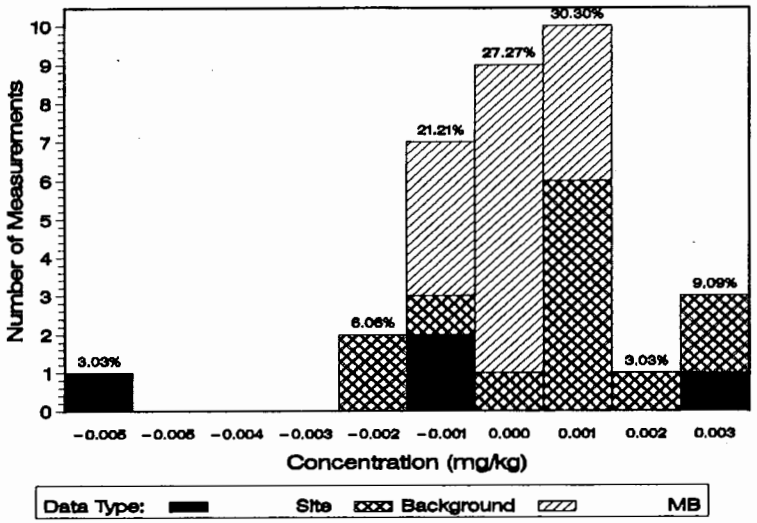


Thallium -- SW6010
Groundwater -- Pond D/E/F

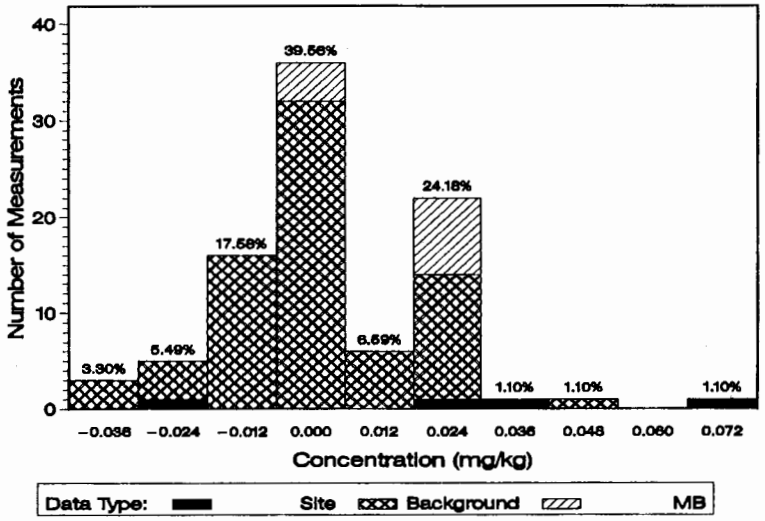


Holloman AFB L&L Site and Background Data
Frequency Distribution

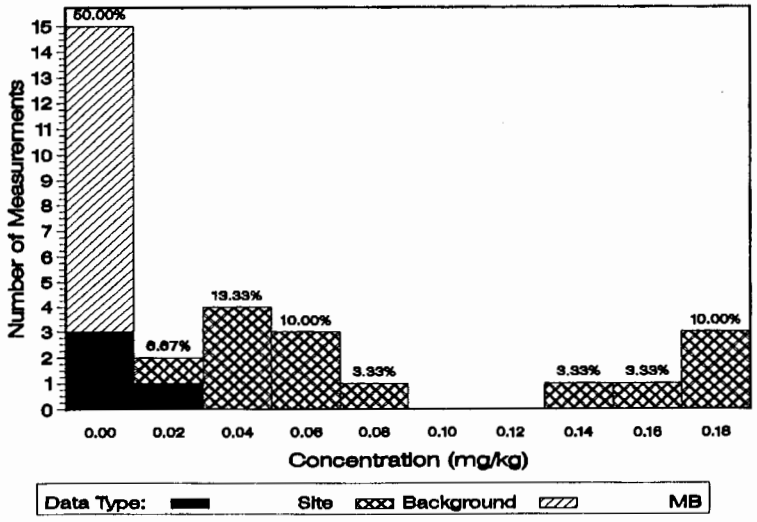
Thallium -- SW7841
Groundwater -- Pond D/E/F



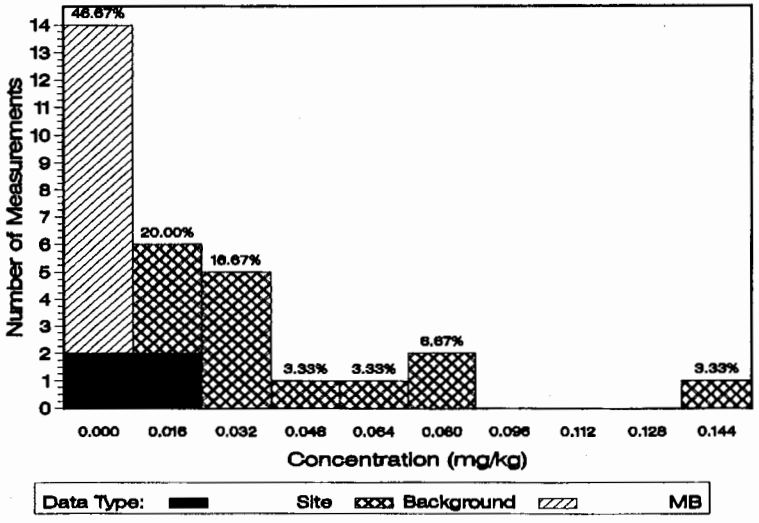
Tin -- SW6010
Groundwater -- Pond D/E/F



Vanadium -- SW6010
Groundwater -- Pond D/E/F

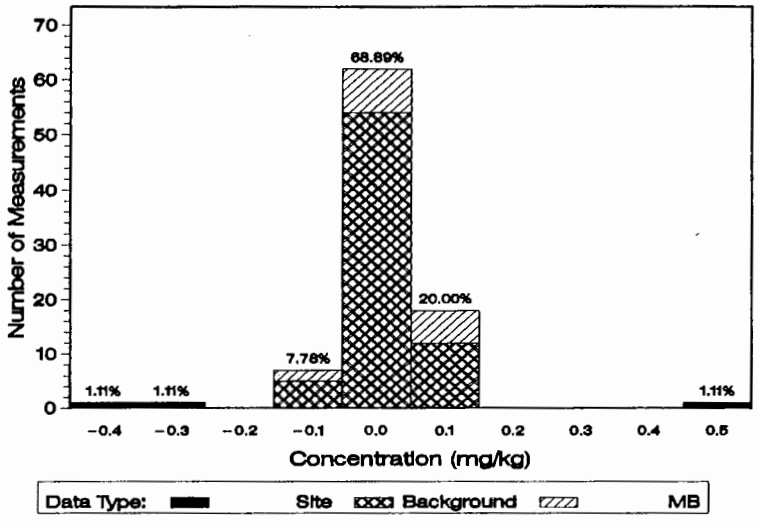


Zinc -- SW6010
Groundwater -- Pond D/E/F

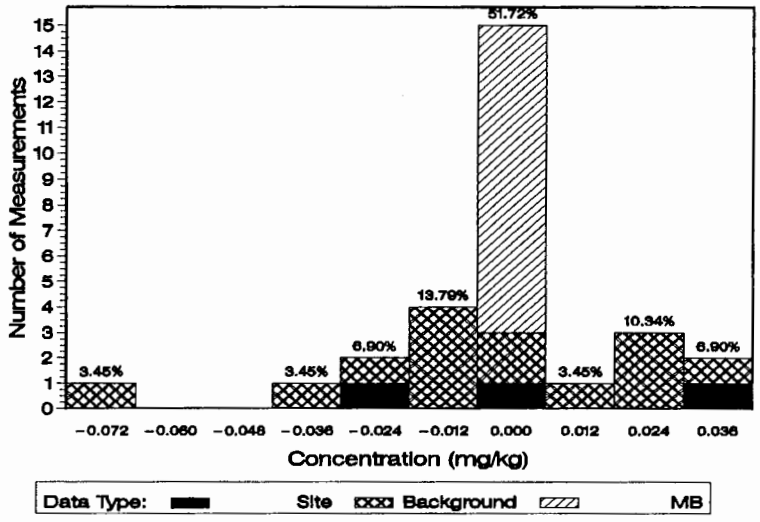


Holloman AFB L&L Site and Background Data
Frequency Distribution

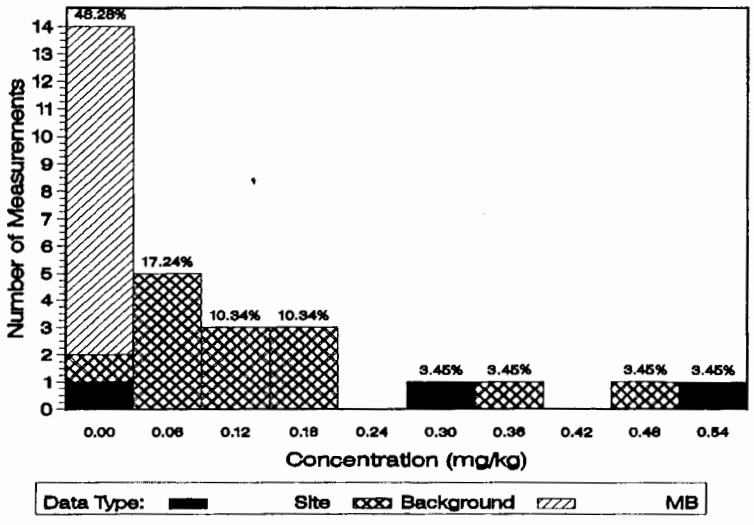
Antimony -- SW6010
Groundwater -- Lake Holloman



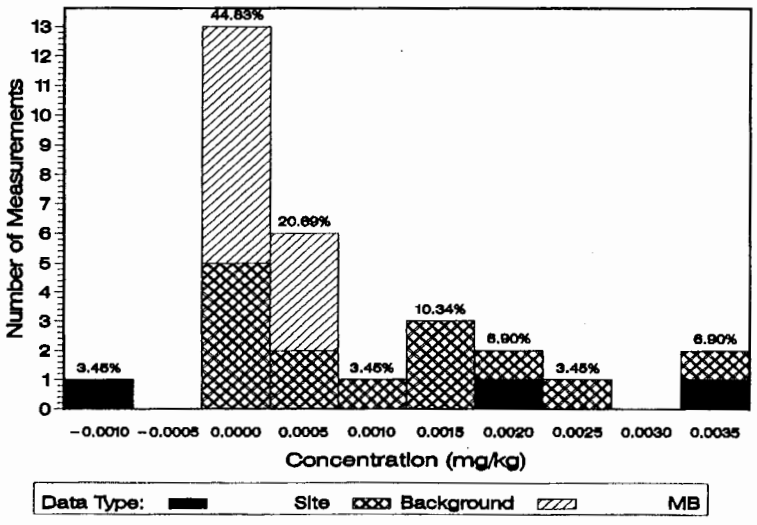
Arsenic -- SW7060
Groundwater -- Lake Holloman



Barium -- SW6010
Groundwater -- Lake Holloman

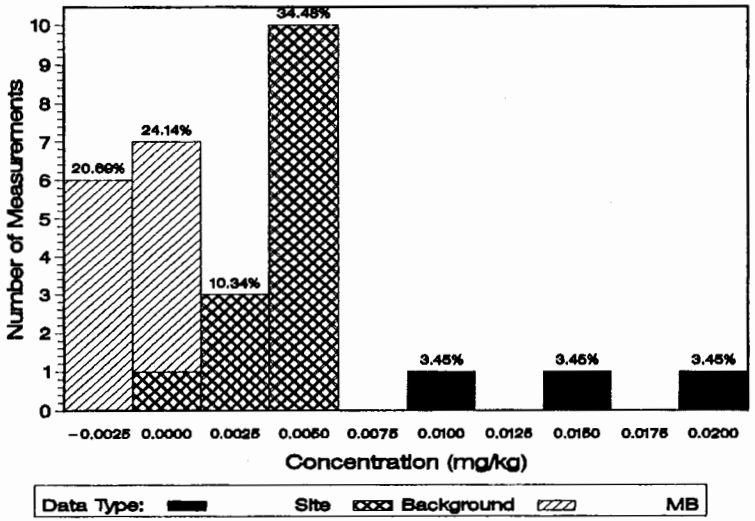


Beryllium -- SW6010
Groundwater -- Lake Holloman

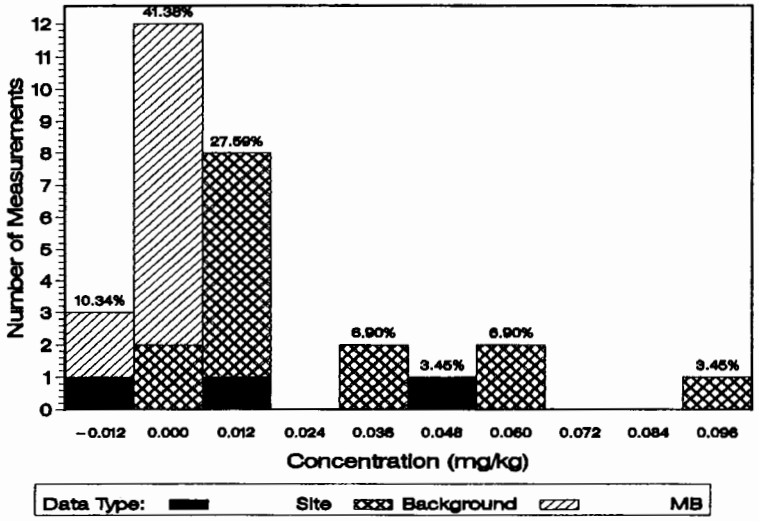


Holloman AFB L&L Site and Background Data
Frequency Distribution

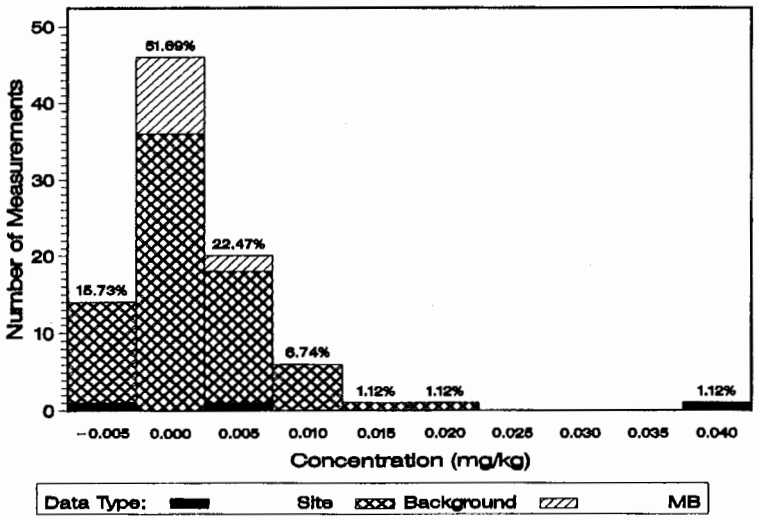
Cadmium -- SW6010
Groundwater -- Lake Holloman



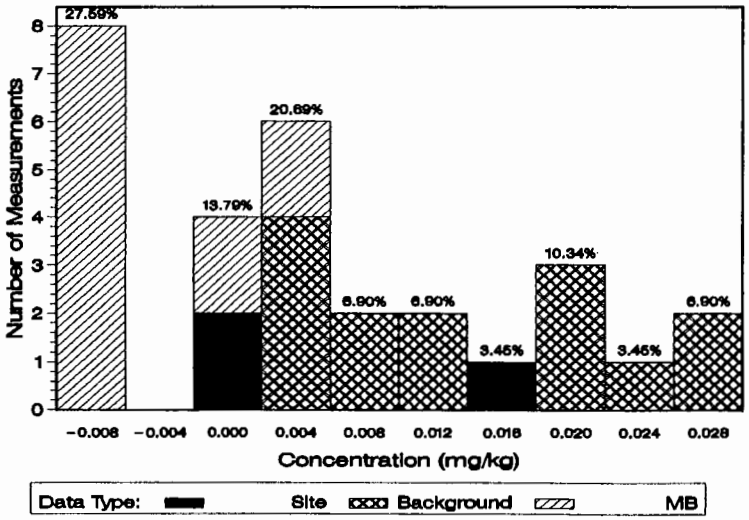
Chromium -- SW6010
Groundwater -- Lake Holloman



Cobalt -- SW6010
Groundwater -- Lake Holloman

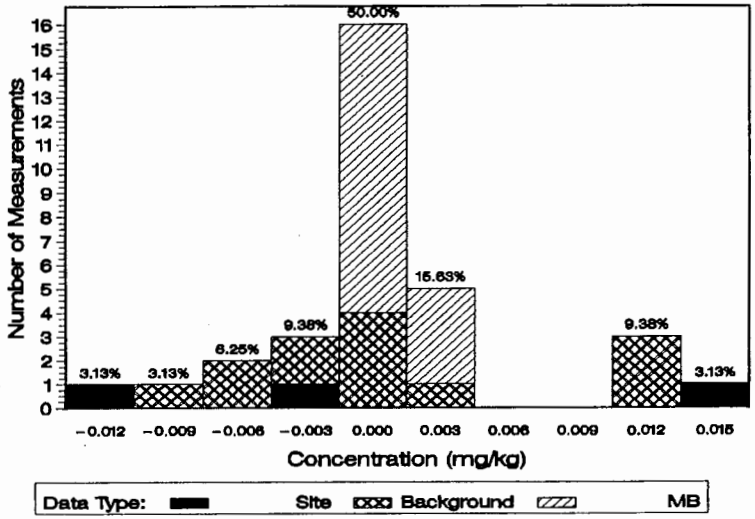


Copper -- SW6010
Groundwater -- Lake Holloman

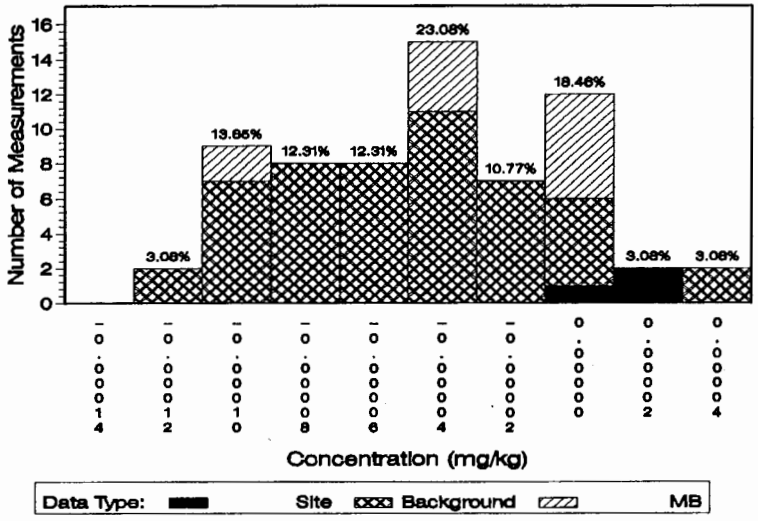


Holloman AFB L&L Site and Background Data
Frequency Distribution

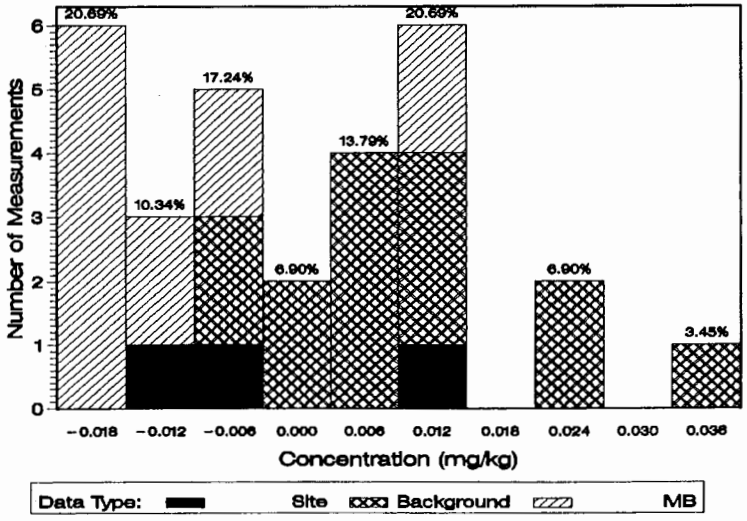
Lead -- SW7421
Groundwater -- Lake Holloman



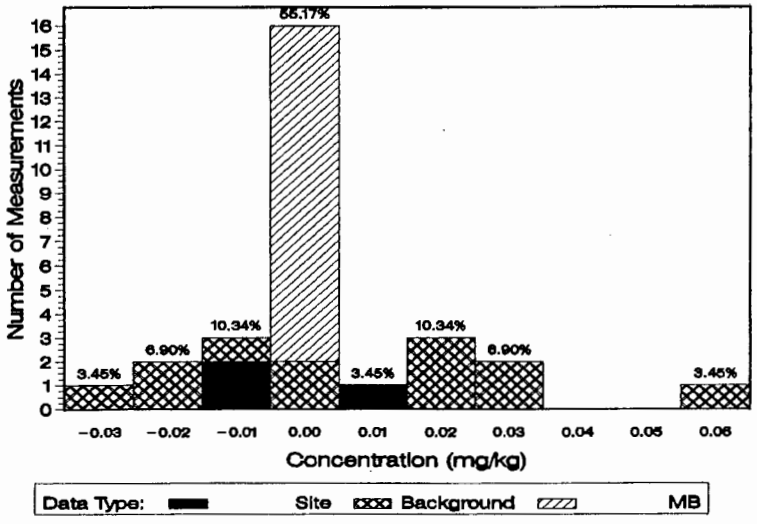
Mercury -- SW7470
Groundwater -- Lake Holloman



Nickel -- SW6010
Groundwater -- Lake Holloman

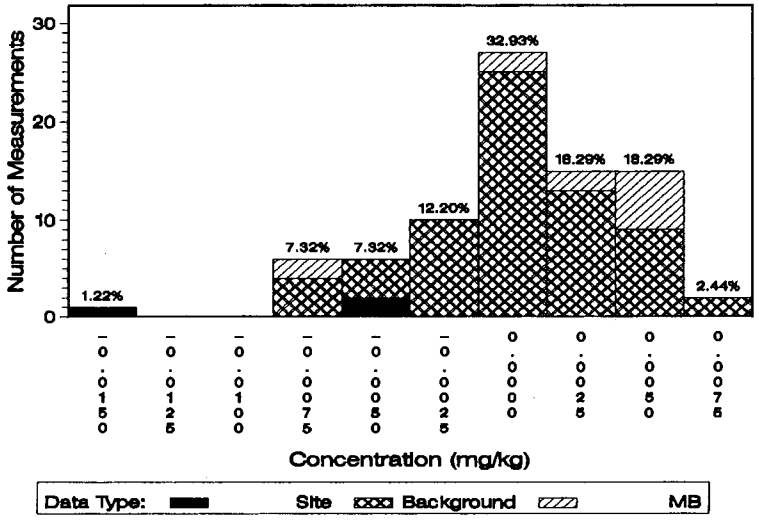


Selenium -- SW7740
Groundwater -- Lake Holloman

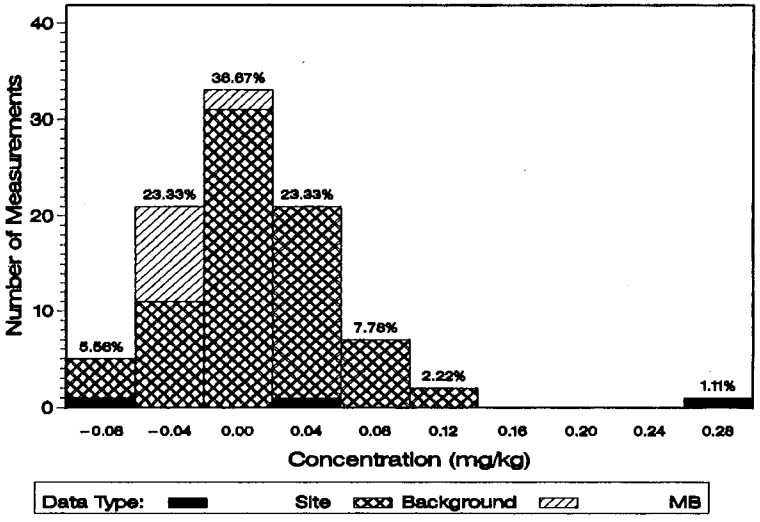


Holloman AFB L&L Site and Background Data
Frequency Distribution

Silver -- SW6010
Groundwater -- Lake Holloman



Thallium -- SW6010
Groundwater -- Lake Holloman



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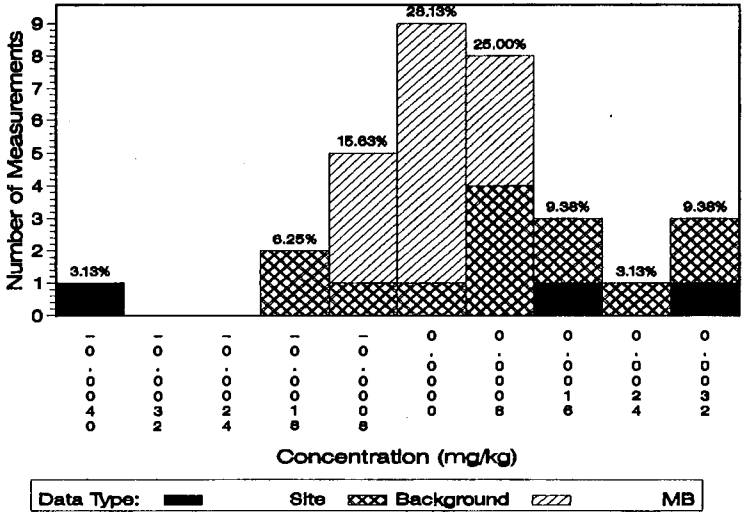
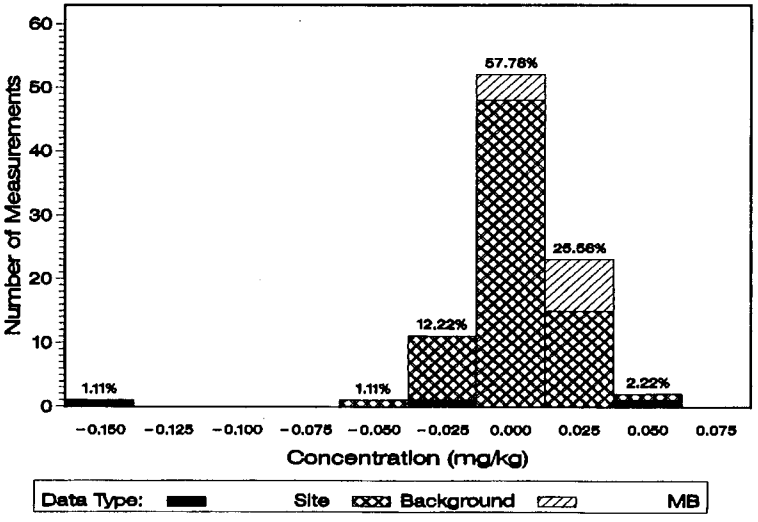
Groundwater -- Lake Holloman

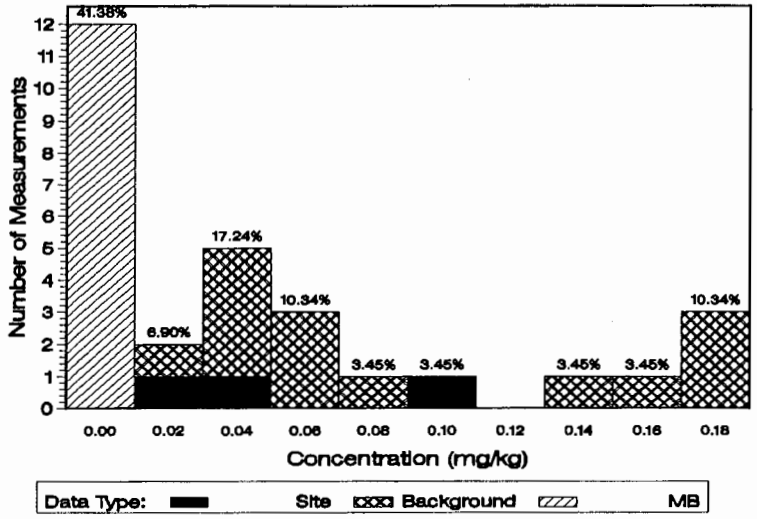


Tin -- SW6010
Groundwater -- Lake Holloman

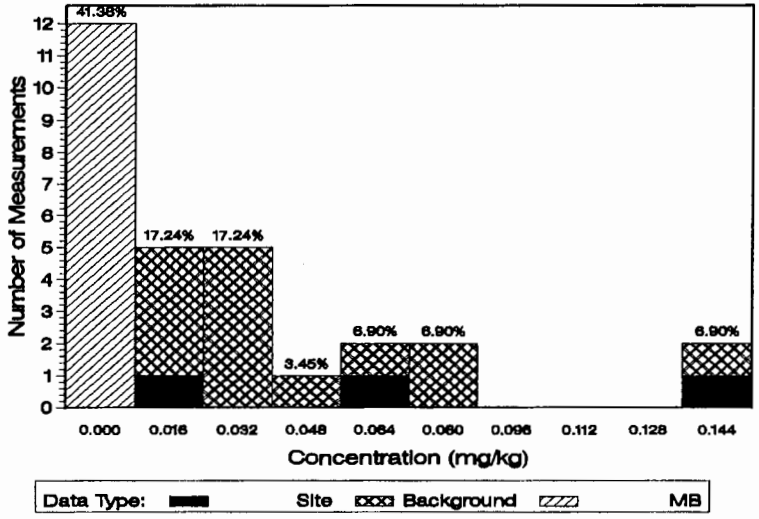


Holloman AFB L&L Site and Background Data
Frequency Distribution

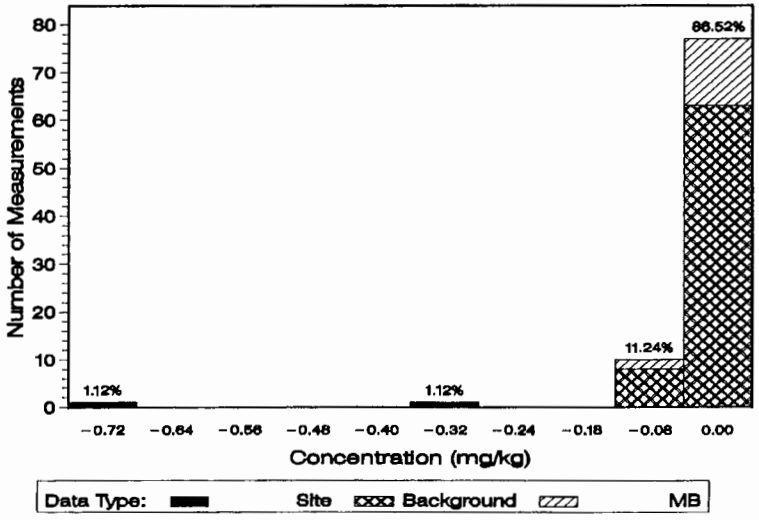
Vanadium -- SW6010
Groundwater -- Lake Holloman



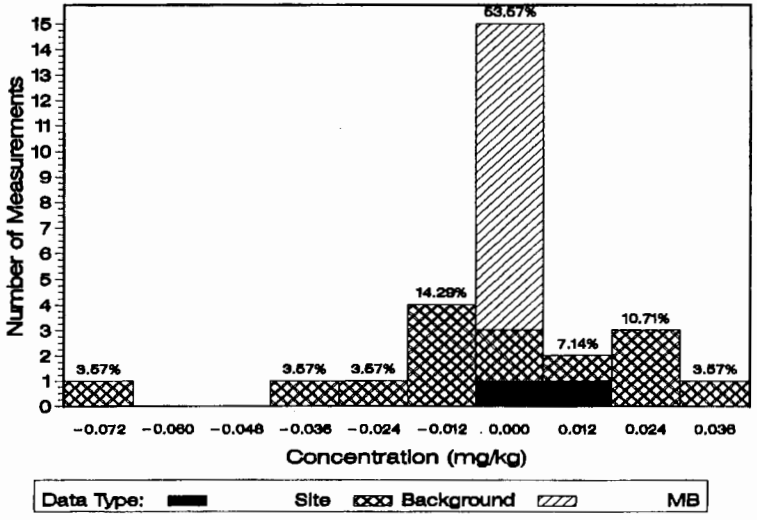
Zinc -- SW6010
Groundwater -- Lake Holloman



Antimony -- SW6010
Groundwater -- Lake Stinky

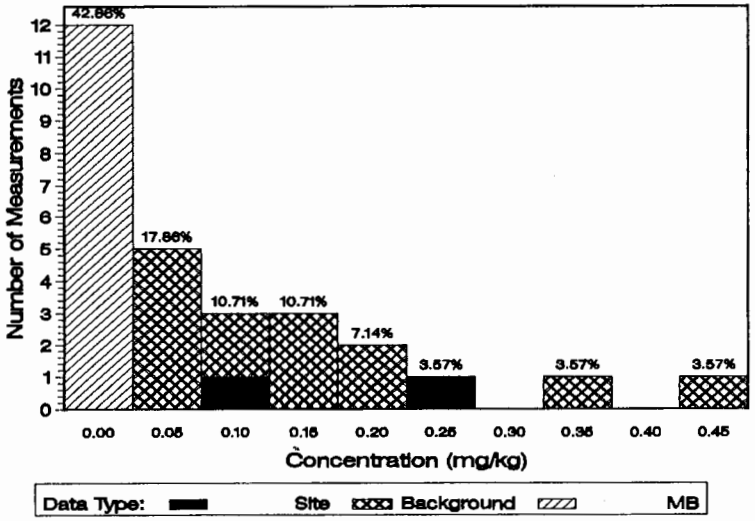


Arsenic -- SW7060
Groundwater -- Lake Stinky

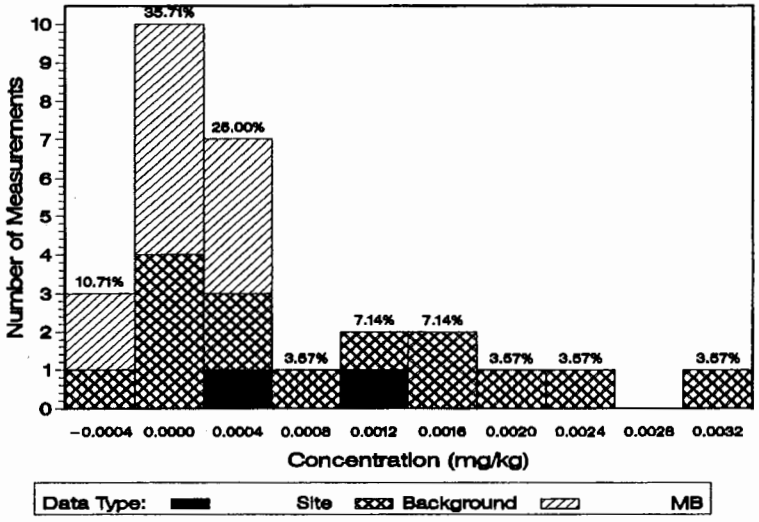


Holloman AFB L&L Site and Background Data
Frequency Distribution

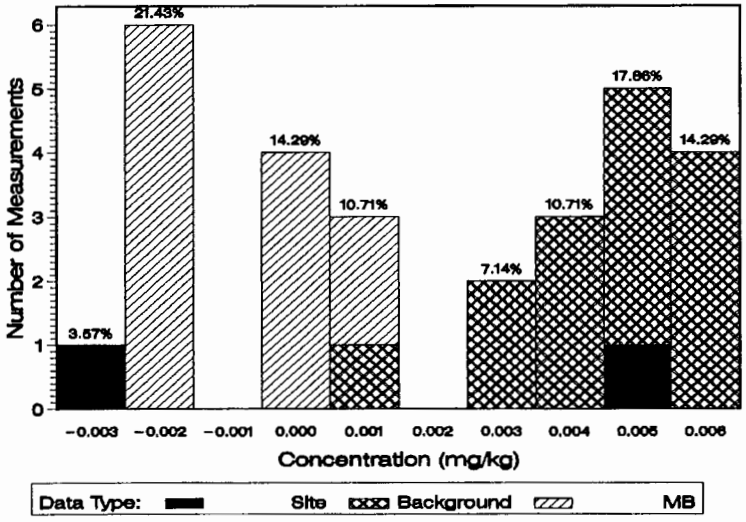
Barium -- SW6010
Groundwater -- Lake Stinky



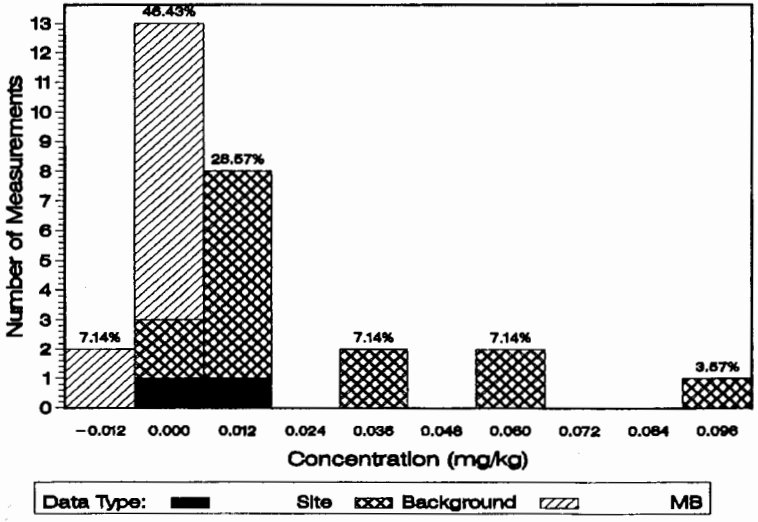
Beryllium -- SW6010
Groundwater -- Lake Stinky



Cadmium -- SW6010
Groundwater -- Lake Stinky

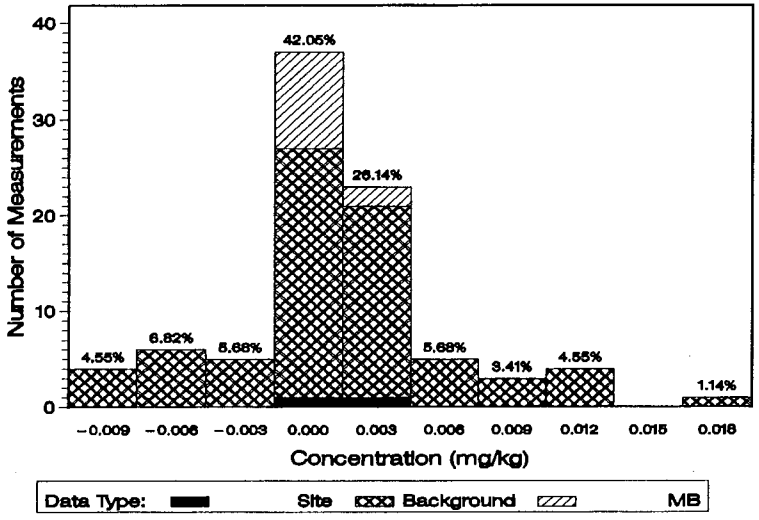


Chromium -- SW6010
Groundwater -- Lake Stinky

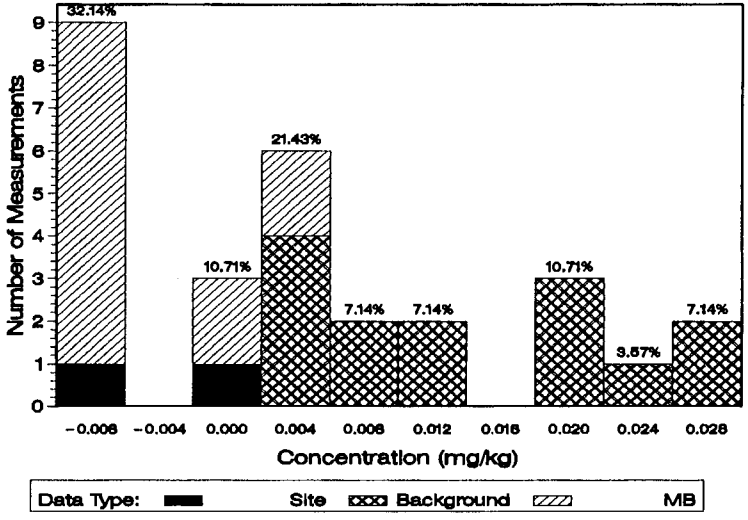


Holloman AFB L&L Site and Background Data
Frequency Distribution

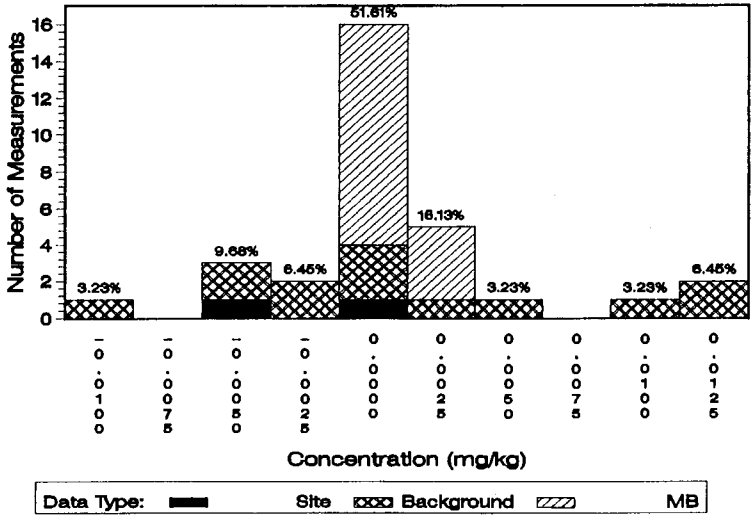
Cobalt -- SW6010
Groundwater -- Lake Stinky



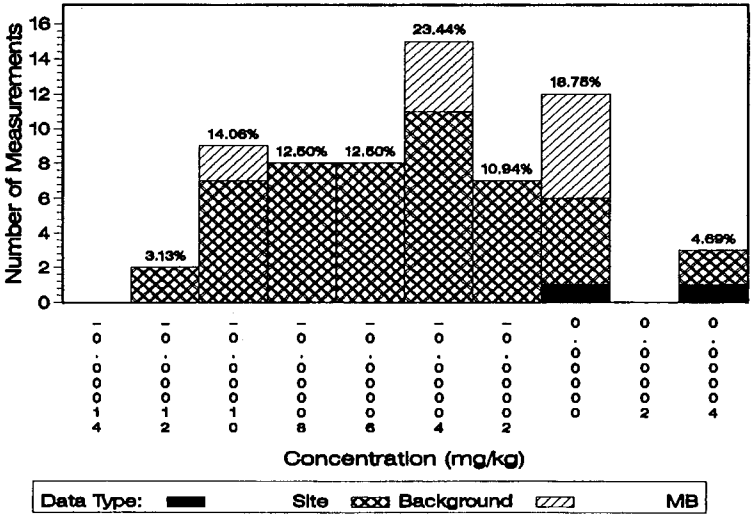
Copper -- SW6010
Groundwater -- Lake Stinky



Lead -- SW7421
Groundwater -- Lake Stinky

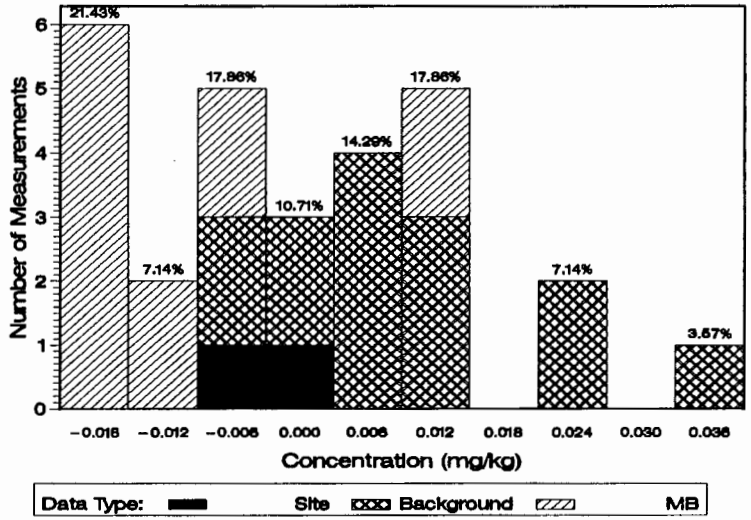


Mercury -- SW7470
Groundwater -- Lake Stinky

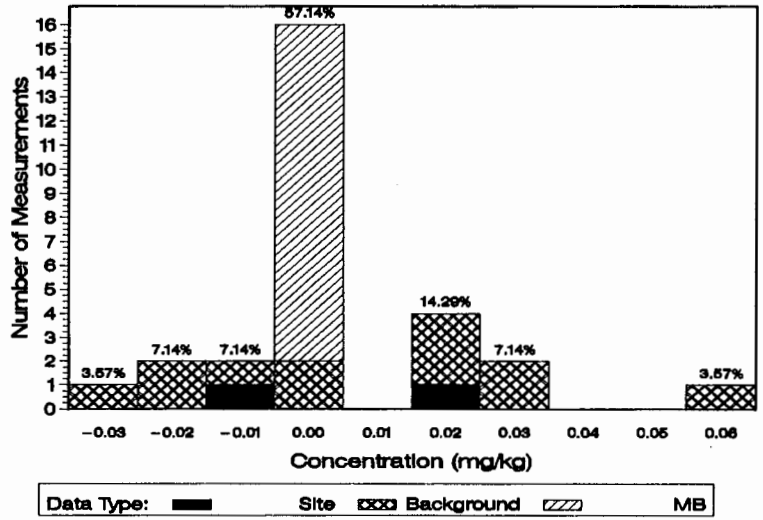


Holloman AFB L&L Site and Background Data
Frequency Distribution

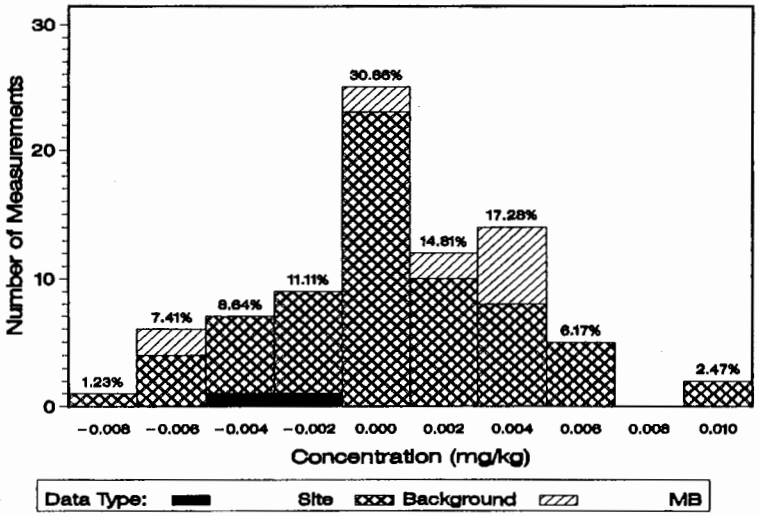
Nickel -- SW6010
Groundwater -- Lake Stinky



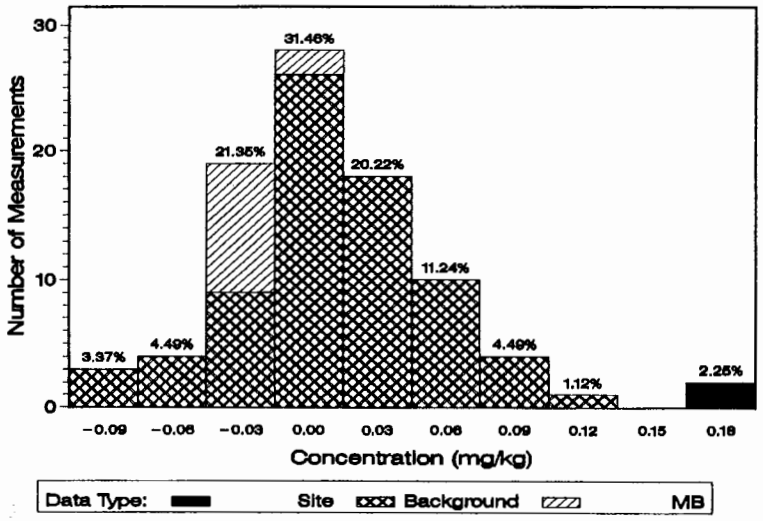
Selenium -- SW7740
Groundwater -- Lake Stinky



Silver -- SW6010
Groundwater -- Lake Stinky



Thallium -- SW6010
Groundwater -- Lake Stinky



Holloman AFB L&L Site and Background Data
Frequency Distribution

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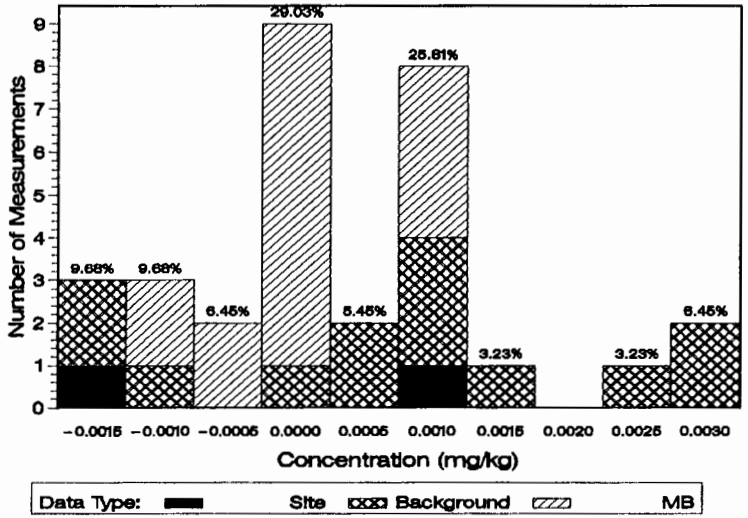
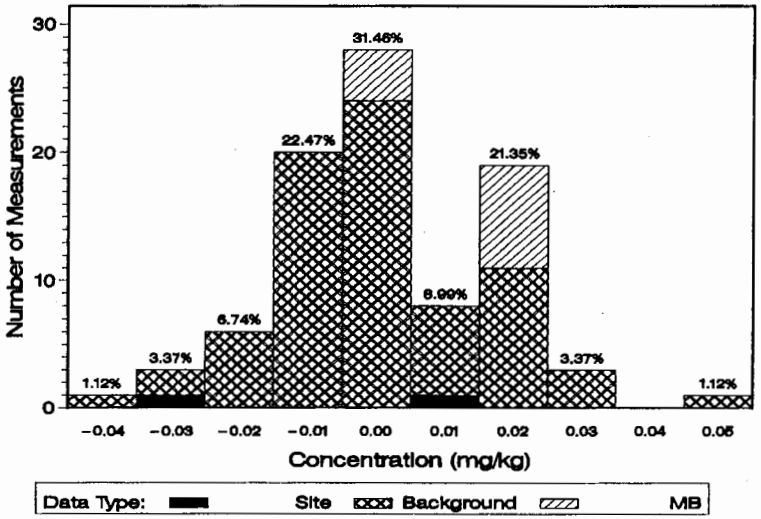
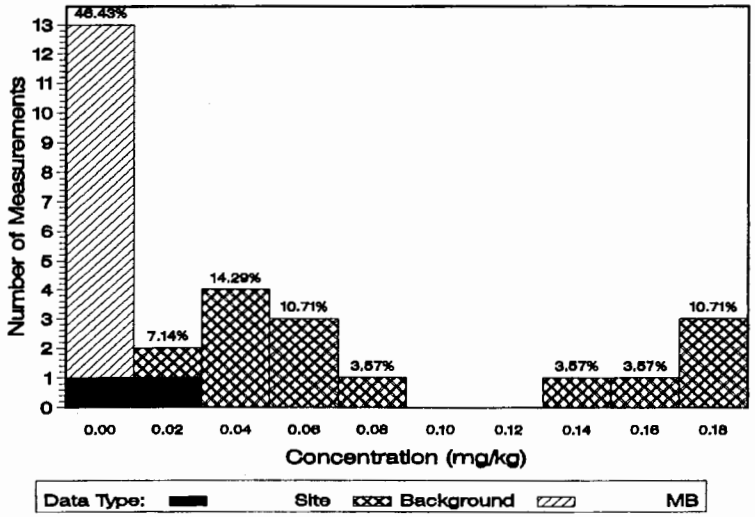
Groundwater -- Lake Stinky



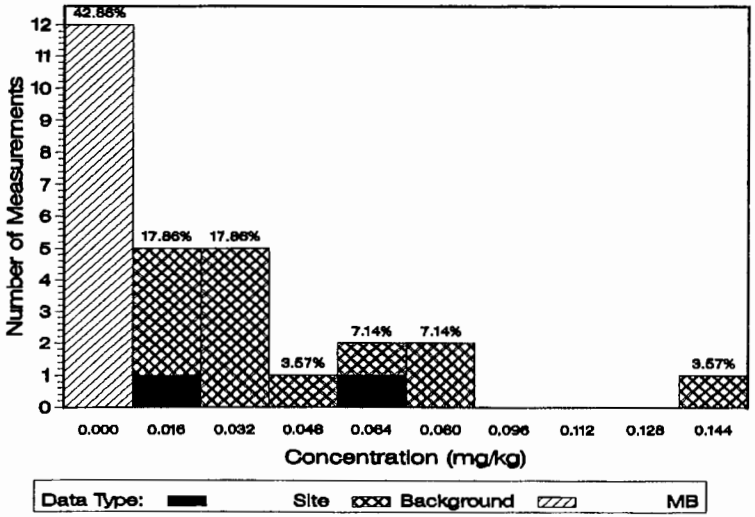
Tin -- SW6010
Groundwater -- Lake Stinky



Vanadium -- SW6010
Groundwater -- Lake Stinky



Zinc -- SW6010
Groundwater -- Lake Stinky



APPENDIX D

GROUNDWATER MODELING

1.0 INTRODUCTION

Contaminant fate and transport depend on a number of chemical, physical, and biological parameters. Chemical parameters include, but are not limited to: 1) vapor pressure; 2) water solubility; and 3) the soil adsorption coefficient (K_d). Contaminants with low vapor pressures may volatize into air and disperse in the atmosphere. Soluble contaminants will readily dissolve in water, facilitating water-borne transport. Conversely, contaminants with low water solubilities and/or high K_d values will remain sorbed to particulates. In surface water, these particulates may migrate by physical suspension or saltation but require greater flow velocities. For particulate transport in groundwater, particle size is important as smaller particles (e.g., colloids) can migrate through the connected voids within the subsurface while larger particles are filtered out. In addition, biological activity (e.g., bacteria, algae, etc.) may convert insoluble contaminants to soluble species or may remove or degrade the contaminants altogether. In turn, these biological organisms may be transported. Both soluble and insoluble contaminants have been detected throughout the lagoons and lakes wastewater treatment system, along with algae and bacteria, suggesting that dissolved-phase and particulate transport have occurred.

The remaining sections of this appendix present the groundwater modeling approach, the model input parameters, and the results of the modeling effort.

2.0 GROUNDWATER MODELING

Groundwater flow and contaminant transport modeling in support of the health risk assessment was performed using the steady state, two-dimensional, analytic modeling capabilities built into CPS-3®, a computer contouring and mapping package produced by Radian Corporation. The model uses the analytic element method (Strack, 1989) to calculate the groundwater flow field produced by regional groundwater gradients, pumping wells, rivers, and surface water bodies. The flow model created for Holloman AFB was a homogeneous, isotropic aquifer containing sewage lagoons and Lakes Holloman and Stinky (modeled as line sinks along their perimeters) and pumping wells. In the absence of regional accretion by rainfall, the model is a solution of the two-dimensional Laplace equation and uses classic potential theory for solution.

Contaminant transport is also supported by CPS-3® as advective transport of contaminants down gradient. The model uses a particle tracking approach and numerically integrates along streamlines using a fourth order Runge Kutta scheme. Contaminants may undergo first-order decay to simulate physical, chemical, and biological attenuation. Contaminant migration rates may also be retarded with respect to groundwater flow rates; however, this feature was not used in the Holloman AFB modeling.

3.0 GROUNDWATER MODELING PARAMETERS

Characteristics determined from slug tests (Hydrogeological Investigation and Groundwater Monitoring Report, 1989) of the upper saturated zone were used in the groundwater modeling. The hydraulic conductivity (8.69 ft/day) was calculated as the geometric mean and the porosity (0.35) was calculated as the arithmetic mean from data collected at wells S-4, S-5, S-8, S-11, S-15, and S-16. An hydraulic gradient of 0.003 to the southwest (220 degrees) was determined from the April, 1993 piezometric survey (Phase I Assessment). The boundaries of Lakes Holloman and Stinky and the waste water treatment ponds were modeled as line sinks. The following water elevation levels were used: 4018, 4012, 4034 and 4030 feet MSL for Lake Holloman, Lake Stinky, Ponds A-F, and Pond G, respectively.

A hypothetical well with a continuous pumping rate of 4 gpm was placed down-gradient of Pond G on the AFB property line. The location was determined by a process of trial and error and represents the location that draws the maximum amount of groundwater from beneath Pond G. The well is assumed to pump groundwater over a shallow 10 foot thick saturated interval. The mean and 95 percent upper confidence levels (UCLs) of the pollutant concentrations measured in wells MW-6, MW-4 and MWD-04 were used to represent the concentrations of the pollutants in the groundwater beneath Pond G. These wells are located immediately downgradient of Pond G. The half-lives and decay coefficients used to calculate the first order decay of the groundwater pollutants are given in Table D-1.

Table D-1

Groundwater Pollutant Half-lives and Decay Coefficients

Analyte	Half Life (days)	k (1/yr)	Reference
4,4'-DDD	11424.50	0.02215	(3)
Dieldrin	4370.00	0.05789	(1)
Endosulfan sulfate	53.00	4.77358	(1)
Endrin	460.00	0.55000	(1)
Endrin Aldehyde	460.00	0.55000	(1)
Heptachlor	1370.00	0.18467	(1)
Heptachlor epoxide	1104.00	0.22917	(2)
Isodrin [a]	460.00	0.55000	(1)
Methoxychlor	122.35	2.06784	(1)
alpha-BHC	56.05	4.51382	(1)
gamma-BHC	300.00	0.84333	(1,2)
gamma-Chlordane	3650.00	0.06932	(2)

[a] Isodrin metabolizes to endrin, therefore, the half-life of endrin found in reference 1 was used.

4.0 RESULTS

The minimum travel time from Pond G to the hypothetical well is predicted to be 26 years. Groundwater that follows less direct paths to the well has longer travel times. In order to calculate wellhead concentrations, taking into account first-order decay of organic species traveling with the groundwater along the different flow lines, the following expression was used to sum the contributions of groundwater concentrations along the streamlines:

$$C = \frac{C_0}{N} \sum_{i=1}^{N} e^{-kt_i}$$

where:

C	=	predicted wellhead concentration;
C_O	=	groundwater concentration at Pond G;
N	=	number of streamlines;
t_i	=	time of travel for the i-th streamline; and
k	=	decay coefficient.

The time of travel from Pond G to the hypothetical well was computed for 20 streamlines, with each streamline representing 5% of the water being pumped by the well. The predicted wellhead concentration of each pollutant is given in Table D-2.

Table D-2

Groundwater Pollutant Results (μg/L)

Analyte	Pond G Groundwater Concentration		Predicted Wellhead Concentration	
	Mean	UCL	Mean	UCL
4,4'-DDD	0.0132	0.0312	2.06E+001	1.04E-002
Dieldrin	0.0066	0.0104	6.77E+00	1.00E-003
Endosulfan sulfate	0.0226	0.0308	1.58E-057	2.15E-057
Endrin	0.0074	0.0130	1.45E-006	1.31E-009
Endrin Aldehyde	0.0135	0.0244	1.45E-006	2.47E-009
Heptachlor	0.0053	0.0064	1.29E-001	1.46E-005
Heptachlor epoxide	0.0143	0.0368	3.23E-002	2.39E-005
Isodrin	0.0073	0.0133	7.40E-010	1.35E-009
Methoxychlor	0.0160	0.0160	9.69E-027	5.74E-027
alpha-BHC	0.0220	0.0536	1.34E-054	3.26E-054
gamma-BHC	0.0138	0.0320	1.54E-010	1.26E-012
gamma-chlordane	0.0244	0.0623	4.74E+00	4.21E-003

5.0 REFERENCES

Sims, R.C., Sims, J.L., Hansen, S.G. Soil Transport and Fate Database Version 2.0, Department of Civil and Environmental Eng., Utah State University.

Toxicological Profiles, U.S. Department of Health and Human Services.

Howard, P.H., Boethling, R.S., Jarvis, W.F., Meylan, W.M., Michalenko, E.M. Handbook of Environmental Degradation Rates, Lewis Publishing, 1991.

Strack, D.L. Groundwater Mechanics, Prentice Hall, 1989.

APPENDIX E

AIR MODELING

1.0 INTRODUCTION

Emission rates of chemical compounds due to volatilization and wind entrainment of contaminated dust from Lake Stinky and Ponds A-F were estimated using predictive emission rate equations applicable to various emission mechanisms. The predicted emission rates were then input into a simple "Box Model" to estimate chemical concentrations in the atmosphere over Lake Stinky and Ponds A-F. The predicted concentrations were then used to estimate health risks to the exposed populations. This appendix contains the methodology used to calculate emissions and estimate ambient air concentrations.

2.0 EMISSION ESTIMATES

The models used to estimate the emission rates of the chemicals of concern (COC) are presented in this section. Emissions due to the following mechanisms were considered:

- Volatilization of organic compounds from surface soil contamination (Lake Stinky and Ponds A-F),
- Entrainment of contaminated surface soil due to wind erosion (Lake Stinky), and
- Entrainment of contaminated surface soil due to construction activities (Ponds A-F).

In accordance with guidance provided in the EPA document, *Risk Assessment Guidance for Superfund: Volume 1* (EPA, 1991), all chemicals with a Henry's Law constant of 1×10^{-5} atm-m^3/mole or greater and molecular weight of less than 200 g/mole, were considered volatile. These compounds were evaluated for the volatilization emission mechanism. The remaining compounds were considered to be non-volatile and were evaluated for the entrained dust emission mechanisms.

2.1 Volatilization from Surface Contamination

For the estimation of emission rates due to volatilization from open landfills, i.e., open dump, Shen (1981) suggests using Arnold's equation (Arnold, 1944) with Ziegler's modification (Ziegler, 1979). This equation, presented below, was determined to be the most applicable equation for estimating emissions of volatile compounds:

$$E_i = \frac{2\ C_e\ w}{A} \sqrt{\frac{DLV}{\pi F_v}} \left(\frac{W_i}{W}\right) P_i$$

where:	E_i	=	emission rate ($g/m^2/sec$)
	C_e	=	equilibrium vapor pressure (fraction)
	L	=	length of open dump (cm)
	D	=	diffusion coefficient (cm^2/sec)
	V	=	wind speed (cm/sec)
	F_v	=	correction factor
		=	C_e (-0.848) + 1.0635
	W_i/W	=	weight % of component i in bulk waste (g/g)
	w	=	width of open dump (cm)
	A	=	area of open dump (m^2)
	P_i	=	gas density of component i

The annual average wind speed (V) for HAFB (2.57 meters per second) was used in the equation. The weight fraction (W_i/W) of each volatile compound used in the above equation was the average concentration (for average emission rates) and the 95th percentile upper confidence level concentration (for reasonable maximum emissions) measured at the site.

Volatile emissions were calculated for both Lake Stinky and Ponds A-F. The emission calculations were based on an average width and length (calculated as the square root of the surface area). Estimated emission rates for Lake Stinky and Ponds A-F are presented in Tables E-1 and E-2, respectively.

Table E-1

Estimated Emission Rates of Volatile Analytes from Lake Stinky

Chemicals	Mean Soil Conc (ug/kg)	UCL Soil Conc (ug/kg)	Emission Rate Mean ($g/sec/m^2$)	Emission Rate UCL ($g/sec/m^3$)	Conc Mean Air (ug/m^3)	Conc Ucl Air (ug/m^3)
Acetone	7.40E-01	1.45E+00	1.89E-07	3.70E-07	2.18E+01	4.27E+01
Carbon disulfide	3.68E-02	7.29E-02	1.76E-08	3.47E-08	2.02E+00	4.01E+00
Cyclohexenone	1.00E+00	1.00E+00	1.08E-08	1.08E-08	1.25E+00	1.25E+00
Methyl ethyl ketone	8.72E-01	1.86E+00	1.02E-07	2.18E-07	1.18E+01	2.51E+01
Methylene chloride	3.44E-02	7.14E-02	1.94E-08	4.03E-08	2.24E+00	4.64E+00
Toluene	4.27E-02	9.33E-02	1.68E-09	3.67E-09	1.94E-01	4.23E-01
Trichloroethene	4.56E-02	9.50E-02	5.54E-09	1.15E-08	6.39E-01	1.33E+00
Xylenes	4.51E-02	9.47E-02	6.13E-10	1.29E-09	7.07E-02	1.49E-01

Table E-2

Estimated Emission Rates of Volatile Analytes from Ponds A-F

Site	Matrix	Analyte	Mean Concentration (ug/kg)	UCL Concentration (ug/kg)	Mean Emission Rate (g/sec/m^3)	Reasonable Maximum Emission Rate (g/sec/m^2)	Mean Air Concentration (g/sec/m^2)	UCL Air Concentration (ug/m^3)
Pond A	SL	2-methylnaphthalene	4.30E+00	5.77E+00	4.37E-010	5.86E-010	1.64E-002	2.20E-002
Pond A	SL	Acenaphthene	7.48E-01	8.40E-01	3.05E-012	3.43E-012	1.14E-004	1.28E-004
Pond A	SO	Acetone	2.70E+00	2.93E+00	1.19E-006	1.29E-006	4.47E+001	4.85E+001
Pond A	SL	Anthracene	1.71E+00	2.63E+00	0.00E-001	0.00E-001	0.00E-001	0.00E-001
Pond A	SL	Benzoic Acid	3.80E+00	3.80E+00	2.82E-011	2.82E-011	1.06E-003	1.06E-003
Pond A	SO	Methylene Chloride	8.70E-03	1.12E-02	8.49E-009	1.09E-008	3.19E-001	4.09E-001
Pond A	SL	Naphthalene	6.77E-01	7.65E-01	3.22E-010	3.63E-010	1.21E-002	1.36E-002
Pond A	SL	Phenanthrene	2.68E+00	3.58E+00	7.64E-012	1.02E-011	2.87E-004	3.83E-004
Pond A	SL	Phenol	7.60E-01	8.40E-01	1.13E-009	1.25E-009	4.24E-002	4.70E-002
Pond B	SL	2-methylnaphthalene	3.89E+00	4.91E+00	4.08E-010	5.16E-010	1.43E-002	1.81E-002
Pond B	SO	Acetone	2.78E+00	3.13E+00	1.27E-006	1.42E-006	4.46E+001	4.99E+001
Pond B	SO	Carbon Disulfide	3.50E-03	3.80E-03	2.98E-009	3.24E-009	1.04E-001	1.13E-001
Pond B	SL	Isophorone	1.29E+00	1.85E+00	9.78E-010	1.40E-009	3.43E-002	4.92E-002
Pond B	SO	Methylene Chloride	2.60E-03	3.10E-03	2.62E-009	3.12E-009	9.21E-002	1.09E-001
Pond B	SL	Phenanthrene	2.00E+00	2.32E+00	5.89E-012	6.86E-012	2.07E-004	2.41E-004
Pond C	SL	2-methylnaphthalene	3.08E+00	5.14E+00	2.95E-010	4.92E-010	1.24E-002	2.08E-002
Pond C	SO	Acetone	6.17E-01	1.05E+00	2.57E-007	4.35E-007	1.08E+001	1.84E+001
Pond C	SL	Benzene	3.11E-02	4.98E-02	6.08E-009	9.74E-009	2.57E-001	4.12E-001
Pond C	SO	Carbon Disulfide	2.96E-02	4.71E-02	2.30E-008	3.66E-008	9.73E-001	1.54E+000

Table E-2

(Continued)

Site	Matrix	Analyte	Mean Concentration (ug/kg)	UCL Concentration (ug/kg)	Mean Emission Rate (g/sec/m^3)	Reasonable Maximum Emission Rate (g/sec/m^2)	Mean Air Concentration (g/sec/m^2)	UCL Air Concentration (ug/m^3)
Pond C	SL	Dibenzofuran	1.40E-01	2.31E-01	3.90E-014	6.43E-014	1.65E-006	2.72E-006
Pond C	SO	Ethyl Benzene	2.05E-02	3.12E-02	5.19E-010	7.90E-010	2.19E-002	3.34E-002
Pond C	SL	Methyl Ethyl Ketone	9.09E-02	1.50E-01	1.74E-008	2.86E-008	7.36E-001	1.21E+000
Pond C	SO	Methylene Chloride	6.40E-03	1.10E-02	5.88E-009	1.01E-008	2.48E-001	4.27E-001
Pond C	SO	Phenanthrene	1.57E+00	3.13E+00	4.23E-012	8.43E-012	1.79E-004	3.56E-004
Pond C	SL	Phenol	1.36E-01	1.50E-01	1.90E-010	2.10E-010	8.04E-003	8.89E-003
Pond C	SL	Tetrachloroethene	3.11E-02	4.98E-02	2.43E-009	3.90E-009	1.02E-001	1.65E-001
Pond C	SO	Toluene	9.50E-03	1.25E-02	6.10E-010	8.02E-010	2.58E-002	3.39E-002
Pond C	SL	Xylenes	3.72E-02	5.95E-02	8.25E-010	1.32E-009	3.49E-002	5.58E-002
Pond D	SO	2-hexanone	4.00E-03	4.00E-03	5.52E-010	5.52E-010	2.88E-002	2.88E-002
Pond D	SO	3-methyl Pentane	2.00E-02	2.00E-02	6.68E-009	6.68E-009	3.49E-001	3.49E-001
Pond D	SO	Acetone	8.64E-02	1.03E-01	3.23E-008	3.86E-008	1.69E+000	2.02E+000
Pond E	SO	Acetone	9.73E-02	1.06E-01	4.41E-008	4.81E-008	1.57E+000	1.71E+000
Pond E	SO	Carbon Disulfide	7.50E-03	1.03E-02	6.35E-009	8.72E-009	2.26E-001	3.10E-001
Pond E	SO	Methylene Chloride	4.80E-03	5.40E-03	4.81E-009	5.41E-009	1.71E-001	1.92E-001
Pond E	SL	Phenanthrene	1.54E+00	3.14E+00	4.52E-012	9.21E-012	1.61E-004	3.28E-004
Pond E	SO	Toluene	5.03E-01	6.61E-01	3.52E-008	4.62E-008	1.25E+000	1.64E+000
Pond E	SL	Xylenes	4.40E-01	5.80E-01	1.06E-008	1.40E-008	3.78E-001	4.99E-001
Pond F	SL	Acetone	9.05E-01	1.40E+00	8.26E-007	1.27E-006	7.28E+000	1.12E+001

Table E-2

(Continued)

Site	Matrix	Analyte	Mean Concentration (ug/kg)	UCL Concentration (ug/kg)	Mean Emission Rate (g/sec/m^3)	Reasonable Maximum Emission Rate (g/sec/m^2)	Mean Air Concentration (g/sec/m^2)	UCL Air Concentration (ug/m^3)
Pond F	SL	Carbon Disulfide	3.75E-02	3.80E-02	6.38E-008	6.47E-008	5.62E-001	5.70E-001
Pond F	SL	Dibenzofuran	2.38E+00	3.90E+00	1.45E-012	2.38E-012	1.27E-005	2.09E-005
Pond F	SL	Ethyl Benzene	2.25E-02	3.30E-02	1.24E-009	1.83E-009	1.09E-002	1.61E-002
Pond F	SL	Fluorene	3.01E+00	5.20E+00	2.16E-010	3.73E-010	1.90E-003	3.29E-003
Pond F	SL	Methyl Ethyl Ketone	1.37E-01	2.20E-01	5.72E-008	9.22E-008	5.04E-001	8.13E-001
Pond F	SL	Phenanthrene	2.58E+00	4.60E+00	1.51E-011	2.71E-011	1.33E-004	2.39E-004
Pond F	SO	Toluene	7.50E-03	1.00E-02	1.05E-009	1.40E-009	9.26E-003	1.23E-002
Pond F	SL	Xylenes	2.60E-02	3.80E-02	1.26E-009	1.84E-009	1.11E-002	1.62E-002

SL = Sludge
SO = Soil

2.2 Wind Blown Dust

$$E = 3400 \frac{\frac{e}{50} \times \frac{s}{15} \times \frac{f}{25}}{\left(\frac{P-E}{50}\right)^2}$$

where:	E	=	emission rate (lb/acre/yr)
	e	=	surface erodibility
	s	=	silt content (30 %)
	f	=	percentage of time that wind exceeds 12 mph (12%)
	P-E	=	Thornwaite's Precipitation-Evaporation Index (19 for the HAFB area)

The average and reasonable maximum emission rate of each nonvolatile chemical was then calculated by multiplying the dust emission rate by the average and 95th percentile concentration of the chemical in the surface soil. The surface erodibility (183 tons/acre/year) was based on the percentage of soil particles not passing a No. 10 sieve. The silt content was based on the percentage of soil particles passing a No. 200 sieve (0.074mm to 0.005mm). The estimated emissions of nonvolatile compounds from Lake Stinky are presented in Table E-3.

2.3 Construction Activities

Nonvolatile organics and metals may be entrained in the ambient air during the backfilling operations at Ponds A-F. Emissions generated from truck dumping and materials handling were modeled using the following equations from *Models For Estimating Air Emission Rates From Superfund Remedial Actions* (Eklund and Albert,1992)

Table E-3

Estimate Emission Rates of Nonvolatile Analytes for Lake Stinky

Chemicals	Mean Soil Conc (ug/kg)	UCL Soil Conc (ug/kg)	Emission Mean (g/sec/m^2)	Emissions UCL (g/sec/m^3)	Air Conc Mean (ug/m^3)	Air Conc Ucl (ug/m^3)
2,4,5-T	2.28E-02	3.00E-02	6.69E-12	8.83E-12	7.71E-04	1.02E-03
Aldrin	7.51E-03	1.32E-02	2.21E-12	3.89E-12	2.55E-04	4.49E-04
Arsenic	2.70E+00	3.38E+00	7.94E-10	9.93E-10	9.15E-02	1.15E-01
Barium	7.23E+01	8.00E+01	2.12E-08	2.35E-08	2.45E+00	2.71E+00
Beryllium	6.42E-01	7.15E-01	1.89E-10	2.10E-10	2.18E-02	2.42E-02
Cadmium	2.02E+00	2.57E+00	5.95E-10	7.56E-10	6.86E-02	8.71E-02
Chromium	7.03E+00	9.03E+00	2.07E-09	2.65E-09	2.38E-01	3.06E-01
Cobalt	3.51E+00	3.96E+00	1.03E-09	1.16E-09	1.19E-01	1.34E-01
Endrin	6.37E-03	1.14E-02	1.87E-12	3.35E-12	2.16E-04	3.87E-04
Endrin aldehyde	1.07E-02	1.98E-02	3.16E-12	5.82E-12	3.64E-04	6.71E-04
Heptachlor epoxide	8.06E-01	2.29E+00	2.37E-10	6.74E-10	2.73E-2	7.77E-02
Isodrin	6.74E-03	1.13E-02	1.98E-12	3.33E-12	2.29E-04	3.84E-04
Lead	3.20E+00	4.03E+00	9.41E-10	1.18E-09	1.08E-01	1.37E-01
Nickel	6.94E+00	7.24E+00	2.04E-09	2.13E-09	2.35E-01	2.45E-01
Parathion	1.00E-01	1.42E-01	2.94E-11	4.19E-11	3.39E-03	4.83E-03
Selenium	4.54E-01	5.14E-01	1.34E-10	1.51E-10	1.54E-02	1.74E-02
Sulfide	2.17E+02	3.70E+02	6.39E-08	1.09E-07	7.37E+00	1.25E+01
Vanadium	1.40E+01	1.68E+01	4.12E-09	4.95E-09	4.75E-01	5.71E-01
Zinc	2.31E+01	2.98E+01	6.80E-09	8.77E-09	7.84E-01	1.01E+00
alpha-BHC	5.51E-03	9.95E-03	1.62E-12	2.93E-12	1.87E-04	3.37E-04
beta-BHC	6.26E-03	1.05E-02	1.84E-12	3.09E-12	2.12E-04	3.56E-04
bis(2-Ethylhexyl) phthalate	8.51E-01	1.72E+00	2.50E-10	5.06E-10	2.88E-02	5.83E-02
delta-BHC	8.85E-01	1.84E+00	2.60E-10	5.41E-10	3.00E-02	6.24E-02
gamma-BHC	1.03E-02	1.90E-02	3.01E-12	5.58E-12	3.47E-04	6.43E-04

- Truck Dumping

$$E = \frac{k(0.0016)(M)(\frac{U}{2.2})^{1.3}}{(\frac{X_{H_2O}}{2})^{1.4}}$$

where

E	=	emissions (grams/sec)
k	=	particle size multiplier
M	=	mass of waste handled (Kg/sec)
U	=	mean wind speed (m/sec)
X_{H2O}	=	percent moisture content

- Materials Handling

$$E = k(0.00538)SA\,10^{-4}(s)^{0.6}$$

where

SA = area treated (m^2)

s = percent silt content

The particle size multiplier of 0.74 was chosen to account for all particles less than 30 μm. The mass of waste handled was estimated based on 20 tons of soil dumped over a 3-minute period. It was assumed that the bulldozer treated approximately five square meters per second and the emissions from the dumping and earth moving operations were evenly distributed over a seven square-meter area. For simplicity, all of the soil handled was assumed to be contaminated to the same extent as the sludge and soil present at the bottom of each pond. The average and reasonable maximum emission rate of each nonvolatile chemical was calculated by multiplying the dust emission rate by the average and 95th percentile upper confidence level concentration of the chemical in the surface soil. The estimated nonvolatile emissions from Ponds A-F are presented in Table E-4.

Table E-4

Estimate Emission Rates of Nonvolatile Analytes from Ponds A-F

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^2)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond A	SO	Aluminum	2.47E+04	5.89E+04	4.83E-005	1.15E-004	4.26E+002	1.01E+003
Pond A	SO	Arsenic	1.14E+01	1.34E+01	2.22E-008	2.62E-008	1.95E-001	2.31E-001
Pond A	SO	Barium	9.74E+01	1.09E+02	1.90E-007	2.12E-007	1.67E+000	1.87E+000
Pond A	SL	Benzo(a)anthracene	3.46E+00	4.34E+00	6.78E-009	8.50E-009	5.98E-002	7.49E-002
Pond A	SL	Benzo(a)pyrene	1.86E+00	2.62E+00	3.63E-009	5.14E-009	3.20E-002	4.53E-002
Pond A	SL	Benzo(b)fluoranthene	3.16E+00	4.26E+00	6.18E-009	8.35E-009	5.45E-002	7.36E-002
Pond A	SL	Benzo(g,h,i)perylene	1.71E+00	1.91E+00	3.35E-009	3.73E-009	2.95E-002	3.29E-002
Pond A	SL	Benzo(k)fluoranthene	1.99E+00	2.85E+00	3.89E-009	5.58E-009	3.43E-002	4.92E-002
Pond A	SO	Beryllium	6.83e-01	8.53E-01	1.33E-009	1.67E-009	1.17E-002	1.47E-002
Pond A	SO	Bis(2-ethylhexyl)phthalate	3.13E+01	4.01E+01	6.13E-008	7.84E-008	5.40E-001	6.91E-001
Pond A	SL	Cadmium	7.36E+00	9.08E+00	1.44E-008	1.77E-008	1.27E-001	1.56E-001
Pond A	SO	Calcium	9.77E+04	1.28E+05	1.91E-004	2.50E-004	1.68E+003	2.20E+003
Pond A	SO	Chromium	8.71E+01	1.01E+02	1.70E-007	1.98E-007	1.49E+000	1.74E+000
Pond A	SL	Chrysene	2.15E+00	3.16E+00	4.21E-009	6.19E-009	3.71E-002	5.46E-002
Pond A	SO	Cobalt	3.08E+00	4.03E+00	6.03E-009	7.90E-009	5.31E-002	6.96E-002
Pond A	SO	Copper	4.13E+02	4.98E+02	8.08E-007	9.76E-007	7.12E+000	8.60E+000
Pond A	SL	Di-n-octylphthalate	1.31E+00	1.51E+00	2.56E-009	2.96E-009	2.25E-002	2.61E-002
Pond A	SL	Dibutylphthalate	6.77E+00	9.17E+00	1.32E-008	1.79E-008	1.16E-001	1.57E-001
Pond A	SL	Fluoranthene	2.44E+00	3.67E+00	4.78E-009	7.19E-009	4.21E-002	6.34E-002
Pond A	SL	Indeno(1,2,3-cd)pyrene	1.78E+00	1.94E+00	3.49E-009	3.81E-009	3.07E-002	3.36E-002
Pond A	SO	Iron	7.04E+03	8.60E+03	1.38E-005	1.68E-005	1.21E+002	1.48E+002

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^2)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond A	SO	Lead	1.02E+02	1.30E+02	2.00E-007	2.54E-007	1.76E+000	2.24E+000
Pond A	SO	Magnesium	4.30E+04	4.92E+04	8.42E-005	9.64E-005	7.42E+002	8.50E+002
Pond A	SO	Manganese	2.00E+02	2.34E+02	3.92E-007	4.57E-007	3.45E+000	4.03E+000
Pond A	SL	Mercury	2.41E+00	3.22E+00	4.72E-009	6.30E-009	4.16E-002	5.55E-002
Pond A	SO	Nickel	1.76E+01	1.99E+01	3.45E-008	3.90E-008	3.04E-001	3.44E-001
Pond A	SL	Pcb-1254	7.44E+00	9.04E+00	1.45E-008	1.77E-008	1.27E-001	1.56E-001
Pond A	SL	Pcb-1260	2.40E+00	2.76E+00	4.70E-009	5.41E-009	4.14E-002	4.77E-002
Pond A	SO	Potassium	1.44E+03	2.10E+03	2.82E-006	4.10E-006	2.48E+001	3.61E+001
Pond A	SL	Pyrene	2.21E+00	3.37E+00	4.33E-009	6.61E-009	3.81E-002	5.83E-002
Pond A	SO	Selenium	8.86e-01	1.19E+00	1.73E-009	2.34E-009	1.52E-002	2.06E-002
Pond A	SO	Silicon	2.06E+02	2.90E+02	4.03E-007	5.68E-007	3.55E+000	5.01E+000
Pond A	SL	Silver	1.58E+02	1.91E+02	3.10E-007	3.73E-007	2.73E+000	3.29E+000
Pond A	SO	Sodium	2.08E+03	2.72E+03	4.07E-006	5.33E-006	3.59E+001	4.70E+001
Pond A	SO	Thallium	5.94E+01	7.35E+01	1.16E-007	1.43E-007	1.02E+000	1.26E+000
Pond A	SO	Vanadium	1.66E+01	1.90E+01	3.24E-008	3.71E-008	2.85E-001	3.27E-001
Pond A	SO	Zinc	5.96E+02	7.06E+02	1.16E-006	1.38E-006	1.02E+001	1.21E+001
Pond B	SO	Aluminum	1.18E+04	1.48E+04	2.31E-005	2.89E-005	2.03E+002	2.54E+002
Pond B	SO	Arsenic	1.38E+01	1.48E+01	2.71E-008	2.89E-008	2.39E-001	2.54E-001
Pond B	SO	Barium	5.28E+01	7.40E+01	1.03E-007	1.44E-007	9.08E-001	1.27E+000
Pond B	SL	Benzo(a)anthracene	1.33E+00	1.72E+00	2.61E-009	3.37E-009	2.30E-002	2.97E-002
Pond B	SL	Benzo(a)pyrene	1.05E+00	1.23E+00	2.06E-009	2.41E-009	1.81E-002	2.12E-002

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^2)	UCL Conc (ug/m^3)
Pond B	SL	Benzo(b)fluoranthene	1.85E+00	2.18E+00	3.63E-009	4.27E-009	3.20E-002	3.76E-002
Pond B	SL	Benzo(k)fluoranthene	9.75E-01	1.10E+00	1.91E-009	2.15E-009	1.68E-002	1.89E-002
Pond B	SO	Beryllium	9.43E-01	1.20E+00	1.84E-009	2.34E-009	1.62E-002	2.06E-002
Pond B	SO	Bis(2-ethylhexyl)phthalate	3.05E+01	4.03E+01	5.98E-008	7.89E-008	5.27E-001	6.96E-001
Pond B	SL	Cadmium	1.40E+01	1.78E+01	2.73E-008	3.48E-008	2.40E-001	3.06E-001
Pond B	SO	Calcium	7.82E+04	9.30E+04	1.53E-004	1.82E-004	1.34E+003	1.60E+003
Pond B	SO	Chromium	2.26E+02	2.65E+02	4.42E-007	5.18E-007	3.89E+000	4.56E+000
Pond B	SL	Chrysene	1.05E+00	1.22E+00	2.04E-009	2.39E-009	1.79E-002	2.10E-002
Pond B	SO	Cobalt	4.03E+00	4.85E+00	7.90E-009	9.49E-009	6.96E-002	8.37E-002
Pond B	SO	Copper	7.23E+02	9.49E+02	1.41E-006	1.85E-006	1.24E+001	1.63E+001
Pond B	SL	Cyanide	3.47E+00	5.34E+00	6.79E-009	1.04E-008	5.98E-002	9.17E-002
Pond B	SL	Di-n-octylphthalate	1.15E+00	1.48E+00	2.25E-009	2.89E-009	1.98E-002	2.54E-002
Pond B	SO	Dibutylphthalate	5.25E+00	9.01E+00	1.02E-008	1.76E-008	8.99E-002	1.55E-001
Pond B	SO	Endosulfan I	1.00E-03	1.40E-03	1.95E-012	2.74E-012	1.72E-005	2.41E-005
Pond B	SL	Fluoranthene	1.17E+00	1.62E+00	2.28E-009	3.17E-009	2.01E-002	2.79E-002
Pond B	SO	Iron	8.18E+03	1.05E+04	1.60E-005	2.05E-005	1.41E+002	1.80E+002
Pond B	SO	Lead	2.23E+02	2.79E+02	4.36E-007	5.46E-007	3.84E+000	4.81E+000
Pond B	SO	Magnesium	1.67E+04	1.99E+04	3.26E-005	3.90E-005	2.87E+002	3.44E+002
Pond B	SO	Manganese	1.19E+02	1.75E+02	2.32E-007	3.42E-007	2.04E+000	3.01E+000
Pond B	SL	Mercury	4.91E+00	5.82E+00	9.61E-009	1.14E-008	8.47E-002	1.00E-001
Pond B	SO	Nickel	2.64E+01	3.00E+01	5.17E-008	5.88E-008	4.56E-001	5.18E-001

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^2)	UCL Conc (ug/m^3)
Pond B	SL	Pcb-1254	5.97E+00	7.34E+00	1.17E-008	1.43E-008	1.03E-001	1.26E-001
Pond B	SL	Pcb-1260	1.60E+00	1.86E+00	3.13E-009	3.63E-009	2.76E-002	3.20E-002
Pond B	SO	Potassium	2.90E+03	3.96E+03	5.68E-006	7.75E-006	5.01E+001	6.83E+001
Pond B	SL	Pyrene	9.28E-01	1.18E+00	1.81E-009	2.31E-009	1.59E-002	2.03E-002
Pond B	SL	Selenium	7.93E-01	1.29E+00	1.55E-009	2.52E-009	1.36E-002	2.22E-002
Pond B	SO	Silicon	2.10E+03	3.91E+03	4.11E-006	7.66E-006	3.62E+001	6.75E+001
Pond B	SL	Silver	3.69E+02	4.36E+02	7.23E-007	8.54E-007	6.37E+000	7.53E+000
Pond B	SO	Sodium	5.70E+02	6.99E+02	1.11E-006	1.37E-006	9.79E+000	1.20E+001
Pond B	SO	Vanadium	2.97E+01	3.49E+01	5.81E-008	6.83E-008	5.12E-001	6.02E-001
Pond B	SO	Zinc	1.05E+03	1.19E+03	2.05E-006	2.32E-006	1.80E+001	2.04E+001
Pond C	SL	2,4,5-t	1.00E-01	1.51E-01	1.96E-010	2.96E-010	1.72E-003	2.61E-003
Pond C	SO	4,4'-ddd	2.32E+00	4.72E+00	4.55E-009	9.24E-009	4.01E-002	8.15E-002
Pond C	SO	4,4'-dde	9.93E-01	2.17E+00	1.94E-009	4.24E-009	1.71E-002	3.74E-002
Pond C	SO	4,4'-ddt	1.69E-01	2.61E-01	3.30E-010	5.10E-010	2.91E-003	4.49E-003
Pond C	SO	Aldrin	4.20E-03	8.70E-03	8.23E-012	1.70E-011	7.25E-005	1.49E-004
Pond C	SL	Alpha-chlordane	6.90E-02	9.82E-02	1.35E-010	1.92E-010	1.19E-003	1.69E-003
Pond C	SO	Aluminum	1.02E+04	1.16E+04	2.00E-005	2.26E-005	1.76E+002	1.99E+002
Pond C	SO	Arsenic	1.65E+00	2.15E+00	3.23E-009	4.22E-009	2.84E-002	3.72E-002
Pond C	SO	Barium	9.05E+01	1.06E+02	1.77E-007	2.08E-007	1.56E+000	1.83E+000
Pond C	SO	Beryllium	4.00E-01	4.18E-01	7.83E-010	8.19E-010	6.90E-003	7.22E-003
Pond C	SO	Beta-bhc	9.30E-03	2.38E-02	1.82E-011	4.66E-011	1.60E-004	4.11E-004

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^2)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond C	SO	Bis(2-ethylhexyl)phthalate	9.64E+00	1.57E+01	1.88E-008	3.07E-008	1.65E-001	2.70E-001
Pond C	SL	Cadmium	3.89E+00	5.09E+00	7.62E-009	9.96E-009	6.72E-002	8.78E-002
Pond C	SO	Calcium	1.17E+05	1.48E+05	2.28E-004	2.90E-004	2.01E+003	2.55E+003
Pond C	SO	Chromium	5.03E+01	6.92E+01	9.85E-008	1.35E-007	8.68E-001	1.19E+000
Pond C	SO	Cobalt	5.25E+00	6.49E+00	1.02E-008	1.27E-008	8.99E-002	1.12E-001
Pond C	SO	Copper	1.05E+02	1.56E+02	2.05E-007	3.06E-007	1.80E+000	2.69E+000
Pond C	SO	Cyanide	5.73E+01	1.67E+02	1.12E-007	3.27E-007	9.87E-001	2.88E+000
Pond C	SO	Delta-bhc	1.51E+00	3.03E+00	2.95E-009	5.93E-009	2.60E-002	5.23E-002
Pond C	SO	Di-n-octylphthalate	2.42E+00	4.75E+00	4.73E-009	9.31E-009	4.17E-002	8.21E-002
Pond C	SO	Dibutylphthalate	2.50E+00	4.14E+00	4.89E-009	8.11E-009	4.31E-002	7.15E-002
Pond C	SO	Dichloroprop	6.08E-02	9.80E-02	1.19E-010	1.92E-010	1.04E-003	1.69E-003
Pond C	SO	Endosulfan I	8.26E-01	1.71E+00	1.61E-009	3.35E-009	1.42E-002	2.95E-002
Pond C	SO	Endosulfan Sulfate	5.40E-03	8.40E-03	1.05E-011	1.64E-011	9.26E-005	1.44E-004
Pond C	SO	Endrin Aldehyde	7.90E-03	1.72E-02	1.54E-011	3.37E-011	1.35E-004	2.97E-004
Pond C	SL	Fluoranthene	4.25E+00	7.14E+00	8.32E-009	1.39E-008	7.33E-002	1.22E-001
Pond C	SL	Gamma-chlordane	1.07E-01	1.66E-01	2.08E-010	3.26E-010	1.83E-003	2.87E-003
Pond C	SO	Heptachlor Epoxide	3.90E-03	8.60E-03	7.64E-012	1.68E-011	6.73E-005	1.48E-004
Pond C	SO	Iron	7.15E+03	8.37E+03	1.40E-005	1.63E-005	1.23E+002	1.43E+002
Pond C	SL	Kepone (mirex)	1.27E+01	3.52E+01	2.49E-008	6.90E-008	2.19E-001	6.08E-001
Pond C	SO	Lead	2.23E+01	3.19E+01	4.37E-008	6.25E-008	3.85E-001	5.51E-001
Pond C	SO	Magnesium	1.10E+04	1.69E+04	2.15E-005	3.30E-005	1.89E+002	2.91E+002

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^2)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond C	SO	Manganese	1.47E+02	1.85E+02	2.88E-007	3.62E-007	2.54E+000	3.19E+000
Pond C	SL	Mercury	9.58E-01	1.25E+00	1.87E-009	2.44E-009	1.64E-002	2.15E-002
Pond C	SO	Molybdenum	4.60E+00	7.58E+00	9.01E-009	1.48E-008	7.94E-002	1.30E-001
Pond C	SO	Nickel	9.61E+00	1.15E+01	1.88E-008	2.24E-008	1.65E-001	1.97E-001
Pond C	SO	Potassium	2.60E+03	2.76E+03	5.09E-006	5.41E-006	4.49E+001	4.77E+001
Pond C	SO	Pyrene	2.47E+00	4.09E+00	4.84E-009	8.02E-009	4.26E-002	7.07E-002
Pond C	SL	Selenium	2.27E+00	3.43E+00	4.44E-009	6.71E-009	3.91E-002	5.91E-002
Pond C	SO	Silicon	2.77E+03	5.20E+03	5.42E-006	1.01E-005	4.78E+001	8.90E+001
Pond C	SL	Silver	9.54E+01	1.52E+02	1.87E-007	2.98E-007	1.64E+000	2.62E+000
Pond C	SO	Sodium	1.23E+03	1.73E+03	2.41E-006	3.38E-006	2.12E+001	2.98E+001
Pond C	SO	Sulfide	1.53E+03	2.26E+03	3.00E-006	4.43E-006	2.64E+001	3.90E+001
Pond C	SO	Vanadium	3.22E+01	3.91E+01	6.30E-008	7.66E-008	5.55E-001	6.75E-001
Pond C	SO	Zinc	1.41E+02	1.95E+02	2.77E-007	3.81E-007	2.44E+000	3.36E+000
Pond D	SO	4,4'-ddd	2.83E-02	7.75E-02	5.54E-011	1.51E-010	4.88E-004	1.33E-003
Pond D	SO	4,4'-dde	5.10E-03	1.21E-02	9.99E-012	2.37E-011	8.81E-005	2.09E-004
Pond D	SO	4,4'-ddt	8.60E-03	1.87E-02	1.68E-011	3.66E-011	1.48E-004	3.22E-004
Pond D	SO	Alpha-chlordane	2.70E-03	5.10E-03	5.29E-012	9.99E-012	4.66E-005	8.81E-005
Pond D	SO	Arsenic	1.23E+00	1.68E+00	2.40E-009	3.28E-009	2.11E-002	2.89E-002
Pond D	SO	Barium	4.37E+01	5.64E+01	8.55E-008	1.10E-007	7.54E-001	9.70E-001
Pond D	SO	Beta-bhc	6.40E-03	1.16E-02	1.25E-011	2.27E-011	1.10E-004	2.00E-004
Pond D	SO	Bis(2-ethylhexyl)phthalate	9.56E-01	1.06E+00	1.87E-009	2.07E-009	1.64E-002	1.82E-002

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^2)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond D	SO	Chromium	4.90E+00	6.51E+00	9.60E-009	1.27E-008	8.46E-002	1.12E-001
Pond D	SO	Cobalt	3.36E+00	3.66E+00	6.59E-009	7.17E-009	5.81E-002	6.32E-002
Pond D	SO	Cyanide	5.83E-01	1.09E+00	1.14E-009	2.14E-009	1.00E-002	1.88E-002
Pond D	SO	Delta-bhc	4.40E-03	8.20E-03	8.62E-012	1.60E-011	7.60E-005	1.41E-004
Pond D	SO	Endosulfan Sulfate	1.09E-02	2.18E-02	2.13E-011	4.27E-011	1.87E-004	3.76E-004
Pond D	SO	Gamma-bhc	3.80E-03	6.70E-03	7.44E-012	1.31E-011	6.56E-005	1.15E-004
Pond D	SO	Heptachlor	2.80E-03	5.10E-03	5.48E-012	9.99E-012	4.83E-005	8.81E-005
Pond D	SO	Lead	2.05E+00	2.83E+00	4.01E-009	5.54E-009	3.53E-002	4.88E-002
Pond D	SO	Nickel	7.27E+00	8.61E+00	1.42E-008	1.68E-008	1.25E-001	1.48E-001
Pond D	SO	Selenium	4.37E-01	4.75E-01	8.55E-010	9.30E-010	7.54E-003	8.20E-003
Pond D	SO	Sulfide	3.82E+01	4.84E+01	7.49E-008	9.49E-008	6.60E-001	8.37E-001
Pond D	SO	Vanadium	1.03E+01	1.35E+01	2.02E-008	2.64E-008	1.78E-001	2.32E-001
Pond D	SO	Zinc	1.12E+01	1.49E+01	2.18E-008	2.92E-008	1.92E-001	2.57E-001
Pond E	SO	4,4'-ddd	1.00E+00	2.65E+00	1.96E-009	5.18E-009	1.72E-002	4.56E-002
Pond E	SO	4,4'-dde	3.69E-01	8.19E-01	7.22E-010	1.60E-009	6.36E-003	1.41E-002
Pond E	SO	4,4'-ddt	1.01E-01	1.26E-01	1.98E-010	2.46E-010	1.74E-003	2.17E-003
Pond E	SO	Aldrin	1.50E-03	1.70E-03	2.93E-012	3.33E-012	2.58E-005	2.93E-005
Pond E	SO	Alpha-bhc	1.50E-03	1.60E-03	2.93E-012	3.13E-012	2.58E-005	2.76E-005
Pond E	SO	Alpha-chlordane	1.30E-03	1.40E-03	2.54E-012	2.74E-012	2.24E-005	2.41E-005
Pond E	SO	Arsenic	1.64E+00	2.12E+00	3.21E-009	4.14E-009	2.83E-002	3.65E-002
Pond E	SO	Barium	8.02E+01	9.85E+01	1.57E-007	1.92E-007	1.38E+000	1.69E+000

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^3)	UCL Conc (ug/m^3)
Pond E	SO	Beta-bhc	5.10E-03	8.80E-03	9.99E-012	1.72E-011	8.81E-005	1.51E-004
Pond E	SO	Bis(2-ethylhexyl)phthalate	7.49E+00	1.05E+01	1.46E-008	2.05E-008	1.28E-001	1.80E-001
Pond E	SL	Cadmium	1.82E+00	2.41E+00	3.56E-009	4.72E-009	3.14E-002	4.16E-002
Pond E	SO	Chromium	2.28E+01	2.72E+01	4.46E-008	5.33E-008	3.93E-001	4.70E-001
Pond E	SO	Cobalt	4.49E+00	5.00E+00	8.79E-009	9.79E-009	7.75E-002	8.63E-002
Pond E	SL	Copper	4.38E+01	6.33E+01	8.58E-008	1.24E-007	7.56E-001	1.09E+000
Pond E	SO	Cyanide	3.85E+01	1.14E+02	7.53E-008	2.23E-007	6.64E-001	1.96E+000
Pond E	SO	Delta-bhc	2.90E-03	4.90E-03	5.68E-012	9.60E-012	5.01E-005	8.46E-005
Pond E	SL	Dibutylphthalate	3.82E+00	4.87E+00	7.47E-009	9.55E-009	6.58E-002	8.42E-002
Pond E	SO	Endosulfan Ii	3.40E-03	4.20E-03	6.66E-012	8.23E-012	5.87E-005	7.25E-005
Pond E	SO	Endosulfan Sulfate	3.40E-03	5.10E-03	6.66E-012	9.99E-012	5.87E-005	8.81E-005
Pond E	SL	Gamma-bhc	6.74E-02	9.57E-02	1.32E-010	1.87E-010	1.16E-003	1.64E-003
Pond E	SO	Gamma-chlordane	7.83E-02	1.22E-01	1.53E-010	2.39E-010	1.34E-003	2.10E-003
Pond E	SO	Heptachlor	1.40E-03	1.60E-03	2.74E-012	3.13E-012	2.41E-005	2.76E-005
Pond E	SO	Lead	1.05E+01	1.21E+01	2.05E-008	2.37E-008	1.80E-001	2.09E-001
Pond E	SL	Mercury	2.89E-01	3.90E-01	5.66E-010	7.64E-010	4.99E-003	6.73E-003
Pond E	SL	Nickel	7.66E+00	1.00E+01	1.50E-008	1.96E-008	1.32E-001	1.72E-001
Pond E	SO	Selenium	1.64E+00	2.25E+00	3.21E-009	4.40E-009	2.83E-002	3.88E-002
Pond E	SL	Silver	2.65E+01	3.64E+01	5.19E-008	7.12E-008	4.57E-001	6.28E-001
Pond E	SO	Sulfide	4.90E+02	8.03E+02	9.60E-007	1.57E-006	8.46E+000	1.38E+001
Pond E	SO	Vanadium	2.88E+01	3.31E+01	5.64E-008	6.49E-008	4.97E-001	5.72E-001

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^2)	UCL Conc (ug/m^3)
Pond E	SO	Zinc	6.32E+01	7.74E+01	1.23E-007	1.51E-007	1.08E+000	1.33E+000
Pond F	SO	4,4'-ddd	6.20E+00	1.10E+01	1.21E-008	2.15E-008	1.06E-001	1.89E-001
Pond F	SO	4,4'-dde	1.39E+00	1.90E+00	2.71E-009	3.72E-009	2.39E-002	3.28E-002
Pond F	SO	4,4'-ddt	1.35E-01	1.60E-01	2.64E-010	3.13E-010	2.32E-003	2.76E-003
Pond F	SL	Alpha-chlordane	1.52E-01	2.50E-01	2.96E-010	4.89E-010	2.61E-003	4.31E-003
Pond F	SO	Arsenic	3.15E+00	4.00E+00	6.17E-009	7.83E-009	5.44E-002	6.90E-002
Pond F	SO	Barium	4.90E+01	5.90E+01	9.60E-008	1.15E-007	8.46E-001	1.01E+000
Pond F	SL	Bis(2-ethylhexyl)phthalate	4.50E+00	5.40E+00	8.81E-009	1.05E-008	7.77E-002	9.26E-002
Pond F	SL	Chromium	2.95E+01	3.30E+01	5.78E-008	6.46E-008	5.09E-001	5.69E-001
Pond F	SL	Copper	5.85E+01	7.50E+01	1.14E-007	1.46E-007	1.00E+000	1.28E+000
Pond F	SO	Delta-bhc	3.60E+00	5.00E+00	7.05E-009	9.79E-009	6.21E-002	8.63E-002
Pond F	SL	Gamma-bhc	7.05E-02	7.60E-02	1.38E-010	1.48E-010	1.21E-003	1.30E-003
Pond F	SO	Gamma-chlordane	5.60E-02	6.40E-02	1.09E-010	1.25E-010	9.61E-004	1.10E-003
Pond F	SL	Heptachlor	5.15E-02	5.30E-02	1.00E-010	1.03E-010	8.82E-004	9.08E-004
Pond F	SO	Lead	1.33E+01	1.70E+01	2.60E-008	3.33E-008	2.29E-001	2.93E-001
Pond F	SL	Mercury	3.55E-01	4.30E-01	6.95E-010	8.42E-010	6.13E-003	7.42E-003
Pond F	SL	Nickel	9.61E+00	1.30E+01	1.88E-008	2.54E-008	1.65E-001	2.24E-001
Pond F	SL	Selenium	2.30E+00	2.50E+00	4.50E-009	4.89E-009	3.96E-002	4.31E-002
Pond F	SL	Silver	4.85E+01	5.90E+01	9.50E-008	1.15E-007	8.38E-001	1.01E+000
Pond F	SO	Sulfide	1.45E+03	1.80E+03	2.84E-006	3.52E-006	2.50E+001	3.10E+001
Pond F	SL	Vanadium	2.75E+01	3.60E+01	5.38E-008	7.05E-008	4.74E-001	6.21E-001

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^2)	UCL Conc (ug/m^3)
Pond F	SL	Zinc	7.75E+01	9.80E+01	1.51E-007	1.92E-007	1.33E+000	1.69E+000
Pond G	SO	4,4'-ddd	8.25E-01	1.78E+00	1.61E-009	3.48E-009	1.42E-002	3.06E-002
Pond G	SO	4,4'-dde	1.78E-01	3.10E-01	3.49E-010	6.07E-010	3.07E-003	5.35E-003
Pond G	SL	4,4'-ddt	8.22E-02	1.17E-01	1.61E-010	2.29E-010	1.42E-003	2.02E-003
Pond G	SO	Alpha-bhc	4.74E-02	7.40E-02	9.28E-011	1.45E-010	8.18E-004	1.27E-003
Pond G	SL	Alpha-chlordane	4.64E-02	7.79E-02	9.09E-011	1.52E-010	8.01E-004	1.34E-003
Pond G	SO	Arsenic	2.08E+00	2.70E+00	4.08E-009	5.28E-009	3.59E-002	4.65E-002
Pond G	SO	Barium	1.35E+02	1.56E+02	2.64E-007	3.05E-007	2.32E+000	2.69E+000
Pond G	SL	Beryllium	5.80E-01	7.66E-01	1.13E-009	1.50E-009	9.96E-003	1.32E-002
Pond G	SO	Beta-bhc	3.10E-03	5.40E-03	6.07E-012	1.05E-011	5.35E-005	9.26E-005
Pond G	SO	Bis(2-ethylhexyl)phthalate	2.00E+00	3.22E+00	3.90E-009	6.31E-009	3.44E-002	5.56E-002
Pond G	SO	Butylbenzylphthalate	1.40E+00	1.55E+00	2.73E-009	3.04E-009	2.40E-002	2.68E-002
Pond G	SO	Chromium	1.38E+01	1.67E+01	2.71E-008	3.28E-008	2.39E-001	2.89E-001
Pond G	SO	Cobalt	4.35E+00	5.45E+00	8.52E-009	1.06E-008	7.51E-002	9.35E-002
Pond G	SO	Copper	1.90E+01	2.41E+01	3.72E-008	4.71E-008	3.28E-001	4.15E-001
Pond G	SO	Cyanide	1.60E+00	3.22E+00	3.12E-009	6.30E-009	2.75E-002	5.55E-002
Pond G	SO	Di-n-octylphthalate	1.32E+00	1.62E+00	2.57E-009	3.17E-009	2.26E-002	2.79E-002
Pond G	SO	Endosulfan Sulfate	1.00E-03	1.40E-03	1.95E-012	2.74E-012	1.72E-005	2.41E-005
Pond G	SO	Gamma-bhc	2.00E-03	2.50E-03	3.91E-012	4.89E-012	3.44E-005	4.31E-005
Pond G	SL	Gamma-chlordane	8.83E-02	1.79E-01	1.73E-010	3.50E-010	1.52E-003	3.08E-003
Pond G	SO	Heptachlor	1.70E-03	2.10E-03	3.33E-012	4.11E-012	2.93E-005	3.62E-005

Table E-4

(Continued)

Site	Matrix	Analyte	Mean (ug/kg)	UCL (ug/kg)	Emis Mean (g/sec/m^3)	Emis UCL (g/sec/m^2)	Mean Conc (ug/m^2)	UCL Conc (ug/m^3)
Pond G	SO	Isodrin	1.90E-03	2.60E-03	3.72E-012	5.09E-012	3.28E-005	4.49E-005
Pond G	SL	Kepone (mirex)	2.59E-02	3.95E-02	5.07E-011	7.74E-011	4.47E-004	6.82E-004
Pond G	SO	Lead	6.49E+01	1.52E+02	1.27E-007	2.98E-007	1.12E+000	2.62E+000
Pond G	SL	Mercury	1.70E-01	2.41E-01	3.33E-010	4.71E-010	2.93E-003	4.15E-003
Pond G	SO	Nickel	8.44E+00	1.04E+01	1.65E-008	2.03E-008	1.45E-001	1.79E-001
Pond G	SL	Selenium	1.07E+00	1.49E+00	2.09E-009	2.91E-009	1.84E-002	2.56E-002
Pond G	SO	Sulfide	7.89E+02	1.41E+03	1.54E-006	2.76E-006	1.35E+001	2.43E+001
Pond G	SO	Vanadium	2.25E+01	2.76E+01	4.40E-008	5.40E-008	3.88E-001	4.76E-001
Pond G	SO	Zinc	4.57E+01	5.80E+01	8.94E-008	1.13E-007	7.88E-001	9.96E-001

3.0 BOX MODEL

The ambient air concentrations were predicted as the emissions rate divided by the air flow through the cross section of the area source. The flow was calculated as the product of the average wind speed, length of the area source, and height of the air column above the source. The average wind speed for HAFB is 2.57 meters per second. A height of 6 feet, representative of an average man, was assumed. Tables E-5 and E-6 present the concentrations over Lake Stinky and Ponds A-F, respectively.

Table E-5

Predicted Ambient Air Concentrations from Lake Stinky

Chemicals	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
2,4,5-T	N	7.71E-04	1.02E-03
Acetone	V	2.18E+01	4.27E+01
Aldrin	N	2.55E-04	4.49E-04
Alpha-BHC	N	1.87E-04	3.37E-04
Arsenic	N	9.15E-02	1.15E-01
Barium	N	2.45E+00	2.71E+00
Beryllium	N	2.18E-02	2.42E-02
Beta-BHC	N	2.12E-04	3.56E-04
Bis(2-Ethylhexyl)phthalate	N	2.88E-02	5.83E-02
Cadmium	N	6.86E-02	8.71E-02
Carbon disulfide	V	2.02E+00	4.01E+00
Chromium	N	2.38E-01	3.06E-01
Cobalt	N	1.19E-01	1.34E-01
Cyclohexenone	V	1.25E+00	1.25E+00
Delta-BHC	N	3.00E-02	6.24E-02
Endrin	N	2.16E-04	3.87E-04
Endrin aldehyde	N	3.64E-04	6.71E-04
Gamma-BHC	N	3.47E-04	6.43E-04
Heptachlor epoxide	N	2.73E-02	7.77E-02
Isodrin	N	2.29E-04	3.84E-04
Lead	N	1.08E-01	1.37E-01
Methyl ethyl ketone	V	1.18E+01	2.51E+01
Methylene chloride	V	2.24E+00	4.64E+00
Nickel	N	2.35E-01	2.45E-01
Parathion	N	3.39E-03	4.83E-03
Selenium	N	1.54E-02	1.74E-02
Sulfide	N	7.37E+00	1.25E+01
Toluene	V	1.94E-01	4.23E-01
Trichloroethene	V	6.39E-01	1.33E+00
Vanadium	N	4.75E-01	5.71E-01
Xylenes	V	7.07E-02	1.49E-01
Zinc	N	7.84E-01	1.01E+00

V = Volatile
N = Nonvolatile

Table E-6

Predicted Ambient Air Concentrations from Ponds A-F

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond A	2-methylnaphthalene	V	1.64E-002	2.20E-002
Pond A	Acenaphthene	V	1.14E-004	1.28E-004
Pond A	Acetone	V	4.47E+001	4.85E+001
Pond A	Aluminum	N	4.26E+002	1.01E+003
Pond A	Anthracene	V	0.00E-001	0.00E-001
Pond A	Arsenic	N	1.95E-001	2.31E-001
Pond A	Barium	N	1.67E+000	1.87E+000
Pond A	Benzo(a)anthracene	N	5.98E-002	7.49E-002
Pond A	Benzo(a)pyrene	N	3.20E-002	4.53E-002
Pond A	Benzo(b)fluoranthene	N	5.45E-002	7.36E-002
Pond A	Benzo(g,h,i)perylene	N	2.95E-002	3.29E-002
Pond A	Benzo(k)fluoranthene	N	3.43E-002	4.92E-002
Pond A	Benzoic Acid	V	1.06E-003	1.06E-003
Pond A	Beryllium	N	1.17E-002	1.47E-002
Pond A	Bis(2-ethylhexyl)phthalate	N	5.40E-001	6.91E-001
Pond A	Cadmium	N	1.27E-001	1.56E-001
Pond A	Calcium	N	1.68E+003	2.20E+003
Pond A	Chromium	N	1.49E+000	1.74E+000
Pond A	Chrysene	N	3.71E-002	5.46E-002
Pond A	Cobalt	N	5.31E-002	6.96E-002
Pond A	Copper	N	7.12E+000	8.60E+000
Pond A	Di-n-octylphthalate	N	2.25E-002	2.61E-002
Pond A	Dibutylphthalate	N	1.16E-001	1.57E-001
Pond A	Fluoranthene	N	4.21E-002	6.34E-002
Pond A	Indeno(1,2,3-cd)pyrene	N	3.07E-002	3.36E-002
Pond A	Iron	N	1.21E+002	1.48E+002

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond A	Lead	N	1.76E+000	2.24E+000
Pond A	Magnesium	N	7.42E+002	8.50E+002
Pond A	Manganese	N	3.45E+000	4.03E+000
Pond A	Mercury	N	4.16E-002	5.55E-002
Pond A	Methylene Chloride	V	3.19E-001	4.09E-001
Pond A	Naphthalene	V	1.21E-002	1.36E-002
Pond A	Nickel	N	3.04E-001	3.44E-001
Pond A	Pcb-1254	N	1.27E-001	1.56E-001
Pond A	Pcb-1260	N	4.14E-002	4.77E-002
Pond A	Phenanthrene	V	2.87E-004	3.83E-004
Pond A	Phenol	V	4.24E-002	4.70E-002
Pond A	Potassium	N	2.48E+001	3.61E+001
Pond A	Pyrene	N	3.81E-002	5.83E-002
Pond A	Selenium	N	1.52E-002	2.06E-002
Pond A	Silicon	N	3.55E+000	5.01E+000
Pond A	Silver	N	2.73E+000	3.29E+000
Pond A	Sodium	N	3.59E+001	4.70E+001
Pond A	Thallium	N	1.02E+000	1.26E+000
Pond A	Vanadium	N	2.85E-001	3.27E-001
Pond A	Zinc	N	1.02E+001	1.21E+001
Pond B	2-methylnaphthalene	V	1.43E-002	1.81E-002
Pond B	Acetone	V	4.46E+001	4.99E+001
Pond B	Aluminum	N	2.03E+002	2.54E+002
Pond B	Arsenic	N	2.39E-001	2.54E-001
Pond B	Barium	N	9.08E-001	1.27E+000
Pond B	Benzo(a)anthracene	N	2.30E-002	2.97E-002

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond B	Benzo(a)pyrene	N	1.81E-002	2.12E-002
Pond B	Benzo(b)fluoranthene	N	3.20E-002	3.76E-002
Pond B	Benzo(k)fluoranthene	N	1.68E-002	1.89E-002
Pond B	Beryllium	N	1.62E-002	2.06E-002
Pond B	Bis(2-ethylhexyl)phthalate	N	5.27E-001	6.96E-001
Pond B	Cadmium	N	2.40E-001	3.06E-001
Pond B	Calcium	N	1.34E+003	1.60E+003
Pond B	Carbon Disulfide	V	1.04E-001	1.13E-001
Pond B	Chromium	N	3.89E+000	4.56E+000
Pond B	Chrysene	N	1.79E-002	2.10E-002
Pond B	Cobalt	N	6.96E-002	8.37E-002
Pond B	Copper	N	1.24E+001	1.63E+001
Pond B	Cyanide	N	5.98E-002	9.17E-002
Pond B	Di-n-octylphthalate	N	1.98E-002	2.54E-002
Pond B	Dibutylphthalate	N	8.99E-002	1.55E-001
Pond B	Endosulfan I	N	1.72E-005	2.41E-005
Pond B	Fluoranthene	N	2.01E-002	2.79E-002
Pond B	Iron	N	1.41E+002	1.80E+002
Pond B	Isophorone	V	3.43E-002	4.92E-002
Pond B	Lead	N	3.84E+000	4.81E+000
Pond B	Magnesium	N	2.87E+002	3.44E+002
Pond B	Manganese	N	2.04E+000	3.01E+000
Pond B	Mercury	N	8.47E-002	1.00E-001
Pond B	Methylene Chloride	V	9.21E-002	1.09E-001
Pond B	Nickel	N	4.56E-001	5.18E-001
Pond B	Pcb-1254	N	1.03E-001	1.26E-001

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond B	Pcb-1260	N	2.76E-002	3.20E-002
Pond B	Phenanthrene	V	2.07E-004	2.41E-004
Pond B	Potassium	N	5.01E+001	6.83E+001
Pond B	Pyrene	N	1.59E-002	2.03E-002
Pond B	Selenium	N	1.36E-002	2.22E-002
Pond B	Silicon	N	3.62E+001	6.75E+001
Pond B	Silver	N	6.37E+000	7.53E+000
Pond B	Sodium	N	9.79E+000	1.20E+001
Pond B	Vanadium	N	5.12E-001	6.02E-001
Pond B	Zinc	N	1.80E+001	2.04E+001
Pond C	2,4,5-t	N	1.72E-003	2.61E-003
Pond C	2-methylnaphthalene	V	1.24E-002	2.08E-002
Pond C	4,4'-ddd	N	4.01E-002	8.15E-002
Pond C	4,4'-dde	N	1.71E-002	3.74E-002
Pond C	4,4'-ddt	N	2.91E-003	4.49E-003
Pond C	Acetone	V	1.08E+001	1.84E+001
Pond C	Aldrin	N	7.25E-005	1.49E-004
Pond C	Alpha-chlordane	N	1.19E-003	1.69E-003
Pond C	Aluminum	N	1.76E+002	1.99E+002
Pond C	Arsenic	N	2.84E-002	3.72E-002
Pond C	Barium	N	1.56E+000	1.83E+000
Pond C	Benzene	V	2.57E-001	4.12E-001
Pond C	Beryllium	N	6.90E-003	7.22E-003
Pond C	Beta-bhc	N	1.60E-004	4.11E-004
Pond C	Bis(2-ethylhexyl)phthalate	N	1.65E-001	2.70E-001
Pond C	Cadmium	N	6.72E-002	8.78E-002

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond C	Calcium	N	2.01E+003	2.55E+003
Pond C	Carbon Disulfide	V	9.73E-001	1.54E+000
Pond C	Chromium	N	8.68E-001	1.19E+000
Pond C	Cobalt	N	8.99E-002	1.12E-001
Pond C	Copper	N	1.80E+000	2.69E+000
Pond C	Cyanide	N	9.87E-001	2.88E+000
Pond C	Delta-bhc	N	2.60E-002	5.23E-002
Pond C	Di-n-octylphthalate	N	4.17E-002	8.21E-002
Pond C	Dibenzofuran	V	1.65E-006	2.72E-006
Pond C	Dibutylphthalate	N	4.31E-002	7.15E-002
Pond C	Dichloroprop	N	1.04E-003	1.69E-003
Pond C	Endosulfan I	N	1.42E-002	2.95E-002
Pond C	Endosulfan Sulfate	N	9.26E-005	1.44E-004
Pond C	Endrin Aldehyde	N	1.35E-004	2.97E-004
Pond C	Ethyl Benzene	V	2.19E-002	3.34E-002
Pond C	Fluoranthene	N	7.33E-002	1.22E-001
Pond C	Gamma-chlordane	N	1.83E-003	2.87E-003
Pond C	Heptachlor Epoxide	N	6.73E-005	1.48E-004
Pond C	Iron	N	1.23E+002	1.43E+002
Pond C	Kepone (mirex)	N	2.19E-001	6.08E-001
Pond C	Lead	N	3.85E-001	5.51E-001
Pond C	Magnesium	N	1.89E+002	2.91E+002
Pond C	Manganese	N	2.54E+000	3.19E+000
Pond C	Mercury	N	1.64E-002	2.15E-002
Pond C	Methyl Ethyl Ketone	V	7.36E-001	1.21E+000
Pond C	Methylene Chloride	V	2.48E-001	4.27E-001

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond C	Molybdenum	N	7.94E-002	1.30E-001
Pond C	Nickel	N	1.65E-001	1.97E-001
Pond C	Phenanthrene	V	1.79E-004	3.56E-004
Pond C	Phenol	V	8.04E-003	8.89E-003
Pond C	Potassium	N	4.49E+001	4.77E+001
Pond C	Pyrene	N	4.26E-002	7.07E-002
Pond C	Selenium	N	3.91E-002	5.91E-002
Pond C	Silicon	N	4.78E+001	8.90E+001
Pond C	Silver	N	1.64E+000	2.62E+000
Pond C	Sodium	N	2.12E+001	2.98E+001
Pond C	Sulfide	N	2.64E+001	3.90E+001
Pond C	Tetrachloroethene	V	1.02E-001	1.65E-001
Pond C	Toluene	V	2.58E-002	3.39E-002
Pond C	Vanadium	N	5.55E-001	6.75E-001
Pond C	Xylenes	V	3.49E-002	5.58E-002
Pond C	Zinc	N	2.44E+000	3.36E+000
Pond D	2-hexanone	V	2.88E-002	2.88E-002
Pond D	3-methyl Pentane	V	3.49E-001	3.49E-001
Pond D	4,4'-ddd	N	4.88E-004	1.33E-003
Pond D	4,4'-dde	N	8.81E-005	2.09E-004
Pond D	4,4'-ddt	N	1.48E-004	3.22E-004
Pond D	Acetone	V	1.69E+000	2.02E+000
Pond D	Alpha-chlordane	N	4.66E-005	8.81E-005
Pond D	Arsenic	N	2.11E-002	2.89E-002
Pond D	Barium	N	7.54E-001	9.70E-001
Pond D	Beta-bhc	N	1.10E-004	2.00E-004

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond D	Bis(2-ethylhexyl)phthalate	N	1.64E-002	1.82E-002
Pond D	Chromium	N	8.46E-002	1.12E-001
Pond D	Cobalt	N	5.81E-002	6.32E-002
Pond D	Cyanide	N	1.00E-002	1.88E-002
Pond D	Delta-bhc	N	7.60E-005	1.41E-004
Pond D	Endosulfan Sulfate	N	1.87E-004	3.76E-004
Pond D	Gamma-bhc	N	6.56E-005	1.15E-004
Pond D	Heptachlor	N	4.83E-005	8.81E-005
Pond D	Lead	N	3.53E-002	4.88E-002
Pond D	Nickel	N	1.25E-001	1.48E-001
Pond D	Selenium	N	7.54E-003	8.20E-003
Pond D	Sulfide	N	6.60E-001	8.37E-001
Pond D	Vanadium	N	1.78E-001	2.32E-001
Pond D	Zinc	N	1.92E-001	2.57E-001
Pond E	4,4'-ddd	N	1.72E-002	4.56E-002
Pond E	4,4'-dde	N	6.36E-003	1.41E-002
Pond E	4,4'-ddt	N	1.74E-003	2.17E-003
Pond E	Acetone	V	1.57E+000	1.71E+000
Pond E	Aldrin	N	2.58E-005	2.93E-005
Pond E	Alpha-bhc	N	2.58E-005	2.76E-005
Pond E	Alpha-chlordane	N	2.24E-005	2.41E-005
Pond E	Arsenic	N	2.83E-002	3.65E-002
Pond E	Barium	N	1.38E+000	1.69E+000
Pond E	Beta-bhc	N	8.81E-005	1.51E-004
Pond E	Bis(2-ethylhexyl)phthalate	N	1.28E-001	1.80E-001
Pond E	Cadmium	N	3.14E-002	4.16E-002

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond E	Carbon Disulfide	V	2.26E-001	3.10E-001
Pond E	Chromium	N	3.93E-001	4.70E-001
Pond E	Cobalt	N	7.75E-002	8.63E-002
Pond E	Copper	N	7.56E-001	1.09E+000
Pond E	Cyanide	N	6.64E-001	1.96E+000
Pond E	Delta-bhc	N	5.01E-005	8.46E-005
Pond E	Dibutylphthalate	N	6.58E-002	8.42E-002
Pond E	Endosulfan Ii	N	5.87E-005	7.25E-005
Pond E	Endosulfan Sulfate	N	5.87E-005	8.81E-005
Pond E	Gamma-bhc	N	1.16E-003	1.64E-003
Pond E	Gamma-chlordane	N	1.34E-003	2.10E-003
Pond E	Heptachlor	N	2.41E-005	2.76E-005
Pond E	Lead	N	1.80E-001	2.09E-001
Pond E	Mercury	N	4.99E-003	6.73E-003
Pond E	Methylene Chloride	V	1.71E-001	1.92E-001
Pond E	Nickel	N	1.32E-001	1.72E-001
Pond E	Phenanthrene	V	1.61E-004	3.28E-004
Pond E	Selenium	N	2.83E-002	3.88E-002
Pond E	Silver	N	4.57E-001	6.28E-001
Pond E	Sulfide	N	8.46E+000	1.38E+001
Pond E	Toluene	V	1.25E+000	1.64E+000
Pond E	Vanadium	N	4.97E-001	5.72E-001
Pond E	Xylenes	V	3.78E-001	4.99E-001
Pond E	Zinc	N	1.08E+000	1.33E+000
Pond F	4,4'-ddd	N	1.06E-001	1.89E-001
Pond F	4,4'-dde	N	2.39E-002	3.28E-002

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond F	4,4'-ddt	N	2.32E-003	2.76E-003
Pond F	Acetone	V	7.28E+000	1.12E+001
Pond F	Alpha-chlordane	N	2.61E-003	4.31E-003
Pond F	Arsenic	N	5.44E-002	6.90E-002
Pond F	Barium	N	8.46E-001	1.01E+000
Pond F	Bis(2-ethylhexyl)phthalate	N	7.77E-002	9.26E-002
Pond F	Carbon Disulfide	V	5.62E-001	5.70E-001
Pond F	Chromium	N	5.09E-001	5.69E-001
Pond F	Copper	N	1.00E+000	1.28E+000
Pond F	Delta-bhc	N	6.21E-002	8.63E-002
Pond F	Dibenzofuran	V	1.27E-005	2.09E-005
Pond F	Ethyl Benzene	V	1.09E-002	1.61E-002
Pond F	Fluorene	V	1.90E-003	3.29E-003
Pond F	Gamma-bhc	N	1.21E-003	1.30E-003
Pond F	Gamma-chlordane	N	9.61E-004	1.10E-003
Pond F	Heptachlor	N	8.82E-004	9.08E-004
Pond F	Lead	N	2.29E-001	2.93E-001
Pond F	Mercury	N	6.13E-003	7.42E-003
Pond F	Methyl Ethyl Ketone	V	5.04E-001	8.13E-001
Pond F	Nickel	N	1.65E-001	2.24E-001
Pond F	Phenanthrene	V	1.33E-004	2.39E-004
Pond F	Selenium	N	3.96E-002	4.31E-002
Pond F	Silver	N	8.38E-001	1.01E+000
Pond F	Sulfide	N	2.50E+001	3.10E+001
Pond F	Toluene	V	9.26E-003	1.23E-002
Pond F	Vanadium	N	4.74E-001	6.21E-001

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond F	Xylenes	V	1.11E-002	1.62E-002
Pond F	Zinc	N	1.33E+000	1.69E+000
Pond G	4,4'-ddd	N	1.42E-002	3.06E-002
Pond G	4,4'-dde	N	3.07E-003	5.35E-003
Pond G	4,4'-ddt	N	1.42E-003	2.02E-003
Pond G	Alpha-bhc	N	8.18E-004	1.27E-003
Pond G	Alpha-chlordane	N	8.01E-004	1.34E-003
Pond G	Arsenic	N	3.59E-002	4.65E-002
Pond G	Barium	N	2.32E+000	2.69E+000
Pond G	Beryllium	N	9.96E-003	1.32E-002
Pond G	Beta-bhc	N	5.35E-005	9.26E-005
Pond G	Bis(2-ethylhexyl)phthalate	N	3.44E-002	5.56E-002
Pond G	Butylbenzylphthalate	N	2.40E-002	2.68E-002
Pond G	Chromium	N	2.39E-001	2.89E-001
Pond G	Cobalt	N	7.51E-002	9.35E-002
Pond G	Copper	N	3.28E-001	4.15E-001
Pond G	Cyanide	N	2.75E-002	5.55E-002
Pond G	Di-n-octylphthalate	N	2.26E-002	2.79E-002
Pond G	Endosulfan Sulfate	N	1.72E-005	2.41E-005
Pond G	Gamma-bhc	N	3.44E-005	4.31E-005
Pond G	Gamma-chlordane	N	1.52E-003	3.08E-003
Pond G	Heptachlor	N	2.93E-005	3.62E-005
Pond G	Isodrin	N	3.28E-005	4.49E-005
Pond G	Kepone (mirex)	N	4.47E-004	6.82E-004
Pond G	Lead	N	1.12E+000	2.62E+000
Pond G	Mercury	N	2.93E-003	4.15E-003

Table E-6

(Continued)

Site	Analyte	Volatile	Mean Air Concentration (ug/m^3)	Reasonable Maximum Air Concentration (ug/m^3)
Pond G	Nickel	N	1.45E-001	1.79E-001
Pond G	Selenium	N	1.84E-002	2.56E-002
Pond G	Sulfide	N	1.35E+001	2.43E+001
Pond G	Vanadium	N	3.88E-001	4.76E-001
Pond G	Zinc	N	7.88E-001	9.96E-001

V = Volatile

N = Nonvolatile

4.0 CONSERVATISM AND UNCERTAINTIES

Emission rate estimates are based on analytical data from soils during field sampling. The various equations used to determine emission rates assume steady state conditions, indicating that soil concentrations will not increase or decrease over time. Therefore, the estimated release rates are probably overestimated because concentrations in the soil actually should decrease over time as chemicals volatilize to the air, degrade in the soil, and are transported away from the site.

Regulatory dispersion models, such as ISCLT2, cannot compute a concentration for any receptor that is physically located on the area source being modeled (USEPA, 1992). In this analysis, Lake Stinky and Pond A-F are the source, and a hypothetical individual present on Lake Holloman, Stinky, or one of the ponds is the receptor. Because ISCLT2 could not be used to estimate the ambient air concentration that an individual could potentially be exposed to while at one of the locations, air concentrations were estimated using a simplistic "Box Model". The box model used does not account for any dispersion and as a result the predicted concentrations are likely to be very conservative.

5.0 REFERENCES

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APPENDIX F

INTAKE CALCULATIONS
FOR THE LAGOONS & LAKES

HOLLOMAN AIR FORCE BASE
NEW MEXICO

1.0 FORAGE UPTAKE

For the worst-case exposure scenario, it was assumed that subirrigation of plant forage from the contaminant plume in the shallow groundwater immediately south and west of the Base may introduce both organic and inorganic chemicals into the above-ground portions of the plant. If used as livestock feed, plant forage may subsequently introduce these chemicals into beef. To estimate the chemical concentrations in forage plants, a generic formula was used and is presented below (Equation F-1).

$$C_p = C_w \times UF \qquad \text{(F-1)}$$

Where:

C_p = Chemical concentration in edible plant (mg/kg);

C_w = Chemical concentration in subirrigation water (mg/kg) (assumes a water density of 1 g/cm^3, thus mg/kg = mg/L); and

UF = Uptake factor for plants (mg/kg plant divided by mg/kg water).

Uptake factors (the ratio of the chemical concentration in the plant tissue to the chemical concentration in the subirrigation water) vary widely between plants and depend upon soil conditions (such as pH), the form and concentration of the chemical present in the groundwater, and the type of soil (Baes, *et al.*, 1984). Uptake factors for inorganic elements have been derived by Baes, *et al.*, for various plant parts and are presented in Table F-1. Calculated uptake factors for these inorganic compounds were converted from a dry weight basis to a fresh weight basis, assuming a conversion factor of 0.22 (weighted for various food groups; from Baes, *et al.*, 1984).

Table F-1

Vegetative Uptake Factors

Chemical	Vegetative Plant Parts		Reproductive Plant Parts	
	Dry Weight	Fresh Weight	Dry Weight	Fresh Weight
Metals				
Antimony	0.2000	0.0440	0.0300	0.0066
Arsenic	0.0400	0.0088	0.0060	0.0013
Barium	0.1500	0.0330	0.0150	0.0033
Beryllium	0.0100	0.0022	0.0015	0.0003
Boron	4.0	0.8800	2.0	0.4400
Cadmium	0.5500	0.1210	0.1500	0.0330
Chromium	0.0075	0.0017	0.0045	0.0010
Lead	0.0450	0.0099	0.0090	0.0020
Manganese	0.2500	0.0550	0.0500	0.0110
Mercury	0.9000	0.1980	0.2000	0.0440
Silver	0.4000	0.0880	0.1000	0.0220
Thallium	0.0040	0.0009	0.0004	0.0001
Vanadium	0.0055	0.0012	0.0030	0.0007
Organics				
2,4,5-T	N/A	N/A	N/A	N/A
Aldrin	0.0335	0.0074	0.0335	0.0074
Benzo(a)anthracene	0.0224	0.0049	0.0224	0.0049
Benzo(a)pyrene	0.0122	0.0027	0.0122	0.0027
Benzo(b)fluoranthene	0.0122	0.0027	0.0122	0.0027
Benzo(k)fluoranthene	0.0122	0.0027	0.0122	0.0027
α-BHC	0.2156	0.0474	0.2156	0.0474
β-BHC	0.1653	0.0364	0.1653	0.0364
δ-BHC	0.1653	0.0364	0.1653	0.0364
γ-BHC (Lindane)	0.2157	0.0474	0.2157	0.0474
Bis(2-ethylhexyl)phthalate	0.1447	0.0318	0.1447	0.0318
Chlordane	0.4667	0.1027	0.4667	0.1027
α-Chlordane	0.4667	0.1027	0.4667	0.1026
γ-Chlordane	0.4667	0.1027	0.4667	0.1027

Table F-1

(Continued)

Chemical	Vegetative Plant Parts		Reproductive Plant Parts	
	Dry Weight	Fresh Weight	Dry Weight	Fresh Weight
Cyanide	N/A	N/A	N/A	N/A
4,4'-DDD	0.0101	0.0022	0.0101	0.0022
4,4'-DDE	0.0035	0.0008	0.0035	0.0008
4,4'-DDT	0.0102	0.0023	0.0102	0.0023
Dibenzofuran	N/A	N/A	N/A	N/A
Dichloroprop	N/A	N/A	N/A	N/A
Dieldrin	0.3673	0.0808	0.3673	0.0808
Endosulfan I	0.2367	0.0521	0.2367	0.0521
Endosulfan II	0.2367	0.0521	0.2367	0.0521
Endosulfan sulfate	0.2367	0.0521	0.2367	0.0521
Endrin	0.0317	0.0070	0.0317	0.0070
Endrin aldehyde	0.0317	0.0070	0.0317	0.0070
Endrin ketone	0.0317	0.0070	0.0317	0.0070
Ethyl parathion	0.243	0.053	0.0243	0.0053
Heptachlor epoxide	1.1	0.2343	1.1	0.2343
Heptachlor	0.1109	0.0244	0.1109	0.0244
Isodrin	0.0317	0.0070	0.0317	0.0070
Isophorone	4.2	0.9229	4.2	0.9229
Kepone	2.7	0.5949	2.7	0.5949
Methoxychlor	0.0764	0.0168	0.0764	0.0168
OCDD	0.0051	0.0011	0.0051	0.0011
PCB-1254	0.0125	0.0027	0.0125	0.0027
PCB-1260	0.0125	0.0027	0.0125	0.0027
Trichloroethene	1.6	0.3587	1.6	0.3587

For organic chemicals, transport from groundwater to above-ground plant parts depends on the water solubility and the lipophilicity of the chemical. Highly lipophilic chemicals readily adsorb to the surface membranes of roots, but are less likely to move past these membranes to above-ground portions of plants (McFarland, 1989). Limited research indicates that plant uptake increases for chemicals with a low octanol-water partition coefficient (K_{ow}), up to a log K_{ow} of about 2.0 to 2.2, and then decreases with increasing K_{ow} (McFarland, 1989; Clement, 1988). Research involving primarily pesticides, dioxins, and PCBs with log K_{ow} values ranging from 1.15 to 9.35, indicates that the plant uptake factor is proportional to the K_{ow} as shown in Equation F-2. Uptake factors for organic compounds were calculated using equation F-2 and are presented in Table F-1.

$$\log UF = 1.588 - 0.578 \log K_{ow} \qquad \text{(F-2)}$$

Where:

UF = Plant uptake factor (mg/kg dry plant divided by mg/kg dry soil); and

K_{ow} = Octanol-water partition coefficient (unitless).

Although Equation F-2 expresses the relationship between concentrations of pesticides in plant forage and K_{ow}, similar quantitative information is not available for most organic compounds. However, assuming that this relationship is applicable to all organic compounds with log K_{ow} values of approximately 2.0 and higher, uptake factors were calculated for the organic compounds of potential concern detected in the groundwater at the site. These uptake factors are included in Table F-1. Calculated uptake factors for these organic compounds were converted from a dry weight basis to a fresh weight basis, assuming a conversion factor of 0.22 (weighted for various food groups; from Baes, *et al.*, 1984).

Volatile organic compounds (VOCs) with high Henry's Law constants and high vapor pressures may translocate readily to the leaves of plants but probably will not

accumulate. Volatilization to the atmosphere is likely, and the plant may also metabolize or degrade such compounds (McFarland, 1989). Therefore, uptake of VOCs into above-ground portions of plants was not modeled since these chemicals can be expected to volatilize before significant accumulation occurs.

The estimated average and reasonable maximum concentrations in plant forage subirrigated by the shallow groundwater are presented in Tables F-2 through F-10 of this Appendix. These concentrations are used in the risk assessment to estimate concentrations in beef cattle feeding on the plant forage.

TABLE F-2. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - POND A: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
4,4'-DDD	6.30E-06	8.10E-06	2.22E-03	1.40E-08	1.80E-08
4,4'-DDE	8.30E-06	1.15E-05	7.66E-04	6.36E-09	8.81E-09
4,4'-DDT	1.51E-05	2.03E-05	2.25E-03	3.40E-08	4.57E-08
Aldrin	6.20E-06	7.90E-06	7.36E-03	4.56E-08	5.82E-08
alpha-BHC	1.65E-05	2.27E-05	4.74E-02	7.83E-07	1.08E-06
alpha-Chlordane	1.16E-05	1.98E-05	1.03E-01	1.19E-06	2.03E-06
Aluminum	0.00E+00	0.00E+00	8.00E-04	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	4.40E-02	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Benzo(a)pyrene	0.00E+00	0.00E+00	2.68E-03	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	2.20E-03	0.00E+00	0.00E+00
beta-BHC	1.05E-05	1.50E-05	3.64E-02	3.82E-07	5.45E-07
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
delta-BHC	1.08E-05	1.58E-05	3.64E-02	3.93E-07	5.74E-07
Dieldrin	7.90E-06	1.14E-05	8.08E-02	6.38E-07	9.21E-07
Endosulfan I	7.20E-06	1.00E-05	5.21E-02	3.75E-07	5.21E-07
Endosulfan II	1.74E-05	2.09E-05	5.21E-02	9.06E-07	1.09E-06
Endosulfan sulfate	2.27E-05	2.55E-05	5.21E-02	1.18E-06	1.33E-06
Endrin	1.96E-05	2.90E-05	6.98E-03	1.37E-07	2.02E-07
Endrin aldehyde	5.30E-06	7.30E-06	6.98E-03	3.70E-08	5.10E-08
gamma-BHC	1.61E-05	2.77E-05	4.74E-02	7.64E-07	1.31E-06
gamma-Chlordane	6.52E-04	1.22E-03	1.03E-01	6.69E-05	1.25E-04
Heptachlor	8.50E-06	1.13E-05	2.44E-02	2.07E-07	2.76E-07
Heptachlor epoxide	5.60E-06	6.60E-06	2.34E-01	1.31E-06	1.55E-06

TABLE F-2. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - POND A: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
Isodrin	1.58E-05	2.61E-05	6.98E-03	1.10E-07	1.82E-07
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Methoxychlor	4.60E-06	4.60E-06	1.11E-03	5.12E-09	5.12E-09
OCDD	0.00E+00	0.00E+00	2.25E-03	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Thallium	0.00E+00	0.00E+00	8.80E-04	0.00E+00	0.00E+00
Tin	0.00E+00	0.00E+00	6.60E-03	0.00E+00	0.00E+00

TABLE F-3. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond B: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
2-Methyl napthalene	0.00E+00	0.00E+00	4.99E-02	0.00E+00	0.00E+00
4,4'-DDD	6.30E-06	8.10E-06	2.22E-03	1.40E-08	1.80E-08
4,4'-DDE	8.30E-06	1.15E-05	7.66E-04	6.36E-09	8.81E-09
4,4'-DDT	1.51E-05	2.03E-05	2.25E-03	3.40E-08	4.57E-08
Aldrin	6.20E-06	7.90E-06	7.36E-03	4.56E-08	5.82E-08
alpha-BHC	1.65E-05	2.27E-05	4.74E-02	7.83E-07	1.08E-06
alpha-Chlordane	1.16E-05	1.98E-05	1.03E-01	1.19E-06	2.03E-06
Aluminum	0.00E+00	0.00E+00	8.80E-04	0.00E+00	0.00E+00
Antimony	0.00E+00	0.00E+00	4.40E-02	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Benzo(a)pyrene	0.00E+00	0.00E+00	2.68E-03	0.00E+00	0.00E+00
Benzo(b)fluoranthene	0.00E+00	0.00E+00	2.68E-03	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	2.20E-03	0.00E+00	0.00E+00
beta-BHC	1.05E-05	1.50E-05	3.64E-02	3.82E-07	5.45E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Chlordane	0.00E+00	0.00E+00	1.03E-01	0.00E+00	0.00E+00
Chromium VI	0.00E+00	0.00E+00	1.65E-03	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
Cyclohexene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	1.08E-05	1.58E-05	3.64E-02	3.93E-07	5.74E-07
Dieldrin	7.90E-06	1.14E-05	8.08E-02	6.38E-07	9.21E-07

TABLE F-3. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond B: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
Endosulfan I	7.20E-06	1.00E-05	5.21E-02	3.75E-07	5.21E-07
Endosulfan II	1.74E-05	2.09E-05	5.21E-02	9.06E-07	1.09E-06
Endosulfan sulfate	2.27E-05	2.55E-05	5.21E-02	1.18E-06	1.33E-06
Endrin	1.96E-05	2.90E-05	6.98E-03	1.37E-07	2.02E-07
Endrin aldehyde	5.30E-06	7.30E-06	6.98E-03	3.70E-08	5.10E-08
gamma-BHC	1.61E-05	2.77E-05	4.74E-02	7.64E-07	1.31E-06
gamma-Chlordane	6.52E-04	1.22E-03	1.03E-01	6.69E-05	1.25E-04
Heptachlor	8.50E-06	1.13E-05	2.44E-02	2.07E-07	2.76E-07
Heptachlor epoxide	5.60E-06	6.60E-06	2.34E-01	1.31E-06	1.55E-06
Isodrin	1.58E-05	2.61E-05	6.98E-03	1.10E-07	1.82E-07
Isophorone	0.00E+00	0.00E+00	9.23E-01	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Lead (organic)	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	1.98E-01	0.00E+00	0.00E+00
Methoxychlor	4.60E-06	4.60E-06	2.25E-03	1.04E-08	1.04E-08
PCB-1254	0.00E+00	0.00E+00	2.75E-03	0.00E+00	0.00E+00
PCB-1260	0.00E+00	0.00E+00	2.75E-03	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	2.24E-02	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	8.80E-02	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	1.21E-03	0.00E+00	0.00E+00

TABLE F-4: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond C: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
2,4,5-T	0.00E+00	0.00E+00	2.02E-01	0.00E+00	0.00E+00
2-Methyl napthalene	0.00E+00	0.00E+00	4.99E-02	0.00E+00	0.00E+00
4,4'-DDD	0.00E+00	0.00E+00	2.22E-03	0.00E+00	0.00E+00
4,4'-DDE	8.60E-06	1.94E-05	7.66E-04	6.59E-09	1.49E-08
4,4'-DDT	1.12E-05	1.53E-05	2.25E-03	2.52E-08	3.45E-08
Aldrin	8.20E-06	1.81E-05	7.36E-03	6.04E-08	1.33E-07
alpha-Chlordane	8.30E-06	8.30E-06	1.03E-01	8.52E-07	8.52E-07
Aluminum	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
beta-BHC	0.00E+00	0.00E+00	3.64E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Chromium VI	0.00E+00	0.00E+00	1.65E-03	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	1.56E-05	3.75E-05	3.64E-02	5.67E-07	1.36E-06
Dibenzofuran	0.00E+00	0.00E+00	2.90E-03	0.00E+00	0.00E+00
Dichloroprop	0.00E+00	0.00E+00	2.02E-01	0.00E+00	0.00E+00
Dieldrin	8.90E-06	2.07E-05	8.08E-02	7.19E-07	1.67E-06
Endosulfan I	0.00E+00	0.00E+00	5.21E-02	0.00E+00	0.00E+00
Endosulfan II	1.39E-05	2.02E-05	5.21E-02	7.24E-07	1.05E-06
Endosulfan sulfate	1.20E-05	2.30E-05	5.21E-02	6.25E-07	1.20E-06
Endrin	9.30E-06	2.20E-05	6.98E-03	6.49E-08	1.54E-07
Endrin aldehyde	4.00E-06	4.40E-06	6.98E-03	2.79E-08	3.07E-08
gamma-BHC	8.60E-06	1.94E-05	4.74E-02	4.08E-07	9.21E-07

TABLE F-4: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond C: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
gamma-Chlordane	3.91E-04	7.40E-04	1.03E-01	4.01E-05	7.60E-05
Heptachlor epoxide	0.00E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00
Isodrin	5.00E-06	5.10E-06	6.98E-03	3.49E-08	3.56E-08
Kepone	0.00E+00	0.00E+00	5.95E-01	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Phenanthrene	0.00E+00	0.00E+00	2.25E-02	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	8.80E-02	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Vanadium	0.00E+00	0.00E+00	1.21E-03	0.00E+00	0.00E+00

TABLE F-5: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond D: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
2-Hexanone	0.00E+00	0.00E+00	1.36E+00	0.00E+00	0.00E+00
3-Methyl pentane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4,4'-DDD	0.00E+00	0.00E+00	2.22E-03	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	7.66E-04	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	2.25E-03	8.74E-08	1.67E-07
4-Hydroxy-4-methyl pentanone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aldrin	1.38E-05	2.66E-05	7.36E-03	1.02E-07	1.96E-07
alpha-BHC	1.50E-05	2.47E-05	4.74E-02	7.12E-07	1.17E-06
alpha-Chlordane	5.40E-06	7.50E-06	1.03E-01	5.54E-07	7.70E-07
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
beta-BHC	6.70E-06	9.00E-06	3.64E-02	2.44E-07	3.27E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
delta-BHC	9.20E-06	1.45E-05	3.64E-02	3.35E-07	5.27E-07
Dieldrin	2.54E-05	5.88E-05	8.08E-02	2.05E-06	4.75E-06
Endosulfan II	1.92E-05	2.63E-05	5.21E-02	1.00E-06	1.37E-06
Endosulfan sulfate	2.27E-05	2.61E-05	5.21E-02	1.18E-06	1.36E-06
Endrin	5.32E-05	1.14E-04	6.98E-03	3.71E-07	7.93E-07
Endrin aldehyde	1.41E-05	2.35E-05	6.98E-03	9.84E-08	1.64E-07
gamma-BHC	2.52E-05	4.68E-05	4.74E-02	1.20E-06	2.22E-06

TABLE F-5: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond D: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
gamma-Chlordane	2.04E-05	4.60E-05	1.03E-01	2.09E-06	4.72E-06
Heptachlor	1.81E-05	2.96E-05	2.44E-02	4.41E-07	7.22E-07
Heptachlor epoxide	5.50E-06	6.80E-06	2.34E-01	1.29E-06	1.59E-06
Isodrin	1.06E-05	1.89E-05	6.98E-03	7.40E-08	1.32E-07
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Lead (organic)	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	1.98E-01	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	2.25E-03	8.67E-08	1.44E-07
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	8.80E-02	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE F-6. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond E: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
4,4'-DDD	0.00E+00	0.00E+00	2.22E-03	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	7.66E-04	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	2.25E-03	8.74E-08	1.67E-07
Aldrin	1.38E-05	2.66E-05	7.36E-03	1.02E-07	1.96E-07
alpha-BHC	1.50E-05	2.47E-05	4.74E-02	7.12E-07	1.17E-06
alpha-Chlordane	5.40E-06	7.50E-06	1.03E-01	5.54E-07	7.70E-07
Antimony	0.00E+00	0.00E+00	2.00E-01	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
beta-BHC	6.70E-06	9.00E-06	3.64E-02	2.44E-07	3.27E-07
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	8.80E-02	0.00E+00	0.00E+00
delta-BHC	9.20E-06	1.45E-05	3.64E-02	3.35E-07	5.27E-07
Dieldrin	2.54E-05	5.88E-05	8.08E-02	2.05E-06	4.75E-06
Endosulfan II	1.92E-05	2.63E-05	5.21E-02	1.00E-06	1.37E-06
Endosulfan sulfate	2.27E-05	2.61E-05	5.21E-02	1.18E-06	1.36E-06
Endrin	5.32E-05	1.14E-04	6.98E-03	3.71E-07	7.93E-07
Endrin aldehyde	1.41E-05	2.35E-05	6.98E-03	9.84E-08	1.64E-07
gamma-BHC	2.52E-05	4.68E-05	4.74E-02	1.20E-06	2.22E-06
gamma-Chlordane	2.04E-05	4.60E-05	1.03E-01	2.09E-06	4.72E-06

TABLE F-6. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond E: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
Heptachlor	1.81E-05	2.96E-05	2.44E-02	4.41E-07	7.22E-07
Heptachlor epoxide	5.50E-06	6.80E-06	2.34E-01	1.29E-06	1.59E-06
Isodrin	1.06E-05	1.89E-05	6.98E-03	7.40E-08	1.32E-07
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Lead (organic)	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	1.98E-01	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	2.25E-03	8.67E-08	1.44E-07
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE F-7: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUND
Holloman AFB - Pond F: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
4,4'-DDD	0.00E+00	0.00E+00	2.22E-03	0.00E+00	0.00E+00
4,4'-DDE	0.00E+00	0.00E+00	7.66E-04	0.00E+00	0.00E+00
4,4'-DDT	3.88E-05	7.41E-05	2.25E-03	8.74E-08	1.67E-07
Aldrin	1.38E-05	2.66E-05	7.36E-03	1.02E-07	1.96E-07
alpha-BHC	1.50E-05	2.47E-05	4.74E-02	7.12E-07	1.17E-06
alpha-Chlordane	5.40E-06	7.50E-06	1.03E-01	5.54E-07	7.70E-07
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
beta-BHC	6.70E-06	9.00E-06	3.64E-02	2.44E-07	3.27E-07
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
delta-BHC	9.20E-06	1.45E-05	3.64E-02	3.35E-07	5.27E-07
Dibenzofuran	0.00E+00	0.00E+00	2.90E-03	0.00E+00	0.00E+00
Dieldrin	2.54E-05	5.88E-05	8.08E-02	2.05E-06	4.75E-06
Endosulfan II	1.92E-05	2.63E-05	5.21E-02	1.00E-06	1.37E-06
Endosulfan sulfate	2.27E-05	2.61E-05	5.21E-02	1.18E-06	1.36E-06
Endrin	5.32E-05	1.14E-04	6.98E-03	3.71E-07	7.93E-07
Endrin aldehyde.	1.41E-05	2.35E-05	6.98E-03	9.84E-08	1.64E-07
gamma-BHC	2.52E-05	4.68E-05	4.74E-02	1.20E-06	2.22E-06
gamma-Chlordane	2.04E-05	4.60E-05	1.03E-01	2.09E-06	4.72E-06
Heptachlor	1.81E-05	2.96E-05	2.44E-02	4.41E-07	7.22E-07
Heptachlor epoxide	5.50E-06	6.80E-06	2.34E-01	1.29E-06	1.59E-06
Isodrin	1.06E-05	1.89E-05	8.02E+00	8.51E-05	1.52E-04
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Methoxychlor	3.85E-05	6.40E-05	2.25E-03	8.67E-08	1.44E-07

TABLE F-7: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUND
Holloman AFB - Pond F: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
Phenanthrene	0.00E+00	0.00E+00	2.25E-02	0.00E+00	0.00E+00
Silver	0.00E+00	0.00E+00	8.80E-02	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE F-8: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond G: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
4,4'-DDD	4.42E-06	1.04E-05	2.22E-03	9.82E-09	2.31E-08
4,4'-DDE	0.00E+00	0.00E+00	7.66E-04	0.00E+00	0.00E+00
4,4'-DDT	0.00E+00	0.00E+00	2.25E-03	0.00E+00	0.00E+00
alpha-BHC	1.34E-57	3.26E-57	4.74E-02	6.36E-59	1.55E-58
alpha-Chlordane	0.00E+00	0.00E+00	1.03E-01	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	2.20E-03	0.00E+00	0.00E+00
beta-BHC	0.00E+00	0.00E+00	3.64E-02	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
Dieldrin	6.40E-07	1.00E-06	8.08E-02	5.17E-08	8.08E-08
Endosulfan I	5.59E-61	1.00E-60	5.21E-02	2.91E-62	5.21E-62
Endosulfan II	0.00E+00	0.00E+00	5.21E-02	0.00E+00	0.00E+00
Endosulfan sulfate	1.58E-60	2.15E-60	5.21E-02	8.23E-62	1.12E-61
Endrin	7.49E-13	1.31E-12	6.98E-03	5.23E-15	9.14E-15
Endrin aldehyde	1.36E-12	2.47E-12	6.98E-03	9.49E-15	1.72E-14
gamma-BHC	5.43E-16	1.26E-15	4.74E-02	2.58E-17	5.98E-17
gamma-Chlordane	1.64E-06	4.21E-06	1.03E-01	1.68E-07	4.32E-07
Heptachlor	1.20E-08	1.46E-08	2.44E-02	2.93E-10	3.56E-10
Heptachlor epoxide	9.31E-09	2.39E-08	2.34E-01	2.18E-09	5.60E-09
Isodrin	0.00E+00	0.00E+00	6.98E-03	0.00E+00	0.00E+00
Kepone	0.00E+00	0.00E+00	5.95E-01	0.00E+00	0.00E+00
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Lead (organic)	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00

TABLE F-8: CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Pond G: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Max
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Mercury	0.00E+00	0.00E+00	1.98E-01	0.00E+00	0.00E+00
Methoxychlor	5.74E-30	5.74E-30	2.25E-03	1.29E-32	1.29E-32
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE F-9. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Lake Holloman: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
2,4,5-T	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4,4'-DDD	1.43E-05	2.90E-05	2.22E-03	3.18E-08	6.44E-08
4,4'-DDE	9.80E-06	1.83E-05	7.66E-04	7.51E-09	1.40E-08
4,4'-DDT	0.00E+00	0.00E+00	2.25E-03	0.00E+00	0.00E+00
Aldrin	1.06E-05	1.91E-05	7.36E-03	7.80E-08	1.41E-07
alpha-BHC	2.02E-05	6.52E-05	4.74E-02	9.58E-07	3.09E-06
alpha-Chlordane	6.00E-06	9.50E-06	1.03E-01	6.16E-07	9.75E-07
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Barium	0.00E+00	0.00E+00	3.30E-02	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	2.20E-03	0.00E+00	0.00E+00
beta-BHC	1.21E-05	3.39E-05	3.64E-02	4.40E-07	1.23E-06
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	3.18E-02	0.00E+00	0.00E+00
Boron	0.00E+00	0.00E+00	8.80E-01	0.00E+00	0.00E+00
Cadmium (dust)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (food)	0.00E+00	0.00E+00	1.21E-01	0.00E+00	0.00E+00
Cadmium (water)	1.25E-02	1.40E-02	1.21E-01	1.51E-03	1.69E-03
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
Cyclohexanone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	2.69E-05	4.90E-05	3.64E-02	9.78E-07	1.78E-06
Dieldrin	1.73E-05	3.77E-05	8.08E-02	1.40E-06	3.05E-06
Endosulfan I	1.32E-05	3.77E-05	5.21E-02	6.87E-07	1.96E-06
Endosulfan II	1.30E-05	1.30E-05	5.21E-02	6.77E-07	6.77E-07
Endosulfan sulfate	1.04E-05	1.60E-05	5.21E-02	5.42E-07	8.33E-07
Endrin	0.00E+00	0.00E+00	6.98E-03	0.00E+00	0.00E+00

TABLE F-9. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Lake Holloman: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
Endrin aldehyde	0.00E+00	0.00E+00	6.98E-03	0.00E+00	0.00E+00
Endrin ketone	0.00E+00	0.00E+00	6.98E-03	0.00E+00	0.00E+00
gamma-BHC	1.24E-05	2.00E-05	4.74E-02	5.88E-07	9.49E-07
gamma-Chlordane	9.20E-06	2.04E-05	1.03E-01	9.45E-07	2.09E-06
Heptachlor	2.02E-05	3.60E-05	2.44E-02	4.93E-07	8.78E-07
Isodrin	1.26E-05	2.42E-05	6.98E-03	8.80E-08	1.69E-07
Kepone	3.55E-04	9.87E-04	5.95E-01	2.11E-04	5.87E-04
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Lead (organic)	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Manganese (dust)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (food)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Manganese (water)	0.00E+00	0.00E+00	5.50E-02	0.00E+00	0.00E+00
Methoxychlor	0.00E+00	0.00E+00	2.25E-03	0.00E+00	0.00E+00
Parathion	0.00E+00	0.00E+00	5.35E-02	0.00E+00	0.00E+00
Silicon	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichloroethene	0.00E+00	0.00E+00	3.59E-01	0.00E+00	0.00E+00

TABLE F-10. CONCENTRATIONS IN FORAGE (AS A RESULT OF SUBIRRIGATION WITH GROUNDWATER)
Holloman AFB - Lake Stinky: For chronic exposure evaluation

Cp = (Cw)(UF)

where: Cp = concentration in plant - as a result of irrigation (mg/kg)
Cw = concentration in water used for subirrigation (mg/kg)
UF = uptake factor (mg/kg plant divided by mg/kg water)

Chemical	Cw (mg/kg) Avg	Cw (mg/kg) Max	UF (veg.) (mg/kg plant/ mg/kg water)	Cp (veg.) (mg/kg) Avg	Cp (veg.) (mg/kg) Max
2,4,5-T	0.00E+00	0.00E+00	1.80E-01	0.00E+00	0.00E+00
4,4'-DDD	9.40E-06	1.40E-05	2.22E-03	2.09E-08	3.11E-08
4,4'-DDE	9.90E-06	1.50E-05	7.66E-04	7.59E-09	1.15E-08
4,4'-DDT	9.50E-06	9.60E-06	2.25E-03	2.14E-08	2.16E-08
Aldrin	0.00E+00	0.00E+00	7.36E-03	0.00E+00	0.00E+00
alpha-BHC	1.39E-05	2.30E-05	4.74E-02	6.60E-07	1.09E-06
Arsenic	0.00E+00	0.00E+00	8.80E-03	0.00E+00	0.00E+00
Beryllium	0.00E+00	0.00E+00	2.20E-03	0.00E+00	0.00E+00
beta-BHC	8.40E-06	1.20E-05	3.64E-02	3.05E-07	4.36E-07
Cobalt	0.00E+00	0.00E+00	4.40E-03	0.00E+00	0.00E+00
Cyclohexanone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
delta-BHC	0.00E+00	0.00E+00	3.64E-02	0.00E+00	0.00E+00
Dieldrin	9.40E-06	1.40E-05	8.08E-02	7.60E-07	1.13E-06
Endosulfan I	6.40E-06	7.90E-06	5.21E-02	3.33E-07	4.11E-07
Endosulfan II	1.90E-06	1.90E-06	5.21E-02	9.90E-08	9.90E-08
Endrin	0.00E+00	0.00E+00	6.98E-03	0.00E+00	0.00E+00
Endrin aldehyde	1.08E-05	1.20E-05	6.98E-03	7.54E-08	8.38E-08
gamma-BHC	1.04E-05	1.60E-05	4.74E-02	4.93E-07	7.59E-07
gamma-Chlordane	3.80E-06	3.80E-06	1.03E-01	3.90E-07	3.90E-07
Heptachlor	3.60E-05	3.60E-05	2.44E-02	8.78E-07	8.78E-07
Heptachlor epoxide	0.00E+00	0.00E+00	2.34E-01	0.00E+00	0.00E+00
Isodrin	7.40E-06	1.00E-05	6.98E-03	5.17E-08	6.98E-08
Kepone	4.97E-04	9.90E-04	5.95E-01	2.96E-04	5.89E-04
Lead	0.00E+00	0.00E+00	9.90E-03	0.00E+00	0.00E+00
Parathion	0.00E+00	0.00E+00	5.35E-02	0.00E+00	0.00E+00
Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Trichloroethene	0.00E+00	0.00E+00	3.59E-01	0.00E+00	0.00E+00

2.0 BEEF UPTAKE

There are no agricultural wells in the immediate vicinity of the Base. However, to assess a worst-case scenario that supports a no-action decision, the use of contaminated groundwater for stock water and/or subirrigating plant forage (Section 1.0) is assumed to contribute to concentrations of certain chemicals in the edible meat of beef cattle. As cattle ingest contaminated water and forage, some chemicals may be absorbed in the animals' gastrointestinal tract. The more lipophilic chemicals may then accumulate in meat.

To estimate the chemical concentration in beef, an equation derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) was used (Equation F-3).

$$C_b = (FI \times F_m \times B) \sum_{i=1}^{N} C_i Q_i \qquad \text{(F-3)}$$

Where:

C_b = Chemical concentration in beef (mg/kg);

FI = Fraction of water ingested from contaminated source (unitless);

F_m = Feed-to-meat transfer coefficient (day/kg);

B = Fraction of the chemical in water which is bioavailable (unitless);

N = Total number of food or non-food sources *i* (feed, water, etc);

C_i = Chemical concentration in source *i* (mg chemical/kg source); and

Q_i = Quantity of source *i* ingested per head of cattle per day (kg/day).

Equation F-3 utilizes a feed-to-meat transfer coefficient in the calculation. Feed-to-meat transfer coefficients are defined as the ratio of the chemical concentration in edible meat (in mg/kg) to the daily intake of the chemical (in mg/day). Feed-to-meat transfer coefficients for inorganic elements derived by Baes, *et al.* (1984) were used in this assessment for metals of potential concern and are located in Table F-11 of this Appendix. These transfer coefficients also were used in the assessment of waterfowl in Section 3.0 of this Appendix.

For organic compounds, bioconcentration in beef depends on the lipophilic characteristics of the chemical. Research on beef involving primarily pesticides and dioxins with log K_{ow} values ranging from 1.34 to 6.89 indicates that the feed-to-meat ratio is proportional to the K_{ow} as shown in Equation F-4 (Travis and Arms, 1988).

$$\log F_m = -7.6 + \log K_{ow} \qquad \text{(F-4)}$$

Where:

F_m = Feed-to-meat transfer coefficient (day/kg); and

K_{ow} = Octanol-water partition coefficient (unitless).

Similar information from quantitative research is not available for other organic compounds. However, assuming that this relationship is applicable to other organic compounds, feed-to-meat transfer coefficients have been calculated for the organic chemicals detected in the groundwater at the Base. Calculated transfer coefficients for organic chemicals of concern detected in the groundwater at the site are presented in Table F-11 of this Appendix.

Contaminated food sources included in the evaluation are stock water from potentially contaminated groundwater wells and plant forage subirrigated with water from the same source. The fraction of feed from a contaminated source was assumed to be 100

Table F-11

Meat Uptake Factors

Chemical	Feed-to-Meat Transfer Coefficient (day/kg)
Metals	
Antimony	0.0010
Arsenic	0.0020
Barium	0.00015
Beryllium	0.0010
Boron	0.0008
Cadmium	0.00055
Chromium	0.0055
Lead	0.0003
Magnesium	0.005
Manganese	0.0004
Mercury	0.2500
Nickel	0.006
Selenium	0.015
Silicon	0.004
Silver	0.0030
Thallium	0.0400
Vanadium	0.0025
Organics	
Acetone	0.00000001
Aldrin	0.00501
Benzyl alcohol	N/A
Benzo(a)anthracene	0.0100
Benzo(a)pyrene	0.0288
Benzo(b)fluoranthene	0.0288
Benzo(k)fluoranthene	0.0288
α-BHC	0.0002
β-BHC	0.00032
δ-BHC	0.00032

Table F-11

(Continued)

Chemical	Feed-to-Meat Transfer Coefficient (day/kg)
γ-BHC (Lindane)	0.0002
Bis(2-ethylhexyl)phthalate	.0004
Chlordane	0.00005
α-Chlordane	0.00005 [1]
γ-Chlordane	0.00005 [1]
4-Chloroaniline	0.000002
Cyanide	N/A
2,4'-DDD	0.0398 [2]
2,4'-DDE	0.2512 [3]
2,4'-DDT	0.0389 [4]
4,4'-DDD	0.0398
4,4'-DDE	0.2512
4,4'-DDT	0.0389
Dibenzofuran	N/A
Dibutylphthalate	0.0100
Dichloroprop	N/A
Dieldrin	0.00008
Diethylphthalate	0.000008
Di-n-octylphthalate	0.0042
Endosulfan I	0.00017 [5]
Endosulfan II	0.00017 [5]
Endosulfan sulfate	0.00017 [5]
Endrin	0.0055
Endrin aldehyde	0.0055 [6]
Endrin ketone	0.0055 [6]
Ethyl parathion	0.00016
Heptachlor	0.0006
Heptachlor epoxide	0.00001
1,2,3,4,6,7,8-HpCDD	0.1318 [7]

Table F-11

(Continued)

Chemical	Feed-to-Meat Transfer Coefficient (day/kg)
1,2,3,4,7,8-HxCDF	0.1318 [7]
1,2,3,7,8,9-HxCDF	0.1318 [7]
2,3,4,6,7,8-HxCDF	0.1318 [7]
Hexachlorocyclobenzene	0.0043
Isodrin	0.0055 [6]
Isophorone	0.000001
Kepone	0.000002
Lead (organic)	0.00014
Methoxychlor	0 .0012
n-Nitroso-di-n-propylamine	N/A
n-Nitrosodimethylamine	N/A
OCDD	0.1318 [7]
OCDF	0.1318 [7]
PCB-105	0.0275
PCB-1254	0.0275
PCB-1260	0.0275
Pyridine	0.000001
2,4,5-T	N/A
2,3,7,8-TCDD	0.1318
2,3,7,8-TCDF	0.1318 [7]
Trichloroethene	0.000006

1 Transfer coefficient for parent compound Chlordane.
2 Transfer coefficient for 4,4'-DDD.
3 Transfer coefficient for 4,4'-DDE.
4 Transfer coefficient for 4,4'-DDT.
5 Transfer coefficient for parent compound Endosulfan.
6 Transfer coefficient for parent compound Endrin.
7 Transfer coefficient for TCDD.

% for water and plant forage. One hundred percent of all contaminants in the water and forage was assumed to be bioavailable. A cattle water ingestion rate of 150 kg/day per head of cattle and a forage consumption rate of 8 kg/day per head of cattle were assumed.

The estimated average and reasonable maximum concentrations in beef are presented in Tables F-12 through F-20 of this Appendix. These concentrations are used in the risk assessment to estimate contaminant concentrations in humans from consuming beef.

TABLE F-12. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond A: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
4,4'-DDD	3.98E-02	1.0	1.0	6.30E-06	8.10E-06	1.00E+02	1.0	1.40E-08	1.80E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.51E-05	3.23E-05
4,4'-DDE	2.51E-01	1.0	1.0	8.30E-06	1.15E-05	1.00E+02	1.0	6.36E-09	8.81E-09	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.08E-04	2.89E-04
4,4'-DDT	3.89E-02	1.0	1.0	1.51E-05	2.03E-05	1.00E+02	1.0	3.40E-08	4.57E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.88E-05	7.90E-05
Aldrin	5.01E-03	1.0	1.0	6.20E-06	7.90E-06	1.00E+02	1.0	4.56E-08	5.82E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.11E-06	3.96E-06
alpha-BHC	2.00E-04	1.0	1.0	1.65E-05	2.27E-05	1.00E+02	1.0	7.83E-07	1.08E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.30E-07	4.55E-07
alpha-Chlordane	5.25E-05	1.0	1.0	1.16E-05	1.98E-05	1.00E+02	1.0	1.19E-06	2.03E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.14E-08	1.05E-07
Aluminum	1.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Antimony	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Benzo(a)pyrene	2.88E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	1.05E-05	1.50E-05	1.00E+02	1.0	3.82E-07	5.45E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.33E-07	4.76E-07
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	1.08E-05	1.58E-05	1.00E+02	1.0	3.93E-07	5.74E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.43E-07	5.01E-07
Dieldrin	7.94E-05	1.0	1.0	7.90E-06	1.14E-05	1.00E+02	1.0	6.38E-07	9.21E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.32E-08	9.11E-08
Endosulfan I	1.70E-04	1.0	1.0	7.20E-06	1.00E-05	1.00E+02	1.0	3.75E-07	5.21E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.23E-07	1.71E-07
Endosulfan II	1.70E-04	1.0	1.0	1.74E-05	2.09E-05	1.00E+02	1.0	9.06E-07	1.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.97E-07	3.56E-07
Endosulfan sulfate	1.70E-04	1.0	1.0	2.27E-05	2.55E-05	1.00E+02	1.0	1.18E-06	1.33E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.87E-07	4.35E-07
Endrin	5.50E-03	1.0	1.0	1.96E-05	2.90E-05	1.00E+02	1.0	1.37E-07	2.02E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.08E-05	1.59E-05
Endrin aldehyde	5.50E-03	1.0	1.0	5.30E-06	7.30E-06	1.00E+02	1.0	3.70E-08	5.10E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.91E-06	4.01E-06
gamma-BHC	2.00E-04	1.0	1.0	1.61E-05	2.77E-05	1.00E+02	1.0	7.64E-07	1.31E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.22E-07	5.55E-07

TABLE F-12. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond A: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
gamma-Chlordane	5.25E-05	1.0	1.0	6.52E-04	1.22E-03	1.00E+02	1.0	6.69E-05	1.25E-04	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.45E-06	6.47E-06
Heptachlor	6.31E-04	1.0	1.0	8.50E-06	1.13E-05	1.00E+02	1.0	2.07E-07	2.76E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.37E-07	7.14E-07
Heptachlor epoxide	1.26E-05	1.0	1.0	5.60E-06	6.60E-06	1.00E+02	1.0	1.31E-06	1.55E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.18E-09	8.46E-09
Isodrin	5.50E-03	1.0	1.0	1.58E-05	2.61E-05	1.00E+02	1.0	1.10E-07	1.82E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.69E-06	1.44E-05
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Methoxychlor	1.32E-01	1.0	1.0	4.60E-06	4.60E-06	1.00E+02	1.0	5.12E-09	5.12E-09	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.06E-05	6.06E-05
OCDD	3.89E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Thallium	4.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Tin	8.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-13. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond B: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2-Methyl napthalene	1.82E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	1.0	6.30E-06	8.10E-06	1.00E+02	1.0	1.40E-08	1.80E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.51E-05	3.23E-05
4,4'-DDE	2.51E-01	1.0	1.0	8.30E-06	1.15E-05	1.00E+02	1.0	6.36E-09	8.81E-09	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.08E-04	2.89E-04
4,4'-DDT	3.89E-02	1.0	1.0	1.51E-05	2.03E-05	1.00E+02	1.0	3.40E-08	4.57E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.88E-05	7.90E-05
Aldrin	5.01E-03	1.0	1.0	6.20E-06	7.90E-06	1.00E+02	1.0	4.56E-08	5.82E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.11E-06	3.96E-06
alpha-BHC	2.00E-04	1.0	1.0	1.65E-05	2.27E-05	1.00E+02	1.0	7.83E-07	1.08E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.30E-07	4.55E-07
alpha-Chlordane	5.25E-05	1.0	1.0	1.16E-05	1.98E-05	1.00E+02	1.0	1.19E-06	2.03E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.14E-08	1.05E-07
Aluminum	1.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Antimony	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Benzo(a)pyrene	2.88E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Benzo(b)fluoranthene	2.88E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	1.05E-05	1.50E-05	1.00E+02	1.0	3.82E-07	5.45E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.33E-07	4.76E-07
bis(2-Ethylhexyl)phthalate	3.98E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Boron	8.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Chlordane	5.25E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Chromium VI	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	2.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cyclohexene	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	1.08E-05	1.58E-05	1.00E+02	1.0	3.93E-07	5.74E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.43E-07	5.01E-07
Dieldrin	7.94E-05	1.0	1.0	7.90E-06	1.14E-05	1.00E+02	1.0	6.38E-07	9.21E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.32E-08	9.11E-08

TABLE F-13. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond B: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Endosulfan I	1.70E-04	1.0	1.0	7.20E-06	1.00E-05	1.00E+02	1.0	3.75E-07	5.21E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.23E-07	1.71E-07
Endosulfan II	1.70E-04	1.0	1.0	1.74E-05	2.09E-05	1.00E+02	1.0	9.06E-07	1.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.97E-07	3.56E-07
Endosulfan sulfate	1.70E-04	1.0	1.0	2.27E-05	2.55E-05	1.00E+02	1.0	1.18E-06	1.33E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.87E-07	4.35E-07
Endrin	5.50E-03	1.0	1.0	1.96E-05	2.90E-05	1.00E+02	1.0	1.37E-07	2.02E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.08E-05	1.59E-05
Endrin aldehyde	5.50E-03	1.0	1.0	5.30E-06	7.30E-06	1.00E+02	1.0	3.70E-08	5.10E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.91E-06	4.01E-06
gamma-BHC	2.00E-04	1.0	1.0	1.61E-05	2.77E-05	1.00E+02	1.0	7.64E-07	1.31E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.22E-07	5.55E-07
gamma-Chlordane	5.25E-05	1.0	1.0	6.52E-04	1.22E-03	1.00E+02	1.0	6.69E-05	1.25E-04	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.45E-06	6.47E-06
Heptachlor	6.31E-04	1.0	1.0	8.50E-06	1.13E-05	1.00E+02	1.0	2.07E-07	2.76E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.37E-07	7.14E-07
Heptachlor epoxide	1.26E-05	1.0	1.0	5.60E-06	6.60E-06	1.00E+02	1.0	1.31E-06	1.55E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.18E-09	8.46E-09
Isodrin	5.50E-03	1.0	1.0	1.58E-05	2.61E-05	1.00E+02	1.0	1.10E-07	1.82E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.69E-06	1.44E-05
Isophorone	1.17E-06	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead (organic)	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (food)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Mercury	2.50E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Methoxychlor	3.89E-02	1.0	1.0	4.60E-06	4.60E-06	1.00E+02	1.0	1.04E-08	1.04E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.79E-05	1.79E-05
PCB-1254	2.75E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
PCB-1260	2.75E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Phenanthrene	7.24E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silver	3.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Vanadium	2.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-14. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR AND STOCK WATER
Holloman AFB-Pond C: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2,4,5-T	1.62E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
2-Methylnaphthalene	1.82E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDE	2.51E-01	1.0	1.0	8.60E-06	1.94E-05	1.00E+02	1.0	6.59E-09	1.49E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.16E-04	4.87E-04
4,4'-DDT	3.89E-02	1.0	1.0	1.12E-05	1.53E-05	1.00E+02	1.0	2.52E-08	3.45E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.36E-05	5.95E-05
Aldrin	5.01E-03	1.0	1.0	8.20E-06	1.81E-05	1.00E+02	1.0	6.04E-08	1.33E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.11E-06	9.08E-06
alpha-Chlordane	5.25E-05	1.0	1.0	8.30E-06	8.30E-06	1.00E+02	1.0	8.52E-07	8.52E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.39E-08	4.39E-08
Aluminum	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Boron	8.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Chromium VI	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	2.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cyanide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	1.56E-05	3.75E-05	1.00E+02	1.0	5.67E-07	1.36E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.95E-07	1.19E-06
Dibenzofuran	2.51E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Dichloroprop	1.62E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Dieldrin	7.94E-05	1.0	1.0	8.90E-06	2.07E-05	1.00E+02	1.0	7.19E-07	1.67E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.12E-08	1.65E-07
Endosulfan I	1.70E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Endosulfan II	1.70E-04	1.0	1.0	1.39E-05	2.02E-05	1.00E+02	1.0	7.24E-07	1.05E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.37E-07	3.44E-07

TABLE F-14. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR AND STOCK WATER
Holloman AFB-Pond C: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Endosulfan sulfate	1.70E-04	1.0	1.0	1.20E-05	2.30E-05	1.00E+02	1.0	6.25E-07	1.20E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.05E-07	3.92E-07
Endrin	5.50E-03	1.0	1.0	9.30E-06	2.20E-05	1.00E+02	1.0	6.49E-08	1.54E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.11E-06	1.21E-05
Endrin aldehyde	5.50E-03	1.0	1.0	4.00E-06	4.40E-06	1.00E+02	1.0	2.79E-08	3.07E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.20E-06	2.42E-06
gamma-BHC	2.00E-04	1.0	1.0	8.60E-06	1.94E-05	1.00E+02	1.0	4.08E-07	9.21E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.72E-07	3.89E-07
gamma-Chlordane	5.25E-05	1.0	1.0	3.91E-04	7.40E-04	1.00E+02	1.0	4.01E-05	7.60E-05	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.07E-06	3.92E-06
Heptachlor epoxide	1.26E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Isodrin	5.50E-03	1.0	1.0	5.00E-06	5.10E-06	1.00E+02	1.0	3.49E-08	3.56E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.75E-06	2.80E-06
Kepone	2.51E-06	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (food)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Phenanthrene	7.24E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silver	3.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Vanadium	2.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-15. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond D: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2-Hexanone	6.03E-07	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
3-methyl pentane	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDE	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDT	3.89E-02	1.0	1.0	3.88E-05	7.41E-05	1.00E+02	1.0	8.74E-08	1.67E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.51E-04	2.88E-04
4-hydroxy-4-methyl pentanone	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Aldrin	5.01E-03	1.0	1.0	1.38E-05	2.66E-05	1.00E+02	1.0	1.02E-07	1.96E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.92E-06	1.33E-05
alpha-BHC	2.00E-04	1.0	1.0	1.50E-05	2.47E-05	1.00E+02	1.0	7.12E-07	1.17E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.00E-07	4.95E-07
alpha-Chlordane	5.25E-05	1.0	1.0	5.40E-06	7.50E-06	1.00E+02	1.0	5.54E-07	7.70E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.86E-08	3.97E-08
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	6.70E-06	9.00E-06	1.00E+02	1.0	2.44E-07	3.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.12E-07	2.85E-07
bis(2-Ethylhexyl)phthalate	3.98E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Boron	8.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	2.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	9.20E-06	1.45E-05	1.00E+02	1.0	3.35E-07	5.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.92E-07	4.60E-07
Dieldrin	7.94E-05	1.0	1.0	2.54E-05	5.88E-05	1.00E+02	1.0	2.05E-06	4.75E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.03E-07	4.70E-07
Endosulfan II	1.70E-04	1.0	1.0	1.92E-05	2.63E-05	1.00E+02	1.0	1.00E-06	1.37E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.27E-07	4.48E-07
Endosulfan sulfate	1.70E-04	1.0	1.0	2.27E-05	2.61E-05	1.00E+02	1.0	1.18E-06	1.36E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.87E-07	4.45E-07

TABLE F-15. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond D: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Endrin	5.50E-03	1.0	1.0	5.32E-05	1.14E-04	1.00E+02	1.0	3.71E-07	7.93E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.93E-05	6.25E-05
Endrin aldehyde	5.50E-03	1.0	1.0	1.41E-05	2.35E-05	1.00E+02	1.0	9.84E-08	1.64E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.75E-06	1.29E-05
gamma-BHC	2.00E-04	1.0	1.0	2.52E-05	4.68E-05	1.00E+02	1.0	1.20E-06	2.22E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.05E-07	9.37E-07
gamma-Chlordane	5.25E-05	1.0	1.0	2.04E-05	4.60E-05	1.00E+02	1.0	2.09E-06	4.72E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.08E-07	2.43E-07
Heptachlor	6.31E-04	1.0	1.0	1.81E-05	2.96E-05	1.00E+02	1.0	4.41E-07	7.22E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.14E-06	1.87E-06
Heptachlor epoxide	1.26E-05	1.0	1.0	5.50E-06	6.80E-06	1.00E+02	1.0	1.29E-06	1.59E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.05E-09	8.72E-09
Isodrin	5.50E-03	1.0	1.0	1.06E-05	1.89E-05	1.00E+02	1.0	7.40E-08	1.32E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.83E-06	1.04E-05
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead-Organic	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (food)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Mercury	2.50E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Methoxychlor	3.89E-02	1.0	1.0	3.85E-05	6.40E-05	1.00E+02	1.0	8.67E-08	1.44E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.50E-04	2.49E-04
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silver	3.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-16. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond E: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
4,4'-DDD	3.98E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDE	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDT	3.89E-02	1.0	1.0	3.88E-05	7.41E-05	1.00E+02	1.0	8.74E-08	1.67E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.51E-04	2.88E-04
Aldrin	5.01E-03	1.0	1.0	1.38E-05	2.66E-05	1.00E+02	1.0	1.02E-07	1.96E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.92E-06	1.33E-05
alpha-BHC	2.00E-04	1.0	1.0	1.50E-05	2.47E-05	1.00E+02	1.0	7.12E-07	1.17E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.00E-07	4.95E-07
alpha-Chlordane	5.25E-05	1.0	1.0	5.40E-06	7.50E-06	1.00E+02	1.0	5.54E-07	7.70E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.86E-08	3.97E-08
Antimony	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	6.70E-06	9.00E-06	1.00E+02	1.0	2.44E-07	3.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.12E-07	2.85E-07
bis(2-Ethylhexyl)phthalate	3.98E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Boron	8.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	1.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	9.20E-06	1.45E-05	1.00E+02	1.0	3.35E-07	5.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.92E-07	4.60E-07
Dieldrin	7.94E-05	1.0	1.0	2.54E-05	5.88E-05	1.00E+02	1.0	2.05E-06	4.75E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.03E-07	4.70E-07
Endosulfan II	1.70E-04	1.0	1.0	1.92E-05	2.63E-05	1.00E+02	1.0	1.00E-06	1.37E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.27E-07	4.48E-07
Endosulfan sulfate	1.70E-04	1.0	1.0	2.27E-05	2.61E-05	1.00E+02	1.0	1.18E-06	1.36E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.87E-07	4.45E-07
Endrin	5.50E-03	1.0	1.0	5.32E-05	1.14E-04	1.00E+02	1.0	3.71E-07	7.93E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.93E-05	6.25E-05
Endrin aldehyde	5.50E-03	1.0	1.0	1.41E-05	2.35E-05	1.00E+02	1.0	9.84E-08	1.64E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.75E-06	1.29E-05

TABLE F-16. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond E: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
gamma-BHC	2.00E-04	1.0	1.0	2.52E-05	4.68E-05	1.00E+02	1.0	1.20E-06	2.22E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.05E-07	9.37E-07
gamma-Chlordane	5.25E-05	1.0	1.0	2.04E-05	4.60E-05	1.00E+02	1.0	2.09E-06	4.72E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.08E-07	2.43E-07
Heptachlor	6.31E-04	1.0	1.0	1.81E-05	2.96E-05	1.00E+02	1.0	4.41E-07	7.22E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.14E-06	1.87E-06
Heptachlor epoxide	1.26E-05	1.0	1.0	5.50E-06	6.80E-06	1.00E+02	1.0	1.29E-06	1.59E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.05E-09	8.72E-09
Isodrin	5.50E-03	1.0	1.0	1.06E-05	1.89E-05	1.00E+02	1.0	7.40E-08	1.32E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.83E-06	1.04E-05
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead (organic)	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (food)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Mercury	2.50E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Methoxychlor	3.89E-02	1.0	1.0	3.85E-05	6.40E-05	1.00E+02	1.0	8.67E-08	1.44E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.50E-04	2.49E-04
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-17. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond F: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
4,4'-DDD	3.98E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDE	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDT	3.89E-02	1.0	1.0	3.88E-05	7.41E-05	1.00E+02	1.0	8.74E-08	1.67E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.51E-04	2.88E-04
Aldrin	5.01E-03	1.0	1.0	1.38E-05	2.66E-05	1.00E+02	1.0	1.02E-07	1.96E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.92E-06	1.33E-05
alpha-BHC	2.00E-04	1.0	1.0	1.50E-05	2.47E-05	1.00E+02	1.0	7.12E-07	1.17E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.00E-07	4.95E-07
alpha-Chlordane	5.25E-05	1.0	1.0	5.40E-06	7.50E-06	1.00E+02	1.0	5.54E-07	7.70E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.86E-08	3.97E-08
Arsenic	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	6.70E-06	9.00E-06	1.00E+02	1.0	2.44E-07	3.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.12E-07	2.85E-07
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	9.20E-06	1.45E-05	1.00E+02	1.0	3.35E-07	5.27E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.92E-07	4.60E-07
Dibenzofuran	2.51E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Dieldrin	7.94E-05	1.0	1.0	2.54E-05	5.88E-05	1.00E+02	1.0	2.05E-06	4.75E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.03E-07	4.70E-07
Endosulfan II	1.70E-04	1.0	1.0	1.92E-05	2.63E-05	1.00E+02	1.0	1.00E-06	1.37E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.27E-07	4.48E-07
Endosulfan sulfate	1.70E-04	1.0	1.0	2.27E-05	2.61E-05	1.00E+02	1.0	1.18E-06	1.36E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.87E-07	4.45E-07
Endrin	5.50E-03	1.0	1.0	5.32E-05	1.14E-04	1.00E+02	1.0	3.71E-07	7.93E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.93E-05	6.25E-05
Endrin aldehyde	5.50E-03	1.0	1.0	1.41E-05	2.35E-05	1.00E+02	1.0	9.84E-08	1.64E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.75E-06	1.29E-05
gamma-BHC	2.00E-04	1.0	1.0	2.52E-05	4.68E-05	1.00E+02	1.0	1.20E-06	2.22E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.05E-07	9.37E-07
gamma-Chlordane	5.25E-05	1.0	1.0	2.04E-05	4.60E-05	1.00E+02	1.0	2.09E-06	4.72E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.08E-07	2.43E-07
Heptachlor	6.31E-04	1.0	1.0	1.81E-05	2.96E-05	1.00E+02	1.0	4.41E-07	7.22E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.14E-06	1.87E-06
Heptachlor epoxide	1.26E-05	1.0	1.0	5.50E-06	6.80E-06	1.00E+02	1.0	1.29E-06	1.59E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.05E-09	8.72E-09
Isodrin	2.79E-08	1.0	1.0	1.06E-05	1.89E-05	1.00E+02	1.0	8.51E-05	1.52E-04	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.85E-11	8.65E-11
Methoxychlor	3.89E-02	1.0	1.0	3.85E-05	6.40E-05	1.00E+02	1.0	8.67E-08	1.44E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.50E-04	2.49E-04

TABLE F-17. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond F: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Phenanthrene	7.24E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Silver	3.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-18. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond G: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
4,4'-DDD	3.98E-02	1.0	1.0	4.42E-06	1.04E-05	1.00E+02	1.0	9.82E-09	2.31E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.76E-05	4.14E-05
4,4'-DDT	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
alpha-BHC	3.89E-02	1.0	1.0	1.34E-57	3.26E-57	1.00E+02	1.0	6.36E-59	1.55E-58	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.23E-57	1.27E-56
alpha-Chlordane	2.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Arsenic	5.25E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	2.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
bis(2-Ethylhexyl)phthalate	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Boron	3.98E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cobalt	8.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Dieldrin	2.00E-02	1.0	1.0	6.40E-07	1.00E-06	1.00E+02	1.0	5.17E-08	8.08E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.29E-06	2.01E-06
Diethylphthalate	7.94E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	2.91E-62	5.21E-62	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.85E-65	3.31E-65
Endosulfan I	1.70E-04	1.0	1.0	5.59E-61	1.00E-60	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.49E-63	1.70E-62
Endosulfan II	1.70E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	8.23E-62	1.12E-61	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.12E-64	1.52E-64
Endosulfan sulfate	1.70E-04	1.0	1.0	1.58E-60	2.15E-60	1.00E+02	1.0	5.23E-15	9.14E-15	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.10E-18	1.24E-17
Endrin	5.50E-03	1.0	1.0	7.49E-13	1.31E-12	1.00E+02	1.0	9.49E-15	1.72E-14	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.12E-13	7.21E-13
Endrin aldehyde	5.50E-03	1.0	1.0	1.36E-12	2.47E-12	1.00E+02	1.0	2.58E-17	5.98E-17	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.47E-13	1.36E-12
gamma-BHC	2.00E-04	1.0	1.0	5.43E-16	1.26E-15	1.00E+02	1.0	1.68E-07	4.32E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.69E-10	6.90E-10
gamma-Chlordane	5.25E-05	1.0	1.0	1.64E-06	4.21E-06	1.00E+02	1.0	2.93E-10	3.56E-10	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.61E-09	2.21E-08
Heptachlor	6.31E-04	1.0	1.0	1.20E-08	1.46E-08	1.00E+02	1.0	2.18E-09	5.60E-09	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.68E-10	9.49E-10
Heptachlor epoxide	1.26E-05	1.0	1.0	9.31E-09	2.39E-08	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.17E-11	3.01E-11
Isodrin	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Kepone	2.51E-06	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Lead	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-18. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE GROUNDWATER FOR STOCK WATER
Holloman AFB - Pond G: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Lead (organic)	3.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (food)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	1.29E-32	1.29E-32	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.14E-35	4.14E-35
Mercury	2.50E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Methoxychlor	3.89E-02	1.0	1.0	5.74E-30	5.74E-30	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.23E-29	2.23E-29
Silicon	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-19. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE SURFACE WATER FOR STOCK WATER
Holloman AFB - Lake Holloman: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2,4,5-T	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	1.0	4.20E-06	4.20E-06	1.00E+02	1.0	3.18E-08	6.44E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.67E-05	1.67E-05
4,4'-DDE	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	7.51E-09	1.40E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.51E-08	2.82E-08
4,4'-DDT	3.89E-02	1.0	1.0	1.17E-05	1.80E-05	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.55E-05	7.00E-05
Aldrin	5.01E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	7.80E-08	1.41E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.13E-09	5.64E-09
alpha-BHC	2.00E-04	1.0	1.0	8.80E-06	9.70E-06	1.00E+02	1.0	9.58E-07	3.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.77E-07	1.98E-07
alpha-Chlordane	5.25E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	6.16E-07	9.75E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.59E-10	4.10E-10
Arsenic	2.00E-03	1.0	1.0	7.32E-03	8.45E-03	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.46E-03	1.69E-03
Barium	1.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	4.40E-07	1.23E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.11E-09	3.12E-09
bis(2-Ethylhexyl)phtha	3.98E-04	1.0	1.0	2.12E-02	4.67E-02	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.44E-04	1.86E-03
Boron	8.00E-04	1.0	1.0	3.30E-01	3.65E-01	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.64E-02	2.92E-02
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	1.51E-03	1.69E-03	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.66E-06	7.45E-06
Cobalt	2.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cyclohexanone	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	9.78E-07	1.78E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.47E-09	4.51E-09
Dieldrin	7.94E-05	1.0	1.0	6.80E-06	1.29E-05	1.00E+02	1.0	1.40E-06	3.05E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.49E-08	1.04E-07
Endosulfan I	1.70E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	6.87E-07	1.96E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.34E-10	2.67E-09

TABLE F-19. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE SURFACE WATER FOR STOCK WATER
Holloman AFB - Lake Holloman: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw) + (FIf)(Cf)(IRf) + (FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2,4,5-T	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	1.0	4.20E-06	4.20E-06	1.00E+02	1.0	3.18E-08	6.44E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.67E-05	1.67E-05
4,4'-DDE	2.51E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	7.51E-09	1.40E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.51E-08	2.82E-08
4,4'-DDT	3.89E-02	1.0	1.0	1.17E-05	1.80E-05	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.55E-05	7.00E-05
Aldrin	5.01E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	7.80E-08	1.41E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.13E-09	5.64E-09
alpha-BHC	2.00E-04	1.0	1.0	8.80E-06	9.70E-06	1.00E+02	1.0	9.58E-07	3.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.77E-07	1.98E-07
alpha-Chlordane	5.25E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	6.16E-07	9.75E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.59E-10	4.10E-10
Arsenic	2.00E-03	1.0	1.0	7.32E-03	8.45E-03	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.46E-03	1.69E-03
Barium	1.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	1.00E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	4.40E-07	1.23E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.11E-09	3.12E-09
bis(2-Ethylhexyl)phth	3.98E-04	1.0	1.0	2.12E-02	4.67E-02	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.44E-04	1.86E-03
Boron	8.00E-04	1.0	1.0	3.30E-01	3.65E-01	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.64E-02	2.92E-02
Cadmium (dust)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (food)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cadmium (water)	5.50E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	1.51E-03	1.69E-03	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.66E-06	7.45E-06
Cobalt	2.00E-02	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cyclohexanone	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	9.78E-07	1.78E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.47E-09	4.51E-09
Dieldrin	7.94E-05	1.0	1.0	6.80E-06	1.29E-05	1.00E+02	1.0	1.40E-06	3.05E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.49E-08	1.04E-07
Endosulfan I	1.70E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	6.87E-07	1.96E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.34E-10	2.67E-09
Endosulfan II	1.70E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	6.77E-07	6.77E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.20E-10	9.20E-10
Endosulfan sulfate	1.70E-04	1.0	1.0	7.00E-07	7.00E-07	1.00E+02	1.0	5.42E-07	8.33E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.26E-08	1.30E-08
Endrin	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Endrin aldehyde	5.50E-03	1.0	1.0	4.50E-06	4.50E-06	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.47E-06	2.47E-06
Endrin ketone	5.50E-03	1.0	1.0	3.00E-05	3.00E-05	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.65E-05	1.65E-05
gamma-BHC	2.00E-04	1.0	1.0	6.50E-06	1.15E-05	1.00E+02	1.0	5.88E-07	9.49E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.31E-07	2.31E-07
gamma-Chlordane	5.25E-05	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	9.45E-07	2.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.97E-10	8.79E-10
Heptachlor	6.31E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	4.93E-07	8.78E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.49E-09	4.43E-09
HpCB	1.38E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
HxCB	1.38E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Isodrin	5.50E-03	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	1.25E-07	2.40E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.48E-09	1.05E-08
Kepone	2.51E-06	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	3.51E-06	9.77E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.06E-11	1.96E-10
Lead	3.00E-04	1.0	1.0	3.22E-03	4.02E-03	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.66E-05	1.21E-04

TABLE F-19. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE SURFACE WATER FOR STOCK WATER
Holloman AFB - Lake Holloman: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw) + (FIf)(Cf)(IRf) + (FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Lead (organic)	1.41E-04	1.0	1.0	2.06E-01	3.03E-01	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.90E-03	4.27E-03
Magnesium	1.41E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (dust)	4.00E-04	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Manganese (water)	4.00E-04	1.0	1.0	5.46E-02	5.77E-02	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.18E-03	2.31E-03
OCDF	1.38E-01	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Pyridine	1.00E-06	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	1.0	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

TABLE F-20. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE SURFACE WATER FOR STOCK WATER
Holloman AFB - Lake Stinky: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
2,4,5-T	2.00E-05	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
4,4'-DDD	3.98E-02	1.0	0.5	2.39E-05	4.30E-05	1.00E+02	1.0	2.09E-08	3.11E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.76E-05	8.56E-05
4,4'-DDE	2.51E-01	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	7.59E-09	1.15E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.52E-08	2.31E-08
4,4'-DDT	3.89E-02	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	2.14E-08	2.16E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	6.66E-09	6.73E-09
Aldrin	5.01E-03	1.0	0.5	1.49E-05	2.50E-05	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	3.73E-06	6.26E-06
alpha-BHC	2.00E-04	1.0	0.5	5.50E-05	1.00E-04	1.00E+02	1.0	6.60E-07	1.09E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.50E-07	9.99E-07
Arsenic	2.00E-03	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Beryllium	1.00E-03	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
beta-BHC	3.16E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	3.05E-07	4.36E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.73E-10	1.10E-09
Cobalt	2.00E-02	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Cyclohexanone	0.00E+00	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
delta-BHC	3.16E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Dieldrin	7.94E-05	1.0	0.5	1.10E-05	1.10E-05	1.00E+02	1.0	7.60E-07	1.13E-06	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.42E-08	4.44E-08
Endosulfan I	1.70E-04	1.0	0.5	3.44E-05	6.40E-05	1.00E+02	1.0	3.33E-07	4.11E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	2.93E-07	5.44E-07
Endosulfan II	1.70E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	9.90E-08	9.90E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.34E-10	1.34E-10
Endrin	5.50E-03	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Endrin aldehyde	5.50E-03	1.0	0.5	2.93E-05	4.90E-05	1.00E+02	1.0	7.54E-08	8.38E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.05E-06	1.35E-05
gamma-BHC	2.00E-04	1.0	0.5	9.80E-06	9.80E-06	1.00E+02	1.0	4.93E-07	7.59E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	9.86E-08	9.90E-08
gamma-Chlordane	5.25E-05	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	3.90E-07	3.90E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	1.64E-10	1.64E-10
Heptachlor	6.31E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	8.78E-07	8.78E-07	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	4.43E-09	4.43E-09
Heptachlor epoxide	1.26E-05	1.0	0.5	1.14E-05	1.80E-05	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	7.18E-09	1.13E-08

TABLE F-20. CONCENTRATIONS IN BEEF AS A RESULT OF FORAGING AND USING THE SURFACE WATER FOR STOCK WATER
Holloman AFB - Lake Stinky: For chronic exposure evaluation

Cb = (Fb)(B)[(FIw)(Cw)(IRw)+(FIf)(Cf)(IRf)+(FIs)(Cs)(IRs)]
where: Cb = Chemical concentration in beef (mg/kg)
Fb = Feed-to-beef transfer coefficient (day/kg)
B = Fraction of contaminant in feed which is bioavailable (unitless)
FIw = Fraction ingested of food (water) from contaminanted source (unitless)
Cw = Chemical concentration in food (water) (mg/kg)
IRw = Ingestion rate for food (water) (L/day)
FIf = Fraction ingested of food (feed) from contaminanted source (unitless)
Cf = Chemical concentration in food (feed) (mg/kg)
IRf = Ingestion rate for food (feed) (kg/day)
FIs = Fraction ingested of food (soil) from contaminanted source (unitless)
Cs = Chemical concentration in food (soil) (mg/kg)
IRs = Ingestion rate for food (soil) (kg/day)

Chemical	Fb (day/kg)	B	FIw	Cw (mg/L) Avg	Cw (mg/L) Max	IRw (L/day)	FIf	Cf (mg/kg) Avg	Cf (mg/kg) Max	IRf (kg/day)	FIs	Cs (mg/kg) Avg	Cs (mg/kg) Max	IRs (kg/day)	Cb (mg/kg) Avg	Cb (mg/kg) Max
Isodrin	5.50E-03	1.0	0.5	2.94E-05	5.40E-05	1.00E+02	1.0	5.17E-08	6.98E-08	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	8.08E-06	1.48E-05
Kepone	2.51E-06	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	2.96E-04	5.89E-04	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	5.95E-09	1.18E-08
Lead	3.00E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Parathion	1.62E-04	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Sulfide	0.00E+00	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00
Trichloroethene	6.03E-06	1.0	0.5	0.00E+00	0.00E+00	1.00E+02	1.0	0.00E+00	0.00E+00	8.00E+00	1.0	0.00E+00	0.00E+00	6.00E-01	0.00E+00	0.00E+00

3.0 WATERFOWL UPTAKE

Waterfowl use Lakes Holloman and Stinky and Ponds A through G as habitat during migration. As a result, contaminants may bioaccumulate in the waterfowl through ingestion of contaminated surface water, plankton, and algae. While waterfowl may be exposed through other pathways (e.g., inhalation, dermal contact), these exposure routes are too uncertain to quantify in animals. As several of these waterfowl are game species, humans may also ingest and bioaccumulate contaminants as a result of hunting activities.

To estimate the chemical concentration in waterfowl, an equation derived from the *Multi-Pathway Health Risk Assessment Input Parameters Guidance Document* (Clement, 1988) was used (Equation F-5). Although the equation was derived specifically

$$C_w = (FI \times F_m \times B) \sum_{i=1}^{N} C_i Q_i \qquad \text{(F-5)}$$

Where:

C_w = Chemical concentration in waterfowl (mg/kg);

FI = Fraction of water ingested from contaminated source (unitless);

F_m = Feed-to-meat transfer coefficient (day/kg);

B = Fraction of the chemical in water which is bioavailable (unitless);

N = Total number of food or non-food sources *i* (feed, water, etc);

C_i = Chemical concentration in source *i* (mg chemical/kg source); and

Q_i = Quantity of source *i* ingested per bird per day (kg/day).

for beef, it has been applied to waterfowl for this risk assessment. The equation requires a feed-to-meat transfer coefficient which has not been developed specifically for waterfowl at this time. Therefore, feed-to-meat transfer coefficients for beef, presented in Table F-11 of this appendix, have been used as surrogates. Currently, the *Air Toxics "Hot Spots" Program Risk Assessment Guidelines* (1992), prepared by the AB 2588 Risk Assessment Committee of the California Air Pollution Control Officers Association (CAPCOA), assumes that the transfer coefficient is the same for all types of meat.

The contaminated feed source in this evaluation is potentially contaminated surface water and biota from each impoundment in the lagoons and lakes system. For waterfowl, the water ingested was assumed to be contaminated 100% of the time. Water ingestion rates of 0.13 L/day and 0.16 L/day (average and reasonable maximum, respectively) also were used. Estimated average and reasonable maximum concentrations in waterfowl are located in Appendix K (Ecological Assessment).

4.0 PATHWAY-SPECIFIC HUMAN UPTAKES

Exposure is defined as the contact rate of an organism with a chemical or physical agent. Intake is defined as exposure normalized for time and body weight and is expressed in units of mg chemical/kg body weight-day (USEPA, 1989a). There are three categories of variables that are used to estimate intake: 1) chemical-related variables (exposure concentration); 2) variables that describe the exposed population (contact rate, exposure frequency and duration, and body weight); and 3) assessment-related variables (averaging time). The chemical-related variables (exposure concentrations) are presented in Tables 2-5, 3-5, 4-5, 5-5, 6-5, 7-5, 8-5, 9-5, 10-5, and 11-5 of the risk assessment. Tables F-21 through F-38 in this Appendix summarize the assumptions and algorithms used to estimate exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. The generic equation for calculating chemical intakes is provided below (USEPA, 1989a).

$$I = C \times CR \times EFD/BW \times 1/AT$$

Where:

I = Intake; the amount of chemical at the exchange boundary (mg/kg-day);

C = Chemical concentration; the average concentration contacted over the exposure period (e.g., mg/L);

CR = Contact rate; the amount of contaminated medium contacted per unit time or event (e.g., L/day);

EFD = Exposure frequency (days/year) and duration (years); describes how often and how long exposure occurs;

BW = Body weight (kg); and

AT = Averaging time; period over which exposure is averaged (days).

Table F-21

Potential Exposure from Dermal Contact with Chemicals in Contaminated Surface Water - Occupational Scenario - Ponds A through G, and the Ditch

Absorbed Dose (mg/kg-day) = (CW x SA x PC x ET x EF x ED x CF)/(BW x AT)	Assumptions			
	Chronic (occupational)		Subchronic (occupational)	
Parameters	Worker Average	Worker Reasonable Maximum	Worker Average	Worker Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
SA = Skin Surface Area Available for Contact (cm^2)	840 [b]	1980 [c]	840 [b]	1980 [c]
PC = Chemical-specific Dermal Permeability Constant (cm/hr)	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]
ET = Exposure Time (hours/event)	0.50 [e]	1.0 [e]	0.50 [e]	1.00 [e]
EF = Exposure Frequency (events/year)	2 [g]	12 [h]	2 [g]	12 [h]
CF = Conversion Factor (liter/cm^3)	0.001	0.001	0.001	0.001
ED = Exposure Duration (years)	9 [i]	25 [j]	3 [k]	3 [k]
BW = Body Weight (kg)	70 [l]	70 [l]	70 [l]	70 [l]
AT = Averaging Time (period over which exposure is averaged--days) -- Noncarcinogenic effects -- Carcinogenic effects	 3285 [m] 25550 [n]	 1095 [m] 25550 [n]	 1095 [m] 25550 [n]	 1095 [m] 25550 [n]

a See text and Tables for concentrations in surface water.
b Occupational adult male, average (mean skin surface area for hands); EPA, 1989b.
c Occupational adult male, reasonable maximum (mean skin surface area for forearms and hands); EPA, 1989b.
d Appropriate experimentally derived PCs for compounds in aqueous solution were identified when such values existed. In the absence of experimentally derived values, modeled PC values, based on structure-activity relationships were selected for individual compounds; EPA, 1991b.
e Best professional judgement. Assumes one half hour from exposure to cleansing.
f Best professional judgement. Assumes one hour from exposure to cleansing.
g Best professional judgement for occupational adult, average. Assumes exposure twice a year while taking water samples.
h Best professional judgement for occupational adult, reasonable maximum. Assumes exposure once a month while taking water samples.
i National median time--50th percentile--time at one residence; EPA, 1989b.
j National upper bound time--90th percentile--time at one residence; EPA, 1989b.
k Assumes average (3 year) tour of duty.
l Adult, average; EPA, 1989b.
m ED x 365 days/year.
n 70 years x 365 days/year.

Table F-22

Potential Exposure from Dermal Contact with Chemicals in Contaminated Soil/Sludge/Sediment- Occupational Scenario - Ponds A, B, and C

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)	Assumptions			
	Chronic (occupational)		Subchronic (occupational)	
Parameters	Worker Average	Worker Reasonable Maximum	Worker Average	Worker Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
CF = Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06
SA = Skin Surface Area Available for Contact (cm^2/event)	420 [b]	1000 [c]	420 [b]	1000 [c]
AF = Soil to Skin Adherence Factor (mg/cm^2)	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]
ABS = Absorption Factor (unitless)	Chemical-Specific [e]	Chemical-Specific [e]	Chemical-Specific [e]	Chemical-Specific [e]
EF = Exposure Frequency (events/year)	2 [f]	12 [g]	2 [f]	12 [g]
ED = Exposure Duration (years)	9 [h]	25 [i]	3 [j]	3 [j]
BW = Body Weight (kg)	70 [k]	70 [k]	70 [k]	70 [k]
AT = Averaging Time (period over which exposure is averaged--days)				
-- Noncarcinogenic effects	3285 [l]	9125 [l]	1095 [l]	2555 [l]
-- Carcinogenic effects	25550 [m]	25550 [m]	25550 [m]	25550 [m]

a See text and tables for concentrations in sludge/sediment.
b Occupational, adult male average (one-half mean skin surface area for hands); EPA, 1989b. One-half of the total surface area was assumed to be available for contact with sediments/sludge and one-half was assumed to be available for contact with underlying soils.
c Occupational, adult male reasonable maximum (one-half mean skin surface area for forearms and hands); EPA, 1989b. One-half of the total surface area was assumed to be available for contact with sediments/sludge and one-half was assumed to be available for contact with underlying soils.
d Kaolin clay (for hands); EPA, 1989a.
e It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).
f Best professional judgement. Assumes exposure twice a year while servicing aerators.
g Best professional judgement. Assumes exposure once a month while servicing sump pumps.
h National median time--50th percentile--time at one residence; EPA, 1989b.
i 95th percentile time spent working at the same location; EPA, 1991a.
j Assumes average (3 year) tour of duty.
k Adult, average; EPA, 1989b.
l ED x 365 days/year.
m 70 years x 365 days/year.

Table F-23

Potential Exposure from Dermal Contact with Chemicals in Contaminated Soil/Sludge/Sediment- Occupational Scenario - Ponds D, E, F, G and the Ditch

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)	Assumptions			
	Chronic (occupational)		Subchronic (occupational)	
Parameters	Worker Average	Worker Reasonable Maximum	Worker Average	Worker Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
CF = Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06
SA = Skin Surface Area Available for Contact (cm^2/event)	420 [b]	420 [b]	420 [b]	420 [b]
AF = Soil to Skin Adherence Factor (mg/cm^2)	2.77 [c]	2.77 [c]	2.77 [c]	2.77 [c]
ABS = Absorption Factor (unitless)	Chemical-Specific [d]	Chemical-Specific [d]	Chemical-Specific [d]	Chemical-Specific [d]
EF = Exposure Frequency (events/year)	1 [e]	1 [e]	1 [e]	1 [e]
ED = Exposure Duration (years)	9 [f]	25 [g]	3 [h]	3 [h]
BW = Body Weight (kg)	70 [i]	70 [i]	70 [i]	70 [i]
AT = Averaging Time (period over which exposure is averaged--days)				
-- Noncarcinogenic effects	3285 [j]	9125 [j]	1095 [j]	2555 [j]
-- Carcinogenic effects	25550 [k]	25550 [k]	25550 [k]	25550 [k]

a See text and tables for concentrations in sludge/sediment.
b Occupational, adult male reasonable maximum (one-half mean skin surface area for hands); EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediments/sludge and one-half was assumed to be available for contact with underlying soils.
c Kaolin clay (for hands); EPA, 1989a.
d It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).
e Best professional judgement. Assumes exposure once a year while collecting water samples.
f National median time--50th percentile--time at one residence; EPA, 1989b.
g 95th percentile time spent working at the same location; EPA, 1991a.
h Assumes average (3 year) tour of duty.
i Adult, average; EPA, 1989b.
j ED x 365 days/year.
k 70 years x 365 days/year.

Table F-24

Potential Exposure from Dermal Contact with Chemicals in Contaminated Sludge/Sediment/Soil - Future Occupational Scenario - Ponds A through F

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)		Assumptions	
		Subchronic	
Parameters		Worker Average	Worker Reasonable Maximum
CS =	Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]
CF =	Conversion Factor (kg/mg)	1E-06	1E-06
SA =	Skin Surface Area Available for Contact (cm^2/event)	2150 [b]	2150 [b]
AF =	Soil to Skin Adherence Factor (mg/cm^2)	2.77 [c]	2.77 [c]
ABS =	Absorption Factor (unitless)	Chemical-specific [d]	Chemical-specific [d]
EF =	Exposure Frequency (events/year)	100 [e]	250 [f]
ED =	Exposure Duration (years)	0.5 [g]	1 [g]
BW =	Body Weight (kg)	70 [h]	70 [h]
AT =	Averaging Time (period over which exposure is averaged--days) -Noncarcinogenic effects	182 [i]	365 [i]

a See text and tables for concentrations in soil.

b Occupational, adult male (one-half mean skin surface area for arms, hands, and head); EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediments/sludge and one-half was assumed to be available for contact with underlying soils.

c Kaolin clay (for hands); EPA, 1989a.

d ABS for cadmium is 0.002 (CAPCOA, 1991). It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).

e 2 days/week for 50 weeks/year spent at a particular pond.

f 5 day work week for 50 weeks per year; EPA, 1991a.

g Limited duration work activity, EPA 1991a.

h Adult, average; EPA, 1989b.

i ED x 365 days/year.

Table F-25

Potential Exposure from Inhalation of Ambient Air (Volatile Chemicals and Fugitive Dust) - Future Occupational Scenario - Ponds A through F

Effective Air Concentration (EAC), $\mu g/m^3$ = (CA x IRA x ET x EF x ED)/(IRD x CF x AT)	Assumptions	
	Subchronic	
Parameters	Worker Average	Worker Reasonable Maximum
CA = Chemical Concentrations in Ambient Air ($\mu g/m^3$)	Chemical-specific [a]	Chemical-specific [a]
IRA = Inhalation Rate of Ambient Air (m^3/hour)	2.1 [b]	3.0 [c]
ET = Exposure Time (hours/day)	2 [d]	8 [e]
EF = Exposure Frequency (days/year)	100 [f]	250 [g]
ED = Exposure Duration (years)	0.5 [h]	1 [h]
IRD = Inhalation Rate per Remainder of Day (m^3/hour)	0.833 [i]	0.833 [j]
CF = Conversion Factor (hour/day)	24	24
AT = Averaging Time (period over which exposure is averaged--days)		
- Noncarcinogenic effects	182 [k]	365 [k]
- Carcinogenic effects	25550 [l]	25550 [l]

[a] See text and tables for concentrations in ambient air.
[b] Adult, moderate activity level; EPA, 1989b.
[c] Adult, reasonable worst-case outdoor inhalation rate; EPA, 1989b.
[d] Assumes workers are on site an average of 2 hours per day.
[e] Assumes workers are on site an average of 8 hours per day.
[f] Assumes 2 days work week spent at a particular pond for 50 weeks a year.
[g] Assumes a 5 day work week for 50 weeks a year.
[h] Limited duration work activity.
[i] Occupational adult, 20 m^3 per 8 hour work day represents a reasonable upper bound inhalation rate; EPA, 1991. The adult suggested upper bound for subgroups who would be expected to spend the majority of time at home (EPA, 1991a). This value is used for the remaining 22 hours.
[j] Adult suggested upperbound, EPA 1991a.
[k] ED x 365 days/year.
[l] 70 years x 365 days/year.

Table F-26

Potential Exposure from Ingestion of Contaminated Sludge/Sediment/Soil - Future Occupational Scenario - Ponds A through F

Intake (mg/kg-day) = (CS x IR x CF x FI x EF x ED)/(BW x AT)	Assumptions	
	Subchronic (occupational)	
Parameters	Worker Average	Worker Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]
IR = Ingestion Rate (mg soil/day)	480 [b]	480 [b]
CF = Conversion Factor (kg/mg)	1E-06	1E-06
FI = Fraction Ingested from contaminated source (unitless)	0.25 [c]	1.0 [d]
EF = Exposure Frequency (days/year)	100 [e]	250 [f]
ED = Exposure Duration (years)	0.5 [g]	1 [g]
BW = Body Weight (kg)	70 [h]	70 [h]
AT = Averaging Time (period over which exposure is averaged--days) -Noncarcinogenic effects	182 [i]	365 [i]

a See text and tables for concentrations in soil.
b Adult soil ingestion for outdoor yardwork; EPA, 1991a.
c Assumes workers are on site two hours per day and that 100% of soil consumption is from contaminated source.
d Assumes workers are on site 8 hours per day and that 100% of soil consumption is from contaminated source.
e 2 days/week for 50 weeks/year spent at a particular pond.
f 5 day work week for 50 weeks per year; EPA, 1991a.
g Limited duration work activity, EPA 1991a.
h Adult, average; EPA, 1989b.
i ED x 365 days/year.

Table 27

Potential Exposure from Ingestion of Beef - Agricultural Scenario - Ponds A through G

Intake (mg/kg-day) = Sum(1,2...n)(CFi x IRi x FIi X EFi x ED)/(BW x AT)	Assumptions			
	Chronic (agricultural)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CFi = Chemical Concentration in Food (i) (mg/kg), Beef & Dairy	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IRi = Ingestion Rate for Food (i) (kg/day) -Beef	0.112 [b]	0.28 [c]	0.056 [d]	0.14 [d]
FIi = Fraction Ingested of Food (i) from Contaminated Source (unitless) -Beef	0.44 [e]	0.75 [f]	0.44 [e]	0.75 [f]
EF = Exposure Frequency (days/year)	350 [g]	350 [g]	350 [g]	350 [g]
ED = Exposure Duration (years)	9 [h]	30 [i]	6	6
BW = Body Weight (kg)	70 [j]	70 [j]	15 [k]	15 [k]
AT = Averaging Time (period over which exposure is averaged--days) -- Noncarcinogenic effects -- Carcinogenic effects	3285 [l] 25550 [m]	10950 [l] 25550 [m]	2190 [l] 25550 [m]	2190 [l] 25550 [m]

a Calculated based on uptake factors for meat.
b Average adult, 50th percentile beef consumption per day; Pao, et al, 1982.
c Reasonable maximum adult, 95th percentile beef consumption per day; Pao, et al, 1982.
d Ingestion rate of meat is age-specific. One half adult consumption rates were assumed.
e Average fraction of homegrown beef consumed annually; EPA, 1989a.
f Suggested reasonable worst-case fraction of homegrown beef consumed annually; EPA, 1989a.
g Days/year spent at home; EPA, 1991/a.
h National median time--50th percentile--time at one residence; EPA, 1989b.
i National upper bound time--90th percentile--time at one residence; EPA, 1989b.
j Adult, average; EPA, 1989b.
k Body weight is age-specific for birth to 9 or 30 year exposure.
l ED x 365 days/year.
m 70 years x 365 days/year.

Table F-28

Potential Exposure from Dermal Contact with Chemicals in Contaminated Pond G Surface Water - On-Site Recreational Scenario

Absorbed Dose (mg/kg-day) = (CW x SA x PC x ET x EF x ED x CF)/(BW x AT)	Assumptions	
	Subchronic (recreational)	
Parameters	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]
SA = Skin Surface Area Available for Contact (cm^2)	14900 [b]	14900 [b]
PC = Chemical-specific Dermal Permeability Constant (cm/hr)	Chemical-specific [c]	Chemical-specific [c]
ET = Exposure Time (hours/event)	1 [d]	1 [d]
EF = Exposure Frequency (events/year)	0.5 [e]	1 [f]
CF = Conversion Factor (liter/cm^3)	0.001	0.001
ED = Exposure Duration (years)	4 [g]	4 [g]
BW = Body Weight (kg)	50 [i]	50 [i]
AT = Averaging Time (period over which exposure is averaged--days)		
-- Noncarcinogenic effects	1460 [j]	1460 [j]
-- Carcinogenic effects	NA	NA

a See text and tables for concentrations in surface water.
b Child, 12 through 15 years of age, 50th percentile total body surface area; EPA 1991a.
c Calculated from total dermal intake; EPA, 1991b.
d Best professional judgement. Assumes one hour from accidental immersion to cleansing.
e Best professional judgement. Assumes accidental immersion once every other year.
f Best professional judgement. Assumes accidental immersion once a year.
g From 12 through 15 years of age.
h Assumes 3-year tour-of-duty.
i 12 through 15 years old, average body weight; EPA, 1991a.
j ED x 365 days/year.

Table F-29

Potential Exposure from Dermal Contact with Chemicals in Contaminated Pond G Sediment/Sludge/Soil - On-Site Recreational Scenario

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)	Assumptions	
	Subchronic	
Parameters	Child Average	Child Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]
CF = Conversion Factor (kg/mg)	1E-06	1E-06
SA = Skin Surface Area Available for Contact (cm^2/event)	2300 [b]	2300 [b]
AF = Soil to Skin Adherence Factor (mg/cm^2)	2.77 [c]	2.77 [c]
ABS = Absorption Factor (unitless)	Chemical-specific [d]	Chemical-specific [d]
EF = Exposure Frequency (events/year)	0.5 [e]	1 [f]
ED = Exposure Duration (years)	4 [g]	4 [g]
BW = Body Weight (kg)	50 [i]	50 [i]
AT = Averaging Time (period over which exposure is averaged--days)		
-- Noncarcinogenic effects	1460 [j]	1460 [j]
-- Carcinogenic effects	NA	NA

[a] See text and tables for concentrations in soil.

[b] Child, 12 through 15 years of age, based on minimum adult surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with underlying soils.

[c] Kaolin clay (for hands); EPA, 1989a.

[d] ABS for cadmium is 0.002 (CAPCOA, 1991). It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).

[e] Best professional judgement. Assumes accidental immersion once every other year.

[f] Best professional judgement. Assumes accidental immersion once a year.

[g] From 12 through 15 years of age.

[h] Assumes 3-year tour-of-duty.

[i] 12 through 15 years old, average body weight; EPA, 1989b.

[j] ED x 365 days/year.

Table F-30

Potential Exposure from Incidental Ingestion of Surface Water in Pond G - On-Site Recreational Sceanario

Intake (mg/kg-day) = (CW x IR x ET x EF x ED)/(BW x AT)	Assumptions	
	Subchronic	
Parameters	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]
IR = Ingestion Rate (liters/hour)	0.05 [b]	0.05 [b]
ET = Exposure Time (hours/event)	0.25 [c]	0.25 [c]
EF = Exposure Frequency (events/year)	0.5 [d]	1 [e]
ED = Exposure Duration (years)	4 [f]	4 [f]
BW = Body Weight (kg)	50 [g]	50 [g]
AT = Averaging Time (period over which exposure is averaged--days) -- Noncarcinogenic effects -- Carcinogenic effects	 1460 [h] NA	 1460 [h] NA

a See text and tables for concentrations in surface water.
b Rate of incidental ingestion while swimming; EPA,1989a.
c Best professional judgement. Assumes a maximum of 15 minutes in the water upon accidental immersion.
d Best professional judgement for child, average. Assumes accidental total immersion once every other year.
e Best professional judgement for child, reasonable maximum. Assumes accidental total immersion once a year.
f From 12 to 15 years of age.
g Average body weight (12-15 years); EPA, 1991a.
h ED x 365 days/year.

Table F-31

Potential Exposure from Dermal Contact with Chemicals in Contaminated Surface Water - Recreational Scenario - Lakes Holloman and Stinky

Absorbed Dose (mg/kg-day) = (CW x SA x PC x ET x EF x ED x CF)/(BW x AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
SA = Skin Surface Area Available for Contact (cm^2)	19400 [b]	19400 [b]	9300 [c]	9300 [c]	19400 [b]	19400 [b]	9300 [c]	9300 [c]
PC = Chemical-specific Dermal Permeability Constant (cm/hr)	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]
ET = Exposure Time (hours/event)	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]
EF = Exposure Frequency (events/year)	1 [f]	2 [g]	1 [f]	2 [g]	1 [f]	2 [g]	1 [f]	2 [g]
CF = Conversion Factor (liter/cm^3)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ED = Exposure Duration (years)	9 [h]	30 [i]	6 [j]	6 [j]	3 [j]	3 [j]	3 [j]	3 [j]
BW = Body Weight (kg)	70 [k]	70 [k]	15 [l]	15 [l]	70 [k]	70 [k]	15 [l]	15 [l]
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]	1095 [m]	1095 [m]	1095 [m]	1095 [m]
-- Carcinogenic effects	25550 [n]	25550 [n]	NA	NA	25550 [n]	25550 [n]	NA	NA

a See text and tables for concentrations in surface water.
b Adult, 50th percentile total body surface area; EPA, 1989b.
c Child, (age 6) average total body surface area; EPA 1989b.
d Calculated from total dermal intake; EPA, 1991b.
e Best professional judgement. Assumes 1 hour from accidental immersion to cleansing.
f Assumes accidental total immersion once a year. Best professional judgement.
g Assumes accidental total immersion twice a year. Best professional judgement.
h National median time--50th percentile--time at one residence; EPA, 1989b.
i National upper bound time--90th percentile--time at one residence; EPA, 1989b.
j Assumes 3-year tour-of-duty.
k Adult, average; EPA, 1989b.
l Child (age 6), average body weight; EPA, 1991a.
m ED x 365 days/year.
n 70 x 365 days/year.

Table F-32
Potential Exposure from Dermal Contact with Chemicals in Contaminated Sediment/Sludge- Recreational Scenario - Lakes Holloman and Stinky

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
CF = Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
SA = Skin Surface Area Available for Contact (cm^2/event)	2600 [b]	2600 [b]	1475 [c]	1475 [c]	2600 [b]	2600 [b]	1475 [c]	1475 [c]
AF = Soil to Skin Adherence Factor (mg/cm^2)	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]
ABS = Absorption Factor (unitless)	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]
EF = Exposure Frequency (events/year)	1 [f]	2 [g]	1 [f]	2 [g]	1 [f]	2 [g]	1 [f]	2 [g]
ED = Exposure Duration (years)	9 [h]	30 [i]	6 [j]	6 [j]	3 [j]	3 [j]	3 [j]	3 [j]
BW = Body Weight (kg)	70 [k]	70 [k]	15 [l]	15 [l]	70 [k]	70 [k]	15 [l]	15 [l]
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]	1095 [m]	1095 [m]	1095 [m]	1095 [m]
-- Carcinogenic effects	25550 [n]	25550 [n]	NA	NA	25550 [n]	25550 [n]	NA	NA

a See text and tables for concentrations in soil.
b Adult, average surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One half of the total surface area was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with underlying soils.
c Child, average surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with underlying soils.
d Kaolin clay (for hands); EPA, 1989a.
e ABS for cadmium is 0.002 (CAPCOA, 1991). It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).
f Accidental total immersion once a year. Best professional judgement.
g Accidental total immersion twice a year. Best professional judgement.
h National median time--50th percentile--time at one residence; EPA, 1989b. This is comparable to three 3-year tours-of-duty.
i National upper bound time--90th percentile--time at one residence; EPA, 1989b.
j Assumes 3-year tour-of-duty.
k Adult, average; EPA, 1989b.
l Child (age 6), average body weight; EPA, 1989b.
m ED x 365 days/year.
70 years x 365 days/year.

Table F-33

Potential Exposure from Dermal Contact with Chemicals in Contaminated Surface Water - Recreational Scenario - The Ditch

Absorbed Dose (mg/kg-day) = (CW x SA x PC x ET x EF x ED x CF)/(BW x AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
SA = Skin Surface Area Available for Contact (cm^2)	19400 [b]	19400 [b]	9300 [c]	9300 [c]	19400 [b]	19400 [b]	9300 [c]	9300 [c]
PC = Chemical-specific Dermal Permeability Constant (cm/hr)	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]
ET = Exposure Time (hours/event)	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]	1 [e]
EF = Exposure Frequency (events/year)	0.5 [f]	1 [g]	0.5 [f]	1 [g]	0.5 [f]	1 [g]	0.5 [f]	1 [g]
CF = Conversion Factor (liter/cm^3)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ED = Exposure Duration (years)	9 [h]	30 [i]	6 [j]	6 [j]	3 [j]	3 [j]	3 [j]	3 [j]
BW = Body Weight (kg)	70 [k]	70 [k]	15 [l]	15 [l]	70 [k]	70 [k]	15 [l]	15 [l]
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]	1095 [m]	1095 [m]	1095 [m]	1095 [m]
-- Carcinogenic effects	25550 [n]	25550 [n]	NA	NA	25550 [n]	25550 [n]	NA	NA

a See text and tables for concentrations in surface water.
b Adult, 50th percentile total body surface area; EPA, 1989b.
c Child, (age 6) average total body surface area; EPA 1989b.
d Calculated from total dermal intake; EPA, 1991b.
e Best professional judgement. Assumes 1 hour from accidental immersion to cleansing.
f Assumes accidental total immersion once every other year. Best professional judgement.
g Assumes accidental total immersion once a year. Best professional judgement.
h National median time--50th percentile--time at one residence; EPA, 1989b.
i National upper bound time--90th percentile--time at one residence; EPA, 1989b.
j Assumes 3-year tour-of-duty.
k Adult, average; EPA, 1989b.
l Child (age 6), average body weight; EPA, 1991a.
m ED x 365 days/year.
n 70 x 365 days/year.

Table F-34
Potential Exposure from Dermal Contact with Chemicals in Contaminated Soil/Sediment - Recreational Scenario - The Ditch

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CS = Chemical Concentration in Soil (mg/kg)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
CF = Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
SA = Skin Surface Area Available for Contact (cm^2/event)	2600 [b]	2600 [b]	1475 [c]	1475 [c]	2600 [b]	2600 [b]	1475 [c]	1475 [c]
AF = Soil to Skin Adherence Factor (mg/cm^2)	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]
ABS = Absorption Factor (unitless)	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]
EF = Exposure Frequency (events/year)	0.5 [f]	1 [g]	0.5 [f]	1 [g]	0.5 [f]	1 [g]	0.5 [f]	1 [g]
ED = Exposure Duration (years)	9 [h]	30 [i]	6 [j]	6 [j]	3 [j]	3 [j]	3 [j]	3 [j]
BW = Body Weight (kg)	70 [k]	70 [k]	15 [l]	15 [l]	70 [k]	70 [k]	15 [l]	15 [l]
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]	1095 [m]	1095 [m]	1095 [m]	1095 [m]
-- Carcinogenic effects	25550 [n]	25550 [n]	NA	NA	25550 [n]	25550 [n]	NA	NA

a See text and tables for concentrations in soil.
b Adult, average surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with underlying soils.
c Child, average surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half of the total surface area was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with underlying soils.
d Kaolin clay (for hands); EPA, 1989a.
e ABS for cadmium is 0.002 (CAPCOA, 1991). It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).
f Accidental total immersion once every other year. Best professional judgement.
g Accidental total immersion once a year. Best professional judgement.
h National median time--50th percentile--time at one residence; EPA, 1989b. This is comparable to three 3-year tours-of-duty.
i National upper bound time--90th percentile--time at one residence; EPA, 1989b.
j Assumes 3-year tour-of-duty.
k Adult, average; EPA, 1989b.
l Child (age 6), average body weight; EPA, 1989b.
m ED x 365 days/year.
n 70 years x 365 days/year.

Table F-35
Potential Exposure from Inhalation of Fugitive Dust in Ambient Air - Recreational Scenario - Lakes Holloman and Stinky

Effective Air Concentration (EAC), ($\mu g/m^3$) = (CA x IRA x ET x EF X ED)/(IRD X CF X AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CA = Chemical Concentration in Ambient Air ($\mu g/m^3$)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IRA = Inhalation Rate of Ambient Air (m^3/hour)	0.833 [b]	2.1 [c]	0.98 [d]	2.16 [e]	0.833 [b]	2.1 [c]	0.98 [d]	2.16 [e]
ET = Exposure Time (hours/day)	6 [f]	6 [f]	6 [f]	6 [f]	6 [f]	6 [f]	6 [f]	6 [f]
EF = Exposure Frequency (days/year)	8.5 [g]	17 [h]	8.5 [g]	17 [h]	8.5 [g]	17 [h]	8.5 [g]	17 [h]
ED = Exposure Duration (years)	9 [i]	30 [j]	6 [k]	6 [k]	3 [l]	3 [l]	3 [l]	3 [l]
IRD = Inhalation Rate per Remainder of Day (m^3/hour)	0.833 [m]	0.833 [m]	0.98 [d]	0.98 [d]	0.833 [m]	0.833 [m]	0.98 [d]	0.98 [d]
CF = Conversion Factor (hours/day)	24	24	24	24	24	24	24	24
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [n]	10950 [n]	1460 [n]	1460 [n]	1095 [n]	1095 [n]	1095 [n]	1095 [n]
-- Carcinogenic effects	25550 [o]	25550 [o]	NA	NA	25550 [o]	25550 [o]	NA	NA

a See text and tables for concentrations in ambient air.
b Adult, average (20m^3/day); EPA, 1989b.
c Adult, moderate activity level; EPA, 1989b.
d Child, averaged for ages 12 through 15, light activity level; EPA, 1989b.
e Child, averaged for ages 12 through 15, moderate activity level; EPA, 1989b.
f Assumes children and adults spend 6 hours per day hunting/birdwatching. Interview with Ms. Eleanor Wooten (1991) of the Mesilla Valley Audubon Society. Ms. Wooten estimated that each birdwatcher spent approximately 2 hours on-site. This number was tripled for conservatism and to account for longer hunting durations.
g Assumes an average of 7.2 ducks/hunter x 1.2 days/duck; Colorado Division of Wildlife, 1974.
h Assumes an upper bound of 7.2 ducks/hunter x 2.4 days/duck; Colorado Division of Wildlife, 1974.
i National median time--50th percentile--time at one residence; EPA, 1989b.
j National upper bound time--90th percentile--time at one residence; EPA, 1989b.
k From 0 through 6 years of age.
l Assumes 3-year tour-of-duty.
m Adult, suggested upper bound for subgroups who would be expected to spend the majority of time at home; EPA, 1991a.
n ED x 365 days/year.
o 70 years x 365 days/year.

Table F-36

Potential Exposure from Incidental Ingestion of Surface Water - Recreational Scenario - The Ditch, Lakes Holloman and Stinky

Intake (mg/kg-day) = (CW x IR x ET x EF x ED)/(BW x AT)	Assumptions							
	Chronic (recreational)				Subchronic (recreational)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IR = Ingestion Rate (liters/hour)	0.05 [b]	0.05 [b]	0.05 [b]	0.05 [b]	0.05 [b]	0.05 [b]	0.05 [b]	0.05 [b]
ET = Exposure Time (hours/event)	0.25 [c]	0.25 [c]	0.25 [c]	0.25 [c]	0.25 [c]	0.25 [c]	0.25 [c]	0.25 [c]
EF = Exposure Frequency (events/year)	1 [d]	2 [e]	1 [d]	2 [e]	1 [d]	2 [e]	1 [d]	2 [e]
ED = Exposure Duration (years)	9 [f]	30 [g]	6 [h]	6 [h]	3 [h]	3 [h]	3 [h]	3 [h]
BW = Body Weight (kg)	70 [i]	70 [i]	15 [j]	15 [j]	70 [i]	70 [i]	15 [j]	15 [j]
AT = Averaging Time (period over which exposure is averaged--days)								
-- Noncarcinogenic effects	3285 [k]	10950 [k]	2190 [k]	2190 [k]	1095 [k]	1095 [k]	1095 [k]	1095 [k]
-- Carcinogenic effects	25550 [l]	25550 [l]	NA	NA	25550 [l]	25550 [l]	NA	NA

a See text and tables for concentrations in surface water.
b Exposure while swimming; EPA, 1989a.
c Best professional judgement. Assumes a maximum of 15 minutes in the water upon accidental immersion.
d Assumes accidental total immersion once a year. Best professional judgement.
e Assumes accidental total immersion twice a year. Best professional judgement.
f National median time--50th percentile--time at one residence; EPA, 1989b.
g National upper bound time--90th percentile--time at one residence; EPA, 1989b.
h Assumes 3-year tour-of-duty.
i Adult, average; EPA, 1989b.
j Child (age 6) average body weight; EPA, 1991a.
k ED x 365 days/year.
l 70 x 365 days/year.

Table F-37

Potential Exposure from Ingestion of Waterfowl - Recreational Scenario - Pond G, Lakes Holloman and Stinky

Intake (mg/kg-day) = Sum(1,2...n)(CFi x IRi x FIi X EFi x ED)/(BW x AT)	Assumptions							
	Chronic				Subchronic			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CFi = Chemical Concentration in Food (i) (mg/kg), -Waterfowl	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IRi = Ingestion Rate for Food (i) (kg/-day) -Waterfowl	0.149 [b]	0.485 [c]	0.097 [d]	0.291 [e]	0.149 [b]	0.485 [c]	0.097 [d]	0.291 [e]
FIi = Fraction Ingested of Food (i) from Contaminated Source (unitless)	1 [f]	1 [f]	1 [f]	1 [f]	1 [f]	1 [f]	1 [f]	1 [f]
EF = Exposure Frequency (days/year)	7 [g]	14 [h]	7 [g]	14 [h]	7 [g]	14 [h]	7 [g]	14 [h]
ED = Exposure Duration (years)	9 [i]	30 [j]	6	6	3 [k]	3 [k]	3 [k]	3 [k]
BW = Body Weight (kg)	70 [l]	70 [l]	15 [m]	15 [m]	70 [l]	70 [l]	15 [m]	15 [m]
AT = Averaging Time (period over which exposure is averaged--days) -- Noncarcinogenic effects -- Carcinogenic effects	3285 [o] 25550 [p]	10950 [o] 25550 [p]	2190 [o] 25550 [p]	2190 [o] 25550 [p]	1095 [o] 25550 [p]	1095 [o] 25550 [p]	1095 [o] 25550 [p]	1095 [o] 25550 [p]

a Calculated based on bioaccumulation of contaminants in ducks consuming biota from the lagoons and lakes.
b Average adult, 50th percentile of poultry consumption per day; Pao, et al, 1982.
c Reasonable maximum adult, 95th percentile poultry consumption per day; Pao, et al, 1982.
d Average child (age 6-8), 50th percentile of poultry consumption per day; Pao, et al, 1982.
e Reasonable maximum child (age 6-8), 95th percentile of poultry consumption per day; Pao, et al, 1982.
f Assumes that 100% of fraction ingested is from contaminated source.
g Based on an average harvest of 7.2 ducks per hunter; Colorado Division of Wildlife, 1974.
h Suggested worst-case calculated based on doubling average harvest of 7.2 ducks per hunter; Colorado Division of Wildlife, 1974.
i National median time--50th percentile--time at one residence; EPA, 1989b.
j National upper bound time--90th percentile--time at one residence; EPA, 1989b.
k Assumes average (3 year) tour of duty.
l Adult, average; EPA, 1989b.
m Child, (age 6) average body weight; EPA, 1989b.
n ED x 365 days/year.
o 70 years x 365 days/year.

Table F-38

Parameters Used in Evaluation of Dermal Contact With Chemicals

Analyte	Absorption Factor (ABS) (unitless)	ABS Source	Dermal Permeability Coefficient (PC) in cm^2/hr	PC Source
2,4,5 T	1.00E-01	Clement[b]	8.40E-04	RAGS[d]
4,4'-DDD	1.00E-01	Clement	1.55E+00	IGDEA,prd[e]
4,4'-DDE	1.00E-01	Clement	2.00E+00	IGDEA,prd
4,4'-DDT	1.00E-01	Clement	7.24E+00	IGDEA,prd
Aldrin	1.00E-01	Clement	3.24E-03	IGDEA,prd
alpha-BHC	1.00E-01	Clement	8.40E-04	RAGS
alpha-Chlordane	1.00E-01	Clement	9.33E-01	IGDEA,prd
Antimony	1.00E-02	Clement	8.40E-04	RAGS
Arsenic	1.00E-03	CAPCOA[c]	3.16E-04	IGDEA,prd
Barium	1.00E-02	Clement	8.40E-04	RAGS
Benzo(a)anthracene	3.00E-02	CAPCOA	2.34E-02	IGDEA,prd
Benzo(a)pyrene	3.00E-02	CAPCOA	4.21E+00	IGDEA,prd
Benzo(b)fluoranthrene	3.00E-02	CAPCOA	1.46E+00	IGDEA,prd
Benzo(k)fluoranthrene	3.00E-02	CAPCOA	8.40E-04	RAGS
Beryllium	1.00E-03	CAPCOA	3.16E-04	IGDEA,prd
beta-BHC	1.00E-01	Clement	1.66E-02	PC/gamma[f]
bis(2-Ethylhexyl)phthalate	1.00E-01	Clement	5.76E-06	IGDEA,exp[g]
Boron	1.00E-02	Clement	8.40E-04	RAGS
Cadmium	2.00E-03	CAPCOA	3.16E-04	IGDEA,prd
Chlordane	2.00E-01	Clement	9.33E-01	IGDEA,prd
Chromium	1.00E-02	Clement	3.16E-04	IGDEA,prd
Chromium (VI)	1.00E-02	Clement	2.10E-03	IGEDA,exp
Cyanide	1.00E-01	Clement	3.16E-04	IGDEA,prd
delta-BHC	1.00E-01	Clement	1.66E-02	PC/gamma
Dibenzofuran	1.00E-01	Clement	8.40E-04	RAGS

Table F-38

(Continued)

Analyte	Absorption Factor (ABS) (unitless)	ABS Source	Dermal Permeability Coefficient (PC) in cm^2/hr	PC Source
Dichloroprop	1.00E-01	Clement	8.40E-04	RAGS
Dieldrin	1.00E-01	Clement	3.16E-02	IGDEA,prd
Endosulfan I	1.00E-01	Clement	8.40E-04	RAGS
Endosulfan II	1.00E-01	Clement	8.40E-04	RAGS
Endosulfan Sulfate	1.00E-01	Clement	8.40E-04	RAGS
Endrin	1.00E-01	Clement	1.15E-01	IGDEA,prd
Endrin aldehyde	1.00E-01	Clement	8.40E-04	RAGS
Endrin ketone	1.00E-01	Clement	8.40E-04	RAGS
gamma-BHC	1.00E-01	Clement	1.66E-02	IGDEA,prd
gamma-Chlordane	1.00E-01	Clement	9.33E-01	IGDEA,prd
Heptachlor	1.00E-01	Clement	5.89E-02	IGDEA,prd
Heptachlor epoxide	1.00E-01	Clement	5.89E-02	PC/heptachlor [h]
Isodrin	1.00E-01	Clement	8.40E-04	RAGS
Isophorone	1.00E-01	Clement	1.58E-02	IGDEA,prd
Kepone	1.00E-01	Clement	1.00E-01	IGDEA,prd
Lead	1.00E-03	CAPCOA	8.40E-04	RAGS
Lead (organic)	1.00E-02	Clement	8.40E-04	RAGS
Manganese (food)	1.00E-02	Clement	8.40E-04	RAGS
Manganese (water)	1.00E-02	Clement	8.40E-04	RAGS
Mercury	1.00E-02	Clement	8.40E-04	RAGS
Methoxychlor	1.00E-01	Clement	8.40E-04	RAGS
Parathion	1.003-01	Clement	8.4E-04	RAGS
PCB-1254	1.00E-01	Clement	8.40E-04	RAGS
PCB-1260	1.00E-01	CAPCOA	8.40E-04	RAGS
Silver	1.00E-02	Clement	3.16E-04	IGDEA,prd

Table F-38

(Continued)

Analyte	Absorption Factor (ABS) (unitless)	ABS Source	Dermal Permeability Coefficient (PC) in cm^2/hr	PC Source
Vanadium	1.00E-02	Clement	8.40E-04	RAGS
OCDD	1.00E-01	Clement	4.47E+00	IGDEA/TCDD [i]

Notes:

[a] The value 0.00E+00 is incorporated into this table where no established value was available.

[b] Multi-pathway Health Risk Assessment Input Parameter Guidance Document, Clement Associates, 1988.

[c] Air Toxics, "Hot Spots" Program, Risk Assessment Guidelines, California Air Pollution control Officer's Association (CAPCOA), 1991.

[d] Risk Assessment Guidance for Superfund, Vol.1, Human Health Evaluation Manual, USEPA, 1989. Where PC values are not available, the permeability of water can be used to derive default values.

[e] Interim Guidance for Dermal Exposure Assessment, United States Environmental Protection Agency, 1991. Predicted values incorporated using Flynn's model.

[f] Surrogate permeability coefficient for gamma-BHC used.

[g] Interim Guidance for Dermal Exposure Assessment, USEPA, 1991. Experimentally determined values used.

[h] Surrogate permeability coefficient for heptachlor used.

[i] Surrogate permeability coefficient for TCDD used.

5.0 REFERENCES

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APPENDIX G

TOXICITY ASSESSMENT

HOLLOMAN AIR FORCE BASE
NEW MEXICO

1.0 BACKGROUND

The United States Environmental Protection Agency (USEPA) has performed toxicity assessments for numerous chemicals, and the resulting toxicity information and toxicity values have undergone extensive peer review. Toxicity values used to evaluate noncarcinogenic effects (effects other than cancer) include:

- Reference Dose (RfD) in units of mg/kg/day;
- Inhalation Reference Dose (RfDi) in units of mg/kg/day; and
- Inhalation Reference Concentration (RfC) in units of mg/kg/day.

The RfD is used to evaluate oral exposures and the RfC is used to evaluate inhalation exposures. The RfD and RfC are estimates (with uncertainty spanning as much as an order of magnitude) of the daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a portion of the lifetime, in the case of a subchronic RfC or RfD, or during the lifetime in the case of a chronic RfC or RfD.

Toxicity values used to evaluate carcinogenic effects include:

- Weight-of-evidence classification;
- Slope factor (SF) in units of $(mg/kg/day)^{-1}$; and
- Inhalation slope factor in units of $(mg/kg/day)^{-1}$.

The weight-of-evidence classification is a USEPA classification system for characterizing the extent to which the available data indicate that an agent is a human carcinogen. In assessing the carcinogenic potential of a chemical, USEPA classifies it as one of the following groups of chemicals, according to the weight-of-evidence from epidemiological studies and animal studies:

Group A - Human Carcinogen (sufficient evidence of carcinogenicity in humans);

Group B - Probable Human Carcinogen (B1 - limited evidence of carcinogenicity in humans; B2 - sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans);

Group C - Possible Human Carcinogen (limited evidence of carcinogenicity in animals and inadequate or lack of human data);

Group D - Not Classifiable as to Human Carcinogenicity (inadequate or no evidence); or

Group E - Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies).

USEPA performs quantitative carcinogenic risk assessments for chemicals in Groups A and B, and on a case-by-case basis for chemicals in Group C. Cancer slope factors are estimated through the use of mathematical extrapolation models. Most commonly the linearized multistage model is used for estimating the largest possible linear slope (within the 95% confidence limit) at low extrapolated doses that is consistent with the data. The slope factor is characterized as a plausible upper-bound estimate of the probability of a response per unit intake of a chemical over a lifetime. The slope factor is used to estimate an upper-bound probability of an individual developing cancer as a result of a lifetime exposure to a particular level of a potential carcinogen. The unit risk for inhalation exposure is the risk per concentration unit in air (risk per mg/kg/day).

2.0 SOURCES OF INFORMATION

The following sources of information, in order of priority, were consulted to identify toxicity values for chemicals of concern with potential for human exposure:

- USEPA's Integrated Risk Information System (IRIS) - IRIS is updated monthly, provides verified RfDs and slope factors, and is the Agency's preferred source of toxicity information.

- USEPA's Health Effects Assessment Summary Tables (HEAST) - HEAST provides information on interim (not yet verified by USEPA Workgroups) as well as verified RfDs and slope factors and is used only to obtain toxicity values for chemicals not listed in IRIS.

- Other USEPA documents, such as the Drinking Water Regulations and Health Advisories (USEPA, 1991c).

- Agency for Toxic Substances Disease Registry (ATSDR) publications - ATSDR publications provide extensive health effects information for chemicals found at National Priority List sites and is used to supply qualitative information only.

3.0 DEVELOPMENT OF SURROGATE TOXICITY VALUES FOR PESTICIDES WITHOUT USEPA VERIFIED TOXICITY VALUES

Recognizing the public and toxicological concern generated by chlorinated hydrocarbon pesticides and the significant gaps in the ability to evaluate the potential human health hazards by existing procedures, surrogate toxicity values were developed used in assessing the human health risks associated with these constituents until additional data become available.

3.1 Development of Oral Toxicity Values

If each chlorinated pesticide caused different responses and acted via independent mechanisms, then the toxicities and carcinogenicities of each pesticide would have to be determined individually. However, there is strong evidence that several compounds within each class of the chlorinated hydrocarbon pesticide family elicit comparable responses in humans, laboratory animals, and in *in vitro* assays.

Using available toxicological data and reasoning on the basis of structure activity relationships, the significance of exposure to some of the chlorinated hydrocarbon pesticides can be estimated and expressed as toxicity equivalents. For the purposes of this investigation, toxic equivalency factors (TEFs) were assigned to pesticides lacking USEPA published toxicity values by comparing LD_{50} (dose lethal to 50% of those exposed) values for the parent compound, or similarly structured toxic species, to the appropriate isomer/metabolite. Surrogate oral RfDs were then calculated by dividing the published oral RfD for the parent compound, or similarly structured toxic species, by the relative TEF. Because of the need for strictly comparable oral and dermal LD_{50} values determined under similar conditions and using the same species, strain, and experimental approach, a study which determined the acute toxicity (lethality) of 98 pesticides and 2 metabolites of DDT was used as the basis for calculating TEFs (Gaines, 1968).

It is acknowledged that this approach does not consider toxicological endpoints other than acute effects. Data on chronic effects are not available for many of

the pesticides to provide an assessment of comparative toxicity. However, effects on the central nervous system (CNS) are prominent and common to all of the chlorinated hydrocarbon pesticides and are likely the cause of most deaths in the LD_{50} study. In addition, since all but a few of the LD_{50} values were determined from single, well-controlled study, the results for one pesticide are directly comparable to another, facilitating accurate and reliable calculation of TEFs. Therefore, this approach is judged to be applicable until additional data become available.

Slope factors were *not* calculated in the same manner as RfDs since the mechanism of death in these studies is almost certainly different from the mechanism of tumorigenesis. Only two of the pesticides lacking USEPA toxicity values are likely carcinogens; α-chlordane, γ-chlordane. Slope factors for these agents were determined on an individual basis as appropriate.

3.2 Development of Dermal Toxicity Values

No RfDs are available for the dermal route of exposure. However, in some cases, risks associated with dermal exposure can be evaluated using an oral RfD. Exposures via the dermal route are calculated and expressed as absorbed doses. Therefore, USEPA recommends that oral toxicity values be adjusted so that they too are expressed as an absorbed dose for purposes of estimating noncarcinogenic hazard indices and carcinogenic risks associated with dermal exposures.

In a study conducted by Gaines (1968), LD_{50}s were determined when rats were exposed to chlorinated hydrocarbon pesticides both orally and dermally. The pesticides tested in the study were generally more toxic by the oral route than by the dermal route. The factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) was determined for 12 pesticides and multiplied by the USEPA-verified oral toxicity value, or the surrogate toxicity value derived for this investigation, to determine the corresponding dermal toxicity values. As with oral slope factors, surrogate dermal slope factors were *not*

calculated in the same manner as dermal RfDs since the mechanism of death in these studies is almost certainly different from the mechanism of tumorigenesis.

4.0 HEALTH EFFECTS

This section presents general toxicity information available for the noncarcinogenic and carcinogenic effects associated with the chemicals of potential concern. Table 1 presents a summary of this information. Toxicity information for noncarcinogens is provided for chemicals with USEPA-verified RfD values and includes the data that formed the basis for the determination of the RfD. Information on the potential carcinogenic risks includes supporting data for the USEPA carcinogenic classification when available. Unless otherwise stated, the information presented on each of the chemicals of concern is summarized from the information available on IRIS as of July, 1993.

4.1 Aluminum

Despite the widespread occurrence of aluminum in food, drinking water, and soil, there is little indication that aluminum is toxic by ingestion unless it is present in high quantities. Aluminum compounds can affect absorption of other elements in the gastrointestinal tract and alter intestinal function, leading to a variety of complications. Other systemic toxicities can be caused by oral exposure to relatively high levels of aluminum. However, aluminum compounds are widely used in many ways including antiperspirants without harmful effects to the skin or other organs (ATSDR, *Toxicological Profile for Aluminum*, 1991).

Workers in the aluminum industry were shown to have an increased incidence of asthma, coughing, decreased pulmonary function, pulmonary fibrosis, and several types of cancer. However, aluminum cannot be definitively identified as the causal agent in these studies because of concurrent exposure to other toxic chemicals. In addition, smoking was not considered in the evaluation (ATSDR, *Toxicological Profile for Aluminum*, 1991).

No toxicity information is currently available on IRIS or HEAST.

4.2 Aldrin

Exposure to aldrin is not extensive because it breaks down very rapidly to dieldrin (a toxic lipid-soluble metabolite of aldrin stored in adipose tissue) in the environment. No increase in mortality from any cause has been reported in workers who have been employed in the manufacture of aldrin for more than four years. Information regarding the respiratory effects of aldrin in humans is limited and conflicting. One occupational exposure study indicates that workers demonstrate no new pulmonary disease or deterioration of existing pulmonary disease, although a similar study reported significantly increased incidences of pneumonia and other pulmonary diseases (ATSDR, *Toxicological Profile for Aldrin/Dieldrin*, 1991). Central nervous system excitation culminating in convulsions is the principal toxic effect noted in occupational studies of workers employed in the manufacture or application of aldrin. Short-term exposure to high levels of aldrin causes convulsions and kidney damage. Reproductive effects and liver effects have also been reported. The probable oral lethal dose for humans is between 7 drops and 1 ounce for a 150 lb. adult. Victims of acute exposure may have convulsions without warning. Aldrin can also burn the skin and eyes. Long-term exposures to lower levels of aldrin may also cause convulsions as a result of aldrin's potential to accumulate within the body. Long-term exposure to moderate levels of aldrin causes headaches, dizziness, irritability, vomiting, or uncontrollable muscle movements. A condition in which aldrin causes the body to destroy its own blood cells has been noted in some sensitive people.

The carcinogenic and reproductive/developmental effects of aldrin in humans are currently unknown. Experimental studies indicate that animals born to mothers that were fed aldrin do not live long. Conflicting results have been obtained in animal studies with regard to the teratogenic potential of aldrin as well as its effects on reproductive ability. One study revealed detectable levels of dieldrin could be found in the human placenta, amniotic fluid, and fetal blood. These results suggest that dieldrin can pass through the human placenta and accumulate in the developing fetus. A limited number of epidemiologic studies examining the incidence of cancer in workers exposed to aldrin or dieldrin exist. No

evidence of carcinogenic potential in humans was observed in these studies (ATSDR, *Toxicological Profile for Aldrin/Dieldrin*, 1991).

IRIS lists the chronic oral RfD for aldrin as 3.0E-05 mg/kg/day. This value was determined from a two-year chronic study of aldrin in rats. The experimental groups were orally dosed with 0, 0.5, 2, 10, 50, 100 or 150 ppm (in the diet) for two years. Liver lesions characteristic of chlorinated insecticide poisoning were observed at dose levels of 0.5ppm and greater. These lesions were characterized by enlarged centrilobular heptic cells, with increased cytoplasmic oxyphilia, and peripheral migration of basophilic granules. A statistically significant increase in liver-to-body weight ratio was observed at all dose levels. Kidney lesions occurred at the highest dose levels. Survival was markedly decreased at dose levels of 50 ppm and greater. A LOAEL (lowest observed adverse effect level) of 0.5 ppm was established in this study. A NOAEL (no observed adverse effect level) was not established. Additional data are fairly supportive of the findings from the critical study.

There is no inhalation RfD or RfC for aldrin. HEAST lists the subchronic oral RfD as 3.0E-05 mg/kg/day. The oral RfD for aldrin was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 7.5E-05 mg/kg/day. The basis for the calculation is the factor of difference (ratio of the dermal LD_{50} to the oral LD_{50}) of 0.4 calculated for aldrin.

The uncertainty factor used to derive the RfD for aldrin is 1000. This factor encompasses the uncertainties of extrapolation from animals to humans, range of human sensitivities, basing the RfD on a LOAEL rather than a NOAEL. The confidence level for the RfD value is medium. The supporting study performed histopathologic analysis but lacked other toxicologic parameters. Confidence in the database was also medium.

Human carcinogenicity studies are inadequate, but animal carcinogenicity studies are sufficient to classify aldrin as Group B2 - Probable Human Carcinogen. The oral slope factor for aldrin is listed in IRIS as 1.7E+01 $(mg/kg/day)^{-1}$; and the inhalation unit risk is listed as 4.9E-03 $(\mu g/m^3)^{-1}$. After chronic ingestion of 10 ppm in the diet, a

statistically significant increase in hepatomas in mice was observed. Most of these tumors were liver carcinomas. The study treated an adequate number of animals for a large proportion of their lifetime and the route of treatment was appropriate. HEAST listed an inhalation slope factor of 1.70E+01 $(mg/kg/day)^{-1}$.

4.3 Antimony

A variety of symptoms has been observed in humans working with antimony. Respiratory disorders include pneumonitis, alterations in pulmonary functions, chronic bronchitis, chronic emphysema, inactive tuberculosis, pleural adhesions and irritation. Increases in blood pressure and altered EKG readings, gastrointestinal disorders, dermatitis and ocular conjunctivitis also have been observed (ATSDR, *Toxicological Profile for Antimony*, 1990). IRIS reports a higher incidence of spontaneous abortion in workers exposed to antimony. A high rate of premature deliveries among the workers in an antimony smelting and processing plant has also been observed.

In one study, 70 people became acutely ill after drinking lemonade containing 0.013% antimony. It is estimated that 300 mL of the lemonade contained about 36 mg antimony (approximately 0.5 mg/kg for a 70 kg adult). Acute signs were stomach pains, colic, nausea and vomiting. Recovery was complete in 3 hours to several days. Myocardial effects are among the best characterized human health effects associated with antimony exposure. In one study, the inhalation NOEL for myocardial damage was suggested to be approximately 0.5 mg/m^3. However, there are inadequate data to permit a reasonable estimate of the NOEL (no observed effect level) regarding heart damage.

The oral RfD for antimony is listed in IRIS as 4E-04 mg/kg/day. This value is supported by a lifetime study on rats. The experimental group of 50 male and 50 female rats was administered 5 ppm potassium antimony tartrate in water. Over the period of study, growth rates of treated animals were not affected, but male rats survived 106 fewer days than did controls at median lifespans, and female rats survived 107 fewer days. Nonfasting blood glucose levels were decreased in treated males, and cholesterol levels were

altered in both sexes. Because only one level of antimony was administered, a NOEL was not established. A decrease in mean heart weight for the males was noted. No increase in tumors occurred because treatment. Although not precisely stated, the concentration of 5 ppm antimony was expressed as an exposure of 0.35 mg/kg/day by the authors.

The uncertainty factor used to derive the RfD for antimony is 1000. This factor adjusts for interspecies conversion, sensitive individuals, and the use of the LOAEL in place of the NOEL. The confidence level in the supporting study is low. Only one species and one dose level were used, and no NOEL was determined. Gross pathology and histopathology were not described well. Confidence in the database was also low. There is no inhalation RfD or RfC for antimony. HEAST lists a subchronic oral RfD of 4.00E-04 mg/kg/day.

No carcinogenicity data exists in IRIS or HEAST for antimony.

4.4 Arsenic

Large oral doses (above 60,000 ppb in food or water) of inorganic arsenic can produce death in humans. Lower levels of inorganic arsenic (300-30,000 ppb in food or water) if swallowed may result in irritation of the stomach and intestines, with symptoms such as pain, nausea, vomiting, and diarrhea. Other effects associated with ingestion of arsenic include decreased production of red and white blood cells, abnormal heart function, blood-vessel damage, and impaired nerve function causing a "pins and needles" sensation in the hands and feet. Animal studies indicate that doses of arsenic large enough to cause illness in pregnant females, may cause low birth weight, fetal malformations, or death of the fetus. However, there is no evidence available that suggests that arsenic is teratogenic or fetotoxic (ATSDR, *Toxicological Profile for Arsenic*, 1992).

Long-term oral exposure to inorganic arsenic often results in changes in the skin. The pattern of skin changes associated with arsenic exposure includes darkening of the skin and the appearance of "corns" or "warts" on the palms, soles, and torso. These skin

changes are not considered to be a health concern. However, a small number of the corns may ultimately develop into skin cancer. Ingestion of arsenic has also been reported to increase the risk of cancer in the liver, bladder, kidney, and lung (ATSDR, *Toxicological Profile for Arsenic*, 1992).

Inhalation of high levels of arsenic usually results in a sore throat and irritated lungs. Changes in skin patterns may also be experienced. The level at which these effects are likely to occur in humans is uncertain, but is probably above 100 $\mu g/m^3$. These effects usually are not serious, but inhaled inorganic arsenic has been reported to increase the risk of lung cancer. However, this has been observed primarily in people exposed to arsenic in or around smelters (ATSDR, *Toxicological Profile for Arsenic*, 1992).

The oral RfD for arsenic is listed in IRIS as 3.0E-04 mg/kg/day. This value is supported by two studies using human populations exposed to arsenic in well water. The low dose group received 5-7 $\mu g/L$ and the high dose group received 410 $\mu g/L$ in well water. The exposure estimate for a high dose is 410 $\mu g/L$ x 3 L/day x (1/55 kg) = 22 μg/kg-day and for a low dose is 5-7 $\mu g/L$ x 3 L/day x (1/55 kg) = 0.3 - 0.4 μg/kg-day. The incidences of blackfoot disease, hyperpigmentation and keratosis increased with dose and age. Exposure times were directly related to chronological age in 75% of the cases. This study reported the NOAEL as 8.0E-04 mg/kg/day and the LOAEL as 1.4E-02 mg/kg/day. The critical effect was hyperpigmentation, keratosis, and possible vascular complications. HEAST lists a value of 3.00E-04 mg/kg/day for the subchronic oral RfD.

The uncertainty factor used to derive the oral RfD was 3. This factor accounts for the lack of both general data and information regarding sensitive individuals. The confidence level is medium. An extremely large number of people (>40,000) was used in the assessment, but doses were not well characterized and other contaminants were present. The supporting human toxicity database is extensive but somewhat flawed. The database does support the choice of NOAEL, hence the confidence rating of medium. No inhalation RfD or RfC values are listed in IRIS or HEAST.

Arsenic is classified as Group A - Human Carcinogen. This classification is based on: 1) results of several epidemiologic studies in which increases in lung cancer mortality were observed among workers exposed to arsenic primarily through inhalation in the work place, and 2) reports of increased skin cancer incidence in several populations consuming drinking water with high arsenic concentrations. The inhalation unit risk is listed in IRIS as 4.3E-03 $(\mu g/m^3)^{-1}$. HEAST lists a value of 5.0E+01 $(mg/kg/day)^{-1}$ for the inhalation slope factor. A large population was observed and the exposure assessment included air measurements for the Anaconda smelter and both air measurements and urinary arsenic for the ASARCO smelter. Observed lung cancer incidence was significantly increased over expected values. The available evidence does not currently support the inference that arsenic is carcinogenic by the oral route of exposure (ATSDR, *Toxicological Profile for Arsenic*, 1992).

4.5 Barium

Studies involving toxicoses following inhalation of barium have only been documented in workers exposed to barium dust. Abdominal cramps, nausea, vomiting, pulmonary lesions, muscle weakness, and renal failure was observed in a factory worker accidentally exposed to high levels of barium carbonate powder. There is limited data on inhalation studies in laboratory animals to support any conclusions (ATSDR, *Toxicological Profile for Barium*, 1991).

The majority of the studies evaluating the health effects of barium are by the oral route of exposure. Acute ingestion of high levels of barium can result in respiratory weakness, abnormalities in heart rhythm, hypertension, gastrointestinal disturbances, progressive muscle weakness, and renal insufficiency. The occurrence and severity of these symptoms decrease with decreasing levels of exposure. The only well-documented adverse effect following low-level, chronic exposure is compromise of the cardiovascular system. Significant increases in blood pressure were observed in rats administered 5.4 - 7.1 mg/kg/day for up to 16 months (ATSDR, *Toxicological Profile for Barium*, 1991).

IRIS lists the chronic RfD for barium as 7.0E-02 mg/kg/day. HEAST lists this value as the subchronic oral RfD. These values are based primarily on two studies. In the first study, 11 healthy male volunteers were administered 0 to 10 mg/L barium in drinking water for 10 weeks. The second study was a retrospective epidemiological study, which compared human mortality and morbidity rates in populations ingesting elevated barium levels (2 to 10 mg/L) in drinking water. A NOAEL of 10 mg/L was established by the first study, and data from the chronic human epidemiological study support the NOAEL. The critical effect of interest was increased blood pressure. An uncertainty factor of 3 was used since data are available from a chronic human study. The level of confidence in the RfD is medium.

Although not listed in IRIS, a chronic inhalation RfC is available in HEAST as 5.0E-04 mg/m^3. The subchronic inhalation RfC is given as 5.0E-03 mg/m^3. These values are based on an inhalation study in which rats were exposed to 0.80 mg/m^3 of barium for 4 hours/day for 4 months. Fetotoxic effects were reported as a result of exposure. An uncertainty factor of 1000 was applied to account for inter- and intra-species variation and for extrapolating from a subchronic to a chronic study (10X each). A risk assessment for exposure to barium via inhalation is currently under review by an USEPA work group.

Barium is not considered carcinogenic at this time.

4.6 Beryllium

Various health effects related to beryllium exposure have been documented in human and animal investigations. Contact dermatitis is the most common beryllium-related toxic effect. Exposure to soluble beryllium compounds may result in papulovesicular lesions on the skin. It is a delayed-type hypersensitivity reaction. Acute chemical pneumonitis may result from inhalation of beryllium and occurs almost immediately following inhalation of aerosols of soluble beryllium compounds, particularly the fluoride. Severity is dose-related and lethality has been reported. Chronic granulomatous pulmonary disease (berylliosis) may develop after exposure to insoluble beryllium compounds,

particularly beryllium oxide. The major symptoms are shortness of breath and, in severe cases, cyanosis and clubbing of fingers. *In vitro* studies of genotoxicity have shown that beryllium will induce morphologic transformation in mammalian cells. It will also decrease fidelity of DNA synthesis, but is negative when tested as a mutagen in bacterial systems.

The oral RfD for beryllium is listed in IRIS as 5.0E-03 mg/kg/day. The NOAEL is listed as 5 ppm (0.54 mg/kg of body weight/day) in drinking water. The RfD value is based on a lifetime study of 52 weanling rats which received 0 or 5 ppm beryllium (as beryllium sulfate) in drinking water. At natural death, the rats were dissected and gross and microscopic changes were noted in the heart, kidney, liver, and spleen. There were no effects of treatment on these organs or on lifespan, urinalysis, serum glucose, cholesterol, and uric acid, or on numbers of tumors. Male rats experienced decreased growth rates from 2 to 6 months of age. In a similar study, doses of 0.95 mg/kg/day caused decreased body weights in female mice. Male mice exhibited slight increases in body weight. HEAST lists a value of 5.0E-03 mg/kg/day for the subchronic oral RfD.

The uncertainty factor applied to derivation of the oral RfD is 100. This factor accounts for interspecies (10X) conversion and for protection of sensitive human subpopulations (10X). The confidence level is low because only one dose level was administered. Although numerous inhalation investigations and a supporting chronic oral bioassay in mice exist, along with work that indicates a higher dose level may be a NOEL, these studies are considered low to medium in quality. Therefore, the database is given a confidence level of low.

Beryllium is classified as Group B2 - Probable Human Carcinogen. This classification is based on its ability to induce lung cancer via inhalation in rats and monkeys and to induce osteosarcomas in rabbits via intravenous or intramedullary injection. Human epidemiology studies are considered to be inadequate. The oral slope factor is listed in IRIS as 4.3+00 $(mg/kg/day)^{-1}$, the inhalation unit risk value as 2.4E-03 $(\mu g/m^3)^{-1}$, and the inhalation slope factor as 8.4E+00 $(mg/kg/day)^{-1}$. The estimate for the oral slope factor is derived from a study which did not show a significant increase in tumorigenic response.

While this study is limited by use of only one non-zero dose group and the occurrence of high mortality and unspecified time and site of the tumors, it was used as the basis of the quantitative estimate because exposure occurred via the most relevant route.

4.7 Benzo[a]Anthracene

No information is available about specific levels of benzo[a]anthracene (B[a]A) that result in harmful effects in humans after inhalation, oral, or dermal exposure. Two studies exist which indicate that B[a]A, when administered to animals by gavage, results in the development of stomach tumors. While these studies were flawed and inadequate for the development of significant human exposure levels, they do provide tentative evidence for oral carcinogenicity. B[a]A has been shown to suppress the sebaceous glands in mouse skin following topical application. However, these studies failed to employ controls and, therefore, definitive conclusions concerning the dermal toxicity of B[a]A cannot be made (ATSDR, *Toxicological Profile for Benzo(A)Anthracene*, 1990).

It has been demonstrated experimentally that B[a]A induces skin tumors in mice receiving 0.34 mg/kg or more when applied to the skin for 50 weeks. No information linking human exposure to B[a]A and cancer is available. However, reports of exposure to mixtures of polyaromatic hydrocarbons (PAHs) containing B[a]A and the induction of cancer in humans provides some support for the potential carcinogenicity of this compound.

USEPA has not developed an oral RfD for B[a]A. Toxicity values were not calculated to evaluate the noncarcinogenic effects of B[a]A, as no methodology firmly founded on scientific basis exists for such calculations.

USEPA has listed B[a]A as a Group B2 - Probable Human Carcinogen. USEPA has not published a slope factor for B[a]A at this time. To evaluate the potential carcinogenic effects of [a]A, an oral slope factor was calculated using the methodology described in the Docket Report (USEPA, 1991). The basis for the calculation was the health-based relative potency factor of 0.145 for B[a]A, as presented in the delisting

document and the slope factor for benzo[a]pyrene (B[a]P). A slope factor of 1.10E+00 $(mg/kg/day)^{-1}$ was derived by multiplying the slope factor of B[a]P (7.3E+00 $[mg/kg/day]^{-1}$) by the relative potency factor for B[a]A.

4.8 Benzo[a]Pyrene

No information is available in the current literature concerning the levels of benzo[a]pyrene (B[a]P) which cause harmful effects in humans following inhalation, ingestion, or dermal exposure. Short- and long-term exposures to B[a]P (120 mg/kg/day for up to 6 months) caused death when ingested by animals. Deaths appeared to be due to bone marrow suppression. Offspring of animals fed 10 mg/ka/day B[a]P (or higher) during pregnancy had lower than normal birth weights and developmental/reproductive aberrations (e.g., alterations in gonadal development; decreased fertility; increased incidence of sterility). Reports on the effects of B[a]P following short-term dermal exposures in animals and intermediate exposures in humans suggest that B[a]P has deleterious effects on the skin. However, the studies failed to employ control groups and, therefore, conclusions about the dermal toxicity of B[a]P currently cannot be made (ATSDR, *Toxicological Profile for Benzo(a)Pyrene*, 1990).

The induction of cancer appears to be the key end point of toxicity following intermediate and long-term exposure to B[a]P by inhalation, ingestion, and dermal exposure since lower doses are required to induce tumors than other end points of toxicity. Experimental studies have demonstrated the ability of B[a]P to induce respiratory tract tumors in hamsters following long-term (lifetime) exposure to B[a]P as an aerosol at concentrations above 9.5 mg/m^3. Mice receiving B[a]P in the diet for 110 days (5.2 mg/kg/day) developed excess forestomach tumors. Long-term dermal exposure (1 μg/day) studies in animals have demonstrated the ability of B[a]P to induce skin tumors. No information correlating inhalation or dermal exposure of humans to B[a]P and cancer is available, although reports of lung and skin tumors in individuals exposed to mixtures of PAHs containing B[a]P lend some support for its carcinogenic potential.

USEPA has not developed an oral RfD for B[a]P. Toxicity values were not calculated to evaluate the noncarcinogenic effects of B[a]P, as no methodology firmly founded on scientific basis exists for such calculations.

USEPA has classified B[a]P as Group B2 - Probable Human Carcinogen. IRIS lists an oral slope factor for B[a]P as 7.30E+00 $(mg/kg/day)^{-1}$. Human data specifically linking B[a]P to carcinogenic effects are lacking. However, there are numerous animal studies in many species that indicate that B[a]P is carcinogenic following administration by several routes. HEAST lists an inhalation unit risk of 1.7E-03 ($\mu g/m^3$) for B[a]P and an inhalation slope factor of 6.1E+00 $(mg/kg/day)^{-1}$.

4.9 Benzo[b]Fluoranthene

No information is available in the current literature concerning the levels of benzo[b]fluoranthene (B[b]F) which cause harmful effects in humans following inhalation, ingestion, or dermal exposure although inhalation and dermal exposure to mixtures of PAHs (including B[b]F) has been associated with the development of cancer in humans (ATSDR, *Toxicologic Profile for Poly Aromatic Hydrocarbons*, 1990).

The levels and length of exposure to individual PAHs that result in human health effects cannot be determined from the data that are currently available. Therefore, exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals. Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable.

A minimal risk level of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated minimum risk level (MRL) is based on experimental studies in which laboratory animals were fed B[a]P. Short-term exposure of mice to B[a]P in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from

animals to humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Poly Aromatic Hydrocarbons*, 1989).

It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with B[a]P. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, significant toxicologic difference may occur. MRLs have not been estimated for other routes of exposure (ATSDR, *Toxicological Profile for Poly Aromatic Hydrocarbons*, 1990).

No information is available on the effects of B[b]F in laboratory animals following exposure by inhalation, although B[b]F elicits respiratory tract tumors in rats following intratracheal instillation. B[b]F is carcinogenic following intermediate dermal exposure. Mice receiving doses of 2.9 mg/kg and higher, three times weekly (equivalent to an average daily dose of 1.2 mg/kg/day) developed an excess of malignant skin tumors when B[b]F was applied to the skin for up to one year. No information correlating inhalation or dermal exposure to B[b]F and cancer induction in humans is available, but reports of cancer among individuals exposed by inhalation or dermally to mixtures of PAHs containing B[b]F provide qualitative support for the carcinogenicity of this compound.

USEPA has not developed an oral RfD for B[b]F. Toxicity values were <u>not</u> calculated to evaluate the noncarcinogenic effects of B[a]P, as no methodology firmly founded on scientific basis exists for such calculations.

USEPA has listed B[b]F as a Group B2 - Probable Human Carcinogen. While there are no human data that specifically link exposure to B[b]F with cancer, it is a component of mixtures that are associated with human cancer. Supporting data include the production of tumors in mice after lung implantation, intraperitoneal or subcutaneous injection and skin painting with B[b]F. USEPA has not published a slope factor for B[b]F

at this time. A slope factor of 1.02E+00 $(mg/kg/day)^{-1}$ was calculated by multiplying the slope factor for B[a]P by the relative potency factor of 0.140 for B[b]F (USEPA, 1991a).

4.10 Benzo[k]Fluoranthene

No information is available in the current literature concerning the levels of benzo[k]fluoranthene (B[k]F) which cause harmful effects in humans although inhalation and dermal exposure to mixtures of PAHs has been associated with the development of cancer in humans (ATSDR, *Toxicologic Profile for Poly Aromatic Hydrocarbons*, 1990).

The levels and length of exposure to individual PAHs that result in human health effects cannot be determined from the data that are currently available. Therefore, exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals. Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable. A MRL of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated MRL is based on experimental studies in which laboratory animals were fed B[a]P. Short-term exposure of mice to B[a]P in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from animals to humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Poly Aromatic Hydrocarbons*, 1990).

It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with B[a]P. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, significant toxicologic differences may occur. MRLs have not

been estimated for other routes of exposure (ATSDR, *Toxicological Profile for Poly Aromatic Hydrocarbons*, 1990).

USEPA has not developed an oral RfD for B[k]F. Toxicity values were not calculated to evaluate the noncarcinogenic effects of B[a]P, as no methodology firmly founded on scientific basis exists for such calculations.

USEPA has listed B(k)F as a Group B2 -- Probable Human Carcinogen. USEPA has not published a slope factor for B[k]F at this time. A slope factor of 4.82E-01 $(mg/kg/day)^{-1}$ was calculated by multiplying the slope factor for B[a]P by the relative potency factor of 0.066 for B[k]F (USEPA, 1991a).

4.11 BHC (Alpha, Beta, Delta, Gamma)

Benzene hexachloride (BHC) exists in eight chemical forms (isomers). The most studied isomer is gamma-BHC. People generally are not exposed to the alpha-, beta-, delta-, or gamma-forms of BHC separately but to lindane (gamma-BHC) or to technical-grade BHC (a mixture of the alpha-, beta-,delta-, and gamma-forms). Therefore, the health effects of the BHC isomers are considered jointly. The adverse health effects of lindane and the other BHC isomers (alpha, beta, and delta) that have been seen in humans include lung irritation, heart disorders, blood disorders, headache, convulsions, and alterations in levels of sex hormones. These effects were observed in individuals exposed to BHC vapors during its manufacture and/or in individuals accidentally exposed to very large quantities of BHC. Death can result in humans and animals exposed to large amounts of BHC. Liver disease has been reported in animals fed lindane or alpha-, beta-, or technical-grade BHC and liver cancer has been reported in rodents which received long-term administration of these compounds (ATSDR, *Toxicological Profile for α, β, γ, and δ-Hexachlorocyclohexane*, 1989).

4.11.1 Alpha-BHC

There are no oral or inhalation RfD or RfC values listed in IRIS or HEAST for alpha-BHC. Little information is available on the health effects of alpha-BHC. Since gamma-BHC has been extensively studied, the health-based value for the gamma isomer was used to calculate a surrogate RfD value for alpha-BHC. Chronic and subchronic oral RfDs were calculated for alpha-BHC based on its ability (relative to gamma-BHC) to increase the liver-to-body weight ratio in mice fed alpha-BHC in the diet (Ito, 1975). Alpha BHC exhibited approximately 139% the potency of gamma-BHC for increasing liver-to-body weight ratios. Therefore, this factor of difference was multiplied by the chronic and subchronic oral RfDs for gamma-BHC to calculate corresponding values for alpha-BHC. The resulting chronic and subchronic values were 4.16E-04 and 4.16E-03 mg/kg/day, respectively.

The oral RfD for alpha-BHC was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 1.2E-03 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.35 calculated for alpha-BHC.

Alpha-BHC is listed in IRIS as class B2 - Probable Human Carcinogen. This classification is supported by an increased incidence of liver tumors in mice and rats when given dietary alpha-BHC. Human carcinogenicity data is inadequate. The oral slope factor is listed in IRIS as 6.3E+00 mg/kg/day and the inhalation slope factor as 1.8E-03 ug/m^3. In the study used to derive the oral slope factor, relatively few animals were treated, and the treatment time was not considered adequate for the development of spontaneous tumors. HEAST lists a value of 6.3E+00 (mg/kg/day)$^{-1}$ for the inhalation slope factor.

4.11.2 Beta-BHC

There are no oral or inhalation RfD or RfC values listed in IRIS or HEAST for beta-BHC. Little information is available on the health effects of beta-BHC. Since gamma-BHC has been extensively studied, the health-based value for the gamma isomer was used to calculate a surrogate RfD value for beta-BHC. Chronic and subchronic oral RfDs were calculated for beta-BHC based on its ability (relative to gamma-BHC) to increase the liver-to-body weight ratio in mice fed beta-BHC in the diet (Ito, 1975). Beta-BHC exhibited approximately 111% the potency of gamma-BHC for increasing liver-to-body weight ratios. Therefore, this factor of difference was multiplied by the chronic and subchronic oral RfDs for gamma-BHC to calculate corresponding values for beta-BHC. The resulting chronic and subchronic values were 3.33E-04 and 3.33E-03 mg/kg/day, respectively.

Beta-BHC is listed as Class C - Possible Human Carcinogen. This classification is supported by an increase in benign liver tumors when mice were exposed to beta-BHC in the diet. The oral slope factor is listed in IRIS as 1.8E+00 $(mg/kg/day)^{-1}$ and the inhalation slope factor is listed in HEAST as 1.8E+00 $(mg/kg/day)^{-1}$. IRIS lists an inhalation unit risk of 5.3E-04 $(\mu g/m^3)^{-1}$.

4.11.3 Delta-BHC

Neither a RfD nor a slope factor is given for delta-BHC in IRIS or HEAST. Little information is available on the health effects of delta-BHC. Since gamma-BHC has been extensively studied, the health-based value for the gamma isomer was used to calculate a surrogate RfD value for delta-BHC. Chronic and subchronic oral RfDs were calculated for delta-BHC based on its ability (relative to gamma-BHC) to increase the liver-to-body weight ratio in mice fed delta-BHC in the diet (Ito, 1975). Delta-BHC exhibited approximately 67% the potency of gamma-BHC for increasing liver-to-body weight ratio . Therefore, this factor of difference was multiplied by the chronic and subchronic oral RfDs

for gamma-BHC to calculate corresponding values for delta-BHC. The resulting chronic and subchronic values were 2.0E-04 and 2.0E-03 mg/kg/day, respectively.

It has been reported that technical grade BHC is carcinogenic to livers of male mice (Ito, 1973). However, delta-BHC did not exhibit evidence of potential carcinogenicity in any of the studies located in the available literature. Furthermore, it is classified by USEPA as Group D - Not Classifiable as to Human Carcinogenicity. Therefore, a slope factor was not calculated for delta-BHC.

4.11.4 Gamma-BHC (Lindane)

The oral RfD for gamma-BHC is listed in IRIS as 3.0E-04 mg/kg/day. This value is supported by a 12-week study in which rats were dosed with 0, 0.2, 0.8, 4, 20, or 100ppm gamma-BHC in the diet. After 12 weeks, 15 animals/sex/group were sacrificed. The remaining rats were fed the control diet for an additional six weeks before sacrifice. Treatment related effects were noted in mortality, hematology, clinical chemistry, and urinalysis. Rats receiving 20 and 100ppm gamma-BHC were observed to have greater incidence of the following than the control rats: liver hypertrophy, kidney tubular degeneration, hyaline droplets, tubular distension, interstitial nephritis, and basophilic tubules. Because these effects were mild or rare in animals receiving 4 ppm, this value represents a NOAEL. The reviewers of the study calculated the dose to be 0.29 mg/kg/day for males and 0.33 mg/kg/day for females based on measured food intake. A LOAEL of 20 ppm (converted to 1.55 mg/kg/day for males) was also established.

An uncertainty factor of 1000 was used to determine the RfD for gamma-BHC. A factor of 10 each was employed for use of a subchronic assay, to account for interspecies variation and to protect sensitive human subpopulations. A confidence rating of medium is associated with the RfD for gamma-BHC. This rating reflects that the principal study used an adequate number of animals and measured multiple endpoints.

There are no inhalation RfD or RfC values currently available. However, a risk assessment for development of an inhalation RfC is under review for this agent. HEAST lists the subchronic oral RfD as 3.0E-03 mg/kg/day. The oral RfD for gamma-BHC was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 3.1E-03 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.1 calculated for gamma-BHC.

Gamma-BHC is classified as a Group B2/C - Probable Human Carcinogen/Possible Human Carcinogen. HEAST lists the oral slope factor as 1.3E+00 $(mg/kg/day)^{-1}$. No inhalation unit risk was given.

4.12 Benzo(g,h,i)Perylene

No information is available in the current literature concerning the level of benzo(g,h,i)perylene that results in harmful effects in humans following inhalation, ingestion, or dermal exposure although inhalation and dermal exposure to mixtures of PAHs has been associated with the development of cancer in humans (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

The levels of length of exposure to individual PAHs that result in human health effects can not be determined from the data that are currently available. Therefore, exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals. Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable. A minimal risk level (MRL) of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated MRL is based on experimental studies in which laboratory animals were fed benzo(a)pyrene. Short-term exposure of mice to benzo(a)pyrene in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from animals to

humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990). It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with benzo(a)pyrene. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, there may be significant toxicologic differences (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

EPA has not developed an oral RfD for benzo(g,h,i)perylene. Toxicity values were not calculated to evaluate noncarcinogenic effects of benzo(g,h,i)perylene as no methodology firmly founded on scientific basis exist for such calculations.

EPA has classified benzo(g,h,i)perylene as a Group D - Not Classifiable as to Human Carcinogenicity. This classification precludes quantitative evaluation of toxicity. Therefore, no slope factor is available.

4.13 Benzyl Alcohol

The carcinogenic potential of benzyl alcohol has not been extensively investigated. Benzyl acetate, which is metabolized to benzyl alcohol *in vivo*, was reported to induce acinar cell adenomas of the exocrine pancreas in male F344/N rats and hepatocellular adenomas and squamous cell neoplasms of the forestomach in male and female $B6C3F_1$ mice. However, this has not been linked to benzyl alcohol. Acutely, benzyl alcohol is a mild irritant to skin and eyes. Mutagenicity assays have shown that benzyl alcohol is not genotoxic (NTP, *Toxicology and Carcinogenesis Studies of Benzyl Alcohol in F344/N Rats and B6C3F*[1] *Mice*, 1989).

HEAST lists the oral RfD for benzyl alcohol as 3.0E-01 mg/kg/day and the subchronic oral RfD as 1.0E+00 mg/kg/day. The chronic oral RfD is based on a gavage

study in rats where the critical effect was epithelial hyperplasia in the forestomach. There is no confidence rating for the chronic oral RfD.

4.14 Bis(2-ethylhexyl)Phthalate

Most information about the health effects of bis(2-ethylhexyl)phthalate (BEHP) has been obtained from animal studies conducted on rodents. BEHP appears to affect rodents differently than humans, making human health effects difficult to predict. Studies in rats indicate that BEHP in the air has no effect on lifespan or the ability to reproduce and, therefore, breathing BEHP does not appear to have serious harmful effects. Adverse health effects resulting from dermal contact with BEHP are not expected because it is not easily absorbed through the skin (ATSDR, *Toxicological Profile for Di(2-Ethylhexyl)Phthalate*, 1992).

Short-term exposures to BEHP interfered with sperm formation in rodents. Although these effects were reversible, the process of sexual maturation was delayed. Short-term exposure appeared to have no effect on male fertility although long-term exposure resulted in decreased fertility in both males and females. BEHP resulted in deleterious effects on the development of the fetus (low birth weights and skeletal and/or nervous system problems) when pregnant rodents were exposed. Therefore, it is possible that exposure of pregnant women to BEHP could result in similar effects, but this is not certain. Long-term exposure of animals to BEHP results in structural and functional changes in the kidney (ATSDR, *Toxicological Profile for Di(2-Ethylhexyl)phthalate*, 1992).

There have been no studies of workers exposed to BEHP that indicate it causes cancer in humans. Ingestion of high doses of BEHP for long periods of time resulted in liver cancer in rats and mice. However, there is disagreement as to whether exposure to BEHP increases the risk of humans developing cancer because BEHP causes less damage to human livers than rodent livers (ATSDR, *Toxicological Profile for Di(2-Ethylhexyl)Phthalate*, 1992).

An oral RfD of 2.0E-02 mg/kg/day is listed in IRIS for bis(2-ethylhexyl)phthalate based primarily on a subchronic-to-chronic oral bioassay conducted in guinea pigs. Guinea pigs were fed diets containing BEHP for a period of one year. Males and females consumed feed containing 0.13%, 0.04%, or control diet. These dietary levels correspond to 64 or 19 mg/kg/day based on measured food consumption. The critical effect observed in this study was increased relative liver weight in females at both doses tested (64 and 19 mg/kg/day). No treatment-related effects were seen on mortality, body weight, kidney weight, or gross pathology and histopathology of kidney, liver, lung, spleen, or testes. A NOAEL was not established in the study but a LOAEL of 19 mg/kg/day was established.

An uncertainty factor of 1000 was used. Factors of 10 each were used to account for interspecies variation and protection of sensitive human subpopulations. An additional factor of 10 was used to account for the less than lifetime exposure and because, while the RfD was determined from a LOAEL, the effect observed was considered to be minimally adverse. A confidence rating higher than medium for the RfD was precluded by the fact that only two doses of BEHP were used. HEAST lists a subchronic oral RfD of 2.0E-02 mg/kg/day.

USEPA classifies BEHP as a Group B2 - Probable Human Carcinogen. This is based on animal carcinogenicity data in which rats and mice fed diets containing BEHP demonstrated an increased incidence of hepatocellular carcinomas and combined incidence of carcinomas and adenomas in female rats and both sexes of mice. Data from a mortality study conducted on BEHP production workers exposed to unknown concentrations was considered inadequate for assessing the human carcinogenic potential. The oral slope factor for BEHP is 1.4E-02 $(mg/kg/day)^{-1}$.

4.15 Boron

The oral RfD for boron is listed in IRIS as 9.0E-2 mg/kg/day. This value was based on study in which dogs were fed borax and boric acid in the diet for two years. The

NOAEL was established at the highest dose tested (350 ppm of boron equivalents or 8.8 mg/kg/day) and a LOAEL was established at 1170 ppm (29 mg/kg/day).

In another study, rats were fed borax and boric acid in the diet for two years at boron-equivalent doses of 117, 350, and 1170 ppm (5.9, 17.5, or 58.5 mg/kg/day). Severe testicular atrophy and spermatogenic arrest occurred at this level. A LOAEL of 1170 ppm (58.5 mg/kg/day) was established in this study. Additional studies also indicated a decrease in brain weight and brain-to-body weight ratios.

An uncertainty factor of 100 was applied to the RfD to account for inter- and intra-species variability (10x each). The confidence level for the RfD is medium with the principal study providing both a NOAEL and LOAEL. Many biological endpoints were examined, but there was a limited number of experimental animals. The confidence level for the database is also medium. An inhalation RfC is not currently listed in IRIS for boron.

Boron is under consideration by the USEPA for evidence of carcinogenicity; however, it has not been classified at this time (IRIS, 1989).

4.16 Cadmium

Exposure to high levels of cadmium via inhalation severely damages the lungs and can cause death. Inhalation of lower levels for a period of years results in accumulation of cadmium in the kidneys that can cause kidney disease. Long-term exposure to cadmium by inhalation may also cause fragile bones.

Long-term exposure of workers to cadmium via inhalation in an occupational setting may increase the risk of developing lung cancer. Experimental studies indicate that mice and hamsters exposed to cadmium by inhalation do not develop lung cancer; however, rats clearly do. Pregnant female rodents that inhaled high levels of cadmium produced

fewer litters and the pups exhibited more birth defects than usual. Inhalation of cadmium also causes liver damage and changes in the immune system in rats and mice. Currently, it is not known whether inhalation of cadmium affects the ability of humans to reproduce or has harmful effects on the fetus, liver, heart, nervous system, or immune system in humans (ATSDR, *Toxicological Profile for Cadmium*, 1992).

Consumption of very high levels of cadmium in food or drink severely irritates the stomach and causes vomiting and diarrhea. Deaths from cadmium ingestion have only been documented in cases of suicide. Similar to exposure via inhalation, ingestion of lower levels of cadmium results in a build-up in the kidneys, resulting in kidney damage and fragile bones. Animals exposed to cadmium through the diet or in water, occasionally develop high blood pressure, iron poor blood, liver disease, and nerve or brain damage. Proof that humans develop these conditions is lacking. Studies in humans and animals have not indicated that eating or drinking cadmium increases the incidence of cancer. Dermal contact with cadmium is not known to cause adverse health effects in animals or humans (ATSDR, *Toxicological Profile for Cadmium*, 1992).

IRIS lists the oral RfD for cadmium in water as 5.0E-04 mg/kg/day and in food as 1.0E-03 mg/kg/day. The RfD is based on the highest level of cadmium in the human renal cortex (200 μg cadmium/g wet renal cortex) not associated with significant proteinuria, the critical effect of interest. A toxicokinetic model was used to determine the highest level of exposure associated with the lack of a critical effect. An uncertainty factor of 10 was applied to account for intrahuman variability to the toxicity of this chemical in the absence of specific data on sensitive individuals. The level of confidence in the RfD is high because of the many studies available on the toxicity of cadmium in both humans and animals. HEAST lists an additional oral RFD for cadmium in food as 1.0E-03 mg/kg/day. An inhalation RfD and RfC have not been established for cadmium.

USEPA has classified cadmium as a Group B1 - Probable Human Carcinogen. Limited evidence of its carcinogenicity in humans is available from several epidemiologic

studies which demonstrated a possible association with lung and prostate cancers. There is also sufficient evidence of cadmium's carcinogenicity in rats and mice by the inhalation route (lung tumors), intratracheal instillation (mammary tumors in female rats, multiple sites in males), and intramuscular or subcutaneous injection (injection site and distant site tumors). USEPA has not established an oral slope factor for cadmium. USEPA has established an inhalation unit risk of 1.8E-03 $(\mu g/m^3)^{-1}$ based primarily on an epidemiologic study of cadmium smelter workers in which an increased risk of lung, trachea, and bronchus cancer mortality was observed. The supporting study used a relatively large cohort and smoking and concurrent arsenic exposures were accounted for in the quantitative analysis for cadmium. HEAST lists a value of 6.1E+00 $(mg/kg/day)^{-1}$ for the inhalation slope-factor.

4.17 Chlordane (technical, alpha-, and gamma)

Chlordane is a member of a class of chlorinated hydrocarbon pesticides called cyclodienes and has two main isomers (*cis* and *trans*). *Cis*-chlordane (alpha-chlordane) is more abundant than *trans*-chlordane (gamma-chlordane). In addition to the two chlordane isomers, technical grade chlordane has also contained heptachlor, nonachlor, hexachlorocyclopentadiene, and other compounds (ATSDR, *Toxicological Profile for Chlordane*, 1992).

The health effects of chlordane are similar to other chlorinated hydrocarbon insecticides, especially other cyclodienes. Convulsions are a prominent aspect of chlordane poisoning. In a retrospective mortality study of workers employed in the manufacture of chlordane and heptachlor, no increased incidence of cancer was found but a statistically significant excess of deaths from cerebrovascular disease was noted (Murphy, 1991). Experimentally, chronic doses of chlordane cause hyperexcitability and tremors (Norton, 1991). Chlordane has been reported to affect both male and female reproductive capacity (Dixon, 1991). Animal studies indicate that chlordane is extremely irritating to the eyes but produces only mild irritation to the skin of rabbits when exposed percutaneously to greater than 200 but less than 2000 mg/kg.

The RfD for chlordane is listed in IRIS as 6E-05 mg/kg/day. This is based on a chronic rat study using doses of 0, 1, 5, and 25 ppm chlordane in the diet. Clinical laboratory studies were performed and organ weights measured on eight animals/sex/group at 26 and 52 weeks, and on all survivors at 130 weeks. Gross and microscopic pathology were performed on all tissues. Daily dose levels of 0.045, 0.229, and 1.175 mg/kg/day for males and 0.055, 0.273, and 1.409 mg/kg/day for females for the 1, 5, and 25 ppm treatment groups, respectively, were derived from food consumption and body weight data. It was concluded that liver hypertrophy occurred in female rats at 5 ppm, which was considered the lowest effect level. A NOAEL of 1 ppm was established.

The uncertainty factor used to derive the RfD is 1000. A factor of 100 was used to account for the inter- and intra-species differences (10 each). A factor of 10 was used to account for a lack of a second mammalian species and an insufficiently sensitive endpoint. These uncertainties resulted in a low confidence level. There are no values for the inhalation RfD or RfC at this time.

Only limited information is available regarding the relative toxicities of technical grade chlordane and the two isomers. Based on its LD_{50} (83 mg/kg) relative to chlordane (335 mg/kg), a surrogate RfD of 1.5E-05 mg/kg/day was calculated for alpha-chlordane. An LD_{50} for gamma-chlordane was not located in the available literature. However, because the NOAELs (based on tumorigenesis) for chlordane and the gamma-isomer are in the same range (Ingle 1952; Ingle, 1969), the RfD for chlordane was used for gamma-chlordane as well.

The National Academy of Sciences has concluded that chlordane is carcinogenic to certain strains of mice but there is evidence that it may act as a promoter rather than as an initiator of carcinogenesis (Worthing, 1983,). Promoters of carcinogenesis enhance cancer development following exposure to known carcinogens but are not themselves responsible for the carcinogenic lesion (Williams and Weisburger, 1991).

Chlordane is a Group B2 - Probable Human Carcinogen. This classification is based on the development of benign and malignant liver tumors in four strains of mice (both sexes) and in male F344 rats. This compound is also structurally related to other liver carcinogens. Human carcinogenicity data were inadequate. The oral slope factor is listed in IRIS as 1.3E+00 $(mg/kg/day)^{-1}$. Liver tumors were induced in mice of both sexes in two studies, an adequate number of animals was observed and dose response effects were reported. The inhalation unit risk is listed as 3.7E-04 $(\mu g/m^3)^{-1}$. Since studies (Ingle, 1952; Ingle 1969) indicate that NOAELs based on tumorigenesis are similar for technical chlordane and the two isomers, the oral slope factor for technical chlordane was used for alpha- and gamma-chlordane as well.

4.18 Cobalt

No toxicity values are available in IRIS, HEAST, or *Drinking Water Regulations and Health Advisories* (USEPA, 1991b). Cobalt is an essential cofactor of vitamin B12, required for the production of red blood cells and prevention of pernicious anemia. Deficiency creates problems equal in magnitude to the intoxication that results from its excess. Deficiency is characterized by anemia, weight loss, and retarded growth while ingestion of large amounts of cobalt can cause vomiting, diarrhea, and polycythemia (Klaassen, *et al., 1986).*

Cobalt is classified as Group D - Not Classifiable as a Human Carcinogen. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, no slope factor was listed in IRIS or HEAST.

4.19 Chromium

Chromium in soils exists predominantly in the trivalent state (ATSDR, Toxicological Profile for Chromium, 1992). For example, soil samples obtained during a remedial investigation conducted at 42 sites in a county where chromium processing had

been ongoing from 1905 to 1971, indicated that the average chromium VI concentration was 2.6% (Paustenbach *et al.*, 1991). In the same study, samples of airborne chromium-contaminated dust were collected at 17 different locations within the county. The outdoor chromium VI concentrations were between 16% and 26% of the total chromium concentrations. In addition, organic matter in soil is expected to convert soluble chromate (chromium VI) to insoluble chromium III oxide (Cr_2O_3) (ATSDR, *Toxicological Profile for Chromium*, 1992). Therefore, for the purposes of this risk assessment, 95% of chromium in soil was considered to be in the trivalent state and the remainder was considered to be hexavalent. Airborne chromium contaminated dust was considered to be comprised of 90% trivalent chromium and 10% hexavalent chromium.

Chromium speciation in water depends on redox potential and pH. Oxygen concentrations in the lagoons were determined using an oxygen meter and were confirmed by the Winkler titration method. Results from both field tests indicated that the water in the lagoons is super saturated with oxygen. Chromium VI predominates under high oxidation conditions, such as those found in the highly eutrophic lakes and lagoons at HAFB. Chromium III predominates under reducing conditions, such as those expected under aquifer conditions. For the purposes of this risk assessment, trivalent chromium was considered to predominate in groundwater while hexavalent chromium was considered to be the primary species in surface waters.

4.19.1 Chromium III

Trivalent chromium (CrIII) is much less toxic and more abundant in nature than the hexavalent form (CrVI). CrVI readily crosses all membranes and is reduced intracellularly to trivalent chromium. There is no evidence to suggest that CrIII is converted into CrVI in biological systems (Klaassen, *et al.,* 1986). For these reasons, the oral RfD for CrIII is used to estimate risk for ingestion of waterfowl and beef.

Respiratory effects have been observed in workers exposed to chromium III; however, other forms of chromium were present. The respiratory system is the primary target for injury following inhalation exposure in laboratory animals. Rats and mice inhaling various levels of chromium III oxide had increased lung weights, marked hyperplasia, interstitial fibrosis, and epithelial necrosis (ATSDR, Toxicological Profile for Chromium, 1992).

IRIS lists the chronic oral RfD as 1.0E+00 mg/kg/day which is the same value listed in HEAST as the subchronic oral RfD. These values are based upon a chronic feeding study in rats. Even after feeding up to 5% of chromic oxide in the diet for 84 days, no adverse effects were observed at any dose level.

An uncertainty factor of 100 was applied to the oral RfD. This factor accounts for the interhuman and interspecies variability of the toxicity of chromium III. The oral RfD is limited to insoluble salts of chromium III. Confidence in the principal study is rated as low because of a lack of explicit detail on protocol and results. Low confidence in the database reflects the lack of high-dose supporting data. An inhalation risk assessment for CrIII is under review by an USEPA work group.

Chromium III is not believed to be carcinogenic at this time.

4.19.2 Chromium VI

Chromate sensitive workers acutely exposed to chromium VI develop asthma and other signs of respiratory distress. Symptoms include erythema of the face, nasopharyngeal pruritus, nasal blocking, coughing and wheezing. In a retrospective mortality study, intermediate- to chronic-duration occupational exposure to CrVI showed an increased risk of death due to noncancer respiratory disease. Occupational exposure has also been associated with adverse effects on the gastrointestinal system and severe liver injury.

Additionally, chromium VI has been associated with an increased incidence of bronchogenic and nasal cancer following chronic occupational exposure.

IRIS lists a chronic oral RfD for CrVI as 5.0E-03 mg/kg/day. HEAST provides a subchronic oral RfD of 2.0E-02 mg/kg/day. These values are based on a year-long study in rats administered hexavalent and trivalent chromium in drinking water. No significant changes in appearance, weight gain, food consumption, or histologic lesions were observed in any of the treatment groups. An uncertainty factor of 500 accounts for the expected interhuman and interspecies variability in the toxicity of the chemical in lieu of specific data, and an additional factor of 5 to compensate for the less-than-lifetime exposure duration of the principal study. The oral RfD is limited to soluble salts of metallic chromium VI. Confidence in the principal study is low because of the small number of animals tested, the small number of parameters measured, and the lack of toxic effect at the highest dose tested. Confidence in the database is low because the supporting studies are of equally low quality, and teratogenic and reproductive endpoints are not well studied.

Chromium VI is considered to be carcinogenic only by inhalation and is classified as Group A - Human Carcinogen. IRIS lists an inhalation unit risk value of 1.2E-02 $(\mu g/m^3)^{-1}$. The corresponding inhalation slope factor is 4.1E+01 $(mg/kg/day)^{-1}$. The confidence in this unit risk factor is high because there is sufficient epidemiologic evidence in humans supporting this conclusion.

4.20 Cyanide

Exposure to high levels of cyanide for short periods of time adversely affects the CNS, respiratory system, and cardiovascular system. Coma and death may result from short-term exposure. Low levels of cyanide may result in rapid, deep breathing, shortness of breath, convulsions, and loss of consciousness. Since cyanide remains in the body for only a short period, these effects disappear with time. Skin contact with cyanide dust may result in dermal irritation and ulcers. Ingestion of cyanide over months and years has resulted in

damage to the nervous system (deafness, vision problems, and loss of muscular coordination) and thyroid gland (cretinism or enlargement of the gland and overactivity) (ATSDR, *Toxicological Profile for Cyanide*, 1992).

IRIS lists the chronic oral RfD as 2.0E-02 mg/kg/day. HEAST lists the subchronic RfD as 2.00E-02 mg/kg/day as well. These values are based on a subchronic to chronic oral bioassay conducted in rats. Rats were administered food fumigated with hydrogen cyanide. The average daily concentrations were 73 and 183 mg/of cyanide/kg diet (estimated as 4.4 and 10.8 mg/kg/day). There were no treatment related effects on growth rate, no gross signs of toxicity, and no histopathologic lesions. A NOAEL of 10.8 mg/kg/day was established in this study and used for derivation of a RfD. In another study, in which rats were fed cyanide and thiocyanate, the critical effects were decreased weight gain and thyroxin levels accompanied by myelin degeneration in rats receiving 30 mg/kg/day.

An uncertainty factor of 100 was used to derive the RfD and accounts for species extrapolation (10X) and sensitive populations (10X). A modifying factor of 5 was used to account for the apparent tolerance to cyanide when ingested with food rather than when administered by gavage or in drinking water. The confidence in the principal study is medium reflecting that adequate records of food consumption and body weight were maintained and animals of both sexes were tested at two doses for two years. The database is rated medium and a medium confidence in the RfD follows.

Cyanide is classified by USEPA as Group D - Not Classifiable as a Human Carcinogen. This classification reflects that pertinent data regarding carcinogenicity have not been located in the available literature.

4.21 Cyclohexene

The very limited information that exists on the acute toxicity of cyclohexene indicates that it is only mildly toxic. In a chronic inhalation study conducted using rats, guinea pigs, and rabbits, significant increases in serum alkaline phosphatase occurred in all three groups and rats showed a decrease in body weight gain at the highest dose. However, most parameters in the hematologic profile (white blood cells, red blood cells, platelets, hemoglobin, hematocrit) and the biochemical profile (glucose, BUN, cholesterol, SGPT, SGOT, LDH, electrolytes) were within normal limits (ACGIH, *Documentation for Cyclohexene*, 1986).

No information is currently available on IRIS or in HEAST.

4.22 Cyclohexanone

Cyclohexanone is used as a solvent for resins, textiles, and paint. It is also found in paint removers and printing inks and has been used in the production of adipic acid for nylon and as a solvent for DDT.

The acute toxicity of cyclohexanone in laboratory animals is low. Histological examination of the lungs of mice exposed to cyclohexanone revealed congestion, edema, and hemorrhage of the lung. Narcosis, hypothermia, and decreased respiration have also been reported in guinea pigs. Undiluted cyclohexanone placed in the eyes of rabbits causes marked irritation and some corneal injury (ACGIH, *Documentation for Cyclohexanone*, 1986).

IRIS lists the chronic oral RfD for cyclohexanone as 5.00E+00 mg/kg/day. This value was based on a chronic oral study conducted using rodents. Cyclohexanone was administered in drinking water at doses of 0, 3300, or 6500 ppm in rats and 0, 6500, 13,000 or 25,000 ppm in mice. Weight gain was depressed at higher doses. Increased mortality was

noted in mice treated with two higher (13,000 and 25,000 ppm) doses. Based on these effects, 3300 ppm cyclohexanone (converted to 462 mg/kg/day) in rats was established as a NOAEL, whereas the high dose (6500 ppm or 910 mg/kg/day) was considered as a LOAEL in rats.

An uncertainty factor of 100 was applied in derivation of the RfD. The uncertainty factor accounts for interspecies extrapolation (10) and intraspecies variability (10) among the human population. Confidence in the oral RfD is medium reflecting that the principal study was based on a cancer bioassay study with adequate toxicologic endpoints accompanied by adequate supporting subchronic studies and other reproductive studies.

The USEPA has not evaluated cyclohexanone for evidence of human carcinogenic potential.

4.23 Dioxins

Chlorinated dibenzo-p-dioxins and dibenzofurans (CDDs/CDFs) constitute a family of 210 structurally related chemical compounds. Many studies have been conducted to examine the toxic effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Much less is known about the other 209 congeners. The toxicity equivalency factor (TEF) method, adopted by EPA in 1987 and revised in 1989, is an interim procedure for assessing the risks associated with exposures to complex mixtures of CDDs and CDFs. This method relates the toxicity of the 209 CDDs and CDFs to the well studied 2,3,7,8-TCDD, based on a limited database of in vivo and in vitro toxicity studies. Reasoning on the basis of structure activity relationships, the significance of the exposure to each of the CCD/CDF homologues and/or congeners is estimated and expressed as "equivalent amount of 2,3,7,8-TCDD". The 2,3,7,8-TCDD equivalency factors (TEFs) for the various congeners are listed in the "Interim Procedures for Estimating Risks Associated with Exposures to Dibenzo-p-Dioxins and Dibenzofurans (CDDs and CDFs) and 1989 Update *EPA I-TEF/89* USEPA, 1989). TEFs were assigned primarily using data on reproductive effects and in vitro data from receptor

binding interaction and oxidative enzyme induction. Oral RfDs were calculated for CDD and CDF congeners by dividing the oral RfD for 2,3,7,8-TCDD (1.0E-09 mg/kg/day) by the relative TEFs for each congener. Oral slope factors were calculated by multiplying the slope factor for 2,3,7,8-TCDD [1.5E+05 $(mg/kg/day)^{-1}$] by the relative TEFs.

4.23.1 Hexachlorinated Dibenzofuran

EPA has not established an oral RfD for 1,2,3,4,7,8-, 1,2,3,6,7,8-, 2,3,4,6,7,8-, or 1,2,3,7,8,9-hexachlorinated dibenzofurans (HxCDF). To evaluate the potential noncarcinogenic effects of the HxCDFs, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and TEF of 0.10. A value of 1.0E-08 $(mg/kg/day)^{-1}$ was derived by dividing the RfD of 2,3,7,8-TCDD by the relative TEF for HxCDF congeners. HxCDF congeners substituted at positions other than 2,3,7,8 have been assigned a TEF of 0.00 and would therefore have calculated RfDs of 0.00.

EPA has not published an oral slope factor for the HxCDFs in IRIS or HEAST. The slope factor and inhalation unit risk were derived by multiplying the oral slope factor and the inhalation unit risk for 2,3,7,8-TCDD by the relative TEF of 0.10. The values derived by this method were 1.5E+04 $(mg/kg/day)^{-1}$ and 3.3E-01 $(\mu g/m^3)^{-1}$.

4.23.2 Heptachlorinated Dibenzo-p-Dioxin

EPA has not established an oral RfD for 1,2,3,4,6,7,8-heptachlorinated dibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD). To evaluate the potential noncarcinogenic effects of 1,2,3,4,6,7,8-HpCDD, a toxicity value was calculated using the methodology described in the EPA's I-TEF/89 scheme (USEPA, 1989) and a TEF of 0.01. A value of 1.0E-07 mg/kg/day was derived by dividing the 2,3,7,8-TCDD RfD by the relative TEF for 1,2,3,4,6,7,8-HpCDD. HpCDD congeners substituted at positions other than 2,3,7,8 have been assigned a TEF of 0.00 and would therefore have a calculated RfD of 0.00.

EPA has not published an oral slope factor for 1,2,3,4,6,7,8-HpCDD in IRIS or HEAST. The oral slope factor and an inhalation unit risk were derived, however, by multiplying the 2,3,7,8-TCDD slope factor by the relative TEF of 0.01. The values derived by this method were 1.5E+03 $(mg/kg/day)^{-1}$ and 3.3E-1 $(\mu g/m^3)^{-1}$.

4.23.3 Tetrachlorodibenzo-p-Dioxin

IRIS did not list an oral RfD for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). An oral RfD of 1.0E-09 mg/kg/day has been calculated (USEPA, 1989c). Many studies have been conducted in the past 20 years to determine the toxic effects of 2,3,7,8-TCDD. The data obtained are summarized in a number of reviews (WHO, 1988; NRCC, 1981; Exner, 1987; USEPA, 1985; USEPA, 1988). The data show that this chemical can produce a variety of toxic effects, including cancer and reproductive effects, in laboratory animals at very low doses. Some reports in the literature suggest that the compound can produce similar effects in humans, and more definitive information should be forthcoming from epidemiological studies currently in progress.

EPA classifies 2,3,7,8-TCDD as a Group B2 - Probable Human Carcinogen. HEAST lists the slope factor as 1.5E+05 $(mg/kg/day)^{-1}$ and the inhalation unit risk as 3.3E+01 $(\mu g/m^3)^{-1}$.

4.23.4 Tetrachlorodibenzofuran

EPA has not established an oral RfD for 2,3,7,8-tetrachlorodibenzofuran (TCDF). To evaluate the potential noncarcinogenic effects of TCDF, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and the TEF of 0.10. A value of 1.0E-08 $(mg/kg/day)^{-1}$ was derived by dividing the RfD of 2,3,7,8-TCDD by the relative TEF for 2,3,7,8-TCDF. TCDF congeners substituted at positions other than 2,3,7,8 have been assigned a TEF of 0.00 and would therefore have calculated RfDs of 0.00.

EPA has not published an oral slope factor for 2,3,7,8-TCDF in IRIS or HEAST. A slope factor and inhalation unit risk were derived by multiplying the oral slope factor and the inhalation unit risk for 2,3,7,8-TCDD by the relative TEF of 0.10. The values derived by this method were 1.5E+04 $(mg/kg/day)^{-1}$ and 3.3E-01 $(\mu g/m^3)^{-1}$.

4.23.5 Octachlorodibenzo-p-Dioxin (OCDD)

EPA has not published an oral RfD for octachlorodibenzo-p-dioxin (OCDD) in IRIS or HEAST. To evaluate the potential noncarcinogenic effects of OCDD, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and TEF of 0.001. A value of 1.0E-06 mg/kg/day was derived by dividing the RfD for 2,3,7,8-TCDD by the relative TEF for OCDD.

EPA has not established an oral slope factor for OCDD. A slope factor and inhalation unit risk were derived by multiplying the slope factor and the unit risk for 2,3,7,8-TCDD by the relative TEF of 0.001. The values derived by this method were 1.5E+02 $(mg/kg/day)^{-1}$ and 3.3E-02 $(\mu g/m^3)^{-1}$.

4.23.6 Octachlorodibenzo-p-Furan

EPA has not published an oral RfD for octachlorodibenzofuran (OCDF) in IRIS or HEAST. To evaluate the potential noncarcinogenic effects of OCDF, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and the TEF of 0.001. A value of 1.0E-06 mg/kg/day was derived by dividing the RfD for 2,3,7,8-TCDD by the relative TEF for OCDF.

EPA has not established an oral slope factor for OCDF. A slope factor and inhalation unit risk were derived by multiplying the slope factor and the unit risk for 2,3,7,8-TCDD by the relative TEF of 0.001. The values derived by this method were 1.5E+02 $(mg/kg/day)^{-1}$ and 3.3E-02 $(\mu g/m^3)^{-1}$.

4.24 2,4-DDD, 2,4-DDE, 2,4-DDT, 4,4'-DDD, 4,4'-DDE and 4,4'-DDT

Typically, people are not exposed to these chemicals individually, but rather to a mixture of all three, since 4,4'-DDE and 4,4'-DDD are contaminants of and degradation and metabolic products of 4,4'-DDT. Therefore, the toxicities of DDT, DDE, and DDD are considered jointly. The human and animal health effects that result from inhalation of 4,4'-DDT, -DDE, or -DDD are currently unknown. The health effects resulting from human exposure to 4,4'-DDT, -DDE, or -DDD in water are also unknown at this time. However, single human exposures to 4,4'-DDT, -DDE, or -DDD in food at doses of 214 to 571 ppm have resulted in headache, nausea, vomiting, increased heart rate, and convulsions. Long-term human exposures (18 months) to lower doses (22 ppm) of the three compounds in food caused no adverse health effects (ATSDR, *Toxicological Profile for p,p'-DDT, DDE, DDD*, 1989).

4.24.1 2,4-DDD

Little toxicity information exists for 2,4-DDD, or Chlodithane. No human health effects information is available in either IRIS or HEAST. Only limited toxicity data are available (Sax and Lewis). 1989.

2,4-DDD causes human systemic effects when ingested including somnolence, blood pressure depression, diarrhea, nausea, or vomiting, hemolytic anemia (destruction of red blood cells), and pigmented or nucleated red blood cells. It is termed an experimental carcinogen, tumorigen, and teratogen by Sax and Lewis, 1989. There is also evidence of other experimental reproductive effects based on existing mutagenic data. Although there are no specific inhalation toxicity values, when heated to decomposition, 2,4-DDD emits toxic chlorine fumes.

Several toxicity values specific to humans were supplied by Sax and Lewis. A therapeutic dose low (TDLo) was reported for oral intakes (man) of 17 g/kg for 35 weeks

resulting in effects to the CNS. A TDLo was also reported for oral intakes (women) of 800 mg/kg for 4 days resulting skin reactions. A TDLo for oral intake (woman) of 11 g/kg for 15 weeks was reported, resulting in blood and cardiovascular system reactions. Finally, Sax and Lewis report a TDLo oral (women) of 14 g/kg for 22 weeks resulting in gastrointestinal tract and CNS reactions. Specific study conditions were not addressed in any of these assessments (Sax and Lewis, 1989).

4.24.2 2,4-DDE

No toxicity information was located in the available literature for 2,4-DDE, or Chlodithane. No information is available in either IRIS, HEAST, or Sax and Lewis, (1989).

4.24.3 2,4-DDT

Little toxicity information exists for 2,4-DDT, or 2,2 bis(o,p-chlorophenyl)-1,1,1-trichloroethane. No human health effects information is available in either IRIS or HEAST. Only limited toxicity data are available (Sax and Lewis, 1989).

2,4-DDT is considered mildly toxic to humans by ingestion and interperitoneal routes. It is reported to have experimental reproductive effects accompanied by mutagenic data. When heated to decomposition, 2,4-DDT emits toxic fumes of Cl_2.

No toxicity values exist for 2,4 DDT, though experimental data show certain tendencies in rats. A TDLo was reported for oral intakes of 250 mg/kg for 15 to 19 days in pregnant rats resulting in reproductive effects. A TDLo was also reported for intraperitoneal intakes of 67500 μg/kg for 27 days resulting in reproductive effects. Specific study conditions were not addressed in any of these assessments. No other toxicity data are presented (Sax and Lewis, 1989).

4.24.4 4,4'-DDD

The health effects resulting from exposure of animals to 4,4'-DDD in water are not known. A NOAEL of 26 mg/kg/day was identified during short-term exposure (one week) of mice to 4,4'-DDD in the diet. Exposure of rats to 1221 mg/kg/day of 4,4'-DDD for 16 days resulted in atrophy of the thymus. NOAELs of 165 and 107 mg/kg/day were identified in chronic studies (78 weeks) using rats and mice, respectively. However, at 85 mg/kg/day, exposure to 4,4'-DDD resulted in thyroid tumors in rats. In a separate study, exposure to 32.5 mg/kg/day 4,4'-DDD caused lung tumors in mice (ATSDR, *Toxicological Profile for p,p'-DDT, DDE, DDD*, 1989).

Neither IRIS nor HEAST lists an oral RfD or inhalation RfC. However, a surrogate oral RfD was calculated for 4,4'-DDD based on its LD_{50} relative to that of 4,4'-DDT. An oral RfD of 5.0E-04 mg/kg/day was derived by dividing the USEPA-verified oral RfD for 4,4'-DDT by the TEF of 1 calculated for 4,4'-DDD.

4,4'-DDD is classified as Group B2 - Probable Human Carcinogen. This classification is based on the induction of lung tumors in male and female mice, liver tumors in male mice, and thyroid tumors in male rats. There are no human carcinogenicity data. The oral slope factor listed in IRIS is 2.4E-01 $(mg/kg/day)^{-1}$. The supporting study used an adequate number of animals, but the slope factor was derived using tumor incidence data from one dose. There is no inhalation unit risk at this time.

4.24.5 4,4'-DDE

The health effects resulting from exposure of animals to 4,4'-DDE in water are not known. Exposure of mice by gavage to 26 mg/kg/day of 4,4'-DDE for one week caused alterations in the liver. When rats were exposed to 28 mg/kg/day of 4,4'-DDE by gavage on gestation days 15-19, a decrease in the weight of the ovaries was noted. A NOAEL of 42 mg/kg/day was identified in a long-term (78 weeks) study in which rats were

fed 4,4'-DDE in the diet. Hamsters fed 41.5 mg/kg/day of 4,4'-DDE for 128 weeks exhibited necrosis of the liver and when 4,4'-DDE was administered by gavage, tumors of the liver were observed. When mice were exposed to 19 mg/kg/day of 4,4'-DDE in the diet for 78 weeks, liver tumors were also observed (ATSDR, *Toxicological Profile for p,p'-DDT, DDE, DDD*, 1989).

Neither IRIS nor HEAST lists an oral RfD or inhalation RfC. However, a surrogate oral RfD was calculated for 4,4'-DDE based on its LD_{50} relative to that of 4,4'-DDT. An oral RfD of 3.89E-03 mg/kg/day was derived by dividing the USEPA-verified oral RfD for 4,4'-DDT by the TEF of 0.1 calculated for 4,4'-DDD.

4,4'-DDE is classified as Group B2 - Probable Human Carcinogen. This classification is based on increased incidence of liver tumors including carcinomas in two strains of mice and in hamsters and thyroid tumors in female rats when 4,4'-DDE was given in the diet. Human data are not available. The oral slope factor is 3.4E-01 $(mg/kg/day)^{-1}$. This value is the geometric mean of six slope factors computed from incidence data by sex.

4.24.6 4,4'-DDT

The primary effect of short-term exposure to high levels of 4,4'-DDT is on the nervous system. Ingestion of large quantities of 4,4'-DDT has resulted in excitability, tremors, and seizures in humans. Irritation of the eyes, nose, and throat have been reported by people who have come in contact with 4,4'-DDT. Exposure to low doses of DDT on a long-term basis has resulted in changes in the levels of liver enzymes involved in metabolism of drugs and chemicals, but there was no indication that 4,4'-DDT caused irreversible damage (ATSDR *Toxicological Profile for p,p' - DDT, DDE, DDD*, 1989).

Studies conducted in laboratory animals suggest that exposure to 4,4'-DDT may have harmful effects on reproduction and may result in an increased occurrence of liver tumors. However, five studies of 4,4'-DDT exposure in humans did not show increases in

the number of deaths or cancers (ATSDR, *Toxicological Profile for p,p' - DDT, DDE, DDD*, 1989). Increasing evidence indicates that pesticides, including 4,4'-DDT, can alter immune function in rodents although studies in humans are limited and ambiguous. In a study of pesticide formulators in India, 73% of workers exposed to 4,4'-DDT had altered levels of serum immunoglobulins although no increase in infections was noted (Dean, et. al., 1991).

The oral RfD for 4,4'-DDT is listed in IRIS as 5E-04 mg/kg/day. This value is based on a chronic rat feeding study in which 4,4'-DDT was provided in the diet. Weanling rats were fed commercial DDT in doses of 0, 1, 5, 10, or 50 ppm for 15 to 27 weeks. Increasing hepatocellular hypertrophy was seen at doses of 5 ppm and greater. Therefore, 5 ppm was established as a LOAEL. A NOAEL of 1 ppm (converted to 0.05 mg/kg/day) was also established in the study.

An uncertainty factor of 100 was used to account for interspecies conversion and to protect sensitive human subpopulations (10 each). An uncertainty factor for subchronic to chronic conversion was not included because of corroborating chronic data in the database. A confidence rating of medium was associated with the RfD and reflects that the principal study was adequate but of shorter duration than desired. The data are moderately supportive of both critical effect and the magnitude, but lack a clear NOEL for reproductive effects; therefore, confidence in the data can be considered medium to low.

There are no values for the inhalation RfC at this time. HEAST lists the subchronic oral RfD as 5.0E-04 mg/kg/day. The oral RfD for 4,4'-DDT was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 1.11E-02 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.05 calculated for 4,4'-DDT.

4,4'-DDT is classified as Group B2 - Probable Human Carcinogen. This classification is based on tumors (usually liver) in various mouse strains and three rat

studies. Human carcinogenicity data is inadequate, although animal carcinogenicity is sufficient. The oral slope factor listed in IRIS is 3.4E-01 $(mg/kg/day)^{-1}$. The inhalation unit risk is listed in IRIS as 9.7E-05 $(\mu g/m^3)^{-1}$. HEAST lists an inhalation slope factor of 3.4E-01 $(mg/kg/day)^{-1}$.

4.25 Dichloroprop

Dichloroprop is considered to be a moderately toxic herbicide (Hawley, 1981). The acute LD_{50} is 800 mg/kg for rats and 400 mg/kg for mice. The acute percutaneous LD_{50} in mice is 1400 mg/kg. It is not an irritant to the eyes at 10 g/L or to skin at 24 g/L. In a 98-day feeding study conducted in rats, no toxic effects were observed in animals receiving 12.4 mg/kg/day although slight liver hypertrophy was observed at the 50 mg/kg/day dose (Worthington and Walker, 1983).

Neither IRIS nor HEAST lists an oral RfD for dichloroprop. However, a risk assessment for this compound is currently under review by a USEPA work group.

4.26 Dibenzofuran

Neither IRIS nor HEAST lists toxicity values for dibenzofuran, and there is not an established MCL for dibenzofuran in *Drinking Water Regulations and Health Advisories* (USEPA, 1991b).

Dibenzofuran is an USEPA Group D Carcinogen - Not Classifiable as to Human Carcinogenicity. No data are available concerning the toxicity of dibenzofuran in humans or laboratory animals. However, a risk assessment for dibenzofuran is currently under review by a USEPA work group.

4.27 Dieldrin

Upon entry into the environment, aldrin is rapidly converted to dieldrin, its corresponding epoxide. Dieldrin is lipid-soluble and stored in adipose tissue of humans and other animals. Aldrin and dieldrin cause similar adverse health effects. No increase in mortality from any cause has been reported in workers who have been employed in the manufacture of dieldrin for more than four years. However, long-term exposure to moderate levels of dieldrin causes headaches, dizziness, irritability, vomiting, or uncontrollable muscle movements. CNS excitation culminating in convulsions was the principal toxic effect noted in occupational studies of workers employed in the manufacture or application of dieldrin. Short-term exposure to high levels of dieldrin causes convulsion and kidney damage. Long-term exposures to lower levels may also cause convulsions as a result of the potential for dieldrin to accumulate within the body.

The carcinogenic and reproductive/developmental effects of dieldrin in humans are currently unknown. Experimental studies indicate that animals born to mothers that were fed dieldrin do not live long (ATSDR *Toxicological Profile for Aldrin/Dieldrin*, 1992). One study revealed detectable levels of dieldrin in the human placenta, amniotic fluid, and fetal blood (Polishuk *et al*, 1977). These results suggest that dieldrin can pass through the human placenta and accumulate in the developing fetus.

The oral RfD for dieldrin is listed in IRIS as 5E-05 mg/kg/day. This value was based on a chronic (2-year) rat feeding study. The critical effect noted in the study was liver lesions. HEAST lists a value of 5.00E-05 mg/kg/day for the subchronic oral RfD.

The uncertainty factor used to derive the RfD for dieldrin is 100. This factor allows for the extrapolation of dose levels from animals to humans and the uncertainty in the threshold for sensitive humans. The confidence level for the RfD value is medium. The principal study is an older study for which detailed data are not available. The chronic toxicity evaluation is relatively complete and supports the critical effect. The RfD is given

a medium confidence rating based on support for the critical effect from other dieldrin studies. Confidence in the study is low. However, confidence in the database is medium.

Dieldrin is a Group B2 -Probable Human Carcinogen. This is based on the fact that dieldrin is carcinogenic in seven strains of mice when given orally. It is also structurally similar to aldrin, chlordane, heptachlor, heptachlor epoxide, and chlorendic acid, which are tumorgens. The oral slope factor is 1.6E+1 $(mg/kg/day)^{-1}$ and is the geometric mean of 13 slope factors calculated from liver carcinoma data in both sexes of several strains of mice. The inhalation unit risk is 4.6E-03 $\mu g/m^3$, based on oral data. HEAST lists a value of 1.6E+01$(mg/kg/day)^{-1}$ for the inhalation slope factor.

4.28 Endosulfan and Related Compounds

Technical grade endosulfan is a mixture of two stereoisomers: alpha-endosulfan (endosulfan I) and beta-endosulfan (endosulfan II). The alpha- and beta-isomers exist in a ratio of 70:30 in technical grade endosulfan (Worthing and Walker, 1983). No information is available on the metabolism of endosulfan in humans, but endosulfan is converted to endosulfan sulfate and endosulfan diol in laboratory animals. Endosulfan and endosulfan sulfate are believed to be responsible for the toxicity observed in animals. Endosulfan and the primary metabolite, endosulfan sulfate exhibit similar toxicities.

The acute illness endosulfan produces in laboratory animals or in man is indistinguishable from that caused by other chlorinated hydrocarbon pesticides. Poisoning has been reported in people exposed to very high levels of endosulfan via ingestion or inhalation for short periods (ATSDR, *Toxicological Profile for Endosulfan, Endosulfan Alpha, Endosulfan Beta, and Endosulfan Sulfate*, 1991). These exposures resulted in damage to the nervous system and can cause death. The health effects in humans exposed to lower levels for longer periods are currently unknown.

Similar to the effects seen in humans, results from experimental studies using laboratory animals indicate that exposure to high levels of endosulfan for short periods of time affects the CNS. Other organs or systems that are affected in laboratory animals include liver, kidneys, blood, and immune system. However, these effects have not been noted in humans. Renal and reproductive systems are the only systems known to be affected by long-term exposure to lower levels of endosulfan and the seriousness of these effects is increased only when animals are exposed to higher levels of the compound.

The chronic oral RfD for endosulfan was withdrawn from IRIS in December, 1992. However, a new RfD has been derived by the USEPA and should be incorporated into IRIS in the near future. The new value is 6.0E-03 mg/kg/day and was obtained from personal communication with Dr. George Ghali with the Health Effects Division of the USEPA (September 8, 1993). The basis for the new value was two-year rat feeding study in which a NOEL of 0.6 mg/kg/day and a LEL (lowest effect level) of 2.9 mg/kg/day was established. The critical effects of interest were decreases in body weight gain, increases in the incidence of glomerulonephritis, and increases in blood vessel aneurysms. HEAST lists an oral RfD of 5.0E-05 mg/kg/day, based on a chronic oral study in which rats were fed 3ppm (0.15 mg/kg/day) endosulfan in their diet. This was a two-generation reproduction study. Mild lesions were seen in the kidney.

There currently is no inhalation RfC value for endosulfan. The oral RfD for endosulfan was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 2.5E-02 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.25 calculated for endosulfan.

Currently there is no evidence to suggest that endosulfan causes cancer in humans or animals. Neither IRIS nor HEAST lists a slope factor at this time.

4.28.1 Alpha- (Endosulfan I) and Beta-Endosulfan (Endosulfan II)

Alpha-endosulfan and beta-endosulfan have been detected in autopsy samples following acute ingestion, but specific levels that elicited toxicity have not been determined. The beta-isomer is generally cleared more rapidly than the alpha-isomer, hence the greatly reduced toxicity. Endosulfan toxic equivalents were calculated for both isomers based on their relative LD_{50}s. Oral RfDs of 2.5E-02 and 8.0E+01 mg/kg/day were calculated for the alpha- and beta-isomers, respectively. The bases for these calculations were the derived TEFs (0.24 and 7.5E-05, respectively) and the published oral RfD for technical grade endosulfan.

4.28.2 Endosulfan Sulfate

The primary metabolite of endosulfan, endosulfan sulfate, has also been detected in autopsy samples following acute ingestion but specific levels that elicited toxicity have not been determined. No LD_{50} values could be located in the open literature for endosulfan sulfate and, therefore, endosulfan toxic equivalents could not be calculated for endosulfan sulfate. However, it is reported that endosulfan sulfate is toxicologically similar to endosulfan. Therefore, the oral RfD for endosulfan was used for endosulfan sulfate as well.

4.29 Endrin and Related Compounds

No long-term health effects have been noted in workers employed in endrin manufacture or field application that were exposed dermally or by inhalation. Endrin causes death within a few hours upon ingestion of large quantities. Acute studies demonstrate that death due to CNS stimulation is the primary acute lethal effect associated with endrin exposure. It is rapidly absorbed through the skin. In less severe cases of exposure to high levels, endrin caused headache, dizziness, nausea, vomiting, nervousness, and confusion. Some of these symptoms can continue for weeks. Liver, kidney, heart, and brain damage

were reported following oral and inhalation exposures. However, endrin is no longer used commercially and, therefore, the general public is not likely to encounter levels sufficient to lead to toxic neurological effects or to cause death (ATSDR, *Toxicological Profile for Endrin/Endrin aldehyde*, 1990).

Studies conducted on laboratory animals confirm that the primary target organ for endrin toxicity is the brain and nervous system. Birth defects, such as abnormal bone formation, have been observed in some animals studies. These data suggest that endrin exposure during pregnancy could pose a human health risk to the developing fetus at relatively high levels, although no human data are available concerning the developmental effects of endrin (ATSDR, *Toxicological Profile for Endrin/Endrin aldehyde*, 1990).

It is not known whether endrin can be expected to increase the risk of humans developing cancer. Studies using rodents and dogs indicated that endrin did not cause cancer in these animals. However, there were deficiencies in these studies that precluded accurately evaluating the carcinogenic potential of endrin (ATSDR, *Toxicological Profile for Endrin/Endrin aldehyde*, 1990).

IRIS lists the chronic oral RfD for endrin as 3E-04 mg/kg/day. This value was derived from a chronic oral bioassay in dogs. Three to seven dogs/sex were fed diets containing 0.1, 0.5, 1.0, 2.0, or 4.0 ppm endrin for two years. The 2.0 and 4.0 ppm dose groups experienced occasional convulsions, slightly increased relative liver weights, and mild histopathological effects in the liver. The NOEL was 1 ppm while the LOAEL was 2°ppm. The 1.0 ppm dose was equivalent to 0.025 mg/kg/day.

An uncertainty factor of 100 was applied to account for uncertainty in the extrapolation of dose levels from animals to humans and for uncertainty in the threshold for sensitive humans. The confidence level is medium because information on reproductive effects is lacking. A subchronic RfD of 3E-04 mg/kg/day is listed in HEAST.

The oral RfD for endrin was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 6.0E-04 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.5 calculated for endosulfan.

Endrin is classified as Group D - Not Classifiable as to Human Carcinogenicity. The basis of this classification is that it did not produce carcinogenic effects in two strains of rats or three strains of mice when given orally. Several of the bioassays had inadequacies which cast doubt on the strength of the negative findings. Human carcinogenicity data is inadequate for use in classification. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, no slope factor was listed for endrin in either IRIS or HEAST.

4.29.1 Endrin Ketone

The oxidative metabolism of endrin to water soluble metabolites is responsible for its relatively efficient elimination. However, the three known mammalian metabolites of endrin are more toxic than the parent compound (endrin) . Endrin is oxidized to hydroxy-endrin, followed by dehydrogenation to the most toxic metabolite, endrine ketone (Bedford *et al.*, 1975; Bedford *et al.*, 1986). The metabolism of endrin varies between species but oxidation of endrin to hydroxyendrin followed by dehydrogenation to endrin ketone occurs in all species. In workers employed in pesticide manufacturing plants, hydroxyendrin and endrin ketone have been found in both urine and feces (ATSDR, *Toxicological Profile for Endrin/Endrin aldehyde*, 1990).

The LD_{50} for endrin ketone is 1.1 and 0.8 mg/kg/day for male and female rats, respectively (compared to 18 and 7.5 mg/kg/day for endrin) and it exerts its full effect in 20 hours versus four to eight days for endrin. Therefore, endrin ketone may be responsible for much of the acute toxicity of endrin. An oral RfD for endrin ketone was

calculated based on a derived TEF of 9.4 and the published oral RfD of 3.0E-04 (mg/kg-day) for endrin. The derived value is 3E-05 mg/kg-day.

4.29.2 Endrin Aldehyde

Endrin aldehyde, found as an impurity in commercial mixtures of endrin, is not commercially available and is not a known mammalian metabolite. No information was located in the available literature regarding the potential toxicity of endrin aldehyde (ATSDR, *Toxicological Profile for Endrin/Endrin aldehyde,* 1990). Therefore, a TEF could not be calculated for the aldehyde.

4.30 Heptachlor

Heptachlor is a major component of the pesticide chlordane and a pesticide in its own right. Information regarding human health effects from exposures to heptachlor is sparse. Tremors and convulsions have been reported in experimental animals exposed orally to high levels of heptachlor for short periods of time (ATSDR, *Toxicological Profile for Heptachlor/Heptachlor Epoxide*, 1992). Long-term exposure to heptachlor may adversely affect the liver. Animals fed heptachlor in an experimental setting have been reported to have enlarged livers, liver damage, kidney damage, and increased red blood cell count. Tremors and convulsions have also been reported in animals exposed to heptachlor on a long-term basis (ATSDR, *Toxicological Profile for Heptachlor/Heptachlor Epoxide*, 1992).

Evidence which supports an association between heptachlor and infertility or improper development of offspring includes animal studies showing: 1) females are less likely to be impregnated when both males and females were fed heptachlor; 2) and rats born to dams fed heptachlor during pregnancy tended to develop cataracts. Heptachlor has also been reported to cause liver cancer when fed to animals (ATSDR, *Toxicological Profile for Heptachlor/Heptachlor Epoxide*, 1992).

The chronic oral RfD for heptachlor is listed as 5E-04 mg/kg/day in IRIS. This is based on a two-year study in which rats were fed 0, 1.5, 3, 5, 7, or 10 ppm heptachlor. The two highest doses caused liver lesions characteristic of chlorinated hydrocarbon exposure. The NOEL was 5 ppm for the lesions and 3 ppm for males with increased liver-to-body weight ratios.

Based on a chronic exposure study, an oral RfD uncertainty factor of 100 was used to account for interspecies and intraspecies differences. An additional factor of 3 was considered appropriate because of the lack of chronic toxicity confirmation in a second species, for a total uncertainty factor of 300. The confidence level was low because of low study quality and incomplete chronic toxicity data in the database. The subchronic oral RfD (5E-4 mg/kg/day) is the same as the chronic oral RfD according to HEAST.

There are no inhalation RfD or RfC values listed at this time. The oral RfD for heptachlor was adjusted to an absorbed dose for the purposes of estimating noncarcinogenic hazards associated with dermal exposures. The adjusted value is 9.8E-04 mg/kg/day. The basis for the calculation is the factor of difference (the ratio of the dermal LD_{50} to the oral LD_{50}) of 0.5 calculated for heptachlor.

Heptachlor is a Group B2 - Probable Human Carcinogen. There are inadequate human data, but sufficient evidence exists from studies in which benign and malignant liver tumors were induced in three strains of mice of both sexes. It is also structurally similar to several other liver carcinogens. The oral slope factor is 4.5 $(mg/kg/day)^{-1}$ and is the geometric mean of the slope factors from four mouse data sets. Adequate numbers of animals were treated, and the incidences of malignant lesions were significantly increased in each data set. The inhalation unit risk was listed in IRIS as 1.3E-03 $(\mu g/m^3)^{-1}$. The inhalation slope factor is listed in HEAST as 4.5E+00 $(mg/ka/day)^{-1}$.

4.31 Heptachlor Epoxide

Upon entering the body, heptachlor is metabolized to heptachlor epoxide and other related chemicals. Heptachlor epoxide is more harmful than heptachlor, primarily because of its ability to be stored in fat for long periods of time. The breakdown products of heptachlor epoxide are generally are less toxic. Long-term exposure to heptachlor epoxide may adversely affect the liver. Animals fed heptachlor epoxide in an experimental setting have been reported to have enlarged livers, liver damage, kidney damage, and increased red blood cell count.

Placental transfer of heptachlor epoxide has been reported following inhalation exposure. Heptachlor epoxide has also been identified in breast milk. This compound has been detected in stillborn infant brain, adrenal, lung, heart, liver, kidney, spleen, and adipose tissues. However, the studies reporting these findings were limited by lack of data concerning route, duration, extent of exposure, and number of cases examined. No gross malformations were reported in any of the stillborn infants. Although a developing fetus could be exposed to heptachlor epoxide transplacentally, the existing data are inadequate to establish a relationship between exposure and human developmental toxicity (ATSDR, *Toxicological Profile for Heptachlor/Heptachlor Epoxide*, 1992).

The oral RfD for heptachlor epoxide is listed as 1.3E-05 mg/kg/day in IRIS. This value is based on a chronic feeding study conducted in dogs fed diets containing 0, 0.5, 2.5, 5, or 7.5 ppm of heptachlor epoxide for 60 weeks. The critical effect noted in the study was treatment-related increases in liver-to-body weight ratios. Effects were noted in both males and females and a Lowest Effect Level (LEL) of 0.5 ppm was established. A NOEL was not established in this study.

An uncertainty factor of 1000 was used to account for inter- and intra-species differences and because a NOEL was not established in the study. The confidence associated with the oral RfD was low, reflecting that the principal study was of low quality

and that the database on chronic toxicity is complete but consists of low quality studies. The subchronic RfD listed in HEAST is the same as the chronic RfD (1.3E-05 mg/kg/day) listed in IRIS.

Heptachlor epoxide is classified by the USEPA as Group B2 - Probable Human Carcinogen. Sufficient evidence exists from rodent studies in which liver carcinomas were induced in two strains of mice of both sexes and in CFN female rats. It is also structurally similar to several other liver carcinogens. There are no published epidemiologic evaluations of heptachlor epoxide. The oral slope factor listed in IRIS is 9.1E+00 $(mg/kg/day)^{-1}$. An inhalation unit risk of 2.63E-03 $\mu g/m^{-3}$ was calculated from oral data. HEAST lists a value of 9.1E+00 $(mg/kg/day)^{-1}$ for the inhalation slope factor.

4.32 Hexachlorobenzene

Hexachlorobenzene is a (Group B2) probable carcinogen that does not occur naturally, but is developed as a by-product of manufacturing processes for some solvents. Hexachlorobenzene can enter the body through contaminated food, water, or air, or directly through skin via dermal absorption.

Hexachlorobenzene is lipophilic and most is excreted in feces or urine. The toxin that remains in the body has been reported to induce skin disorders. One study related these to ingestion of bread made from hexachlorobenzene-contaminated grain. Nursing infants are particularly susceptible to hexachlorobenzene transferred via maternal milk. These findings are based on several animal studies which also indicate that extended oral intake can lead to damage to the liver, skin, immune system, kidneys, and blood. Included in the assessment of related health effects are indications of liver and thyroid cancer.

IRIS provides a chronic oral RfD of 8.0E-04 mg/kg/day based on the subchronic RfD determined by a 130 week Sprague-Dawley rat study performed by Arnold

et al in 1985. This study involved feeding male and female rats (F_0 generation) diets containing 0, 0.32, 1.6, 8.0, or 40 ppm of hexachlorobenzene(analytical grade) for 90 days prior to mating until 21 days after parturition. The number of offspring (F_1 generation) from these matings was reduced to 50 males and 50 females per dose group at 28 days of age and fed their respective parents' diets. Thus, the F_1 generation was exposed to hexachlorobenzene and metabolites in utero, from maternal nursing and from their own diets for the remainder of their lifetime (130 weeks). No hexachlorobenzene-induced health effects were reported in the 0.32 and 1.6 ppm F_1 groups, indicating that these levels are NOAELs. IRIS lists 1.6 ppm or 0.08 mg/kg/day as the NOAEL based on liver effects. Although significant ($p<0.05$) increases were observed in the incidences of periportal glycogen depletion at 1.6 ppm, peribiliary lymphocytosis at 0.32, 1.6 and 40 ppm, and peribiliary fibrosis at 0.32 and 40 ppm in the F_1 male rat groups, these effects are not being considered hexachlorobenzene-induced adverse effects because they were observed in a large number of F_1 control males as well. The 8.0 ppm F_1 groups were reported to have increase in hepatic centrilobular basophilic chromogenesis. IRIS lists 8.0 ppm or 0.29 mg/kg/day as the LOAEL based on liver effects. The 40 ppm F_1 groups showed increases (p,0.05) in pup mortality, hepatic centrilobular basophilic chromogenesis, and severe chronic nephrosis (males only) (Arnold et al, 1985).

The uncertainty and modifying factors related to the chronic and subchronic oral RfD are 100 and 1, respectively. The uncertainty factor of 100 incorporates 10 for interspecies variability and 10 for intraspecies variability. Confidence in the oral RfD based on the study by Arnold et al, 1985 is medium. Confidence in the database was high. Confidence in the study is medium because the unusual dosing scheme made dose determination difficult and the sensitive endpoint (porphyria) was not evaluated. Otherwise, the RfD could carry high confidence.

No information is available on levels of hexachlorobenzene in air that are considered deleterious to human health. Current studies are considered inadequate for

derivation of an inhalation RfC. There is also no information available on safe levels for skin exposure.

Hexachlorobenzene is a Group B2-Probable Carcinogen. Human carcinogenic toxicity studies have not been designed to measure increases in cancer incidences and are inadequate to support carcinogenic toxicity values for hexachlorobenzene. An oral slope factor of 1.6 $(mg/kg/day)^{-1}$ and a drinking water unit risk of 4.6 E-05 per (μg/L) have been established using the linearized multi stage extrapolation method and based on animal studies indicating that the liver is the primary target of hexachlorobezene-induced cancer, although neoplasms in the thyroid and kidney have also been observed.

The supporting study for carcinogenic toxicity factors for hexachlorobenzene was performed by Erturk, et al. in 1986 involving 94 Sprague-Dawley rats/sex/dose which were fed 0, 75, or 150 ppm hexachlorobenzene (purity 99.5%) in the diet for up to two years. Interim kills of four rats/group were performed at weeks 0, 1, 2, 3, 4, 8, 16, 32, 48, 64, and 80. The remaining 50 animals/group were observed until natural death or until sacrifice at two years. Treated animals of both sexes that survived longer than 12 months showed significant increases in liver and renal tumors. Hemangiohepatomas, hepatocellular carcinomas and bile duct tumors were significantly increased in treated females; males and females in both dose groups had increased incidences of renal carcinogenicity. The increase in hepatocellular carcinomas and bile duct tumors in males was not statistically significant. In this same study, hepatomas were reported in Syrian golden hamsters that had been exposed for at least 90 days to 200 or 400 ppm hexachlorobenzene in the diet and killed after varying observation periods.

In this study, a increase in malignant tumors was observed among an adequate number of animals over their lifetime. The oral slope factor has been calculated from 14 different data sets encompassing 3 species, 4 studies, and various endpoints. These fell within a range of approximately one order of magnitude (8.3 E-02 to 1.7 E+00) (Erturk, 1986). IRIS lists a carcinogenic unit risk from inhalation of 4.6 E-04 which has been

calculated for hexachlorobenzene using the linearized multistage model. This unit risk value is based on oral exposure information provided by the Erturk 1985 study.

4.33 4-Hydroxy-4-Methyl-2-Pentanone

4-Hydroxy-4-methyl-2-pentanone is used as a solvent as well as a component in antifreeze and hydraulic brake fluid. It is primarily a narcotic and anticonvulsant. In studies where rats were given 1500 ppm for 8 hours, symptoms of intoxication included rapidly decreasing respiration, marked decrease in blood pressure, relaxation of muscles and absence of conjunctival reflexes. In humans, eye irritation appeared in the majority of subjects exposed for a period of 15 minutes at a concentration of 100 ppm. Subjects also complained of nose and throat irritation (ACGIH Documentation for Diacetone Alcohol, 1986).

Neither IRIS nor HEAST lists toxicity values for 4-Hydrox-4-methyl-2-pentanone. Carcinogenicity information is also unavailable at this time.

4.34 Indeno[1,2,3-cd]Pyrene

No information is available in the current literature concerning the level of indeno[1,2,3]pyrene that results in harmful effects in humans following inhalation, ingestion, or dermal exposure although inhalation and dermal exposure to mixtures of PAHs has been associated with the development of cancer in humans (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

The levels and length of exposure to individual PAHs that result in human health effects can not be determined from the data that are currently available. Therefore, exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals. Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable. A

minimal risk level (MRL) of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated MRL is based on experimental studies in which laboratory animals were fed benzo[a]pyrene. Short-term exposure of mice to benzo[a]pyrene in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from animals to humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990). It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with benzo[a]pyrene. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, there may be significant toxicologic differences (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

EPA has not developed an oral RfD for indeno[1,2,3]pyrene. Toxicity values were not calculated to evaluate noncarcinogenic effects of indeno(1,2,3-cd)pyrene, as no methodology firmly founded on scientific basis exists for such calculations.

EPA has listed indeno[1,2,3]pyrene as a Group B2 - Probable Human Carcinogen. Insufficient human data as to the potential carcinogenicity of indeno[1,2,3]pyrene was available but the data from animal bioassays was considered sufficient for this classification. Indeno[1,2,3]pyrene produced tumors in mice following lung implants, subcutaneous injection, and dermal exposure. Indeno[1,2,3]pyrene also tested positive in bacterial gene mutation assays. However, EPA has not published a slope factor for indeno[1,2,3]pyrene at this time. A slope factor of 1.69E+00 $(mg/kg\text{-}day)^{-1}$ was calculated by multiplying the slope factor for benzo(a)pyrene by the relative potency factor of 0.232 for indeno[1,2,3]pyrene (USEPA, 1991a).

4.35 Isodrin

Isodrin, which is little used as an insecticide, is metabolized to endrin (Hayes, 1982). The toxicity of isodrin is thought to be due to endrin (Bedford, et al., 1986). Therefore, the oral RfD for endrin was used as a surrogate value for isodrin.

4.36 Isophorone

The only health problems related to isophorone in humans are irritation of the eyes, nose, and throat, and possibly dizziness and fatigue. These effects have occurred in workers in the printing industry who breathe isophorone vapors, as well as the vapors of other solvents. Birth defects have occurred in rats and mice in some studies, but these are inconclusive, especially as they relate to humans. Rats have been observed to develop tumors in the kidneys and liver when given high doses of isophorone by mouth. It is not known whether isophorone causes cancer in humans (ATSDR,*Toxicological Profile for Isophorone*, 1989).

An oral RfD of 2.0E-01 mg/kg/day is listed in IRIS for isophorone. This value is based on a 90-day dog feeding study. Dogs were administered gelatin capsules containing 0, 35, 75, or 150 mg isophorone/kg/day, 7 days/week, for 90 days. A NOEL for systemic toxicity was established at 150 mg/kg/day due to the lack of effects produced at any dose tested.

In a second study, 0, 250, or 500 mg isophorone/kg/day was administered by corn oil gavage to groups of rats and mice, five days/week for 103 weeks. Dosed male rats showed a variety of proliferative lesions of the kidney (tubular cell hyperplasia; tubular cell carcinoma; tubular cell adenocarcinoma; and epithelial hyperplasia of the renal pelvis). Male rats also exhibited increased mineralization of the medullary collecting ducts and a more severe nephropathy than is commonly seen in aging rats. A LEL of 250 mg/kg/day was established in this study.

An uncertainty factor of 100 was used to account for interspecies and intraspecies differences. An additional uncertainty factor of 10 was used to account for the use of a subchronic study. The level of confidence in the RfD is low reflecting that, while the critical study is of adequate quality and is given medium confidence, numerous data gaps exist for isophorone. A low confidence in the RfD follows.

The health effects data for isophorone were reviewed by the USEPA RfD/RfC Work Group and determined to be inadequate for derivation of an inhalation RfC.

USEPA has classified isophorone as Group C - Possible Human Carcinogen. This classification is based on limited evidence of carcinogenicity as indicated by an increased incidence of preputial gland carcinomas in male rats. However, the apparent renal tubular cell tumor in the male rat is associated with alpha-2-globulin, considered to be of questionable relevance to humans. No evidence of its carcinogenicity is available in humans. IRIS lists an oral slope factor of 9.5E-04 $(mg/kg/day)^{-1}$.

4.37 Kepone

Symptoms of exposure to kepone, also known as chlordecone, include visual disturbances, weight loss, nervousness, insomnia, vertigo, loss of coordination, pain in the chest and abdomen and, in some cases, infertility and loss of libido (Sittig, 1985). In a carcinogenesis bioassay conducted by the National Cancer Institute, kepone was administered in the diet at two tolerated doses. In addition to the clinical signs of toxicity, a significant increase in hepatocellular carcinoma was seen in rats given the highest dose and in mice at both doses (doses not reported).

Kepone is structurally similar to mirex. While these two insecticides are structurally related, they differ markedly in biochemically and morphologically related effects as well as behavioral toxicity. While conversion of mirex to kepone in the environment has

been demonstrated, no evidence for a similar conversion in mammalian systems was found when mirex was fed to pigs (Hayes, 1982).

As might be expected, kepone induces microsomal enzymes. In weanling rats, subacute exposure to mirex was more toxic than kepone, and the critical organs appeared to be different. However, in the adult rat, the acute toxicity of kepone was reported to be approximately three times that of mirex. Mirex produced primarily a systemic toxicity whereas with kepone exposure, CNS effects predominated (Reiter and Kidd, 1978).

Based on its LD_{50} relative to that of mirex, a TEF of 4.8 was assigned to kepone. An oral RfD of 4.00E-05 mg/kg/day was calculated for kepone by dividing the published RfD for mirex by the derived TEF. While it is noted that the health effects associated with mirex and kepone may, in some instances, be dissimilar, these two insecticides are closely related in structure and similarities in hepatotoxic effects have been reported (Baggett *et al.*, 1980). Since the oral RfD for mirex is based on liver toxicity, comparisons between the two closely related pesticides was considered appropriate.

Both mirex and kepone impair hepatobiliary function and both cause hepatic carcinoma (Baggett *et al.*, 1980). An assessment of the carcinogenicity of mirex is currently pending.

4.38 Lead

Lead is found in nearly all phases of the environment and in most biologic systems. The principal route of exposure is in food, but other important sources include lead-based paints, auto exhaust, industrial emissions, and lead glazed pottery used in food service. Lead absorption from the gastrointestinal tract or through the respiratory system is dependent upon a number of factors. Children are known to absorb a greater percentage of lead from the diet than adults. Although lead produces a variety of toxic effects depending upon the route of exposure and its chemical form, the most important effect of

lead is its adverse effect on cognitive abilities and motor skills in young children. Low level exposure to lead during infancy and childhood increases the risk of irreversible neurobehavioral deficits at levels of internal exposure as low as 10 to 15 μg/dL in blood. Other target organs include the kidneys, red blood cells, and the gastrointestinal and reproductive tracts.

Much information about the health effects of lead has been obtained through decades of medical observation and scientific research. Therefore, the degree of uncertainty about the health effects of lead is quite low by comparison to most other environmental toxicants. The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. Lead is found ubiquitously in the environment and, therefore, it is difficult (if not impossible) to isolate the route of exposure and characterize the effects of lead with varying dose. In addition, it appears that some of the health effects associated with lead, particularly those affecting children (neurobehavioral development) may essentially be without a threshold. The USEPA's Agency RfD Work Group currently considers it inappropriate to develop an RfD for inorganic lead. RfD methodologies are not flexible enough to incorporate site specific information on lead exposure sources and demographic information because they are fundamentally route specific.

The most current regulatory level of control for lead is the maximum contaminant level goal (MCLG) of zero mg/L lead and the action level of 0.015 mg/L for lead recently finalized by the Office of Drinking Water (USEPA, 1991b). The MCLG is based upon the health effects of lead in infants and pregnant women as a sensitive subpopulation. An OSWER memorandum entitled "Cleanup Level for Lead in Groundwater" (June 21, 1990) summarized data from several USEPA reports that indicated that steady-state exposure to drinking water lead concentrations of 0.015 mg/L would result in blood levels below the concern level of 10 μg/dL in 99% of young children who are not concurrently exposed to excessive lead paint exposure or heavily contaminated soils (USEPA, 1990). However, the range of 10-15 μg/dL is regarded as a level of concern,

warranting medical attention, and not a dose level or threshold below which no adverse health effects would be expected to occur. In other words, it is not strictly parallel to the definition of an RfD. Therefore, it was considered inappropriate to derive a daily dose associated with this concentration in drinking water for use as a surrogate RfD. This approach would have ignored the contribution of lead from background sources and was not considered to be sufficiently protective of young children from the developmental effects of lead.

The USEPA has classified lead as Group B2 - Probable Human Carcinogen. Quantifying the cancer risk associated with lead involves many uncertainties, some of which may be unique to lead. Age, health, nutritional state, body burden, and exposure duration influence the absorption, release, and excretion of lead. Current knowledge of lead pharmacokinetics indicates that an estimate derived by standard procedures would not truly describe the potential risk. Therefore, a cancer slope factor has not been calculated for lead.

The use of mathematical and statistical models for environmental risk assessments has become increasingly widespread because of the many practical difficulties encountered in controlling human exposure to toxicants with subtle and long-lasting effects. The Lead5 Model is a computer simulation model available from the USEPA that includes three components: 1) a biokinetic model for the absorption of lead from various environmental media, distribution of lead in the body, and its elimination, from the fetus and children up to age 6; 2) a variety of input menus for estimating the absorption of lead from environmental media; and 3) a method for estimating the risk of elevated blood lead for individuals and for populations.

The Lead5 Model was obtained for this risk assessment and used site-specific data on lead concentrations in water, beef, waterfowl, soil, and air. The Lead5 Model estimates the geometric mean blood lead concentration in children of different ages exposed to environmental lead. The model may then be used to calculate the probability that a

blood lead level with the geometric mean calculated by the Lead5 Model exceeds a cutoff point specified by the user. Default values were provided for those parameters for which no data were available. Appendix H presents the results of the uptake biokinetic model for lead.

4.39 Organic Lead

The primary use for organic lead is as an antiknock additive in gasoline. It is extremely poisonous and may be fatal if swallowed, inhaled, or absorbed through the skin. Organic lead attacks the nervous system and can cause nausea, vomiting, headaches, anorexia, emotional instability, insomnia, and weakness.

IRIS lists the chronic oral RfD for organic lead as 1.0E-7 mg/kg/day. This value is based on a subchronic study conducted in rats. Tetraethyl lead was administered by gavage to groups of rats in doses of 0.0017 or 0.170 mg/kg, five days a week (converted to 0.0012 and 0.120 mg/kg/day). Critical effects from exposure of rats to organic lead included swollen livers and fatty plaques in the thymus. Among low-dose rats, hepatocyte vacuolization, cytoplasmic degeneration and neuronal damage were common. Based on these findings, a LOAEL of 0.0012 mg/kg/day was established. A NOAEL was not established in this study.

An uncertainty factor of 10,000 was applied in derivation of the oral RfD. The uncertainty factor accounts for extrapolation from animal to human (10X), conversion of subchronic to chronic exposure (10X), protection of sensitive humans (10X), and for the conversion of a LOAEL to a NOAEL (10X). The RfD has been given a confidence rating of medium. Although only a few animals /sex/dose were tested, a thorough histopathologic exam was conducted and dose severity was observed. The database has also been given a confidence rating of medium.

Studies as to the carcinogenicity of lead are available but are inconclusive. Therefore, the USEPA has not classified organic lead as to its carcinogenic potential.

4.40 Magnesium

Little toxicity information exists for magnesium. No information is available in either IRIS or HEAST; and only health effects related to dermal contact and hazards related to chemical reactive properties are addressed by Sax and Lewis, 1989. No human health toxicity values are available.

In the solid state, magnesium is a hexagonal, silvery white crystal. Solid state magnesium must be heated above its melting point, 651 degrees to ignite. It is, however, considered a flammable solid and dangerous when wet by the US Department of Transportation (DOT). Powdered magnesium is a dangerous fire hazard when exposed to flame or oxidizing agents. It ignites readily on the skin causing burns and if embedded in the skin can cause gaseous blebs that heal slowly. Magnesium is considered mildly explosive in powder form when exposed to flame. It also reacts with moisture, acids, etc. to evolve hydrogen, a highly dangerous fire and explosion hazard.

Magnesium has not been classified by USEPA as to its carcinogenic potential.

4.41 Manganese

Inhalation of manganese particulates can lead to an inflammatory response in the lungs. This reaction has been observed in both man and laboratory animals and is not unique to manganese. It is, instead, characteristic of nearly all inhalable particulate matter. There is conclusive evidence in humans, however, indicating that inhaling high levels of manganese can result in a disabling neurological syndrome that is accompanied by apathy, general weakness, dullness, anorexia, and muscle pain. Impotence and loss of libido

are common signs in male workers exposed to relatively high levels of manganese in the air (ATSDR, *Toxicological Profile for Manganese*, 1990).

Most animal studies indicate that manganese has a low acute oral toxicity. No adverse health effects were seen in mice given 810 mg/kg/day during a chronic feeding study. There are no studies available at this time regarding health effects in humans or laboratory animals following dermal exposure to manganese (ATSDR, *Toxicological Profile for Manganese*, 1990).

IRIS lists the chronic oral RfD for manganese in water as 5.0E-03 mg/kg/day and in food as 1.4E-01 mg/kg/day. HEAST lists the subchronic oral RfD for manganese in food as 1.0E-01 mg/kg/day.

The uncertainty factor for the oral RfD of Manganese is 1. This is based on many large populations consuming normal diets over an extended period of time with no adverse health effects. The available information provides a chronic NOAEL in many cross-sections of human populations. For the drinking water RfD, an uncertainty factor of 1 is also applied. The study group is considered to comprise a sensitive subpopulation. No one study is used to derive the dietary RfD. No information is available to indicate toxic levels in the human diet. Confidence in the database is medium as is confidence in the oral RfD.

The uncertainty factor for the RfC is 100. This takes into account protection of sensitive individuals and use of a LOAEL. Also taken into consideration is the less than chronic period of exposure.

IRIS lists an inhalation RfC of 4.0E-04 mg/m^3 based on an increased prevalence of respiratory symptoms and psychomotor disturbances in male workers occupationally exposed to inorganic manganese. HEAST lists a subchronic inhalation RfC of 4.0E-04 mg/m^3.

The confidence level for the RfC is medium. In the principal study and supporting studies, adequate numbers of manganese workers were matched with adequate numbers of control workers, but no monitoring data were available to characterize past manganese levels. Confidence in the database is also medium.

USEPA has classified manganese as a Group D Carcinogen - Not Classifiable as to Human Carcinogenicity. The basis for this classification is the absence of human studies and the inadequacy of existing animal studies regarding carcinogenic potential. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, no slope factor was listed for manganese in either IRIS or HEAST.

4.42 2-Methylnaphthalene

Currently, there are no toxicity values available for 2-methylnaphthalene, and very little information is available regarding the toxicity of this compound.

4.43 3-Methyl Pentane

3-Methyl pentane is considered an irritant and documented as such by its producers. According to Registry of Toxic Effects of Chemical Substances (RTECS), the compound is listed in the TSCA Chemical Inventory of 1986 although, no toxicity information is provided by IRIS, HEAST, or the ACGIH. No other information is available in the literature regarding the potential toxicity of 3-methyl pentane.

4.44 Mercury

Short-term exposure to high levels of inorganic and organic mercury has caused similar health effects, but full recovery is more likely to occur following short-term exposures. Long-term exposure to organic or inorganic mercury can cause permanent damage to the brain, kidneys, and developing fetus. The form of mercury and the route of

exposure determine which of these effects will predominate. Consumption of organic mercury in the form of contaminated fish or produce (i.e., leafy or root vegetables) primarily affects the kidney and developing fetus. Consumption of food or water contaminated with mercury salts also adversely affects the kidneys. Inhalation of metallic mercury may cause greater harm to the brain. Maternal exposure to organic mercury may lead to brain damage in fetuses while adults exposed to metallic mercury vapor may develop tremors, memory loss, and kidney disease (ATSDR, *Toxicological Profile for Mercury*, 1989).

HEAST lists a value of 3.0E-04 for mercury's chronic oral RfD (mg/kg/day), subchronic oral RfD (mg/kg/day), chronic inhalation RfC (mg/m^3), and subchronic inhalation RfC (mg/m^3).

USEPA has classified inorganic mercury as Group D - Not Classifiable as to Human Carcinogenicity. No human data are available and the animal data are inadequate to support classification. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, no slope factor was listed for mercury in either IRIS or HEAST.

4.45 Methoxychlor

Methoxychlor has been known to cause excessive loss of litters in rabbits when administered at levels as low as 25 mg/kg/day. Other effects in this study included abnormal estrous cycle in the female and inhibition of somatic growth and testicular Leydig cell function in males. This coincides with other reports that methoxychlor mimics estrogen.

The chronic oral RfD was established at 5.0E-3 mg/kg/day and is listed in IRIS. HEAST lists a subchronic oral RfD of 5.0E-03 mg/kg/day as well. The basis for these values was a rabbit teratology study. Young adult female New Zealand white rabbits were dosed with 5, 35, or 250 mg/kg/day from days 7 through 19 of gestation. Maternal toxicity was observed as excessive loss of litters in the mid- and high-dose groups along with

significant decreases in body weight gain during the dosing periods for both mid- and high-dose groups. There also were increases in clinical signs in both the mid- and high-dose groups; deaths at the high dose were attributed to compound administration. A tentative LEL for maternal toxicity was set at 35 mg/kg/day, and a NOEL was tentatively established at 5 mg/kg/day.

An uncertainty factor of 1000 has been established due to interspecies and intraspecies differences. Also taken into consideration was the poor quality of the critical study and the incompleteness of the database on chronic toxicity. A confidence rating of low was given to the critical study and the RfD. No conclusions could be made relative to the maternal or developmental toxicity of methoxychlor because of the total loss of litters in the high-dose group and the small decrease in the litter size in the mid- and high-dose groups. No individual animal data were provided, animals were received pregnant, and diet analysis data were not provided even though dosing was by feed. The database was also given a low confidence rating because of the lack of definitive chronic toxicity studies.

The health effects of inhalation of methoxychlor were reviewed by the USEPA and found to be inadequate for the derivation of an inhalation RfC.

The USEPA has classified methoxychlor as Class D - Not Classifiable as to Human Carcinogenicity.

4.46 Nickel

Inhalation of nickel (usually in the form of nickel oxide, metallic nickel, or nickel refinery dust) by humans and/or laboratory animals has resulted in respiratory, hepatic, renal, and dermal effects as well as increased incidence in lung and nasal cancers. Studies in both humans and animals show that the respiratory system is the target of nickel toxicity following exposure via inhalation. The carcinogenic potential of nickel refinery dust is well documented in refinery workers (ATSDR, *Toxicological Profile for Nickel*, 1992).

Contact dermatitis is the most prevalent toxic effect of nickel in the general population. This generally results after dermal exposure but it has also been reported in several studies following oral exposure. Oral exposure can also result in varying effects on the respiratory, cardiovascular, gastrointestinal, hematological, musculoskeletal, hepatic, renal, and dermal systems. However, the evidence is limited in animals and there are very few studies in humans so it is difficult to definitively assess the critical effects of nickel toxicity.

IRIS lists a chronic oral RfD for nickel as 2.0E-02 mg/kg-day. HEAST lists the same value for the subchronic oral RfD. The RfD was based primarily on the results of a two-year feeding study in rats which were administered nickel (in the form of nickel sulfate hexahydrate) at 0, 5, 50, and 125 mg/kg body weight. Body weights of the high dose groups of both sexes were significantly decreased when compared to controls. Female rats at the highest two dosage levels also had significantly higher heart-to-body weight ratios and lower liver to body weight ratios. The NOAEL established from this study was 5.0 mg/kg-day. An uncertainty factor of 100 was used to account for interspecies variation and sensitive individuals. Confidence is the RfD is medium.

Inhalation RfCs are not available in IRIS or HEAST; however, an EPA work group is currently reviewing information.

Nickel is not currently considered carcinogenic by the oral route. The EPA does, however, classify particulate nickel as a Group A Inhalation Carcinogen. The unit risk factor listed in IRIS is 2.4E-04 $(\mu g/m^3)^{-1}$ and the inhalation slope factor is 8.4E-01 $(mg/kg\text{-}day)^{-1}$. For purposes of this risk assessment, the unit risk for nickel refinery dust has been used because nickel subsulfide is found primarily in ore (Klaassen, et al., 1986). It is unlikely that the populations addressed in this risk assessment would be exposed to nickel subsulfide.

4.47 N-Nitroso-di-methylamine

N-Nitroso-di-methylamine (NDMA) is a yellow liquid with no distinct odor. It is produced only for use as a research chemical, though it can be produced unintentionally as a byproduct of other manufacturing operations. When released to the environment, NDMA does not persist in any media. It quickly photodegrades within minutes when released to air or upon evaporation from surface water or surface soils. Degradation from deeper soils may take up to several months.

Primary sources of NDMA include tobacco smoke, chewing tobacco, dietary products (particularly bacon), interior air from cars, toiletries, cosmetics, and other domestic goods. NDMA can enter the body via inhalation, oral, or dermal contact. When taken orally, NDMA distributes quickly to many organs. It is broken down by the liver and most is eliminated within 24 hours. There is evidence that undetermined doses can cause severe liver damage, internal bleeding, and death. Animal studies have shown that contaminated water, food, or air at low doses over weeks lead to liver cancer, lung cancer, and eventually noncancerous liver disease. High doses lead to serious, noncancerous liver disease.

There is no RfD available for NDMA, though it is characterized as having extremely high toxicity with a reported lowest lethal dose to humans of 10 mg/kg/80-week intermittent exposure (NIOSH/RTECS, 1985). Much less is known about the inhalation toxicity of NDMA, though IRIS lists an inhalation unit risk of 1.4 E-02 per (μg/cu.m) based on carcinogenic studies of oral exposure, (Druckrey, 1967).

NDMA is considered a Group B2 - Probable Human Carcinogen. This classification is based on the induction of tumors at multiple sites in both rodents and nonrodent mammals exposed by various routes. There is a large database on the carcinogenicity of nitrosamines, most of which pertains to structure activity relationships rather than to dose response. IRIS lists the oral slope factor for NDMA as 5.1 E+01 mg/kg/day and gives a drinking water unit risk of 1.4 E-03 per (μg/L).

As found in a 1967 rat study by Druckrey *et al*, N-nitroso-di-methylamine acts as a transplacental carcinogen when administered to pregnant rodents via several routes. Druckrey *et al*, found that NDMA produces liver tumors in BD rats when administered in drinking water. Confidence in the oral slope factor is based in the indication that large numbers of animals were treated over a wide range of doses. Though specific tumor incidence data were not reported, both tumor incidence and latency were shown to be dose dependent. The accepted slope factor was extrapolated using a one-hit model.

Toxicity factors for carcinogenic risk from inhalation exposure have been established based on this oral exposure information. IRIS lists an inhalation unit risk of 1.4 E-02 per(μg/L) extrapolated using the Weibull model. Because this inhalation exposure toxicity value is based on the oral exposure studies, confidence in this value is similar to that of the oral slope factor.

4.48 N-Nitroso-di-n-Propylamine

N-nitroso-di-n-propylamine is a yellow liquid at room temperature that does not dissolve in water or readily evaporate. There is no evidence that this chemical exists naturally in either soil, air, food or water. It is a synthesized chemical used primarily in laboratory research situations. Small amounts are also generated as a by-product of certain manufacturing processes, as a contaminant in some dinitroaniline-based weed killers, and during the manufacture of some rubber products. N-nitroso-di-n-propylamine decomposes readily in sunlight, but has a half life of 14 to 80 days when it is released to subsurface soil or deep water with no sunlight penetration.

Human exposure to N-nitroso-di-n-propylamine can result from contact with foods treated with nitrite preservatives, certain alcoholic beverages, cigarette smoke or contaminated occupational conditions. Little information is available on the health effects related to N-nitroso-di-n-propylamine exposures. Short-term exposure information is limited to the indication that excessive oral intakes can lead to liver disease and death. Long-term

exposure to N-nitroso-di-n-propylamine in either food or drinking water causes cancer of the liver, esophagus, and nasal cavities. These indications are based on animal studies though similar exposures are likely to evoke similar responses in humans via inhalation, oral or dermal contact.

No noncarcinogenic toxicity values we identified in the available literature for N-nitroso-di-n-propylamine. No studies were located regarding health effects related to inhalation intakes or dermal uptake of this chemical. USEPA classifies N-nitroso-di-n-propylamine as a Probable Human Carcinogen (Group B2) based on increased tumor incidence at multiple sites in rodent species and in monkeys administered the compound by various routes.

Human exposure to nirtrosamines results from contact with mixtures containing these compounds (e.g., cutting oils, tobacco products). Because of potential confounding by the other substances in these mixtures, data are of limited use in the evaluation of carcinogenicity of individual nitrosamines. Animal studies are considered sufficient for the determination of carcinogenesis classification. IRIS lists an oral slope factor of 7.0 mg/kg/day and a drinking water unit risk of 2.0E-04 per (μg/L) based on the evidence of dose-related hepatocellular carcinomas in these studies.

Druckrey *et al*, (1967) administered N-nitroso-n-propylamine in drinking water to BD rats of unspecified sex. A total of 48 rats were treated in groups inferred to number 16, 16, 15 and 1 at doses of 4, 8, 15, or 30 mg/kg/day, respectively, for life. Of 48 treated animals, 45 developed liver carcinomas; tumor induction time was dose related. Tumors of the esophagus and tongue were also observed. Adamson and Sieber found in their 1979 and 1983 work, that macaque monkeys given weekly i.p. injections of 40 mg N-nitroso-di-n-propylamine for a total of 70 g had higher incidence of hepatocellular carcinomas (6/6) compared with that of presumed historical controls (7/90) (Adamson and Sieber, 1979, 1983).

4.49 Mirex

Mirex has been reported to cause liver cytomegaly, fatty metamorphosis, angiectasis, and thyroid cystic follicles at experimental dose levels in rat chronic feeding studies. IRIS lists an oral RfD for mirex of 2E-04 mg/kg/day. HEAST lists a subchronic oral RfD of 2.0E-06 with an uncertainty factor of 10000.

A National Toxicology Program (NTP, 1990) study examined 52 female and 52 male rats (initial body weights of 100 g and 120 g, respectively) eating 96% pure mirex for 104 weeks. Doses received were 0, 0.007, 0.07, 1.8, and 3.8 mg/kg/day for males and 0, 0.007, 0.08, 0.7, 2.0, and 3.9 mg/kg/day for females. Multiple parameters were used to assess toxicity. Results showed a significant increase in contaminant-related deaths in exposed male rats when compared to the control group. Reduced weight gain was seen in both male and female exposed rats when compared to the control group with percentage decreases increasing with dose. Histologic assessments showed dose-related changes in parathyroid gland, kidney, liver, spleen, and thyroid.

The same rat feeding study (NTP, 1990) defined a NOAEL of 1 ppm (0.07 mg/kg/day) and a LOAEL of 10 ppm (0.7 mg/kg/day) based on the dose-related liver and thyroid effects. The study incorporated an uncertainty factor of 300 reflecting (10) for intraspecies variability, (10) for interspecies extrapolation, and (3) for lack of complete database. Confidence in the study, the database, and the RfD is high.

Mirex also has been evaluated by the USEPA for potential carcinogenicity, although it has not received any further classification. Evaluations will be reviewed at a later date. No other toxicity information is available in IRIS (NTP, 1990).

4.50 Parathion

Knowledge about the clinical picture of poisoning by organic phosphorus compounds in man is drawn largely from information about parathion poisoning. Parathion is a non-systemic contact and stomach insecticide and acaricide with some fumigant action. Parathion has extreme acute toxicity. The probable lethal dose for parathion is between five and 50 mg/kg, or between seven drops and one teaspoon for a 150 pound person. Parathion is most toxic by inhalation. Symptoms of parathion exposure include nausea, vomiting, abdominal cramps, diarrhea, excessive salivation, headache, giddiness, weakness, muscle twitching, difficult breathing, blurring or dimness of vision, and loss of muscle coordination, Death may occur from failure of the respiratory center, paralysis of the respiratory muscles, intense bronchoconstriction, or all three. Dermal exposure to parathion produces serious toxicity, the onset of which may be delayed for several hours. Poisoning usually results in nausea, vomiting, loss of appetite, and respiratory failure within several hours of application. Ultimately, coma is produced.

The chronic oral RfD for parathion is listed in HEAST as 6.0E-03 mg/kg-day. HEAST also lists the subchronic RfD as 6.0E-03 mg/kg-day. These values are based on a study conducted in humans in which 0.064 mg/kg-day parathion was given to volunteers in the form of capsules for 28 days. The critical effect was decreased cholinesterase activity. The uncertainty factor used to calculate the oral RfD was 10. This factor accounts for sensitive subpopulations. HEAST does not provide information on the confidence in RfD values.

Parathion is classified as Group C - Possible Human Carcinogen. This classification is based on increased incidence of adrenal cortical tumors in female and male rats and positive trends for thyroid follicular adenomas and pancreatic islet-cell carcinomas in male rats. Data are considered inadequate for quantitative evaluation of carcinogenic potential.

4.51 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are a series of technical mixtures consisting of many isomers and compounds that vary from mobile oily liquids to white crystalline solids and hard noncrystalline resins with no known smell or taste. Technical products vary in composition, in the degree of chlorination, and possibly according to batch (Sax and Lewis, 1989). There are no known natural sources of PCBS in the environment. Because they do not burn easily and are good insulators, PCBs have been widely used as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs stopped in 1977 because evidence suggesting that PCB buildup in the environment can cause harmful effects.

PCBs released to air may take the form of either airborne solids or liquid particles and can remain suspended in air for up to 10 days. A portion of PCBs released to water will volatilize, although the remainder is available for biologic uptake before settling to the soils. PCBs tend to adhere to soils and not to migrate with either surface water or groundwater. However, buildup of PCBs in the sediment reservoir breaks down over long periods of time and may release to either surface water or groundwater.

PCBs are considered mildly toxic by ingestion, although some are much more poisonous by other routes. PCBs are suspected human carcinogens which have led to reproductive effects in experimental situations. Two distinct actions to the body result from exposure to PCBs, namely, a skin effect and a toxic action on the liver. In general, the higher the chlorine content on the diphenyl ring, the more toxic the contaminant. Likewise, oxidized congeners are more toxic than unoxidized congeners. PCBs also emit toxic chlorine fumes when heated to decomposition (Sax and Lewis, 1989).

Most information on human health effects related to exposure to PCBs is taken from occupational exposures via the inhalation and dermal contact pathways, though information also exists for human ingestion of PCB-contaminated food or water. There is

a great deal of uncertainty in the specific concentrations, durations, and physical state of the toxin in such exposures, although health effects are suggested with some consistency (ATSDR, *Toxicological Profile for Polychlorinated Biphenyls*, 1992).

Respiratory effects evolve into respiratory tract irritations, often with cough and tightness of chest. Gastrointestinal effects related to swallowing inhaled PCBs or direct ingestion result in anorexia, weight loss, nausea, vomiting or severe abdominal pain. Where liver damage is severe in an exposed individual, coma and death may occur. The usual symptoms of systemic exposure include nausea, edema, and abdominal pain. PCBs are considered suspected teratogens leading to developmental effects, though more evidence of this has been found in animal exposures. Often neurological effects are associated with PCB exposure resulting in headaches, dizziness, depression, fatigue, and nervousness with the severity of effects increasing with dose and duration of exposure. Carcinogenic effects are also of significance leading to liver, biliary tract, gall bladder, rectal, and kidney cancers (ATSDR *Toxicological Profile for Polychlorinated Biphenyls*, 1992).

4.51.1 Heptachlorinated Biphenyl

Heptachlorinated biphenyl, PCB 77, is poisonous by ingestion and a suspected teratogen with reproductive effects in experimental situations.

USEPA has not established an oral or dermal RfD for heptachlorinated biphenyl. To evaluate the potential noncarcinogenic effects of heptachlorinated biphenyl, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 (USEPA, 1989) with a TEF of 0.000016 as listed in Smith *et al.* (1990). A value of 6.2E-05 mg/kg/day was derived by dividing the 2,3,7,8-TCDD RfD by the relative TEF for heptachlorinated biphenyl.

EPA has not published an oral slope factor or inhalation unit risk for heptacholrinated biphenyl. An oral slope factor and an inhalation unit risk were derived

by multiplying the 2,3,7,8-TCDD slope factor or inhalation unit risk by the relative TEF of 0.000016. The values derived by this method were 2.4E+00 $(mg/kg/day)^{-1}$ and 5.3E-4 $(\mu g/m^3)^{-1}$.

4.51.2 Hexachlorinated Biphenyl

EPA has not established an oral or dermal RfD for hexachlorinated biphenyl. To evaluate the potential noncarcinogenic effects of hexachlorinated biphenyl, a toxicity value was calculated using the EPA I-TEF/89 scheme (USEPA, 1989) and TEF of 0.0016 as listed in Smith *et al.* (1990). A value of 6.0E-07 mg/kg/day was derived by dividing the 2,3,7,8-TCDD RfD by the relative TEF for hexachlorinated biphenyl.

EPA has not published an oral slope factor or inhalation unit risk for hexachlorinated biphenyl in IRIS or HEAST. An oral slope factor and an inhalation unit risk were derived by multiplying the 2,3,7,8-TCDD slope factor by the relative TEF of 0.0016. The values derived by this method were 2.4E+02 $(mg/kg/day)^{-1}$ and 1.0E-01 $(\mu g/m^3)^{-1}$.

4.51.3 Tetrachlorinated Biphenyl

Tetrachlorobiphenyl is deadly poisonous by ingestion and a suspected teratogen with reproductive effects in experimental situations.

EPA has not established an oral or dermal RfD for tetrachlorinated biphenyl. To evaluate the potential noncarcinogenic effects of tetrachlorinated biphenyl, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and TEF of 0.0027 as listed in Smith *et al.* (1990). A value of 3.0E-07 mg/kg/day was derived by dividing the 2,3,7,8-TCDD RfD by the relative TEF for tetrachlorinated biphenyl.

EPA has not published an oral slope factor or inhalation unit risk for tetrachlorinated biphenyl in IRIS or HEAST. An oral slope factor and an inhalation unit risk were derived by multiplying the 2,3,7,8-TCDD slope factor or inhalation unit risk by the relative TEF of 0.0027. The values derived by this method were 4.5E+02 $(mg/kg/day)^{-1}$ and 8.91E-02 $(\mu g/m^3)^{-1}$.

4.51.4 Pentachlorinated Biphenyl

EPA has not established an oral or dermal RfD for pentachlorinated biphenyl. To evaluate the potential noncarcinogenic effects of pentachlorinated biphenyl, a toxicity value was calculated using the methodology described in the EPA I-TEF/89 scheme (USEPA, 1989) and the TEF of 0.40 as listed in Smith *et al.* (1990). A value of 9.0E-07 mg/kg/day was derived by dividing the 2,3,7,8-TCDD RfD by the relative TEF for pentachlorinated biphenyl.

EPA has not published an oral slope factor or inhalation unit risk for pentachlorinated biphenyl in IRIS or HEAST. An oral slope factor and an inhalation unit risk were derived by multiplying the 2,3,7,8-TCDD slope factor or inhalation unit risk by the relative TEF of 0.40. The values derived by this method were 2.4E+02 $(mg/kg/day)^{-1}$ and 3.63E-01 $(\mu g/m^3)^{-1}$.

4.51.5 PCB-1254 and PCB-1260

The most common findings in laboratory animals exposed to sublethal levels of various polychlorinated biphenyl (PCB) mixtures (Aroclors) have been atrophy of primary and secondary lymphoid organs, lowered circulating immunoglobulin levels, and decreased specific antibody responses following immunization with antigens. Prenatal and adult exposures to PCBs have been reported to depress delayed-type cutaneous hypersensitivity. However, graft-versus-host reactivity, T lymphocyte responses to mitogens, and proliferation of leukocyte responses to mitogens and proliferation of leukocytes are enhanced following

PCB exposure. Studies in which animals were challenged with infectious agents indicate that PCBs cause decreased resistance in ducks to hepatitis virus and decreased resistance in mice to Herpes simplex virus, Ectromelia virus, Plasmodium berghei, Listeria monocytogenes, or *Salmonella typhimurium*. The effect of PCBs on tumor resistance in rodents is unclear but both augmentation and suppression have been reported.

Most of the human toxicity information on PCBs is from the Yusho accident in Japan where PCB-contaminated rice was consumed. PCB-exposed individuals exhibited chloracne and were more susceptible to respiratory infections. In a clinical study of individuals exposed to PCB-contaminated rice oil in China, a decrease in T-cell number and function was observed (Dean, *et al.,* 1991b).

Neither an oral RfD nor inhalation RfC for PCBs have been established.

PCBs are classified as Group B2 - Probable Human Carcinogen. This is based on hepatocellular carcinomas in three strains of rats and in two strains of mice. Evidence of liver cancer in humans by ingestion, inhalation or dermal routes is inadequate but suggestive of carcinogenicity. The oral slope factor listed in IRIS is 7.7 $(mg/kg/day)^{-1}$. This value is used for both PCB-1254 and PCB-1260. No inhalation slope factor is listed.

4.52 Phenanthrene

No information is available in the current literature concerning the level of phenanthrene that results in harmful effects in humans following inhalation, ingestion, or dermal exposure although inhalation and dermal exposure to mixtures of PAHs has been associated with the development of cancer in humans (ATSDR, *Toxicologic Profile for Polyaromatic Hydrocarbons*, 1990).

The levels and length of exposure to individual PAHs that result in human health effects cannot be determined from the data that are currently available. Therefore,

exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals.

Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable. A MRL of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated MRL is based on experimental studies in which laboratory animals were fed benzo[a]pyrene (B[a]P). Short-term exposure of mice to B[a]P in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from animals to humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with B[a]P. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, there may be significant toxicologic differences. (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

An oral RfD for phenanthrene has not been established. USEPA classifies phenanthrene as Group D - Not Classifiable as to Human Carcinogenicity. This classification reflects a lack of human carcinogenicity data and inadequate data from a single gavage study in rats and skin painting and injection studies in mice. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, no slope factor for phenanthrene is listed in either IRIS or HEAST.

4.53 Pyrene

No information is available in the current literature concerning the level of pyrene that results in harmful effects in humans following inhalation, ingestion, or dermal exposure although inhalation and dermal exposure to mixtures of PAHs has been associated with the development of cancer in humans (ATSDR, *Toxicologic Profile for Polyaromatic Hydrocarbons*, 1990).

The levels and length of exposure to individual PAHs that result in human health effects cannot be determined from the data that are currently available. Therefore, exposure levels that presumably cause human health effects have been estimated from experimental studies conducted in laboratory animals.

Estimates of exposure that pose minimal risks to humans have been made where data are believed to be reliable. A MRL of 3.6 ppm in food for short-term human exposure (less than or equal to 14 days) has been estimated for PAHs in general. This estimated MRL is based on experimental studies in which laboratory animals were fed benzo[a]pyrene B[a]P. Short-term exposure of mice to B[a]P in the diet caused birth defects. Long-term (6 months) exposure of mice resulted in adverse effects on the liver and blood. Adjustments to reflect human variability and, where appropriate, the uncertainty of extrapolating from animals to humans have been made. The MRL provides a basis for comparison with levels that people might encounter in food. Exposure of humans to levels of PAHs below the estimated MRL is not expected to result in harmful (noncancer) health effects (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

It should be recognized that uncertainties are associated with use of MRLs, particularly with respect to PAHs since estimates were based on data obtained with B[a]P. It is well known that there are differences between different PAHs with regard to metabolism and, therefore, there may be significant toxicologic differences. (ATSDR, *Toxicological Profile for Polyaromatic Hydrocarbons*, 1990).

IRIS lists the chronic oral RfD for pyrene as 3.0E-02 mg/kg/day. HEAST lists a subchronic RfD of 3.0E-01 mg/kg/day. These values are based on a subchronic oral bioassay conducted in mice. Mice were gavaged with 0, 75, 125, or 250 mg/kg/day pyrene in corn oil for 13 weeks. Nephropathy, characterized by the presence of multiple foci of renal tubular regeneration, often accompanied by interstitial lymphocytic infiltrates and/or foci of interstitial fibrosis, was present in some mice from all groups (including the control group). The kidney lesions were described as mild or minimal in all dose groups. Relative and absolute kidney weights were reduced in the two higher dosage groups. Based on these results, the low dose (75 mg/kg/day) was considered a NOAEL and 125 mg/kg/day the LOAEL for nephropathy and decreased kidney weights.

An uncertainty factor of 3000 was applied to account for interspecies and intraspecies variability (10 each), use of a subchronic study for chronic derivation (10X), and the lack of toxicities in a second species and developmental/reproductive studies (3). A confidence rating of low was given to the RfD due to the lack of supporting subchronic, chronic, and developmental/reproductive studies.

USEPA classifies pyrene as Group D - Not Classifiable as to Human Carcinogenicity. This classification is based on a lack of human data and inadequate data from animal bioassays. Classification of a chemical as Group D precludes quantitative toxicity assessment. Therefore, USEPA has not published a slope factor for pyrene.

4.54 Pyridine

Pyridine is a flammable, colorless liquid with an unpleasant smell. It is made from crude tar or other chemicals or can develop as a by-product from the decay of certain natural materials. Pyridine is used in the production of many consumer products such as medicines, food flavorings, pesticides, paints, dyes, rubber products, adhesives, and water proofing for fabrics or can be used as a solvent. Pyridine volatilizes readily and remains

stable in air for months before breaking down. It also releases easily to water or soil, upon which it breaks down very easily in a few days to months into its decay products.

Very few human health studies relevant to pyridine have been conducted. Most evidence indicates that the effects of greatest concern involve those leading to liver damage. Other neurological, renal, or skin and eye irritations may also occur as a result of exposure to pyridine. Except for hepatic and neurological effects associated with inhalation by humans, other health effects have been derived from animal studies.

IRIS lists a chronic oral reference dose of 1E-03 for pyridine. HEAST lists a subchronic oral RfD of 1E-02 with an uncertainty factor of 100. A 90-day rat oral gavage study in 1986 found a NOAEL of 1.0 mg/kg/day and a LOAEL of 10 mg/kg/day. In this USEPA study Sprague-Dawley rats (10/does/sex) were gavaged daily with 0, 0.25, 1.0, 25, and 50 mg/kg/day pyridine for 90 days. Results of this study indicated a significant dose related increase in female liver-to-body weight ratios in the 10, 25, and 50 mg/kg/day groups. The males of the low dose group showed a significant decrease in the relative liver-to-weight ratios. However, the males in the other dose groups did not show any significant differences; thus, the effect seen in males exposed to 1 mg/kg/day pyridine is probably an artifact (USEPA, 1986).

The same study examined neurotoxicity of pyridine using 10 rats/group perfused at the time of sacrifice; histopathologic examinations of brain, liver, and target organs were conducted. The histopathologic examinations did not reveal any morphologic alterations in the brains of exposed and unexposed rats. However, histopathologic evaluation of target organs showed a 70% incidence of non-neoplastic hepatic lesions in males of the high-dose group (50 mg/kg/day) compared with 10% incidence in the vehicle control group. The 0.25 and 1.0 mg/kg/day dosed male rats also showed a 10% incidence of these lesions; however, no such lesions were observed in the 10 or 25 mg/kg/day dose groups. In the females, the frequency of incidence of these lesions was 30% in the 50 mg/kg/day group and 10% in the vehicle control group. Based on the data presented

above, 1 mg/kg/day was identified as a NOAEL and 10 mg/kg/day as a LOAEL for hepatic hypertrophy in female rats (USEPA, 1986).

IRIS reports that the uncertainty factors and modifying factors associated with the RfD are 1000 and 1, respectively. The uncertainty factor of 1000 includes 10 for interspecies and 10 for intraspecies variability in the toxicity of this chemical in lieu of specific data. An additional factor of 10 was applied to extrapolate from a subchronic to chronic level. Confidence in the oral RfD is considered medium to low based on the medium levels of confidence associated with both the study and the database. The subchronic oral study provides adequate toxicologic end points, with medium confidence. The database contains adequate subchronic studies to support the NOAEL of the critical study, but other chronic toxicity and reproductive studies are lacking; thus, confidence in the database is medium to low. Confidence in the RfD can also be considered medium to low.

No inhalation reference concentration is provided by IRIS and no carcinogenic toxicity values are available for pyridine.

4.55 Selenium

Ingestion of selenium greater than the recommended daily allowance over a long period of time can result in brittle hair, deformed nails, and in severe cases, loss of feeling and control in arms and legs. Selenium compounds have not been shown to cause cancer in humans. Selenium sulfide was found to be carcinogenic in animals; however, this compound is not present in food or the environment. Exposure to selenium compounds has not been shown to cause birth defects in humans or other mammals. It did, however, cause birth defects in birds (ATSDR, *Toxicological Profile for Selenium*, 1989).

The chronic oral RfD for selenium is listed in IRIS as 5E-03 mg/kg/day. HEAST lists this value as the subchronic oral RfD. This is based on a human epidemiological study of approximately 400 individuals. The population lived in an area

with high environmental concentrations of selenium (Se). Three geographical areas with high, medium and low levels of selenium were compared. Concentrations in soil and approximately 30 typical foods showed positive correlation with blood and tissue selenium levels. Persistent clinical signs (e.g. "garlic odor" in breath and urine; thick, brittle nails; hair loss; lowered hemoglobin levels; mottled teeth; skin lesions; and CNS abnormalities) of selenosis were seen in 5/349 adults, a potentially sensitive subpopulation. Their blood concentration ranged from 1.054 to 1.854 mg/L. At 750-850 μg/day, alterations of biochemical parameters occurred (delay in prothrombin time). The lowest correlative selenium intake causing overt signs of selenosis was 1.261 mg, corresponding to 1.35 mg/L in whole blood. The NOAEL was 0.85 mg selenium/day and the LOAEL was 1.26 mg of selenium/day.

The uncertainty factor of 3 was used to derive the RfD to account for sensitive individuals. It was believed that a full factor of 10 was not necessary because of supporting studies. The confidence in the oral RfD is high based on support of the critical study and a high level of confidence in the database. There are currently no values listed for the inhalation RfD or RfC.

Selenium is classified as Group D--Not Classifiable as a Human Carcinogen. This is based on inadequate evidence in humans and in animals. Therefore, no slope factor is listed.

4.56 Silicon

Silicon carbide is an artificially produced abrasive and refractory. There seems to be little adverse effect on the lungs, and silicon does not appear to produce significant organic disease or toxic effects when exposures are reasonably controlled. Silicon carbide does not produce fibrosis of the lungs. However, it was found to profoundly alter the course of pulmonary tuberculosis in lab animals, leading to extensive fibrosis and progressive disease (ACGIH, Documentation for Silicon Carbide, 1986).

Silicon tetrahydride is used to dope solid state devices and as a source of hyperpure silicon for semiconductors. Chronic and systemic effects are unknown. Tests with laboratory animals have shown few effects, even over time.

Neither IRIS nor HEAST lists toxicity values for silicon.

4.57 Silver

The most serious health effect resulting from silver exposure is believed to be argyria. Argyria is a grey or blue-grey coloration of the skin that is caused by eating or breathing silver compounds over time. Exposure to dust that contains silver compounds, such as silver nitrate or silver oxide, may cause breathing problems, lung and throat irritation, and stomach pain. Mild allergic reactions have been seen in humans due to skin exposure to silver compounds. One long-term animal study suggested that high levels of silver nitrate in drinking water may have caused a slight effect on the brain. Another study found that exposure to silver nitrate or silver chloride led to enlargement of the heart. Animal studies, however, have not been complete enough to measure these effects adequately (ATSDR, *Toxicological Profile for Silver*, 1990).

The oral RfD for silver is listed in IRIS as 5E-03 mg/kg/day. This value is based on a 2- to 9-year human i.v. study. Argyria is the critical effect of silver ingestion in humans. It results in a bluish-grey discoloration of the skin from deposition of silver in the dermis and from silver-induced production of melanin. This deposition has not been associated with any adverse health effects. Data from 10 males and 2 females who were given i.v. injections of silver arsphenamine over a period of 2 to 9 years were collected. After a dose of 4, 7, or 8 g, argyria developed in some patients. Other patients developed argyria after 10, 15, or 20 g. Biospectrometric examination of skin biopsies showed a correlation between the degree of discoloration and the level of silver that was present. The lowest i.v dose resulting in argyria was 1 g metallic silver (an oral dose of 0.014 mg/kg/day).

This was determined to be the LOAEL. A NOAEL was not established. The subchronic oral RfD is listed in HEAST as 5.0E-03 mg/kg/day.

An uncertainty factor of 3 was used to account for sensitive individuals. An uncertainty factor was not assigned for the study duration because the dose was apportioned over a lifetime of 70 years. The confidence level in the oral RfD is low. A NOAEL was not established because the study used individuals who were being treated for syphilis and may have been in bad health. Confidence in the database was low because the supporting studies were not controlled and the amount of silver ingestion was difficult to determine. The i.v. administration also required a dose conversion that introduces uncertainty. HEAST lists a chronic and subchronic RfD of 3E-03 that is based on the same study. Currently, no values are listed for an inhalation RfC.

Silver is classified as group D - Not Classifiable as to Human Carcinogenicity. Induction of local sarcomas in animals after implantation of foils and discs of silver has been seen; however, the interpretation of these results is questionable. No evidence of human carcinogenicity has been reported even with the frequent therapeutic use of silver. Classification of a chemical as Group D precludes quantitative toxicity assessment. No slope factor is listed.

4.58 Sulfide

No information was located in the available literature regarding the toxicity of sulfide.

4.59 Thallium

Thallium can affect the nervous system, lungs, liver, and kidneys if large amounts are ingested over short periods of time. Effects include temporary hair loss, vomiting, and diarrhea. Death may result if very large amounts are ingested (1 mg or

greater). Chronic effects have not been determined. Animal reproductive organs, especially the testes, are damaged after drinking small amounts of thallium-contaminated water for 2 months. A minimal risk level of 0.003 ppm in water was derived from animal data from short-term exposure. MRLs provide a basis for comparison with levels that people might encounter in food or drinking water. Exposure to amounts below the MRL is not expected to cause harmful health effects (ATSDR, *Toxicological Profile for Thallium*, 1991).

Thallium forms complexes in solution with halogens, oxygen, and sulfur. The oral RfD for thallium sulfate is listed in IRIS as 8.0E-05 mg/kg/day. This value is based on a subchronic (90 day) oral study in which Sprague-Dawley rats were treated by gavage with 0, 0.01, 0.05, or 0.25 mg/kg/day. Dose-related increases in alopecia, lacrimation, and exophthalmos were observed throughout the study. Moderate dose-related changes were observed in blood chemistry parameters (SGOT, LDH, sodium, and sugar levels). The highest dose of thallium sulfate (0.25 mg/kg/day) was considered the NOAEL (converted to 0.20 mg/kg/day). An uncertainty factor of 3000 was applied to the NOAEL to derive the RfD. This uncertainty further adjusts for intra- (10X) and interspecies (10X) variability, extrapolation of a subchronic effect level to a chronic level (10X), and a factor of 3 to account for lack of reproductive and chronic toxicity. The confidence level in the RfD is low because of uncertainties in the results and because supporting studies report that health effects result at doses slightly higher than the NOAEL.

Thallium sulfate is classified as Group D - Not Classifiable as to Human Carcinogenicity. This classification is based on a lack of carcinogenicity data in animals and humans.

4.60 Tin

Simple tin compounds enter and leave the body rapidly; therefore, they usually do not cause adverse health effects. If exposed to excessive amounts, tin may cause stomach aches, blood changes, liver and kidney effects, and skin and eye irritation. Complex tin

compounds can cause the same effects, but more serious effects on breathing, the nervous system, and the immune system may be observed (ATSDR *Toxicological Profile for Tin*, 1991).

HEAST lists the chronic and subchronic oral RfDs as 6.00E-01 mg/kg/day. The basis for this value was a chronic (2 year) rat feeding study. The critical effects noted in the study were kidney and liver lesions. An uncertainty factor of 100 was used in calculation of the RfD for tin. HEAST does not provide RfD confidence levels.

The carcinogenic potential of tin has not been evaluated by the USEPA.

4.61 Trichloroethene

Dermal contact with trichloroethene can cause skin rash. Inhalation of large quantities of trichloroethene may cause dizziness, sleepiness, and ultimately, loss of consciousness. Damage to the nerves of the face has been reported in people exposed to high levels of trichloroethene. Currently, it is uncertain whether these people are at a higher risk for developing cancer or birth defects. It has been reported that people who used water from a well that is contaminated with high concentrations of trichloroethene may have had an increased incidence of leukemia. It is unknown whether trichloroethene affects human reproduction (ATSDR, *Toxicological Profile for Trichloroethene*, 1992).

USEPA has not established an oral RfD, inhalation RfD, or inhalation RfC. Risk assessments are currently under review by an USEPA work group for noncarcinogenic effects resulting from trichloroethene exposure.

Trichloroethene is a Group B2/C - Probable Human Carcinogen/Possible Human Carcinogen. The 1991 HEAST lists an oral slope factor of 1.10E-02 $(mg/kg/day)^{-1}$, an inhalation unit risk of 1.7E-06 $(\mu g/m^3)^{-1}$, and an inhalation slope factor of 6.0E-03 $(mg/kg/day)^{-1}$. These values are based on a gavage study of mice in which liver tumors

were seen. Debate surrounds the weight-of-evidence classification and, currently, the USEPA has not adopted a final position. Figure G-1 is a correspondence sent by the Superfund Risk Assessment Technical Support Center dated September 24, 1992 with guidance on the appropriate slope factor. The slope factors given in the 1991 HEAST were deemed appropriate for this assessment since the carcinogenic potential from trichloroethene should be considered when calculating risk.

4.62 2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

2,4,5-T was a widely used herbicide and was used in the Vietnam War as Agent Orange. This compound has not been shown to be directly nephrotoxic, but it may influence renal function. It appears to be actively transported by the organic anion secretory system and is capable of inhibiting organic anion transport. At high concentrations, this compound also appears to inhibit cation transport (Menzer and Nelson, 1986).

An oral RfD of 1.0E-02 mg/kg/day was established for 2,4,5-T and is listed in IRIS. This value was based primarily on two studies. Most information about the health effects of 2,4,5-T has been obtained from animal studies conducted on rodents. Groups of Sprague Dawley rats (50/sex) were maintained on diets supplying 0, 3, 10 or 30 mg of 2,4,5-T/kg/day for two years. An increased urinary excretion of coproporphyrins was observed in male rats receiving oral doses of 10 and 30 mg/kg/day and in females receiving high doses. A NOAEL of 3 mg/kg/day and a LOAEL of 10 mg/kg/day were established. An uncertainty factor of 300 was applied to the NOAEL to derive an RfD, and it accounts for uncertainty in the extrapolation of dose levels from laboratory animals to humans (10X), uncertainty in the threshold for sensitive humans (10X), and uncertainty due to deficiencies in the chronic toxic database (3X).

In a 3-generation reproduction study in which rats were fed 2,4,5-T at levels of 0, 3, 10, or 30 mg/kg/day, a reduction in the neonatal survival was observed at the two

Trichloroethylene (TCE) (CASRN 79-01-6)

The current phase of the carcinogenicity characterization for trichloroethylene started with a July 1985 Health Assessment Document for Trichloroethylene, EPA# 600/8-82/006F which classified trichloroethylene in Weight-of-Evidence Group "B2 - Probable Human Carcinogen." Inhalation and oral upper bound risk estimates were provided. This information was verified on IRIS from 3/87 through 7/89. A June 1987 Addendum to the Health Assessment Document for Trichloroethylene, EPA# 600/8-82/006FA proposed that the Weight-of-Evidence finding of "B2" was further supported by newly available animal bioassay data and offered a minor revision to the inhalation upper bound risk estimate. In 1988 the Agency's Science Advisory Board offered an opinion that the weight-of-evidence was on C-B2 continuum (C=Possible Human Carcinogen, B2=Probable Human Carcinogen). The Agency withdrew the IRIS carcinogenicity file in 7/89 and has not adopted a current position on the weight-of-evidence classification.

The quantitative risk estimates provided in the 1985 Health Assessment Document and 1987 Addendum have been reviewed by the IRIS-Crave Workgroup but are not verified as such pending resolution of the weight-of-evidence classification. The upper bound risk values in these documents are as follows:

ORAL: 1985 HAD; Unit Risk = 3.2E-7 per μg/L
Slope Factor = 1.1E-2 per mg/kg/day

INHALATION: 1987 Addendum; Unit Risk = 1.7E-6 per μg/cu.m.
Slope Factor = 6.0E-3 per mg/kg/day

When the Agency adopts a current position on weight-of-evidence classification, the trichloroethylene file will be reentered on IRIS.

Figure G-1. Trichloroethylene (TCE)

highest doses levels. No effects were observed at 3 mg/kg/day. A LOAEL of 15 mg/kg with a NOAEL of 8 mg/kg for reduced fetal body weight was reported for mice. Fetal mortality was observed following the administration of 2,4,5-T at 40 mg/kg to pregnant hamsters. High doses, approximately 200 mg/kg, can induce frank teratogenic effects in rats. Consequently, a qualitative association between 2,4,5-T exposure and human birth defects has been suggested. The reproductive endpoint is well documented. An oral RfD confidence of medium (tending towards high) was established. This confidence rating reflects the mutual support of the two studies and the strength of the reproductive database. The relative weakness of the chronic toxicity database precludes a higher confidence level.

The USEPA has not evaluated 2,4,5-T for carcinogenicity.

4.63 Vanadium

Vanadium is used in making steel; thus, most exposure to vanadium occurs in workers who are involved with metallurgy and boiler cleaning. Workers exposed chronically have shown signs of mild respiratory distress, such as coughing wheezing, chest pain, runny nose, or sore throat. In most cases, chest x-rays and pulmonary function tests were normal, and no other systemic effects were observed. There are no studies available regarding dermal exposure to vanadium in humans or laboratory animals, and few studies investigate the oral toxicity of vanadium. These studies suggest that the compound is not very toxic by the oral route (ATSDR, *Toxicological Profile of Vanadium*, 1990).

HEAST lists an oral RfD of 7.0E-03 mg/kg/day for vanadium. This value is based on a chronic drinking water study conducted in rodents. However, no effects were observed, and this RfD is currently under review and subject to change. The USEPA has not evaluated vanadium for carcinogenicity.

5.0 UNCERTAINTIES ASSOCIATED WITH TOXICITY ASSESSMENT

Toxicity information for many of the chemicals of concern for this risk assessment was limited. Therefore, varying degrees of uncertainty are associated with the toxicity values presented in this document. Sources of uncertainty associated with toxicity values used in this risk assessment come from several sources.

5.1 Use of Alternate Information Sources

A primary source of uncertainty results when using information obtained from alternate sources because USEPA-verified toxicity values are not available. It is difficult to assign a level of confidence to these values, but it is appropriate and necessary to use them. Greater uncertainty would result if chemicals that do not have published toxicity values are excluded from the assessment.

5.2 Use of Toxicity Information from Animal Studies

Physical and chemical descriptions of the exposure atmospheres, amounts to which individuals are exposed, and tissue retention patterns are not generally available for accidental human exposures. Therefore, studies conducted on laboratory animals (under controlled experimental conditions) must be used to provide the exposure, dose, and biological effects data needed to evaluate the toxicity of potentially hazardous materials to which humans may be exposed. However, there are striking differences between laboratory animals and humans in anatomy and physiology. These differences are sources for variation in the toxic responses exhibited between different species. Complicate the extrapolations from animals to man. Differences in life span, body size, metabolic routes, and rates of exposure. Occasionally adjustments are made, on a case-by-case basis, for species differences in the rate of metabolism or retention within tissues. However, comparisons between species are usually made using standardized sizes or weights. These dose terms do not scale-up identically and are, in some cases, sources of uncertainty themselves.

Uncertainties also arise when information gathered from studies using homogenous animal populations (inbred strains) or healthy human populations (occupational exposures) is used to predict the effects that are likely to occur in the general human population. Human populations are heterogenous groups with variations in genetic constitution, diet, living environments (previous environmental exposures), activity patterns, and cultural patterns. All of these factors may influence metabolism, distribution of chemicals within the body, and susceptibility to the damaging effects of those chemicals. It is well established that individuals who are exposed to several chemicals simultaneously or sequentially may exhibit altered pharmacological or toxicological responses. Interactions have been noted with respect to hepatotoxicity. For example, many chlorinated solvents induce enzymes in the liver that are involved in the metabolism of chemicals. Therefore, an individual who is exposed to these chemicals may experience increased or decreased toxicity subsequent to exposure to other chemicals that undergo metabolism.

5.3 Use of Toxicity Information from Studies Using High Doses

Another source of uncertainty related to toxicity information is the use of dose-response information. The effects are observed at high doses to predict adverse health effects that may occur at the low levels to which humans are likely to be exposed in the environment. Sources of uncertainty occur in the USEPA potency estimates (slope factors) when they are applied to humans exposed to levels of putative carcinogens far below those administered to laboratory animals. Many substances induce or enhance cancer in animals through processes for which a possible threshold can be identified. These effects usually occur at very high doses, and assuming that a lesser degree of the same effect occurs at lower doses, is not necessarily an accurate portrayal of toxicity. This assumption may result in gross overestimation of the health risks associated with a particular chemical.

5.4 Use of Toxicity Information from Short-Term Exposure Studies

Two major factors that influence the toxicity of chemicals are the duration and frequency of exposure. For many agents, the toxic effects following a single exposure are quite different from those produced by repeated and long-term exposures. In general, fractionation of the dose (or exposure) of a chemical reduces its toxicity. Therefore, a single exposure to a substance may produce an immediate severe effect and while the same dose, divided into multiple exposures, may produce an attenuated response or no response. Such fractionation effects are generally due to excretion between successive doses or to partial or full reversal of the injury produced by each prior exposure. Chronic (long-term) toxic effects occur if a chemical accumulates (absorption exceeds excretion), if it produces irreversible toxic effects, or if there is insufficient time for the individual to recover from the injury within the exposure interval. Therefore, using information obtained from short-term exposure studies to predict health effects in humans exposed on a long-term basis may be a source of uncertainty.

5.5 Development of Surrogate Toxicity Values

In addition to the inherent uncertainties associated with the quantitative toxicity assessments conducted by USEPA for chlordane, endrin, endosulfan, and mirex that are implicitly adopted by the TEF approach used here, the approach includes the added qualitative assumption that other chlorinated pesticides will demonstrate the same effects. While there is scientific evidence to support this assumption, definitive proof is lacking.

USEPA scientists have emphasized that the TEF approach is appropriate as an interim science policy to be used pending the development of more rigorous and scientifically robust approaches. Until further data become available, it is suggested that the TEF approach is a reasonable interim approach for assessing the health risks associated with chlorinated hydrocarbon pesticides for risk management purposes.

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APPENDIX H

LEAD UPTAKE ESTIMATION

1.0 ESTIMATION OF LEAD ABSORPTION

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. As in many aspects of environmental risk assessment, mathematical models are typically relied upon to estimate the adverse health effects associated with given levels of lead at a particular site. The Lead5 Model was obtained for this risk assessment and used in conjunction with site-specific data on lead concentrations in all appropriate media to estimate blood lead levels as an indicator of environmental risk.

2.0 LEAD BIOKINETIC MODEL

The Lead5 Model is an uptake biokinetic model for lead made available by the USEPA. The model estimates the total lead uptake (μg Pb/day) in children up to the age of seven (subpopulation most sensitive to the adverse health effects of lead). The Lead5 Model uses site-specific data (when available) for lead concentrations in air, water, soil, household dusts, diet, ingested paint, and mother's blood (when assessing contribution during fetal development) in order to predict a blood lead level based on total lead uptake. The Lead5 Model calculates the probability that a blood lead level will exceed a specified cutoff point or level of concern. The model characterizes uncertainty using the geometric standard deviation (GSD) of the mean and calculates the geometric mean for each distribution. For this risk assessment, 10 μg/dL was used as the cutoff point because exposure levels of this magnitude during infancy or childhood are known to increase the risk of irreversible neurobehavioral deficits. Other default parameter values and methods of calculation provided by the model were incorporated for this risk assessment.

The Lead5 Model contains two separate functions: 1) the uptake function that estimates the monthly uptake of lead from diet, air, soil/dust, water, and paint; and 2) the biokinetic function that uses this calculation to estimate the blood lead levels on a monthly basis.

2.1 Uptake Function

The uptake section of the model can use either input values or default values to estimate a daily intake of lead from air, diet, water, soil/dust, and paint. Uptake is a function of both lead intake from various exposure routes and the body's ability to absorb it. Uptake is calculated using the following generic formula:

$$\text{UPTAKE} = \text{INTAKE} \times \text{ABSORPTION FACTOR}$$

Evidence suggests that the absorption of lead from lead-based paint decreases with increasing concentration. Accordingly, the absorption factors for this assessment were determined by the Nonlinear Active-Passive Method. The nonlinear method assumes that the percentage of absorption varies with the lead concentration, volume of the gut, and other factors. The equations and default parameters used by the model are listed in Appendix A of the *Users Guide for Lead: A PC Software Application of the Uptake/biokinetic Model Version 0.50*. (USEPA, 1990).

It should be noted that concentrations of lead at this site are relatively low with respect to the sensitivity of the Lead5 Model. Input concentrations are rounded to two decimal places. The model uses standard rounding conventions, which tends to under-estimate lead concentrations when actual concentrations are below 0.005 μg/dL, since these concentrations are rounded to zero. These rounding discrepancies should not compromise the results of the analysis because the calculable blood lead levels for higher concentrations (those exceeding 0.005 μg/dL) do not indicate a cause for concern at this site.

Specific uptake rates are calculated individually where lead concentrations exist. For this risk assessment, intakes have been calculated for the soil/dust, water, and diet (ingestion) routes of exposure. (Specific uptake pathways at each site are presented in Table H-1). Surface water concentrations have been incorporated into the drinking water intake calculation to simulate a conservative estimation of potential risks associated with lead. This is a hypothetical case (i.e., not a characterization of existing conditions) and is not an assumption used in other aspects of this risk assessment. In actuality, drinking water is supplied by a deep aquifer that is not geologically related to the site. Dietary uptake values are based on both input values and background levels. Although dietary input concentrations are zero for all sites other than Lake Holloman (beef), background levels tend to drive up total lead uptake at each site. Concentrations of lead in air also are available for most sites, though occupational inhalation risks are not pertinent to the age group addressed by the Lead5 Model and have not been calculated for this risk assessment.

Table H-1

Specific Uptake Pathways by Site

Site Name	Specific Uptake Pathway		
	Water	Soil/Dust	Diet
Pond A		✓[a]	
Pond B	✓	✓[b]	
Pond C	✓	✓[b]	
Pond D		✓[b]	
Pond E	✓	✓[b]	
Pond F		✓[b]	
Pond G	✓	✓[b]	✓[c]
Lake Holloman	✓	✓[a]	✓[c]
Lake Stinky		✓[a]	
Ditch		✓[a]	

[a] Soil and dust estimation based on concentrations in soil.

[b] Soil and dust estimation based on concentrations in sludge.

[c] Diet estimation based on concentrations in waterfowl. The Lead5 Model employs the maximum detected concentration for each route of exposure. While diet includes both beef and waterfowl, the maximum modeled concentration was found in waterfowl.

2.2 Biokinetic Function

The biokinetic section of the model uses total lead uptake to calculate the amount of lead that will occur in various body compartments. The formulas used to estimate residence times and rates of lead transfer between body compartments are discussed in Appendix B of the *Users Guide for Lead: A PC Software Application of the Uptake/biokinetic Model Version 0.50* (USEPA, 1990).

The results generated by the Lead5 Model are presented at the end of this appendix. The associated data sets (odd numbered Figures H-1 through H-7) are used to plot coordinating Gaussian distribution curves (even numbered Figures H-2 through H-8) that indicate the probability of specific blood lead levels occurring. Modeled blood lead levels generated for this risk assessment are summarized in the table of geometric means (Table H-2) presented below. For most sites, modeled blood lead levels are driven by one medium and those geometric means are spread around 1.3 to 1.4 μg/dL, incorporating background levels. Two sites have calculated blood lead levels out of this range, reflecting blood lead contributions at either higher levels, or more likely, from more than one medium. For all sites, modeled blood lead levels are well below the 10 μg/dL cutoff point.

Table H-2

Blood Lead Levels by Site

Site Name	Geometric Mean Blood Level Concentration (μg/dL)
Pond A	1.38
Pond B	2.32
Pond C	1.38
Pond D	1.32
Pond E	1.34
Pond F	1.32
Pond G	1.84
Ditch	1.41
Lake Holloman	1.27
Lake Stinky	1.27

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	30.7	8.6
1-2	30.7	8.6
2-3	30.7	8.6
3-4	30.7	8.6
4-5	30.7	8.6
5-6	30.7	8.6
6-7	30.7	8.6

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.28
Air contribution conversion factor: 100.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	1.01	3.49	0.56
1-2:	1.03	3.51	0.56
2-3:	1.08	3.95	0.56
3-4:	1.11	3.84	0.56
4-5:	1.13	3.74	0.56
5-6:	1.14	3.93	0.56
6-7:	1.19	4.30	0.56

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-1. Program Parameters and Results for Pond A

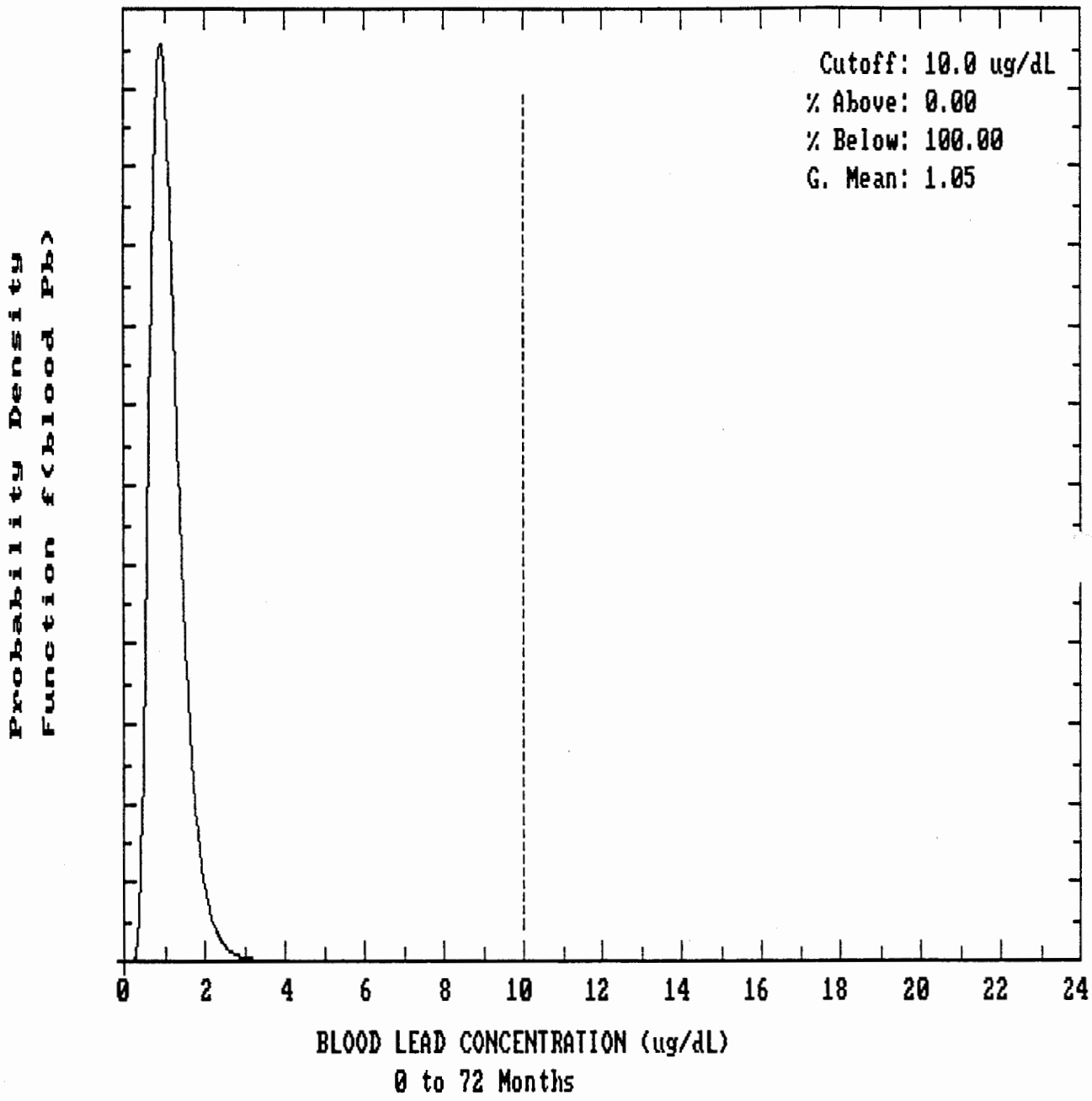

Figure H-2. Probability Density Distribution of Blood Lead Levels for Pond A

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.01 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: constant conc.

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.97	3.18	0.00
5-6:	0.98	3.38	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-3. Program Parameters and Results for Pond B

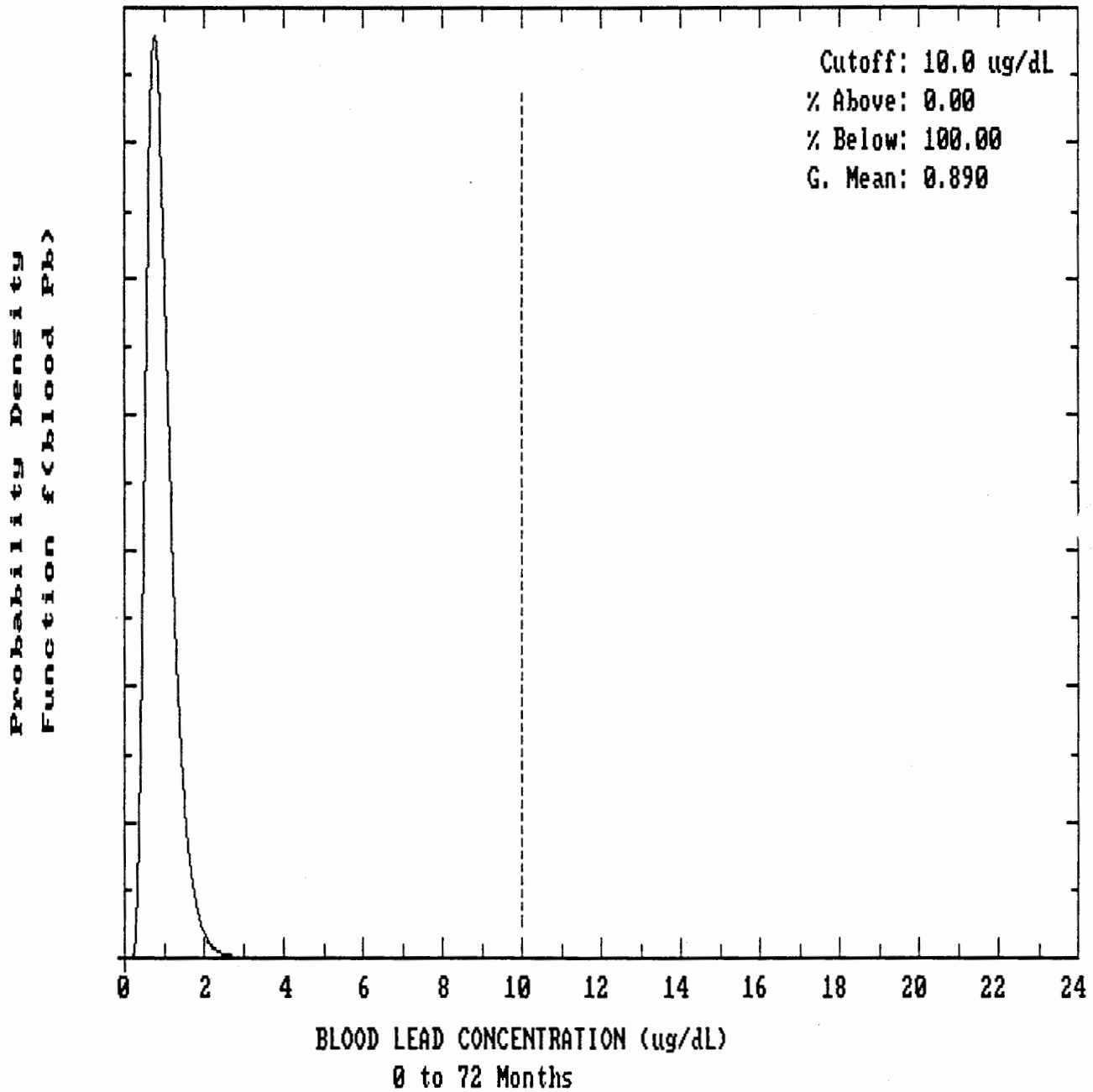

Figure H-4. Probability Density Distribution of Blood Lead Levels for Pond B

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.01 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.00
Air contribution conversion factor: 0.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.97	3.18	0.00
5-6:	0.98	3.38	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-5. Program Parameters and Results for Pond C

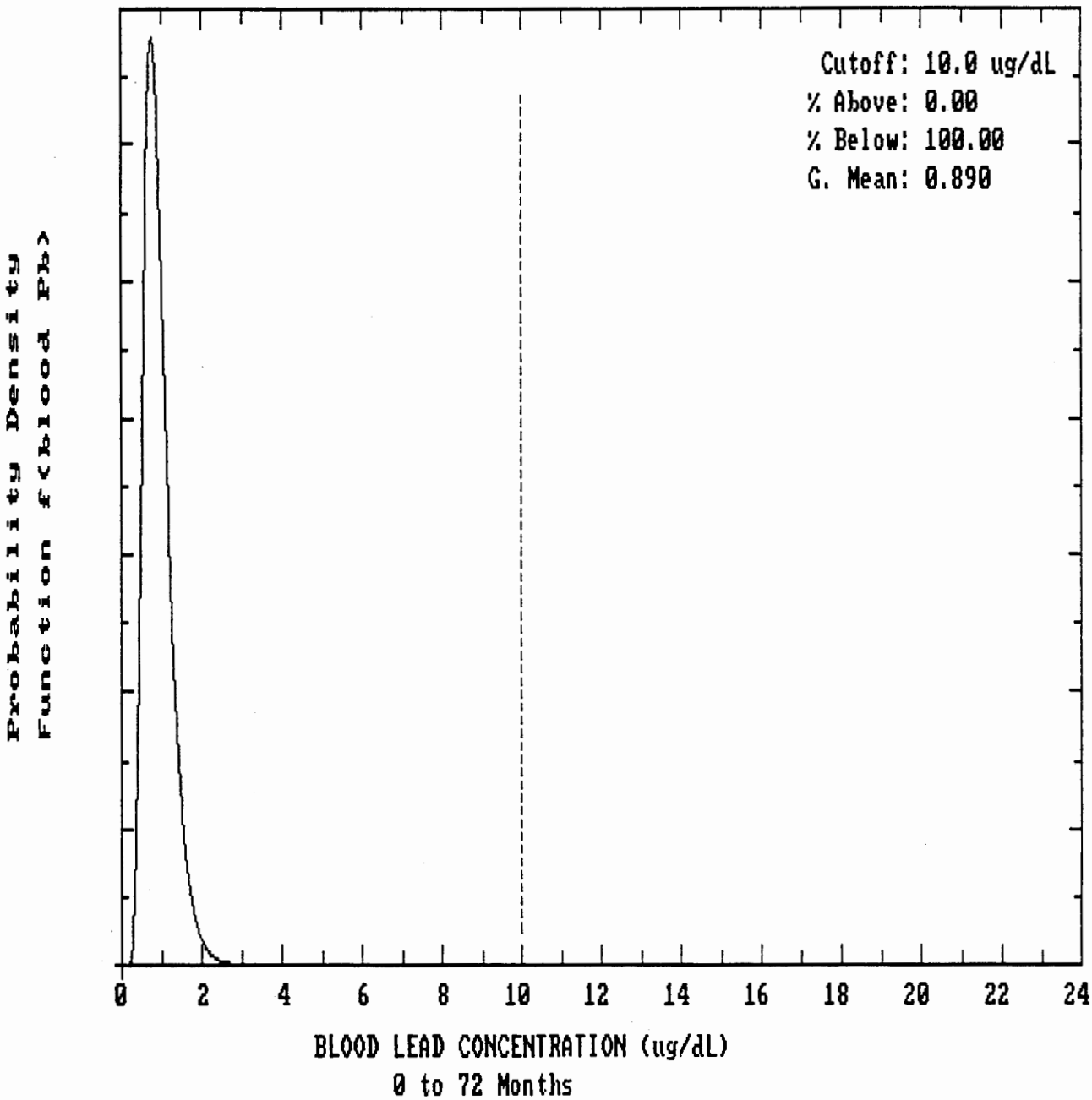

Figure H-6. Probability Density Distribution of Blood Lead Levels for Pond C

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.00
Air contribution conversion factor: 0.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.96	3.18	0.00
5-6:	0.98	3.37	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-7. Program Parameters and Results for Pond D

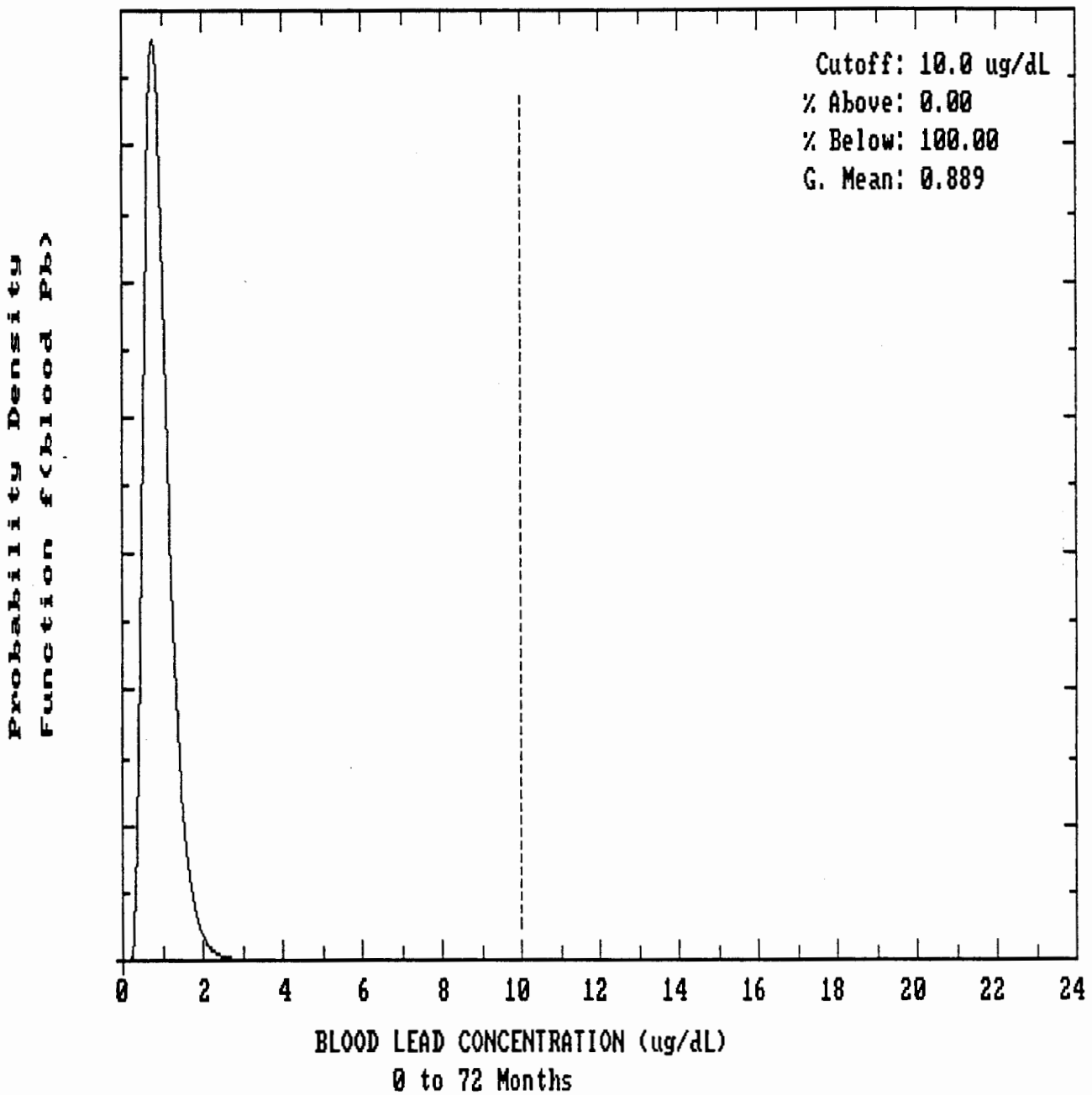

Figure H-8. Probability Density Distribution of Blood Lead Levels for Pond D

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.00
Air contribution conversion factor: 0.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.97	3.18	0.00
5-6:	0.98	3.37	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-9. Program Parameters and Results for Pond E

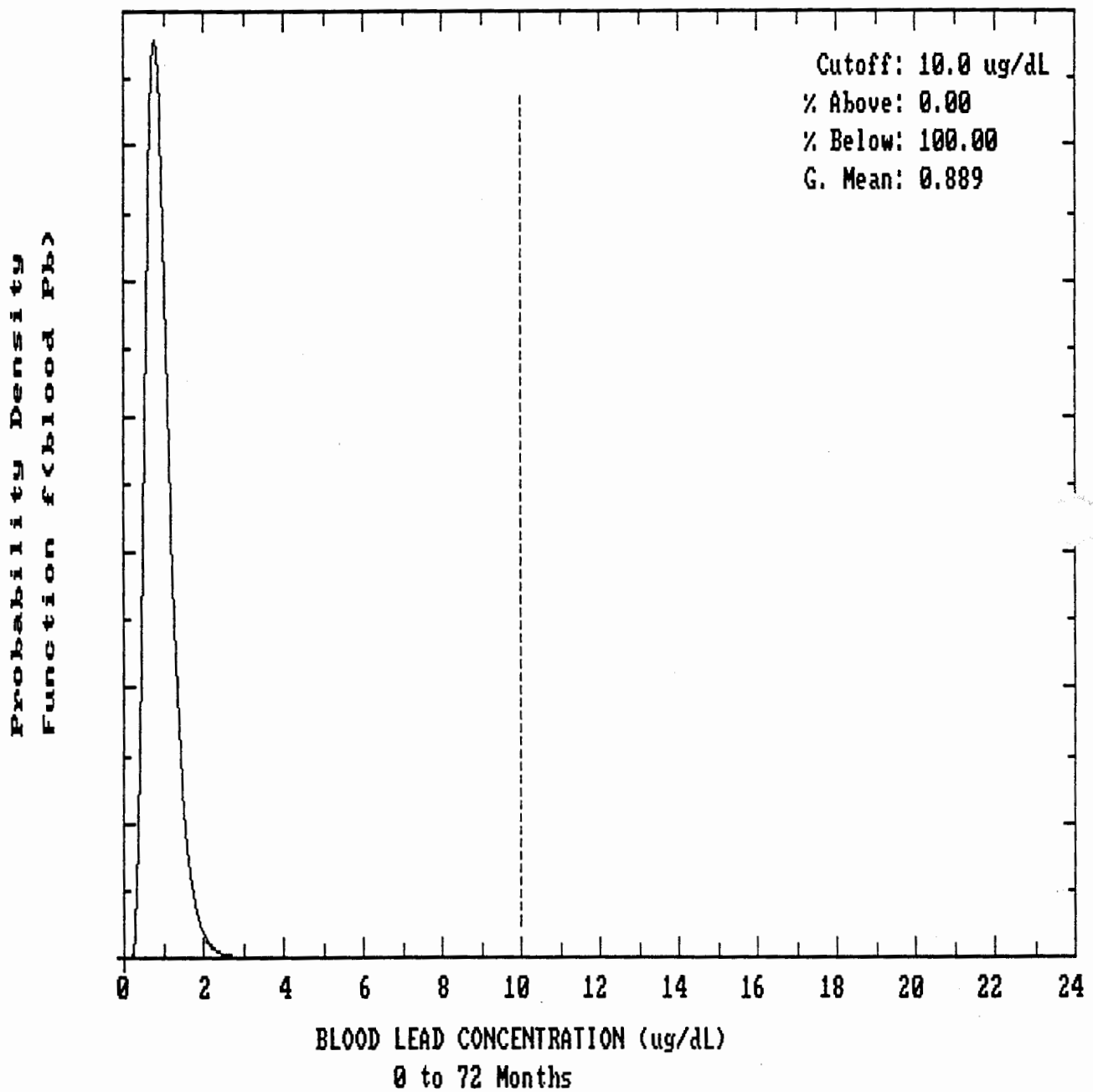

Figure H-10. Probability Density Distribution of Blood Lead Levels for Pond E

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	17.0	17.0
1-2	17.0	17.0
2-3	17.0	17.0
3-4	17.0	17.0
4-5	17.0	17.0
5-6	17.0	17.0
6-7	17.0	17.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 1.00
Air contribution conversion factor: 0.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.99	3.45	0.51
1-2:	1.02	3.47	0.51
2-3:	1.07	3.91	0.51
3-4:	1.10	3.80	0.51
4-5:	1.12	3.69	0.51
5-6:	1.13	3.88	0.51
6-7:	1.18	4.25	0.51

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-11. Program Parameters and Results for Pond F

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.00
Air contribution conversion factor: 0.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.96	3.18	0.00
5-6:	0.98	3.37	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-13. Program Parameters and Results for Pond G

ABSORPTION METHODOLOGY: Non-Linear Active-Passive

AIR CONCENTRATION: 0.000 ug Pb/m3
Indoor AIR Pb Conc: 30.0 percent of outdoor.
Other AIR Parameters:

Age	Time Outdoors (hr)	Vent. Rate (m3/day)	Lung Abs. (%)
0-1	1.0	2.0	32.0
1-2	2.0	3.0	32.0
2-3	3.0	5.0	32.0
3-4	4.0	5.0	32.0
4-5	4.0	5.0	32.0
5-6	4.0	7.0	32.0
6-7	4.0	7.0	32.0

Diet: alternate diet selected by user as follows:

Home-grown Fruit:	0.000 ug Pb/g	0.0 %
Home-grown Vegetables:	0.000 ug Pb/g	0.0 %
Recreational Fish:	0.000 ug Pb/g	0.0 %
Wild Game:	0.000 ug Pb/g	0.0 %

DRINKING WATER Conc: 0.00 ug Pb/L
WATER Consumption: DEFAULT

SOIL & DUST:
Soil: constant conc.
Dust: Multiple Source Analysis

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
0-1	0.0	0.0
1-2	0.0	0.0
2-3	0.0	0.0
3-4	0.0	0.0
4-5	0.0	0.0
5-6	0.0	0.0
6-7	0.0	0.0

Additional Dust Sources: None DEFAULT
Soil contribution conversion factor: 0.00
Air contribution conversion factor: 1.0

PAINT Intake: 0.00 ug Pb/day DEFAULT

MATERNAL CONTRIBUTION: Infant Model
Maternal Blood Conc: 0.00 ug Pb/dL

CALCULATED BLOOD Pb and Pb UPTAKES:

YEAR	Blood Level (ug/dL)	Total Uptake (ug/day)	Soil+Dust Uptake (ug/day)
0.5-1:	0.85	2.94	0.00
1-2:	0.87	2.96	0.00
2-3:	0.92	3.40	0.00
3-4:	0.95	3.29	0.00
4-5:	0.97	3.18	0.00
5-6:	0.98	3.37	0.00
6-7:	1.03	3.74	0.00

YEAR	Diet Uptake (ug/day)	Water Uptake (ug/day)	Paint Uptake (ug/day)	Air Uptake (ug/day)
0.5-1:	2.94	0.00	0.00	0.00
1-2:	2.96	0.00	0.00	0.00
2-3:	3.40	0.00	0.00	0.00
3-4:	3.29	0.00	0.00	0.00
4-5:	3.18	0.00	0.00	0.00
5-6:	3.37	0.00	0.00	0.00
6-7:	3.74	0.00	0.00	0.00

Figure H-15. Program Parameters and Results for Lake Holloman

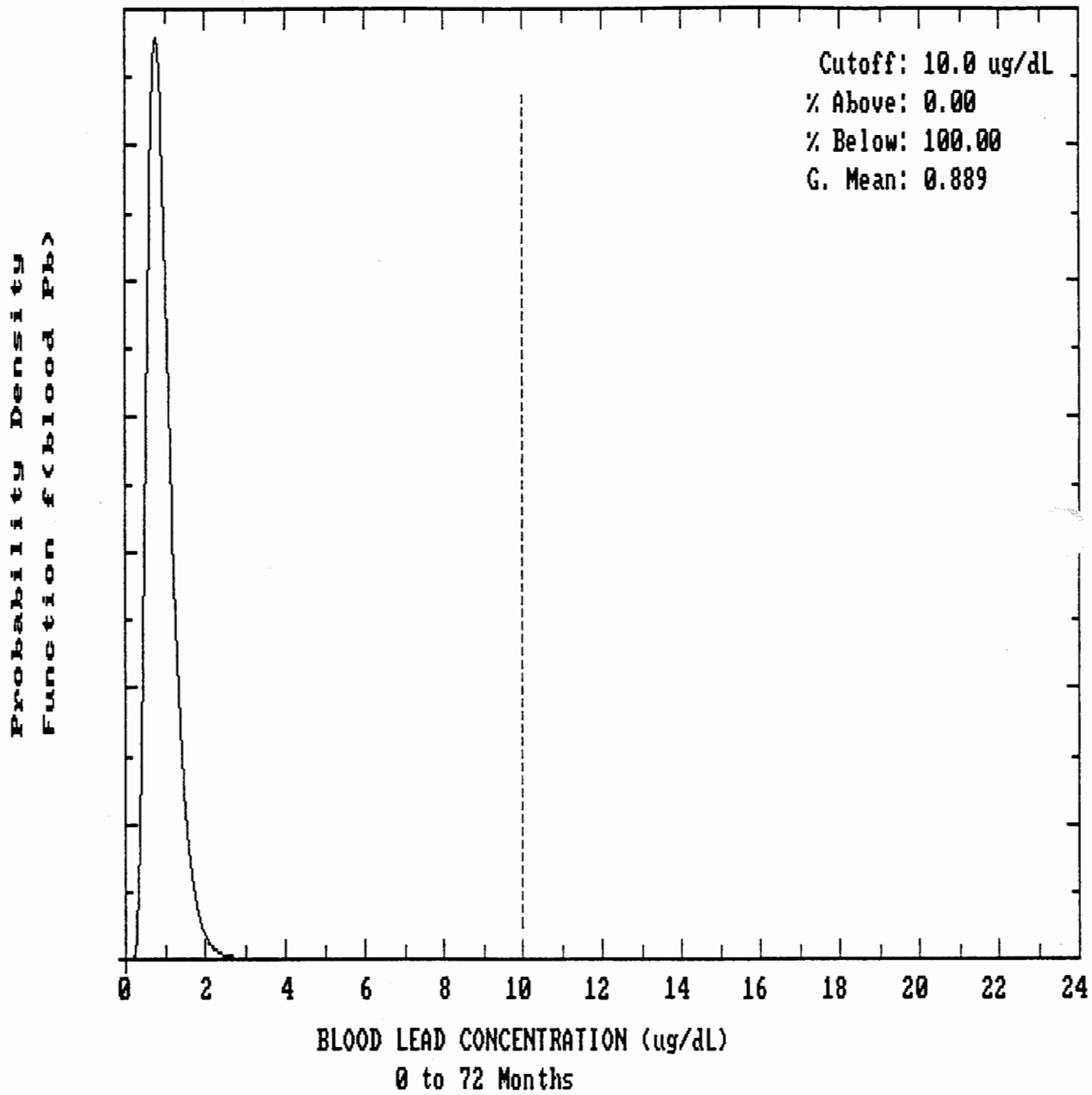

Figure H-16. Probability Density Distribution of Blood Lead Levels for Lake Holloman

3.0 REFERENCES

USEPA, 1990. Users Guide for Lead: A PC Software Application of the Uptake/Biokinetic Model Version 5.0. Cincinnati, OH. March, 1990.

APPENDIX I

RISK CHARACTERIZATION

1.0 RISK CHARACTERIZATION

Risk characterization involves integrating the possible exposure pathways and estimated chemical intakes with the appropriate toxicity values to form quantitative and qualitative expressions of potential health risk. Measured contaminant exposure levels, as well as those predicted by fate and transport modeling, are compared to chemical-specific toxicity information to determine if current or future levels of contamination, at or near the site, warrant concern for human health. The following subsections briefly describe the methodology used to characterize risk and present noncarcinogenic and carcinogenic risk estimates for each exposure scenario.

1.1 Risk Characterization Methodology

1.1.1 Carcinogenic Effects

The cancer slope factor converts estimated daily intakes to an estimate of incremental risk. Because the slope factor is often an upper 95th percentile confidence limit of the probability of a response based on experimental animal data and an assumption of linearity in the low dose portion of a dose-response curve, the carcinogenic risk estimate is generally an upper-bound estimate. This means "true risk" probably does not exceed the risk estimates generated in this assessment and is likely to be less than the predicted risk (USEPA, 1991). Carcinogenic risks were estimated for adults only since these risks are estimated as the probability of an individual developing cancer over a lifetime.

For carcinogens, probabilities that an individual will develop cancer over a lifetime of exposure are estimated from projected exposure and the cancer slope factor. Exposure is quantified as the amount of a chemical available at the exchange boundary (i.e., skin, lungs, etc.) and available for absorption. The carcinogenic risk is calculated for each exposure scenario using equation I-1 below.

Risk = Exposure x Slope Factor (I-1)

The USEPA's goal for corrective measures set forth in the proposed Subpart S corrective rule (55 *Federal Register* 30826, 27 July 1990) allows a cancer risk of 1E-4 (1 in 10,000) to 1E-6 (1 in 1,000,000). This range is designed to be protective of human health. A cancer risk of 1E-6 is considered the point of departure *(de minimis)* for risk management purposes.

1.1.2 Noncarcinogenic Effects

To characterize potential noncarcinogenic effects, comparisons are made between projected intakes of substances over a specified time period and toxicity values, primarily oral, dermal, and inhalation reference doses. The ratio of exposure to toxicity is the hazard quotient (HQ), and the HQ is calculated for each exposure scenario using equation I-2 below.

Hazard Quotient = Exposure/RfD or RfC (I-2)

Note that the HQ is not a statistical probability of a noncarcinogenic effect occurring and should not be interpreted as such. If the exposure level exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be cause for concern regarding the potential noncarcinogenic effects.

1.2 Combining Risks Associated with Chemicals and Exposure Pathways

For each scenario addressed in this risk assessment, the estimated carcinogenic risk for potential carcinogens is generated on a chemical-specific basis for each relevant pathway of exposure. The estimated risk for each chemical associated with a specific pathway is summed to determine the total risk by pathway. To determine the total exposure scenario risk, total risks for all pathways are summed.

The total risk number assumes that different carcinogens affect the same target organ to produce a cancer response, ignoring potential antagonistic or synergistic effects or disparate effects on different target organs. It also assumes that the individual in the exposure scenario is exposed to site-related contaminants at estimated exposure concentrations by all pathways that compose the scenario. The scenarios were constructed to include all potential pathways of exposure and assume that it is possible for a single individual to be exposed by all pathways in a scenario. It is not likely, however, that a single individual will be exposed by each pathway at the conservatively estimated concentrations in the exposure media.

Likewise, the estimated HQ for noncarcinogenic effects is generated on a chemical-by-chemical basis for each relevant pathway of exposure. The HQ for each chemical associated with a specific pathway are summed to determine the hazard index by pathway. The hazard indices for all pathways are finally summed to determine the total hazard index for the exposure scenario.

1.3 Documentation of Risk Characterization Results

The exposure and risk calculations were performed by a risk model (Quantitative Site-Specific Multi-Media Assessment Risk Tool or QSMART) developed by Radian Corporation to automate the exposure quantification and risk characterization process. The model automates the equations for chemical intake and generates

chemical-specific hazard indices for noncarcinogenic effects using RfDs and chemical-specific carcinogenic risk estimates using cancer slope factors. The model sums the resultant values for chemicals in each of the exposure pathways, and across pathways, to generate a total scenario hazard index for noncarcinogenic effects and a total scenario cancer risk for carcinogenic effects. The program also calculates the percentage of the total risk contributed by each individual chemical and pathway of exposure. Appendix J contains the exposure and risk model output.

1.4 Risk Characterization Results

The following sections present the risk characterization results for each impoundment investigated in the HAFB Lakes and Lagoons risk assessment on a site-by-site basis. Results for each scenario are grouped by chemical and pathway.

1.5 References

U.S. Environmental Protection Agency (USEPA, 1991) "Standard Default Exposure Factors". Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, Supplemental Guidance. March 25, 1991.

POND A

Table I-1

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	4.4E-11	0E+0	0E+0	4.4E-11	<1
4,4'-DDE	0E+0	2.51E-10	0E+0	2.51E-10	<1
4,4'-DDT	2.08E-10	0E+0	0E+0	2.08E-10	<1
Benzo(a)anthracene	0E+0	1.31E-9	0E+0	1.31E-9	<1
Benzo(a)pyrene	0E+0	2.82E-10	0E+0	2.82E-10	<1
Benzo(b)fluoranthene	0E+0	1.06E-9	0E+0	1.06E-9	<1
Benzo(k)fluoranthene	0E+0	3.17E-10	0E+0	3.17E-10	<1
Beryllium	0E+0	8.56E-12	3.23E-11	4.09E-11	<1
Dieldrin	3.21E-11	0E+0	0E+0	3.21E-11	<1
gamma-Chlordane	0E+0	7.46E-10	0E+0	7.46E-10	<1
Heptachlor	1.34E-11	1.21E-9	0E+0	1.23E-9	<1
Heptachlor epoxide	2.27E-11	1.92E-6	0E+0	1.92E-6	94.7
Indeno(1,2,3-cd)pyrene	0E+0	1.06E-9	0E+0	1.06E-9	<1
OCDD	0E+0	1.33E-10	0E+0	1.33E-10	<1
PCB-1254	0E+0	6.71E-8	0E+0	6.71E-8	3.3
PCB-1260	0E+0	3.25E-8	0E+0	3.25E-8	1.6
Total by pathway	3.2E-10	1.92E-6	3.23E-11		
% Contribution by pathway	<1	100	<1		
Scenario Total				2.02E-6	

Table I-2

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	3.46E-9	0E+0	0E+0	3.46E-9	<1
4,4'-DDE	0E+0	9.95E-9	0E+0	9.95E-9	<1
4,4'-DDT	1.64E-8	0E+0	0E+0	1.64E-8	<1
Benzo(a)anthracene	0E+0	6.47E-8	0E+0	6.47E-8	<1
Benzo(a)pyrene	0E+0	1.12E-8	0E+0	1.12E-8	<1
Benzo(b)flouranthene	0E+0	5.74E-8	0E+0	5.47E-8	<1
Benzo(k)flouranthene	0E+0	1.81E-8	0E+0	1.81E-8	<1
Beryllium	0E+0	3.4E-10	1.46E-9	1.8E-9	<1
Dieldrin	2.52E-9	0E+0	0E+0	2.52E-9	<1
gamma-Chlordane	0E+0	2.96E-8	0E+0	2.96E-8	<1
Heptachlor	1.06E-9	4.81E-8	0E+0	4.91E-8	<1
Heptachlor epoxide	1.78E-9	7.61E-5	0E+0	7.61E-5	93.8
Indeno(1,2,3-cd)pyrene	0E+0	4.57E-8	0E+0	4.57E-8	<1
OCDD	0E+0	5.3E-9	0E+0	5.3E-9	<1
PCB-1254	0E+0	3.23E-6	0E+0	3.23E-6	4
PCB-1260	0E+0	1.48E-6	0E+0	1.48E-6	1.8
Total by pathway	2.52E-8	7.62E-5	1.46E-9		
% Contribution by pathway	<1	100	<1		
Scenario Total				7.62E-5	

Table I-3

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	2.85-6	0E+0	0E+0	2.85E-6	<1
4,4'-DDE	0E+0	1.47E-6	0E+0	1.47E-6	<1
4,4'-DDT	4.25E-7	0E+0	0E+0	4.25E-7	<1
Antimony	0E+0	1.3E-5	0E+0	1.3E-5	<1
Arsenic	0E+0	1.37E-6	1.32E-6	2.68E-6	<1
Beryllium	0E+0	3.1E-9	1.17E-8	1.48E-8	<1
Cadmium	0E+0	1.22E-6	0E+0	1.22E-6	<1
delta-BHC	1.01E-7	0E+0	0E+0	1.01E-7	<1
Dieldrin	2.39E-7	0E+0	0E+0	2.39E-7	<1
Endosulfan I	0E+0	1.91E-7	0E+0	1.91E-7	<1
Endosulfan II	0E+0	1.25E-10	0E+0	1.25E-10	<1
Endosulfan sulfate	1.45E-11	1.55E-7	0E+0	1.55E-7	<1
gamma-Chlordane	0E+0	7.44E-5	0E+0	7.44E-5	<1
Heptachlor	2.38E-8	2.15E-6	0E+0	2.17E-6	<1
Heptachlor epoxide	1.49E-6	1.26E-1	0E+0	1.26E-1	99.4
OCDD	0E+0	6.92E-6	0E+0	6.92E-6	<1
Silver	0E+0	2.62E-5	0E+0	2.62E-5	<1
Thallium	0E+0	0E+0	6.77E-4	6.77E-4	<1
Total by pathway	5.13E-6	1.26E-1	6.78E-4		
% Contribution by pathway	<1	99.5	<1		
Scenario Total				1.27E-1	

Table I-4

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	8.07E-5	0E+0	0E+0	8.07E-5	<1
4,4'-DDE	0E+0	2.11E-5	0E+0	2.11E-5	<1
4,4'-DDT	1.2E-5	0E+0	0E+0	1.2E-5	<1
Antimony	0E+0	1.85E-4	0E+0	1.85E-4	<1
Arsenic	0E+0	1.95E-5	2.1E-5	4.05E-5	<1
Beryllium	0E+0	4.42E-8	1.9E-7	2.35E-7	<1
Cadmium	0E+0	2.25E-5	0E+0	2.25E-5	<1
delta-BHC	2.86E-6	0E+0	0E+0	2.86E-6	<1
Dieldrin	6.76E-6	0E+0	0E+0	6.76E-6	<1
Endosulfan I	0E+0	2.73E-6	0E+0	2.73E-6	<1
Endosulfan II	0E+0	1.79E-9	0E+0	1.79E-9	<1
Endosulfan sulfate	4.11E-10	2.21E-6	0E+0	2.21E-6	<1
gamma-Chlordane	0E+0	1.06E-3	0E+0	1.06E-3	<1
Heptachlor	6.74E-7	3.07E-5	0E+0	3.14E-5	<1
Heptachlor epoxide	4.21E-5	1.8	0E+0	1.8	99.2
OCDD	0E+0	9.89E-5	0E+0	9.89E-5	<1
Silver	0E+0	4.76E-4	0E+0	4.76E-4	<1
Thallium	0E+0	0E+0	1.19E-2	1.19E-2	<1
Total by pathway	1.45E-4	1.8	1.2E-2		
% Contribution by pathway	<1	99.3	<1		
Scenario Total				1.82	

Table I-5

Average Noncancer Hazard Index Summary
On-site Occupational - Current Subchronic (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	9.52E-6	0E+0	0E+0	9.52E-6	<1
Antimony	0E+0	1.3E-5	0E+0	1.3E-5	<1
Arsenic	0E+0	1.37E-6	1.32E-6	2.68E-6	<1
Beryllium	0E+0	3.1E-9	1.17E-8	1.48E-8	<1
Dieldrin	3.12E-7	0E+0	0E+0	3.12E-7	<1
Endosulfan I	0E+0	9.65E-5	0E+0	9.65E-5	<1
Endosulfan II	0E+0	2E-4	0E+0	2E-4	<1
gamma-Chlordane	0E+0	7.44E-5	0E+0	7.44E-5	<1
Heptachlor	4.65E-8	4.19E-6	0E+0	4.24E-6	<1
Heptachlor epoxide	1.49E-6	1.26E-1	0E+0	1.26E-1	99.6
Silver	0E+0	2.62E-5	0E+0	2.62E-5	<1
Thallium	0E+0	0E+0	6.77E-5	6.77E-5	<1
Total by pathway	1.14E-5	1.26E-1	6.9E-5		
% Contribution by pathway	<1	99.9	<1		
Scenario Total				1.27E-1	

Table I-6

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Subchronic (Lagoons in Service) - Pond A

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	2.69E-4	0E+0	0E+0	2.69E-4	<1
Antimony	0E+0	1.85E-4	0E+0	1.85E-4	<1
Arsenic	0E+0	1.95E-5	2.1E-5	4.05E-5	<1
Beryllium	0E+0	4.42E-8	1.9E-7	2.35E-7	<1
Dieldrin	8.82E-6	0E+0	0E+0	8.82E-6	<1
Endosulfan I	0E+0	1.38E-3	0E+0	1.38E-3	<1
Endosulfan II	0E+0	2.86E-3	0E+0	2.86E-3	<1
gamma-Chlordane	0E+0	1.06E-3	0E+0	1.06E-3	<1
Heptachlor	1.31E-6	5.98E-5	0E+0	6.12E-5	<1
Heptachlor epoxide	4.21E-5	1.8	0E+0	1.8	99.6
Silver	0E+0	4.76E-4	0E+0	4.76E-4	<1
Thallium	0E+0	0E+0	1.19E-3	1.19E-3	<1
Total by pathway	3.22E-4	1.81	1.22E-3		
% Contribution by pathway	<1	99.9	<1		
Scenario Total				1.81	

Table I-7

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	5.23E-10	5.23E-10	3.75
4,4'-DDE	6.14E-9	6.14E-9	44.0
4,4'-DDT	1.74E-9	1.74E-9	12.4
Aldrin	4.59E-9	4.59E-9	32.9
alpha-BHC	1.8E-10	1.8E-10	1.29
alpha-Chlordane	6.93E-12	6.93E-12	<1
beta-BHC	5.2E-11	5.2E-11	<1
Dieldrin	8.78E-11	8.78E-11	<1
gamma-BHC	3.63E-11	3.63E-11	<1
gamma-Chlordane	3.89E-10	3.89E-10	2.79
Heptachlor	2.1E-10	2.1E-10	1.5
Heptachlor epoxide	5.67E-12	5.67E-12	<1
Total by pathway	1.4E-8		
% Contribution by pathway	100.0		
Scenario Total		1.4E-8	

Table I-8

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)
Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	9.56E-9	9.56E-9	3.56
4,4'-DDE	1.21E-7	1.21E-7	45.1
4,4'-DDT	3.31E-8	3.31E-8	12.3
Aldrin	8.3E-8	8.3E-8	30.9
alpha-BHC	3.53E-9	3.53E-9	1.32
alpha-Chlordane	1.68E-10	1.68E-10	<1
beta-BHC	1.06E-9	1.06E-9	<1
Dieldrin	1.8E-9	1.8E-9	<1
gamma-BHC	8.9E-10	8.9E-10	<1
gamma-Chlordane	1.04E-8	1.04E-8	3.86
Heptachlor	3.96E-9	3.96E-9	1.47
Heptachlor epoxide	9.49E-11	9.49E-11	<1
Total by pathway	2.69E-7		
% Contribution by pathway	100.0		
Scenario Total		2.69E-7	

Table I-9

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service) - Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	3.39E-5	3.39E-5	<1
4,4'-DDE	3.61E-5	3.61E-5	<1
4,4'-DDT	7.94E-5	7.94E-5	<1
Aldrin	7E-5	7E-5	<1
alpha-BHC	5.36E-7	5.36E-7	<1
alpha-Chlordane	2.8E-6	2.8E-6	<1
Antimony	8.47E-2	8.47E-2	99.6
beta-BHC	6.81E-7	6.81E-7	<1
delta-BHC	1.16E-6	1.16E-6	<1
Dieldrin	8.53E-7	8.53E-7	<1
Endosulfan I	3.28E-9	3.28E-9	<1
Endosulfan II	2.51E-1	22.51E-1	<1
Endosulfan sulfate	4.35E-8	4.35E-8	<1
Endrin	2.43E-5	2.43E-5	<1
gamma-BHC	7.25E-7	7.25E-7	<1
gamma-Chlordane	3.88E-5	3.88E-5	<1
Heptachlor	7.25E-7	7.25E-7	<1
Heptachlor epoxide	3.73E-7	3.73E-7	<1
Isodrin	1.96E-5	1.96E-5	<1
Methoxychlor	8.18E-6	8.18E-6	<1
Total by pathway	8.5E-2		
% Contribution by pathway	100.0		
Scenario Total		8.5E-2	

Table I-10

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service) - Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	1.86E-4	1.86E-4	<1
4,4'-DDE	2.14E-4	2.14E-4	<1
4,4'-DDT	4.55E-4	4.55E-4	<1
Aldrin	3.8E-4	3.8E-4	<1
alpha-BHC	3.15E-6	3.15E-6	<1
alpha-Chlordane	2.04E-5	2.04E-5	<1
Antimony	3.61E-1	3.61E-1	99.5
beta-BHC	4.15E-6	4.15E-6	<1
delta-BHC	7.21E-6	7.21E-6	<1
Dieldrin	5.24E-6	5.24E-6	<1
Endosulfan I	1.94E-8	1.94E-8	<1
Endosulfan II	1.28E-11	1.28E-11	<1
Endosulfan sulfate	2.09E-7	2.09E-7	<1
Endrin	1.52E-4	1.52E-4	<1
gamma-BHC	5.32E-6	5.32E-6	<1
gamma-Chlordane	3.1E-4	3.1E-4	<1
Heptachlor	4.11E-6	4.11E-6	<1
Heptachlor epoxide	1.87E-6	1.87E-6	<1
Isodrin	1.38E-4	1.38E-4	<1
Methoxychlor	3.49E-5	3.49E-5	<1
Total by pathway	3.63E-1		
% Contribution by pathway	100.0		
Scenario Total		3.63E-1	

Table I-11

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future
(Lagoons In or Out of Service) - Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	7.91E-5	7.91E-5	<1
4,4'-DDE	8.42E-5	8.42E-5	<1
4,4'-DDT	1.85E-4	1.85E-4	<1
Aldrin	1.63E-4	1.63E-4	<1
alpha-BHC	1.25E-6	1.25E-6	<1
alpha-Chlordane	6.53E-6	6.53E-6	<1
Antimony	1.98E-1	1.98E-1	99.6
beta-BHC	1.59E-6	1.59E-6	<1
delta-BHC	2.7E-6	2.7E-6	<1
Dieldrin	1.99E-6	1.99E-6	<1
Endosulfan I	7.66E-9	7.66E-9	<1
Endosulfan II	5.85E-12	5.85E-12	<1
Endosulfan sulfate	1.02E-7	1.02E-7	<1
Endrin	5.67E-5	5.67E-5	<1
gamma-BHC	1.69E-6	1.69E-6	<1
gamma-Chlordane	9.06E-5	9.06E-5	<1
Heptachlor	1.69E-6	1.69E-6	<1
Heptachlor epoxide	8.7E-7	8.7E-7	<1
Isodrin	4.56E-5	4.56E-5	<1
Methoxychlor	1.91E-5	1.91E-5	<1
Total by pathway	1.98E-1		
% Contribution by pathway	100.0		
Scenario Total		1.98E-1	

Table I-12

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service) - Pond A

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	4.34E-4	4.34E-4	<1
4,4'-DDE	4.99E-4	4.99E-4	<1
4,4'-DDT	1.06E-3	1.06E-3	<1
Aldrin	8.86E-4	8.86E-4	<1
alpha-BHC	7.34E-6	7.34E-6	<1
alpha-Chlordane	4.76E-5	4.76E-5	<1
Antimony	8.42E-1	8.42E-1	99.5
beta-BHC	9.68E-6	9.68E-6	<1
delta-BHC	1.68E-5	1.68E-5	<1
Dieldrin	1.22E-5	1.22E-5	<1
Endosulfan I	4.54E-8	4.54E-8	<1
Endosulfan II	2.99E-11	2.99E-11	<1
Endosulfan sulfate	4.87E-7	4.87E-7	<1
Endrin	3.56E-4	3.56E-4	<1
gamma-BHC	1.24E-5	1.24E-5	<1
gamma-Chlordane	7.24E-4	7.24E-4	<1
Heptachlor	9.59E-6	9.59E-6	<1
Heptachlor epoxide	4.37E-6	4.37E-6	<1
Isodrin	3.22E-4	3.22E-4	<1
Methoxychlor	8.14E-5	8.14E-5	<1
Total by pathway	8.47E-1		
% Contribution by pathway	100.0		
Scenario Total		8.47E-1	

Table I-13

Average Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic
(Lagoons Out of Service) - Pond A

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contribution
Antimony	3.32E-3	0E+0	6.69E-3	0E+0	1E-2	<1
Arsenic	3.5E-4	3.37E-4	7.05E-3	6.8E-3	1.45E-2	<1
Beryllium	7.93E-7	2.99E-6	1.6E-5	6.03E-5	8E-5	<1
Endosulfan I	2.47E-2	0E+0	0E+0	0E+0	2.47E-2	<1
Endosulfan II	5.13E-2	0E+0	1.03E-2	0E+0	6.16E-2	<1
gamma-Chlordane	1.9E-2	0E+0	3.84E-3	0E+0	2.29E-2	<1
Heptachlor	1.07E-3	0E+0	2.16E-4	0E+0	1.29E-3	<1
Heptachlor epoxide	3.23E+1	0E+0	6.5	0E+0	3.88E+1	99.4
Silver	6.71E-3	0E+0	1.35E-2	0E+0	2.02E-2	<1
Thallium	0E+0	1.73E-2	0E+0	3.49E-2	5.22E-2	<1
Total by pathway	3.24E+1	1.77E-2	6.53	4.17E-2		
% Contribution by pathway	83.1	<1	16.8	<1		
Scenario Total					3.9E+1	

Table I-14

Reasonable Maximum Noncancer Hazard Index Summary On-site Occupational - Future Subchronic (Lagoons Out of Service) - Pond A

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contribution
Antimony	8.3E-3	0E+0	6.69E-2	0E+0	7.52E-2	<1
Arsenic	8.74E-4	9.42E-4	7.05E-2	7.59E-2	1.48E-1	<1
Beryllium	1.98E-6	8.53E-6	1.6E-4	6.88E-4	8.58E-4	<1
Endosulfan I	6.18E-2	0E+0	0E+0	0E+0	6.18E-2	<1
Endosulfan II	1.28E-1	0E+0	1.03E-1	0E+0	2.32E-1	<1
gamma-Chlordane	4.76E-2	0E+0	3.84E-2	0E+0	8.59E-2	<1
Heptachlor	2.68E-3	0E+0	2.16E-3	0E+0	4.84E-3	<1
Heptachlor epoxide	8.07E+1	0E+0	6.5E+1	0E+0	1.46E+2	99.3
Silver	2.13E-2	0E+0	1.72E-1	0E+0	1.93E-1	<1
Thallium	0E+0	5.35E-2	0E+0	4.31E-1	4.85E-1	<1
Total by pathway	8.09E+1		5.45E-2	6.53E+1	5.08E-1	
% Contribution by pathway	55.1	<1	44.5	<1		
Scenario Total					1.47E+2	

POND B

Table I-15

Average Cancer Risk - On-site Occupational - Current (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	6.76E-11	0E+0	0E+0	6.76E-11	<1
4,4'-DDE	6.85E-10	0E+0	0E+0	6.85E-10	<1
4,4'-DDT	1.87E-10	0E+0	0E+0	1.87E-10	<1
alpha-BHC	5.01E-13	0E+0	0E+0	5.01E-13	<1
alpha-Chlordane	1.74E-11	0E+0	0E+0	1.74E-11	<1
Benzo(a)pyrene	0E+0	2.7E-9	0E+0	2.7E-9	3.34
Benzo(b)fluoranthene	0E+0	6.64E-10	0E+0	6.64E-10	<1
Beryllium	0E+0	4.75E-11	2.73E-11	7.48E-11	<1
bis(2-Ethylhexyl)phthalate	2.9E-15	5.01E-10	0E+0	5.01E-10	<1
Chlordane	4.49E-10	0E+0	0E+0	4.49E-10	<1
Dieldrin	4.7E-11	0E+0	0E+0	4.7E-11	<1
gamma-BHC	9.12E-13	0E+0	0E+0	9.12E-13	<1
Heptachlor epoxide	2.27E-11	0E+0	0E+0	2.27E-11	<1
Isophorone	0E+0	1.44E-12	0E+0	1.44E-12	<1
PCB-1254	0E+0	5.38E-8	0E+0	5.38E-8	66.6
PCB-1260	0E+0	2.16E-8	0E+0	2.16E-8	26.7
Total by pathway	1.48E-9	7.94E-8	2.73E-11		
% Contribution by pathway	1.83	98.1	<1		
Scenario Total				8.09E-8	

Table I-16

Reasonable Maximum Cancer Risk - On-site Occupational - Current (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	5.31E-9	0E+0	0E+0	5.31E-9	<1
4,4'-DDE	1.3E-7	0E+0	0E+0	1.3E-7	3.22
4,4'-DDT	1.47E-8	0E+0	0E+0	1.47E-8	<1
alpha-BHC	7.03E-11	0E+0	0E+0	7.03E-11	<1
alpha-Chlordane	1.37E-9	0E+0	0E+0	1.37E-9	<1
Benzo(a)pyrene	0E+0	1.26E-7	0E+0	1.26E-7	3.11
Benzo(b)fluoranthene	0E+0	3.1E-8	0E+0	3.1E-8	<1
Beryllium	0E+0	2.39E-9	1.37E-9	3.76E-9	<1
bis(2-Ethylhexyl)phthalate	3.05E-13	2.62E-8	0E+0	2.62E-8	<1
Chlordane	7.08E-8	0E+0	0E+0	7.08E-8	1.75
Dieldrin	3.69E-9	0E+0	0E+0	3.69E-9	<1
gamma-BHC	7.17E-11	0E+0	0E+0	7.17E-11	<1
Heptachlor epoxide	1.78E-9	0E+0	0E+0	1.78E-9	<1
Isophorone	0E+0	8.16E-11	0E+0	8.16E-11	<1
PCB-1254	0E+0	2.63E-6	0E+0	2.63E-6	65.1
PCB-1260	0E+0	9.96E-7	0E+0	9.96E-7	24.7
Total by pathway	2.28E-7	3.81E-6	1.37E-9		
% Contribution by pathway	5.64	94.3	<1		
Scenario Total				4.04E-6	

Table I-17

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	4.38E-6	0E+0	0E+0	4.38E-6	<1
4,4'-DDE	4.03E-6	0E+0	0E+0	4.03E-6	<1
4,4'-DDT	3.83E-7	0E+0	0E+0	3.83E-7	<1
alpha-BHC	5.29E-10	0E+0	0E+0	5.29E-10	<1
alpha-Chlordane	7.05E-6	0E+0	0E+0	7.05E-6	<1
Antimony	1.52E-6	0E+0	0E+0	1.52E-6	<1
Arsenic	1.1E-7	4.2E-6	1.05E-6	5.36E-6	<1
Beryllium	0E+0	1.72E-8	9.87E-9	2.7E-8	<1
bis(2-Ethylhexyl)phthalate	8.05E-11	1.39E-5	0E+0	1.39E-5	<1
Boron	1.2E-7	0E+0	0E+0	1.2E-7	<1
Chlordane	2.16E-5	0E+0	0E+0	2.16E-5	<1
Chromium VI	2.76E-9	0E+0	0E+0	2.76E-9	<1
delta-BHC	4.64E-8	0E+0	0E+0	4.64E-8	<1
Dieldrin	3.51E-7	0E+0	0E+0	3.51E-7	<1
Endosulfan I	0E+0	0E+0	3.59E-10	3.59E-10	<1
Endosulfan sulfate	1.34E-11	0E+0	0E+0	1.34E-11	<1
gamma-BHC	1.82E-9	0E+0	0E+0	1.82E-9	<1
Heptachlor epoxide	1.49E-6	0E+0	0E+0	1.49E-6	<1
Isophorone	0E+0	5.88E-8	0E+0	5.88E-8	<1
Lead (organic)	2.28E-2	0E+0	0E+0	2.28E-2	99.6
Manganese (water)	3.28E-7	0E+0	0E+0	3.28E-7	<1
Mercury	3.29E-8	1.49E-5	0E+0	1.49E-5	<1

Table I-17

Continued

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
Silver	3.48E-8	1.74E-5	0E+0	1.74E-5	<1
Vanadium	3.42E-8	0E+0	0E+0	3.42E-8	<1
Total by pathway	2.28E-2	5.05E-5	1.07E-6		
% Contribution by pathway	99.8	<1	<1		
Scenario Total				2.29E-2	

Table I-18

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	1.24E-4	0E+0	0E+0	1.24E-4	<1
4,4'-DDE	2.75E-4	0E+0	0E+0	2.75E-4	<1
4,4'-DDT	1.08E-5	0E+0	0E+0	1.08E-5	<1
alpha-BHC	2.67E-8	0E+0	0E+0	2.67E-8	<1
alpha-Chlordane	1.99E-4	0E+0	0E+0	1.99E-4	<1
Antimony	7.26E-5	0E+0	0E+0	7.26E-5	<1
Arsenic	3.35E-6	6.42E-5	2.16E-5	8.91E-5	<1
Beryllium	0E+0	3.11E-7	1.79E-7	4.9E-7	<1
bis(2-Ethylhexyl)phthalate	3.05E-9	2.62E-4	0E+0	2.62E-4	<1
Boron	4.4E-6	0E+0	0E+0	4.4E-6	<1
Chlordane	1.23E-3	0E+0	0E+0	1.23E-3	<1
Chromium VI	1.92E-7	0E+0	0E+0	1.92E-7	<1
delta-BHC	1.31E-6	0E+0	0E+0	1.31E-6	<1
Dieldrin	9.92E-6	0E+0	0E+0	9.92E-6	<1
Endosulfan I	0E+0	0E+0	7.34E-9	7.34E-9	<1
Endosulfan sulfate	3.8E-10	0E+0	0E+0	3.8E-10	<1
gamma-BHC	5.15E-8	0E+0	0E+0	5.15E-8	<1
Heptachlor epoxide	4.21E-5	0E+0	0E+0	4.21E-5	<1
Isophorone	0E+0	1.2E-6	0E+0	1.2E-6	<1
Lead (organic)	8.32E-1	0E+0	0E+0	8.32E-1	99.6
Manganese (water)	1.19E-5	0E+0	0E+0	1.19E-5	<1
Mercury	1.33E-6	2.52E-4	0E+0	2.54E-4	<1

Table I-18

Continued

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
Silver	1.53E-6	3.97E-4	0E+0	3.98E-4	<1
Vanadium	1.09E-6	0E+0	0E+0	1.09E-6	<1
Total by pathway	8.34E-1	9.77E-4	2.18E-5		
% Contribution by pathway	99.9	<1	<1		
Scenario Total				8.35E-1	

Table I-19
Average Noncancer Hazard Index Summary
On-site Occupational - Current Sub-Chronic (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	8.57E-6	0E+0	0E+0	8.57E-6	<1
alpha-Chlordane	1.74E-6	0E+0	0E+0	1.74E-6	<1
Antimony	1.52E-6	0E+0	0E+0	1.52E-6	<1
Arsenic	1.1E-7	4.2E-6	1.05E-6	5.36E-6	<1
Beryllium	0E+0	1.72E-8	9.87E-9	2.7E-8	<1
bis(2-Ethylhexyl)phthalate	8.05E-11	1.39E-5	0E+0	1.39E-5	<1
Boron	1.2E-7	0E+0	0E+0	1.2E-7	<1
Chlordane	4.47E-5	0E+0	0E+0	4.47E-5	<1
Chromium VI	6.9E-10	0E+0	0E+0	6.9E-10	<1
Dieldrin	4.57E-7	0E+0	0E+0	4.57E-7	<1
Endosulfan I	0E+0	0E+0	1.82E-7	1.82E-7	<1
gamma-BHC	1.82E-9	0E+0	0E+0	1.82E-9	<1
Heptachlor epoxide	1.49E-6	0E+0	0E+0	1.49E-6	<1
Isophorone	0E+0	5.88E-9	0E+0	5.88E-9	<1
Lead (organic)	2.28E-2	0E+0	0E+0	2.28E-2	99.5
Mercury	3.29E-8	1.49E-5	0E+0	1.49E-5	<1
Silver	3.48E-8	1.74E-5	0E+0	1.74E-5	<1
Vanadium	3.42E-8	0E+0	0E+0	3.42E-8	<1
Total by pathway	2.28E-2	5.04E-5	1.25E-6		
% Contribution by pathway	99.8	<1	<1		
Scenario Total				2.29E-2	

Table I-20
Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Sub-Chronic (Lagoons in Service) - Pond B

Compound	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	2.42E-4	0E+0	0E+0	2.42E-4	<1
alpha-Chlordane	4.92E-5	0E+0	0E+0	4.92E-5	<1
Antimony	7.26E-5	0E+0	0E+0	7.26E-5	<1
Arsenic	3.35E-6	6.42E-5	2.16E-5	8.91E-5	<1
Beryllium	0E+0	3.11E-7	1.79E-7	4.9E-7	<1
bis(2-Ethylhexyl)phthalate	3.05E-9	2.62E-4	0E+0	2.62E-4	<1
Boron	4.4E-6	0E+0	0E+0	4.4E-6	<1
Chlordane	2.54E-3	0E+0	0E+0	2.54E-3	<1
Chromium VI	4.8E-8	0E+0	0E+0	4.8E-8	<1
Dieldrin	1.29E-5	0E+0	0E+0	1.29E-5	<1
Endosulfan I	0E+0	0E+0	3.72E-6	3.72E-6	<1
gamma-BHC	5.15E-8	0E+0	0E+0	5.15E-8	<1
Heptachlor epoxide	4.21E-5	0E+0	0E+0	4.21E-5	<1
Isophorone	0E+0	1.2E-7	0E+0	1.2E-7	<1
Lead (organic)	8.32E-1	0E+0	0E+0	8.32E-1	99.5
Mercury	1.33E-6	2.52E-4	0E+0	2.54E-4	<1
Silver	1.53E-6	3.97E-4	0E+0	3.98E-4	<1
Vanadium	1.09E-6	0E+0	0E+0	1.09E-6	<1
Total by pathway	8.35E-1	9.76E-4	2.55E-5		
% Contribution by pathway	99.9	<1	<1		
Scenario Total				8.36E-1	

Table I-21

Average Cancer Risk
Off-site Agricultural, Adult - Future
(Lagoons In or Out of Service) - Pond B

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	5.23E-10	5.23E-10	3.75
4,4'-DDE	6.14E-9	6.14E-9	44.0
4,4'-DDT	1.74E-9	1.74E-9	12.4
Aldrin	4.59E-9	4.59E-9	32.9
alpha-BHC	1.8E-10	1.8E-10	1.29
alpha-Chlordane	6.93E-12	6.93E-12	<1
beta-BHC	5.2E-11	5.2E-11	<1
Dieldrin	8.78E-11	8.78E-11	<1
gamma-BHC	3.63E-11	3.63E-11	<1
gamma-Chlordane	3.89E-10	3.89E-10	2.79
Heptachlor	2.1E-10	2.1E-10	1.5
Heptachlor epoxide	5.67E-12	5.67E-12	<1
Total by pathway	1.4E-8		
% Contribution by pathway	100.0		
Scenario Total		1.4E-8	

Table I-22

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future
(Lagoons In or Out of Service) - Pond B

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	9.56E-9	9.56E-9	3.56
4,4'-DDE	1.21E-7	1.21E-7	45.1
4,4'-DDT	3.31E-8	3.31E-8	12.3
Aldrin	8.3E-8	8.3E-8	30.9
alpha-BHC	3.53E-9	3.53E-9	1.32
alpha-Chlordane	1.68E-10	1.68E-10	<1
beta-BHC	1.06E-9	1.06E-9	<1
Dieldrin	1.8E-9	1.8E-9	<1
gamma-BHC	8.9E-10	8.9E-10	<1
gamma-Chlordane	1.04E-8	1.04E-8	3.86
Heptachlor	3.96E-9	3.96E-9	1.47
Heptachlor epoxide	9.49E-11	9.49E-11	<1
Total by pathway	2.69E-7		
% Contribution by pathway	100.0		
Scenario Total		2.69E-7	

Table I-23

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service) -Pond B

Compound	Ingestion of Beef	Total	% Contribution
4,4'-DDD	3.39E-5	3.39E-5	<1
4,4'-DDE	3.61E-5	3.61E-5	<1
4,4'-DDT	7.94E-5	7.94E-5	<1
Aldrin	7E-5	7E-5	<1
alpha-BHC	5.36E-7	5.36E-7	<1
alpha-Chlordane	2.8E-6	2.8E-6	<1
Antimony	8.47E-2	8.47E-2	99.6
beta-BHC	6.81E-7	6.81E-7	<1
delta-BHC	1.16E-6	1.16E-6	<1
Dieldrin	8.53E-7	8.53E-7	<1
Endosulfan I	3.28E-9	3.28E-9	<1
Endosulfan II	2.51E-12	2.51E-12	<1
Endosulfan sulfate	4.35E-8	4.35E-8	<1
Endrin	2.43E-5	2.43E-5	<1
gamma-BHC	7.25E-7	7.25E-7	<1
gamma-Chlordane	3.88E-5	3.88E-5	<1
Heptachlor	7.25E-7	7.25E-7	<1
Heptachlor epoxide	3.73E-7	3.73E-7	<1
Isodrin	1.96E-5	1.96E-5	<1
Methoxychlor	2.42E-6	2.42E-6	<1
Total by pathway	8.5E-2		
% Contribution by pathway	100.0		
Scenario Total		8.5E-2	

Table I-24

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service) - Pond B

Compound	Ingestion of Beef	Total	% Contribution
4,4'-DDD	1.86E-4	1.86E-4	<1
4,4'-DDE	2.14E-4	2.14E-4	<1
4,4'-DDT	4.55E-4	4.55E-4	<1
Aldrin	3.8E-4	3.8E-4	<1
alpha-BHC	3.15E-6	3.15E-6	<1
alpha-Chlordane	2.04E-5	2.04E-5	<1
Antimony	3.61E-1	3.61E-1	99.5
beta-BHC	4.15E-6	4.15E-6	<1
delta-BHC	7.21E-6	7.21E-6	<1
Dieldrin	5.24E-6	5.24E-6	<1
Endosulfan I	1.94E-8	1.94E-8	<1
Endosulfan II	1.28E-11	1.28E-11	<1
Endosulfan sulfate	2.09E-7	2.09E-7	<1
Endrin	1.52E-4	1.52E-4	<1
gamma-BHC	5.32E-6	5.32E-6	<1
gamma-Chlordane	3.1E-4	3.1E-4	<1
Heptachlor	4.11E-6	4.11E-6	<1
Heptachlor epoxide	1.87E-6	1.87E-6	<1
Isodrin	1.38E-4	1.38E-4	<1
Methoxychlor	1.03E-5	1.03E-5	<1
Total by pathway	3.63E-1		
% Contribution by pathway	100.0		
Scenario Total		3.63E-1	

Table I-25

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service) - Pond B

Compound	Ingestion of Beef	Total	% Contribution
4,4'-DDD	7.91E-5	7.91E-5	<1
4,4'-DDE	8.42E-5	8.42E-5	<1
4,4'-DDT	1.85E-4	1.85E-4	<1
Aldrin	1.63E-4	1.63E-4	<1
alpha-BHC	1.25E-6	1.25E-6	<1
alpha-Chlordane	6.53E-6	6.53E-6	<1
Antimony	1.98E-1	1.98E-1	99.6
beta-BHC	1.59E-6	1.59E-6	<1
delta-BHC	2.7E-6	2.7E-6	<1
Dieldrin	1.99E-6	1.99E-6	<1
Endosulfan I	7.66E-9	7.66E-9	<1
Endosulfan II	5.85E-12	5.85E-12	<1
Endosulfan sulfate	1.02E-7	1.02E-7	<1
Endrin	5.67E-5	5.67E-5	<1
gamma-BHC	1.69E-6	1.69E-6	<1
gamma-Chlordane	9.06E-5	9.06E-5	<1
Heptachlor	1.69E-6	1.69E-6	<1
Heptachlor epoxide	8.7E-7	8.7E-7	<1
Isodrin	4.56E-5	4.56E-5	<1
Methoxychlor	5.64E-6	5.64E-6	<1
Total by pathway	1.98E-1		
% Contribution by pathway	100.0		
Scenario Total		1.98E-1	

Table I-26

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service) - Pond B

Compound	Ingestion of Beef	Total	% Contribution
4,4'-DDD	4.34E-4	4.34E-4	<1
4,4'-DDE	4.99E-4	4.99E-4	<1
4,4'-DDT	1.06E-3	1.06E-3	<1
Aldrin	8.86E-4	8.86E-4	<1
alpha-BHC	7.34E-6	7.34E-6	<1
alpha-Chlordane	4.76E-5	4.76E-5	<1
Antimony	8.42E-1	8.42E-1	99.5
beta-BHC	9.68E-6	9.68E-6	<1
delta-BHC	1.68E-5	1.68E-5	<1
Dieldrin	1.22E-5	1.22E-5	<1
Endosulfan I	4.54E-8	4.54E-8	<1
Endosulfan II	2.99E-11	2.99E-11	<1
Endosulfan sulfate	4.87E-7	4.87E-7	<1
Endrin	3.56E-4	3.56E-4	<1
gamma-BHC	1.24E-5	1.24E-5	<1
gamma-Chlordane	7.24E-4	7.24E-4	<1
Heptachlor	9.59E-6	9.59E-6	<1
Heptachlor epoxide	4.37E-6	4.37E-6	<1
Isodrin	3.22E-4	3.22E-4	<1
Methoxychlor	2.4E-5	2.4E-5	<1
Total by pathway	8.47E-1		
% Contribution by pathway	100.0		
Scenario Total		8.47E-1	

Table I-27

Average Noncancer Hazard Index Summary
On-site Occupational - Future Sub-Chronic (Lagoons Out of Service) - Pond B

Compound	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/Volatiles	Total	% Contribution
Arsenic	1.07E-3	2.7E-4	2.17E-2	5.44E-3	0E+0	2.84E-2	8.08
Beryllium	4.4E-6	2.53E-6	8.86E-5	5.09E-5	0E+0	1.46E-4	<1
bis(2-Ethylhexyl)phthalate	3.56E-3	0E+0	7.17E-4	0E+0	0E+0	4.28E-3	1.22
Endosulfan I	0E+0	4.65E-5	0E+0	0E+0	0E+0	4.65E-5	<1
Isophorone	1.51E-6	0E+0	3.03E-7	0E+0	0E+0	1.81E-6	<1
Manganese (dust)	0E+0	0E+0	0E+0	0E+0	2.94E-1	2.94E-1	83.4
Mercury	3.81E-3	0E+0	7.68E-3	0E+0	4.24E-4	1.19E-2	3.39
Silver	4.45E-3	0E+0	8.97E-3	0E+0	0E+0	1.34E-2	3.81
Total by pathway	1.29E-2	3.19E-4	3.91E-2	5.49E-3	2.94E-1		
% Contribution by pathway	3.67	<1	11.1	1.56	83.6		
Scenario Total						3.52E-1	

Table I-28

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Future Sub-Chronic (Lagoons Out of Service) - Pond B

Compound	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/Volatiles	Total	% Contribution
Arsenic	2.87E-3	9.67E-4	2.32E-1	7.79E-2	0E+0	3.13E-1	4.61
Beryllium	1.39E-5	8E-6	1.12E-3	6.45E-4	0E+0	1.79E-3	<1
bis(2-Ethylhexyl)phthalate	1.17E-2	0E+0	9.46E-3	0E+0	0E+0	2.12E-2	<1
Endosulfan I	0E+0	1.66E-4	0E+0	0E+0	0E+0	1.66E-4	<1
Isophorone	5.39E-6	0E+0	4.34E-6	0E+0	0E+0	9.73E-6	<1
Manganese (dust)	0E+0	0E+0	0E+0	0E+0	6.19	6.19	91.1
Mercury	1.13E-2	0E+0	9.11E-2	0E+0	5.1E-3	1.08E-1	1.58
Silver	1.78E-2	0E+0	1.43E-1	0E+0	0E+0	1.61E-1	2.37
Total by pathway	4.37E-2	1.14E-3	4.76E-1	7.86E-2	6.19		
% Contribution by pathway	<1	<1	7.02	1.16	91.2		
Scenario Total						6.79	

POND C

Table I-29

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service) - Pond C

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	6.53E-10	1.71E-11	6.7E-10	41.9
4,4'-DDE	0E+0	3.95E-10	1.2E-11	4.07E-10	25.5
4,4'-DDT	0E+0	6.72E-11	3.15E-12	7.04E-11	4.4
Aldrin	0E+0	0E+0	8.34E-11	8.34E-11	5.21
alpha-Chlordane	0E+0	1.05E-10	0E+0	1.05E-10	6.57
Beryllium	0E+0	1.61E-11	2.01E-11	3.62E-11	2.26
beta-BHC	3.79E-12	0E+0	1.96E-11	2.34E-11	1.46
gamma-Chlordane	0E+0	1.62E-10	0E+0	1.62E-10	10.1
Heptachlor epoxide	0E+0	0E+0	4.19E-11	4.19E-11	2.62
Total by pathway	3.79E-12	1.4E-9	1.97E-10		
% Contribution by pathway	<1	87.4	12.3		
Scenario Total				1.6E-9	

Table I-30

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service) - Pond C

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	5.26E-8	1.03E-9	5.36E-8	43.4
4,4'-DDE	0E+0	3.42E-8	9.42E-10	3.52E-8	28.4
4,4'-DDT	0E+0	4.12E-9	2.71E-10	4.39E-9	3.55
Aldrin	0E+0	0E+0	6.91E-9	6.91E-9	5.59
alpha-Chlordane	0E+0	5.93E-9	0E+0	5.93E-9	4.8
Beryllium	0E+0	8.29E-10	8.36E-10	1.66E-9	1.35
beta-BHC	2.98E-10	0E+0	1.99E-9	2.29E-9	1.85
gamma-Chlordane	0E+0	1.01E-8	0E+0	1.01E-8	8.13
Heptachlor epoxide	0E+0	0E+0	3.62E-9	3.62E-9	2.93
Total by pathway	2.98E-10	1.08E-7	1.56E-8		
% Contribution by pathway	<1	87.1	12.6		
Scenario Total				1.24E-7	

Table I-31

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond C

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
2,4,5-T	0E+0	9.14E-8	0E+0	9.14E-8	<1
4,4'-DDD	0E+0	4.23E-5	1.11E-6	4.34E-5	17.1
4,4'-DDE	0E+0	2.32E-6	7.03E-8	2.39E-6	<1
4,4'-DDT	0E+0	1.37E-7	6.43E-9	1.44E-7	<1
Aldrin	0E+0	0E+0	5.06E-7	5.06E-7	<1
alpha-Chlordane	0E+0	4.25E-5	0E+0	4.25E-5	16.7
Arsenic	8.38E-8	1.97E-7	0E+0	2.81E-7	<1
Beryllium	0E+0	5.82E-9	7.29E-9	1.31E-8	<1
beta-BHC	4.96E-8	0E+0	2.57E-7	3.06E-7	<1
Boron	6.87E-8	0E+0	0E+0	6.87E-8	<1
Chromium VI	6.3E-8	0E+0	0E+0	6.3E-8	<1
Cyanide	0E+0	2.61E-5	0E+0	2.61E-5	10.3
delta-BHC	0E+0	6.86E-5	1.87E-7	6.88E-5	27.1
Endosulfan I	0E+0	2.97E-7	2.79E-8	3.25E-7	<1
Endosulfan sulfate	0E+0	0E+0	2E-9	2E-9	<1
gamma-Chlordane	0E+0	1.62E-5	0E+0	1.62E-5	6.37
Heptachlor epoxide	0E+0	0E+0	2.75E-6	2.75E-6	1.09
Manganese (water)	3.59E-7	0E+0	0E+0	3.59E-7	<1
Silver	2.78E-5	1.74E-5	0E+0	4.52E-5	17.8
Vanadium	0E+0	4.18E-6	0E+0	4.18E-6	1.65
Total by pathway	2.85E-5	2.2E-4	4.92E-6		
% Contribution by pathway	11.2	86.8	1.94		
Scenario Total				2.54E-4	

Table I-32

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service) - Pond C

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
2,4,5-T	0E+0	1.97E-6	0E+0	1.97E-6	<1
4,4'-DDD	0E+0	1.23E-3	2.4E-5	1.25E-3	20.1
4,4'-DDE	0E+0	7.25E-5	1.99E-6	7.45E-5	1.19
4,4'-DDT	0E+0	3.03E-6	1.99E-7	3.23E-6	<1
Aldrin	0E+0	0E+0	1.51E-5	1.51E-5	<1
alpha-Chlordane	0E+0	8.63E-4	0E+0	8.63E-4	13.8
Arsenic	3.56E-6	9.34E-6	0E+0	1.29E-5	<1
Beryllium	0E+0	1.08E-7	1.09E-7	2.17E-7	<1
beta-BHC	1.4E-6	0E+0	9.4E-6	1.08E-5	<1
Boron	2.4E-6	0E+0	0E+0	2.4E-6	<1
Chromium VI	4.87E-6	0E+0	0E+0	4.87E-6	<1
Cyanide	0E+0	1.09E-3	0E+0	1.09E-3	17.4
delta-BHC	0E+0	1.97E-3	5.65E-6	1.97E-3	31.6
Endosulfan I	0E+0	8.81E-6	7.88E-7	9.59E-6	<1
Endosulfan sulfate	0E+0	0E+0	4.43E-8	4.43E-8	<1
gamma-Chlordane	0E+0	3.61E-4	0E+0	3.61E-4	5.78
Heptachlor epoxide	0E+0	0E+0	8.57E-5	8.57E-5	1.37
Manganese (water)	1.18E-5	0E+0	0E+0	1.18E-5	<1
Silver	0E+0	3.97E-4	0E+0	3.97E-4	6.36
Vanadium	0E+0	7.27E-5	0E+0	7.27E-5	1.17
Total by pathway	2.4E-5	6.07E-3	1.43E-4		
% Contribution by pathway	<1	97.3	2.29		
Scenario Total				6.24E-3	

Table I-33

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	6.38E-9	6.38E-9	42.0
4,4'-DDT	1.29E-9	1.29E-9	8.48
Aldrin	6.07E-9	6.07E-9	40.0
alpha-Chlordane	4.96E-12	4.96E-12	<1
Dieldrin	2.04E-11	2.04E-11	<1
gamma-BHC	5.34E-10	5.34E-10	3.52
gamma-Chlordane	8.84E-10	8.84E-10	5.82
Total by pathway	1.52E-8		
% Contribution by pathway	100.0		
Scenario Total		1.52E-8	

Table I-34

Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	2.04E-7	2.04E-7	44.3
4,4'-DDT	2.5E-8	2.5E-8	5.41
Aldrin	1.9E-7	1.9E-7	41.3
alpha-Chlordane	7.04E-11	7.04E-11	<1
Dieldrin	6.73E-10	6.73E-10	<1
gamma-BHC	1.71E-8	1.71E-8	3.71
gamma-Chlordane	2.38E-8	2.38E-8	5.15
Total by pathway	4.61E-7		
% Contribution by pathway	100.0		
Scenario Total		4.61E-7	

Table I-35

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	3.75E-5	3.75E-5	12.9
4,4'-DDT	5.88E-5	5.88E-5	20.3
Aldrin	9.25E-5	9.25E-5	31.9
alpha-Chlordane	2E-6	2E-6	<1
Dieldrin	1.98E-7	1.98E-7	<1
Endosulfan II	2E-12	2E-12	<1
Endosulfan sulfate	2.3E-8	2.3E-8	<1
Endrin	3.57E-7	3.57E-7	<1
gamma-BHC	1.06E-5	1.06E-5	3.67
gamma-Chlordane	8.81E-5	8.81E-5	30.4
Isodrin	1.44E-8	1.44E-8	<1
Total by pathway	2.9E-4		
% Contribution by pathway	100.0		
Scenario Total		2.9E-4	

Table I-36

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	3.6E-4	3.6E-4	15.0
4,4'-DDT	3.43E-4	3.43E-4	14.3
Aldrin	8.7E-4	8.7E-4	36.3
alpha-Chlordane	8.54E-6	8.54E-6	<1
Dieldrin	1.96E-6	1.96E-6	<1
Endosulfan II	1.24E-11	1.24E-11	<1
Endosulfan sulfate	1.88E-7	1.88E-7	<1
Endrin	3.6E-6	3.6E-6	<1
gamma-BHC	1.02E-4	1.02E-4	4.26
gamma-Chlordane	7.11E-4	7.11E-4	29.6
Isodrin	6.27E-8	6.27E-8	<1
Total by pathway	2.4E-3		
% Contribution by pathway	100.0		
Scenario Total		2.4E-3	

Table I-37

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	8.75E-5	8.75E-5	12.9
4,4'-DDT	1.37E-4	1.37E-4	20.3
Aldrin	2.16E-4	2.16E-4	31.9
alpha-Chlordane	4.67E-6	4.67E-6	<1
Dieldrin	4.62E-7	4.62E-7	<1
Endosulfan II	4.67E-12	4.67E-12	<1
Endosulfan sulfate	5.37E-8	5.37E-8	<1
Endrin	8.33E-7	8.33E-7	<1
gamma-BHC	2.48E-5	2.48E-5	3.67
gamma-Chlordane	2.06E-4	2.06E-4	30.4
Isodrin	3.37E-8	3.37E-8	<1
Total by pathway	6.77E-4		
% Contribution by pathway	100.0		
Scenario Total		6.77E-4	

Table I-38

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Child - Future Chronic (Lagoons In or Out of Service)-Pond C

	Ingestion of Beef	Total	% Contribution
4,4'-DDE	8.41E-4	8.41E-4	15.0
4,4'-DDT	7.99E-4	.99E-4	14.3
Aldrin	2.03E-3	2.03E-3	36.3
alpha-Chlordane	1.99E-5	1.99E-5	<1
Dieldrin	4.58E-6	4.58E-6	<1
Endosulfan II	2.89E-11	2.89E-11	<1
Endosulfan sulfate	4.39E-7	4.39E-7	<1
Endrin	8.39E-6	8.39E-6	<1
gamma-BHC	2.39E-4	2.39E-4	4.26
gamma-Chlordane	1.66E-3	1.66E-3	29.6
Isodrin	1.46E-7	1.46E-7	<1
Total by pathway	5.6E-3		
% Contribution by pathway	100.0		
Scenario Total		5.6E-3	

Table I-39

Average Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond C

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/ Volatiles	Total	% Contribution
2,4,5-T	2.34E-6	0E+0	4.71E-7	0E+0	0E+0	2.81E-6	<1
4,4'-DDT	7.87E-4	3.69E-5	1.59E-4	7.43E-6	0E+0	9.9E-4	<1
Aldrin	0E+0	3.25E-4	0E+0	6.56E-5	0E+0	3.91E-4	<1
alpha-Chlordane	2.68E-3	0E+0	5.4E-4	0E+0	0E+0	3.22E-3	<1
Arsenic	5.05E-5	0E+0	1.02E-3	0E+0	0E+0	1.07E-3	<1
Beryllium	1.49E-6	1.86E-6	3E-5	3.76E-5	0E+0	7.09E-5	<1
beta-BHC	0E+0	6.51E-6	0E+0	1.31E-6	0E+0	7.82E-6	<1
Cyanide	6.67E-3	0E+0	1.34E-3	0E+0	0E+0	8.02E-3	1.8
delta-BHC	0E+0	0E+0	3.54E-4	9.63E-7	0E+0	3.55E-4	<1
Endosulfan I	3.85E-2	3.62E-3	0E+0	0E+0	0E+0	4.21E-2	9.48
gamma-Chlordane	4.14E-3	0E+0	8.34E-4	0E+0	0E+0	4.97E-3	1.12
Heptachlor epoxide	0E+0	7.04E-4	0E+0	1.42E-4	0E+0	8.46E-4	<1
Manganese (dust)	0E+0	0E+0	0E+0	0E+0	3.65E-1	3.65E-1	82.3
Silver	4.45E-3	0E+0	8.97E-3	0E+0	0E+0	1.34E-2	3.02
Vanadium	1.07E-3	0E+0	2.16E-3	0E+0	0E+0	3.23E-3	<1
Total by pathway	5.84E-2	4.69E-3	1.54E-2	2.55E-4	3.65E-1		
% Contribution by pathway	13.1	1.06	3.47	<1	82.3		
Scenario Total						4.44E-1	

Table I-40

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond C

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/ Volatiles	Total	% Contribution
2,4,5-T	8.81E-6	0E+0	7.1E-6	0E+0	0E+0	1.59E-5	<1
4,4'-DDT	3.04E-3	2E-4	2.45E-3	1.61E-4	0E+0	5.85E-3	<1
Aldrin	0E+0	1.7E-3	0E+0	1.37E-3	0E+0	3.07E-3	<1
alpha-Chlordane	9.54E-3	0E+0	7.69E-3	0E+0	0E+0	1.72E-2	<1
Arsenic	4.18E-4	0E+0	3.37E-2	0E+0	0E+0	3.41E-2	<1
Beryllium	4.84E-6	4.88E-6	3.9E-4	3.93E-4	0E+0	7.93E-4	<1
beta-BHC	0E+0	4.17E-5	0E+0	3.36E-5	0E+0	7.53E-5	<1
Cyanide	4.87E-2	0E+0	3.93E-2	0E+0	0E+0	8.8E-2	1.23
delta-BHC	0E+0	0E+0	7.11E-3	2.04E-5	0E+0	7.13E-3	<1
Endosulfan I	2E-1	1.79E-2	0E+0	0E+0	0E+0	2.17E-1	3.04
gamma-Chlordane	1.62E-2	0E+0	1.3E-2	0E+0	0E+0	2.92E-2	<1
Heptachlor epoxide	0E+0	3.84E-3	0E+0	3.09E-3	0E+0	6.93E-3	<1
Manganese (dust)	0E+0	0E+0	0E+0	0E+0	6.56	6.56	91.6
Silver	1.78E-2	0E+0	1.43E-1	0E+0	0E+0	1.61E-1	2.25
Vanadium	3.26E-3	0E+0	2.62E-2	0E+0	0E+0	2.95E-2	<1
Total by pathway	2.98E-1	2.36E-2	2.73E-1	5.07E-3	6.56		
% Contribution by pathway	4.17	<1	3.81	<1	91.6		
Scenario Total						7.16	

Table I-41

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond C

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
"4,4'-DDD"	5.50E-11	3.98E-12	5.90E-11	35.9
"4,4'-DDE"	0.00E+00	1.02E-12	1.02E-12	<1
"4,4'-DDT"	0.00E+00	1.70E-12	1.70E-12	1.04
beta-BHC	0.00E+00	6.70E-12	6.70E-12	4.08
bis(2-Ethylhexyl)phthalate	3.51E-15	0.00E+00	3.51E-15	<1
Dieldrin	3.21E-11	0.00E+00	3.21E-11	19.5
gamma-BHC	9.12E-13	2.86E-12	3.77E-12	2.3
gamma-Chlordane	2.97E-11	3.42E-13	3.01E-11	18.3
Heptachlor	0.00E+00	7.30E-12	7.30E-12	4.44
Heptachlor epoxide	2.27E-11	0.00E+00	2.27E-11	13.8
Total by pathway	1.40E-10	2.39E-11		
% Contribution by pathway	85.5	14.5		
Scenario Total			1.64E-10	

POND D

Table I-42

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond D

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	4.32E-09	3.02E-11	4.35E-09	38.7
4,4'-DDE	0.00E+00	6.69E-12	6.69E-12	<1
4,4'-DDT	0.00E+00	1.03E-10	1.03E-10	<1
beta-BHC	0.00E+00	3.40E-11	3.40E-11	<1
bis(2-Ethylhexyl)phthalate	4.04E-13	0.00E+00	4.04E-13	<1
Dieldrin	2.52E-09	0.00E+00	2.52E-09	22.4
gamma-BHC	7.17E-11	1.42E-11	8.58E-11	<1
gamma-Chlordane	2.34E-09	9.51E-13	2.34E-09	20.8
Heptachlor	0.00E+00	3.77E-11	3.77E-11	<1
Heptachlor epoxide	1.78E-09	0.00E+00	1.78E-09	15.8
Total by pathway	1.10E-08	2.27E-10		
% Contribution by pathway	98.0	2.02		
Scenario Total			1.13E-08	

Table I-43

Average Noncancer Hazard Index Summary
On-site Occupational - Current (Lagoons in Service)-Pond D

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
"4,4'-DDD"	3.57E-06	2.58E-07	3.82E-06	<1
"4,4'-DDE"	0.00E+00	5.98E-09	5.98E-09	<1
"4,4'-DDT"	0.00E+00	3.48E-09	3.48E-09	<1
Arsenic	1.43E-07	1.87E-07	3.29E-07	<1
beta-BHC	0.00E+00	8.78E-08	8.78E-08	<1
bis(2-Ethylhexyl)phthalate	9.75E-11	0.00E+00	9.75E-11	<1
Boron	8.59E-08	0.00E+00	8.59E-08	<1
delta-BHC	5.73E-08	1.00E-07	1.58E-07	<1
Dieldrin	2.39E-07	0.00E+00	2.39E-07	<1
Endosulfan sulfate	1.45E-11	2.01E-09	2.02E-09	<1
gamma-BHC	1.82E-09	5.71E-09	7.53E-09	<1
gamma-Chlordane	2.97E-06	3.42E-08	3.00E-06	<1
Heptachlor	0.00E+00	1.29E-08	1.29E-08	<1
Heptachlor epoxide	1.49E-06	0.00E+00	1.49E-06	<1
Lead (organic)	1.98E-02	0.00E+00	1.98E-02	100.0
Manganese (water)	3.12E-07	0.00E+00	3.12E-07	<1
Mercury	3.33E-08	0.00E+00	3.33E-08	<1
Methoxychlor	7.27E-12	0.00E+00	7.27E-12	<1
Total by pathway	1.98E-02	6.97E-07		
% Contribution by pathway	100	<1		
Scenario Total			1.98E-02	

Table I-44

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond D

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	1.01E-04	7.06E-07	1.02E-04	<1
4,4'-DDE	0.00E+00	1.42E-08	1.42E-08	<1
4,4'-DDT	0.00E+00	7.60E-08	7.60E-08	<1
Arsenic	5.19E-06	2.55E-07	5.45E-06	<1
beta-BHC	0.00E+00	1.60E-07	1.60E-07	<1
bis(2-Ethylhexyl)phthalate	4.04E-09	0.00E+00	4.04E-09	<1
Boron	2.60E-06	0.00E+00	2.60E-06	<1
delta-BHC	1.62E-06	1.86E-07	1.81E-06	<1
Dieldrin	6.76E-06	0.00E+00	6.76E-06	<1
Endosulfan sulfate	4.11E-10	4.02E-09	4.43E-09	<1
gamma-BHC	5.15E-08	1.02E-08	6.16E-08	<1
gamma-Chlordane	8.39E-05	3.42E-08	8.39E-05	<1
Heptachlor	0.00E+00	2.41E-08	2.41E-08	<1
Heptachlor epoxide	4.21E-05	0.00E+00	4.21E-05	<1
Lead (organic)	7.76E-01	0.00E+00	7.76E-01	100
Manganese (water)	1.12E-05	0.00E+00	1.12E-05	<1
Mercury	1.58E-06	0.00E+00	1.58E-06	<1
Methoxychlor	2.06E-10	0.00E+00	2.06E-10	<1
Total by pathway	7.77E-01	1.47E-06		
% Contribution by pathway	100	<1		
Scenario Total			7.77E-01	

Table I-45

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.46E-09	4.46E-09	28.4
Aldrin	1.02E-08	1.02E-08	65.2
alpha-BHC	1.64E-10	1.64E-10	1.05
alpha-Chlordane	3.22E-12	3.22E-12	<1
beta-BHC	3.32E-11	3.32E-11	<1
Dieldrin	2.82E-10	2.82E-10	1.8
gamma-BHC	5.69E-11	5.69E-11	<1
gamma-Chlordane	1.22E-11	1.22E-11	<1
Heptachlor	4.47E-10	4.47E-10	2.85
Heptachlor epoxide	5.57E-12	5.57E-12	<1
Total by pathway	1.57E-08		
% Contribution by pathway	100.0		
Scenario Total		1.57E-08	

Table I-46

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.21E-07	1.21E-07	28.3
Aldrin	2.80E-07	2.80E-07	65.5
alpha-BHC	3.84E-09	3.84E-09	<1
alpha-Chlordane	6.36E-11	6.36E-11	<1
beta-BHC	6.33E-10	6.33E-10	<1
Dieldrin	9.27E-09	9.27E-09	2.17
gamma-BHC	1.50E-09	1.50E-09	<1
gamma-Chlordane	3.90E-10	3.90E-10	<1
Heptachlor	1.04E-08	1.04E-08	2.43
Heptachlor epoxide	9.78E-11	9.78E-11	<1
Total by pathway	4.27E-07		
% Contribution by pathway	100.0		
Scenario Total		4.27E-07	

Table I-47

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	2.04E-04	2.04E-04	43.5
Aldrin	1.56E-04	1.56E-04	33.2
alpha-BHC	4.88E-07	4.88E-07	<1
alpha-Chlordane	1.30E-06	1.30E-06	<1
beta-BHC	4.35E-07	4.35E-07	<1
delta-BHC	9.85E-07	9.85E-07	<1
Dieldrin	2.74E-06	2.74E-06	<1
Endosulfan II	2.76E-12	2.76E-12	<1
Endosulfan sulfate	4.36E-08	4.36E-08	<1
Endrin	6.58E-05	6.58E-05	14.0
gamma-BHC	1.14E-06	1.14E-06	<1
gamma-Chlordane	1.21E-06	1.21E-06	<1
Heptachlor	1.54E-06	1.54E-06	<1
Heptachlor epoxide	3.66E-07	3.66E-07	<1
Isodrin	1.31E-05	1.31E-05	2.8
Methoxychlor	2.02E-05	2.02E-05	4.31
Total by pathway	4.69E-04		
% Contribution by pathway	100.0		
Scenario Total		4.69E-04	

Table I-48

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.66E-03	1.66E-03	43.0
Aldrin	1.28E-03	1.28E-03	33.1
alpha-BHC	3.42E-06	3.42E-06	<1
alpha-Chlordane	7.71E-06	7.71E-06	<1
beta-BHC	2.49E-06	2.49E-06	<1
delta-BHC	6.61E-06	6.61E-06	<1
Dieldrin	2.70E-05	2.70E-05	<1
Endosulfan II	1.61E-11	1.61E-11	<1
Endosulfan sulfate	2.13E-07	2.13E-07	<1
Endrin	5.99E-04	5.99E-04	15.5
gamma-BHC	8.99E-06	8.99E-06	<1
gamma-Chlordane	1.17E-05	1.17E-05	<1
Heptachlor	1.08E-05	1.08E-05	<1
Heptachlor epoxide	1.93E-06	1.93E-06	<1
Isodrin	9.97E-05	9.97E-05	2.58
Methoxychlor	1.43E-04	1.43E-04	3.71
Total by pathway	3.86E-03		
% Contribution by pathway	100.0		
Scenario Total		3.86E-03	

Table I-49

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.76E-04	4.76E-04	43.5
Aldrin	3.63E-04	3.63E-04	33.2
alpha-BHC	1.14E-06	1.14E-06	<1
alpha-Chlordane	3.04E-06	3.04E-06	<1
beta-BHC	1.01E-06	1.01E-06	<1
delta-BHC	2.30E-06	2.30E-06	<1
Dieldrin	6.40E-06	6.40E-06	<1
Endosulfan II	6.45E-12	6.45E-12	<1
Endosulfan sulfate	1.02E-07	1.02E-07	<1
Endrin	1.54E-04	1.54E-04	14.0
gamma-BHC	2.65E-06	2.65E-06	<1
gamma-Chlordane	2.83E-06	2.83E-06	<1
Heptachlor	3.60E-06	3.60E-06	<1
Heptachlor epoxide	8.55E-07	8.55E-07	<1
Isodrin	3.06E-05	3.06E-05	2.8
Methoxychlor	4.72E-05	4.72E-05	4.31
Total by pathway	1.09E-03		
% Contribution by pathway	100.0		
Scenario Total		1.09E-03	

Table I-50

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Child - Future Chronic (Lagoons In or Out of Service)-Pond D

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	3.87E-03	3.87E-03	43.0
Aldrin	2.98E-03	2.98E-03	33.1
alpha-BHC	7.98E-06	7.98E-06	<1
alpha-Chlordane	1.80E-05	1.80E-05	<1
beta-BHC	5.81E-06	5.81E-06	<1
delta-BHC	1.54E-05	1.54E-05	<1
Dieldrin	6.31E-05	6.31E-05	<1
Endosulfan II	3.76E-11	3.76E-11	<1
Endosulfan sulfate	4.98E-07	4.98E-07	<1
Endrin	1.40E-03	1.40E-03	15.5
gamma-BHC	2.10E-05	2.10E-05	<1
gamma-Chlordane	2.72E-05	2.72E-05	<1
Heptachlor	2.51E-05	2.51E-05	<1
Heptachlor epoxide	4.50E-06	4.50E-06	<1
Isodrin	2.33E-04	2.33E-04	2.58
Methoxychlor	3.34E-04	3.34E-04	3.71
Total by pathway	9.01E-03		
% Contribution by pathway	100.0		
Scenario Total		9.01E-03	

Table I-51

Average Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond D

	Dermal Contact with Sediments	Incidental Ingestion of Sediments	Total	% Contribution
4,4'-DDT	3.99E-05	8.04E-06	4.79E-05	2.27
Arsenic	9.56E-05	1.93E-03	2.02E-03	95.5
beta-BHC	4.45E-06	8.97E-07	5.35E-06	<1
delta-BHC	0.00E+00	1.04E-06	1.04E-06	<1
gamma-BHC	2.92E-06	5.89E-07	3.51E-06	<1
gamma-Chlordane	1.75E-05	3.52E-06	2.10E-05	<1
Heptachlor	1.29E-05	2.60E-06	1.55E-05	<1
Total by pathway	1.73E-04	1.94E-03		
% Contribution by pathway	8.19	91.8		
Scenario Total			2.12E-03	

Table I-52

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond D

	Dermal Contact with Sediments	Incidential Ingestion of Sediments	Total	% Contribution
4,4'-DDT	2.18E-03	1.76E-03	3.94E-03	12.8
Arsenic	3.26E-04	2.63E-02	2.66E-02	86.4
beta-BHC	2.03E-05	1.64E-05	3.67E-05	<1
delta-BHC	0.00E+00	1.92E-05	1.92E-05	<1
gamma-BHC	1.30E-05	1.05E-05	2.35E-05	<1
gamma-Chlordane	4.37E-05	3.52E-05	7.89E-05	<1
Heptachlor	6.00E-05	4.84E-05	1.08E-04	<1
Total by pathway	2.64E-03	2.82E-02		
% Contribution by pathway	8.57	91.4		
Scenario Total			3.08E-02	

POND E

Table I-53

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond E

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	4.09E-11	1.41E-10	1.79E-12	1.84E-10	<1
4,4'-DDE	7.22E-10	7.30E-11	4.85E-13	7.90E-10	<1
4,4'-DDT	0E+0	2.01E-11	5.78E-13	2.07E-11	<1
Aldrin	0E+0	0E+0	1.47E-11	1.47E-11	<1
alpha-BHC	0E+0	0E+0	5.43E-12	5.43E-12	<1
alpha-Chlordane	0E+0	0E+0	9.61E-13	9.61E-13	<1
beta-BHC	0E+0	0E+0	5.33E-12	5.33E-12	<1
bis(2-Ethylhexyl)phthalate	2.61E-15	0E+0	0E+0	2.61E-15	<1
Dieldrin	3.1E-11	0E+0	0E+0	3.1E-11	<1
gamma-BHC	1.32E-12	0E+0	0E+0	1.32E-12	<1
gamma-Chlordane	2.67E-11	4.11E-10	1.41E-12	4.39E-10	<1
Heptachlor	0E+0	1.55E-9	3.69E-12	1.56E-9	<1
Heptachlor epoxide	2.27E-11	4.16E-7	0E+0	4.16E-7	99.3
Total by pathway	8.45E-10	4.18E-7	3.43E-11		
% Contribution by pathway	<1	99.8	<1		
Scenario Total				4.18E-7	

Table I-54

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond E

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	3.21E-9	1.03E-9	1.14E-11	4.26E-9	<1
4,4'-DDE	1.02E-7	4.53E-10	2.09E-12	1.03E-7	8.03
4,4'-DDT	0E+0	6.97E-11	1.77E-12	7.14E-11	<1
Aldrin	0E+0	0E+0	4.67E-11	4.67E-11	<1
alpha-BHC	0E+0	0E+0	1.64E-11	1.64E-11	<1
alpha-Chlordane	0E+0	0E+0	3.04E-12	3.04E-12	<1
beta-BHC	0E+0	0E+0	2.57E-11	2.57E-11	<1
bis(2-Ethylhexyl)phthalate	3.05E-13	0E+0	0E+0	3.05E-13	<1
Dieldrin	2.43E-9	0E+0	0E+0	2.43E-9	<1
gamma-BHC	1.04E-10	0E+0	0E+0	1.04E-10	<1
gamma-Chlordane	2.09E-9	1.14E-9	5.78E-12	3.24E-9	<1
Heptachlor	0E+0	4.32E-9	1.17E-11	4.33E-9	<1
Heptachlor epoxide	1.78E-9	1.15E-6	0E+0	1.16E-6	90.9
Total by pathway	1.12E-7	1.16E-6	1.25E-10		
% Contribution by pathway	8.78	91.2	<1		
Scenario Total				1.27E-6	

Table I-55

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond E

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	2.65E-6	9.13E-6	1.16E-7	1.19E-5	<1
4,4'-DDE	4.25E-6	4.29E-7	2.85E-9	4.68E-6	<1
4,4'-DDT	0E+0	4.11E-8	1.18E-9	4.23E-8	<1
Aldrin	0E+0	0E+0	8.89E-8	8.89E-8	<1
alpha-BHC	0E+0	0E+0	5.73E-9	5.73E-9	<1
alpha-Chlordane	0E+0	0E+0	3.89E-7	3.89E-7	<1
Antimony	0E+0	7.51E-6	7.51E-6	1.5E-5	<1
Arsenic	0E+0	4.1E-7	2.49E-7	6.59E-7	<1
beta-BHC	0E+0	0E+0	6.98E-8	6.98E-8	<1
bis(2-Ethylhexyl)phthalate	7.26E-11	0E+0	0E+0	7.26E-11	<1
Boron	9E-8	0E+0	0E+0	9E-8	<1
delta-BHC	0E+0	0E+0	6.54E-8	6.54E-8	<1
Dieldrin	2.31E-7	0E+0	0E+0	2.31E-7	<1
Endosulfan II	0E+0	0E+0	1.94E-13	1.94E-13	<1
Endosulfan sulfate	0E+0	0E+0	6.3E-10	6.3E-10	<1
gamma-BHC	2.64E-9	0E+0	0E+0	2.64E-9	<1
gamma-Chlordane	2.66E-6	4.1E-5	1.4E-7	4.38E-5	<1
Heptachlor	0E+0	2.76E-6	6.54E-9	2.76E-6	<1
Heptachlor epoxide	1.49E-6	2.73E-2	0E+0	2.73E-2	62.8
Lead (organic)	1.61E-2	0E+0	0E+0	1.61E-2	37.0
Manganese (water)	1.86E-7	0E+0	0E+0	1.86E-7	<1
Mercury	4.53E-8	0E+0	0E+0	4.53E-8	<1
Total by pathway	1.61E-2	2.74E-2	8.65E-6		
% Contribution by pathway	37.1	62.9	<1		
Scenario Total				4.35E-2	

Table I-56

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond E

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	7.5E-5	2.41E-5	2.66E-7	1.62E-2	<1
4,4'-DDE	2.16E-4	9.59E-7	4.42E-9	3.53E-2	<1
4,4'-DDT	0E+0	5.12E-8	1.3E-9	8.55E-6	<1
Aldrin	0E+0	0E+0	1.02E-7	1.02E-7	<1
alpha-BHC	0E+0	0E+0	6.23E-9	6.23E-9	<1
alpha-Chlordane	0E+0	0E+0	4.43E-7	4.43E-7	<1
Antimony	0E+0	7.51E-6	7.51E-6	1.5E-5	<1
Arsenic	0E+0	4.1E-7	3.21E-7	7.31E-7	<1
beta-BHC	0E+0	0E+0	1.21E-7	1.21E-7	<1
bis(2-Ethylhexyl)phthalate	3.05E-9	0E+0	0E+0	3.05E-9	<1
Boron	2.77E-6	0E+0	0E+0	2.77E-6	<1
delta-BHC	0E+0	0E+0	1.12E-7	1.12E-7	<1
Dieldrin	6.54E-6	0E+0	0E+0	6.54E-6	<1
Endosulfan II	0E+0	0E+0	2.39E-13	2.39E-13	<1
Endosulfan sulfate	0E+0	0E+0	9.49E-10	9.49E-10	<1
gamma-BHC	7.46E-8	0E+0	0E+0	7.46E-8	<1
gamma-Chlordane	7.52E-5	4.1E-5	2.07E-7	1.16E-4	<1
Heptachlor	0E+0	2.76E-6	7.49E-9	2.76E-6	<1
Heptachlor epoxide	4.21E-5	2.73E-2	0E+0	2.74E-2	4.45
Lead (organic)	5.87E-1	0E+0	0E+0	5.87E-1	95.5
Manganese (water)	6.11E-6	0E+0	0E+0	6.11E-6	<1
Mercury	1.46E-6	0E+0	0E+0	1.46E-6	<1
Total by pathway	5.87E-1	2.74E-2	9.11E-6		
% Contribution by pathway	95.5	4.45	<1		
Scenario Total				6.15E-1	

Table I-57

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.46E-9	4.46E-9	28.4
Aldrin	1.02E-8	1.02E-8	65.2
alpha-BHC	1.64E-10	1.64E-10	1.05
alpha-Chlordane	3.23E-12	3.23E-12	<1
beta-BHC	3.31E-11	3.31E-11	<1
Dieldrin	2.82E-10	2.82E-10	1.8
gamma-BHC	5.7E-11	5.7E-11	<1
gamma-Chlordane	1.22E-11	1.22E-11	<1
Heptachlor	4.45E-10	4.45E-10	2.84
Heptachlor epoxide	5.57E-12	5.57E-12	<1
Total by pathway	1.57E-8		
% Contribution by pathway	100.0		
Scenario Total		1.57E-8	

Table I-58

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.21E-7	1.21E-7	28.4
Aldrin	2.79E-7	2.79E-7	65.5
alpha-BHC	3.84E-9	3.84E-9	<1
alpha-Chlordane	6.36E-11	6.36E-11	<1
beta-BHC	6.32E-10	6.32E-10	<1
Dieldrin	9.27E-9	9.27E-9	2.18
gamma-BHC	1.5E-9	1.5E-9	<1
gamma-Chlordane	3.89E-10	3.89E-10	<1
Heptachlor	1.04E-8	1.04E-8	2.44
Heptachlor epoxide	9.78E-11	9.78E-11	<1
Total by pathway	4.26E-7		
% Contribution by pathway	100.0		
Scenario Total		4.26E-7	

Table I-59

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic
(Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	2.04E-4	2.04E-4	21.7
Aldrin	1.56E-4	1.56E-4	16.6
alpha-BHC	4.87E-7	4.87E-7	<1
alpha-Chlordane	1.3E-6	1.3E-6	<1
beta-BHC	4.34E-7	4.34E-7	<1
Cadmium (food)	4.68E-4	4.68E-4	50.0
delta-BHC	9.86E-7	9.86E-7	<1
Dieldrin	2.74E-6	2.74E-6	<1
Endosulfan II	2.76E-12	2.76E-12	<1
Endosulfan sulfate	4.35E-8	4.35E-8	<1
Endrin	6.59E-5	6.59E-5	7.03
gamma-BHC	1.14E-6	1.14E-6	<1
gamma-Chlordane	1.22E-6	1.22E-6	<1
Heptachlor	1.54E-6	1.54E-6	<1
Heptachlor epoxide	3.66E-7	3.66E-7	<1
Isodrin	1.31E-5	1.31E-5	1.4
Methoxychlor	2.03E-5	2.03E-5	2.16
Total by pathway	9.38E-4		
% Contribution by pathway	100.0		
Scenario Total		9.38E-4	

Table I-60

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.66E-3	1.66E-3	27.2
Aldrin	1.28E-3	1.28E-3	20.9
alpha-BHC	3.42E-6	3.42E-6	<1
alpha-Chlordane	7.72E-6	7.72E-6	<1
beta-BHC	2.48E-6	2.48E-6	<1
Cadmium (food)	2.24E-3	2.24E-3	36.7
delta-BHC	6.62E-6	6.62E-6	<1
Dieldrin	2.7E-5	2.7E-5	<1
Endosulfan II	1.61E-11	1.61E-11	<1
Endosulfan sulfate	2.13E-7	2.13E-7	<1
Endrin	5.99E-4	5.99E-4	9.84
gamma-BHC	8.98E-6	8.98E-6	<1
gamma-Chlordane	1.17E-5	1.17E-5	<1
Heptachlor	1.08E-5	1.08E-5	<1
Heptachlor epoxide	1.93E-6	1.93E-6	<1
Isodrin	9.97E-5	9.97E-5	1.64
Methoxychlor	1.43E-4	1.43E-4	2.35
Total by pathway	6.09E-3		
% Contribution by pathway	100.0		
Scenario Total		6.09E-3	

Table I-61

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.76E-4	4.76E-4	21.7
Aldrin	3.63E-4	3.63E-4	16.6
alpha-BHC	1.14E-6	1.14E-6	<1
alpha-Chlordane	3.04E-6	3.04E-6	<1
beta-BHC	1.01E-6	1.01E-6	<1
Cadmium (food)	1.09E-3	1.09E-3	50.0
delta-BHC	2.3E-6	2.3E-6	<1
Dieldrin	6.4E-6	6.4E-6	<1
Endosulfan II	6.44E-12	6.44E-12	<1
Endosulfan sulfate	1.02E-7	1.02E-7	<1
Endrin	1.54E-4	1.54E-4	7.03
gamma-BHC	2.65E-6	2.65E-6	<1
gamma-Chlordane	2.84E-6	2.84E-6	<1
Heptachlor	3.59E-6	3.59E-6	<1
Heptachlor epoxide	8.54E-7	8.54E-7	<1
Isodrin	3.06E-5	3.06E-5	1.4
Methoxychlor	4.73E-5	4.73E-5	2.16
Total by pathway	2.19E-3		
% Contribution by pathway	100.0		
Scenario Total		2.19E-3	

Table I-62

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Child - Future Chronic (Lagoons In or Out of Service)-Pond E

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	3.87E-3	3.87E-3	27.2
Aldrin	2.98E-3	2.98E-3	20.9
alpha-BHC	7.99E-6	7.99E-6	<1
alpha-Chlordane	1.8E-5	1.8E-5	<1
beta-BHC	5.8E-6	5.8E-6	<1
Cadmium (food)	5.22E-3	5.22E-3	36.7
delta-BHC	1.54E-5	1.54E-5	<1
Dieldrin	6.31E-5	6.31E-5	<1
Endosulfan II	3.76E-11	3.76E-11	<1
Endosulfan sulfate	4.98E-7	4.98E-7	<1
Endrin	1.4E-3	1.4E-3	9.84
gamma-BHC	2.1E-5	2.1E-5	<1
gamma-Chlordane	2.72E-5	2.72E-5	<1
Heptachlor	2.51E-5	2.51E-5	<1
Heptachlor epoxide	4.5E-6	4.5E-6	<1
Isodrin	2.33E-4	2.33E-4	1.64
Methoxychlor	3.34E-4	3.34E-4	2.35
Total by pathway	1.42E-2		
% Contribution by pathway	100.0		
Scenario Total		1.42E-2	

Table I-63

Average Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond E

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/Volatiles	Total	% Contribution
4,4'-DDT	4.72E-4	1.35E-5	9.51E-5	2.73E-6	0E+0	5.83E-4	<1
Aldrin	0E+0	1.14E-4	0E+0	2.3E-5	0E+0	1.37E-4	<1
alpha-BHC	0E+0	0E+0	0E+0	1.66E-7	0E+0	1.66E-7	<1
alpha-Chlordane	0E+0	4.91E-5	0E+0	9.89E-6	0E+0	5.9E-5	<1
Antimony	3.85E-3	3.85E-3	7.75E-3	7.75E-3	0E+0	2.32E-2	<1
Arsenic	2.1E-4	1.27E-4	4.23E-3	2.57E-3	0E+0	7.13E-3	<1
beta-BHC	0E+0	3.54E-6	0E+0	7.13E-7	0E+0	4.25E-6	<1
delta-BHC	0E+0	0E+0	0E+0	6.74E-7	0E+0	6.74E-7	<1
Endosulfan II	0E+0	1.59E-4	0E+0	3.2E-5	0E+0	1.91E-4	<1
gamma-Chlordane	2.1E-2	7.19E-5	4.23E-3	1.45E-5	0E+0	2.53E-2	<1
Heptachlor	2.75E-3	6.53E-6	5.54E-4	1.32E-6	0E+0	3.31E-3	<1
Heptachlor epoxide	1.4E+1	0E+0	2.82	0E+0	0E+0	1.68E+1	99.6
Mercury	0E+0	0E+0	0E+0	0E+0	9.57E-4	9.57E-4	<1
Total by pathway	1.4E+1	4.39E-3	2.83	1.04E-2	9.57E-4		<1
% Contribution by pathway	83.1	<1	16.8	<1	<1		
Scenario Total						1.68E+1	

Table I-64

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond E

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Inhalation of Fugitive Dust/Volatiles	Total	% Contribution
4,4'-DDT	1.47E-3	3.72E-5	1.18E-3	3E-5	0E+0	2.72E-3	<1
Aldrin	0E+0	3.28E-4	0E+0	2.65E-4	0E+0	5.93E-4	<1
alpha-BHC	0E+0	0E+0	0E+0	1.81E-6	0E+0	1.81E-6	<1
alpha-Chlordane	0E+0	1.4E-4	0E+0	1.13E-4	0E+0	2.53E-4	<1
Antimony	9.62E-3	9.62E-3	7.75E-2	7.75E-2	0E+0	1.74E-1	<1
Arsenic	5.24E-4	4.11E-4	4.23E-2	3.31E-2	0E+0	7.63E-2	<1
beta-BHC	0E+0	1.54E-5	0E+0	1.24E-5	0E+0	2.78E-5	<1
delta-BHC	0E+0	0E+0	0E+0	1.16E-5	0E+0	1.16E-5	<1
Endosulfan II	0E+0	4.9E-4	0E+0	3.95E-4	0E+0	8.85E-4	<1
gamma-Chlordane	5.24E-2	2.66E-4	4.23E-2	2.14E-4	0E+0	9.52E-2	<1
Heptachlor	6.88E-3	1.87E-5	5.54E-3	1.51E-5	0E+0	1.25E-2	<1
Heptachlor epoxide	3.5E+1	0E+0	2.82E+1	0E+0	0E+0	6.31E+1	99.4
Mercury	0E+0	0E+0	0E+0	0E+0	1.84E-2	1.84E-2	<1
Total by pathway	3.5E+1	1.13E-2	2.83E+1	1.12E-1	1.84E-2		
% Contribution by pathway	55.2	<1	44.6	<1	<1		
Scenario Total						6.35E+1	

POND F

Table I-65

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond F

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	5.5E-11	8.71E-10	5.2E-12	9.31E-10	43.6
4,4'-DDE	3.45E-10	2.76E-10	2.99E-12	6.24E-10	29.2
4,4'-DDT	0E+0	2.69E-11	1.15E-12	2.8E-11	1.31
alpha-Chlordane	1.54E-10	1.15E-10	0E+0	2.69E-10	12.6
gamma-BHC	1.09E-12	5.37E-11	0E+0	5.48E-11	2.56
gamma-Chlordane	5.13E-11	4.26E-11	3.42E-13	9.42E-11	4.41
Heptachlor	0E+0	1.36E-10	0E+0	1.36E-10	6.35
Total by pathway	6.06E-10	1.52E-9	9.68E-12		
% Contribution by pathway	28.4	71.2	<1		
Scenario Total				2.14E-9	

Table I-66

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond F

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	4.32E-9	4.29E-9	1.44E-11	8.63E-9	15.9
4,4'-DDE	2.71E-8	1.05E-9	8.29E-12	2.82E-8	51.9
4,4'-DDT	0E+0	8.85E-11	3.21E-12	9.17E-11	<1
alpha-Chlordane	1.21E-8	5.29E-10	0E+0	1.26E-8	23.3
gamma-BHC	8.6E-11	1.61E-10	0E+0	2.47E-10	<1
gamma-Chlordane	4.03E-9	1.35E-10	9.51E-13	4.16E-9	7.67
Heptachlor	0E+0	3.88E-10	0E+0	3.88E-10	<1
Total by pathway	4.76E-8	6.64E-9	2.69E-11		
% Contribution by pathway	87.7	12.2	<1		
Scenario Total				5.43E-8	

Table I-67

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond F

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	3.57E-6	5.65E-5	3.37E-7	6.04E-5	22.8
4,4'-DDE	2.03E-6	1.62E-6	1.76E-8	3.67E-6	1.38
4,4'-DDT	0E+0	5.49E-8	2.36E-9	5.72E-8	<1
alpha-Chlordane	6.22E-5	4.66E-5	0E+0	1.09E-4	41.0
Arsenic	0E+0	4.78E-7	0E+0	4.78E-7	<1
delta-BHC	0E+0	8.2E-5	6.15E-8	8.2E-5	30.9
gamma-BHC	2.18E-9	1.07E-7	0E+0	1.09E-7	<1
gamma-Chlordane	5.11E-6	4.25E-6	3.42E-8	9.4E-6	3.54
Heptachlor	0E+0	2.41E-7	0E+0	2.41E-7	<1
Total by pathway	7.29E-5	1.92E-4	4.52E-7		
% Contribution by pathway	27.5	72.3	<1		
Scenario Total				2.65E-4	

Table I-68

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond F

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	1.01E-4	1E-4	3.37E-7	2.01E-4	8.53
4,4'-DDE	5.74E-5	2.22E-6	1.76E-8	5.96E-5	2.52
4,4'-DDT	0E+0	6.5E-8	2.36E-9	6.74E-8	<1
alpha-Chlordane	1.76E-3	7.69E-5	0E+0	1.84E-3	77.7
Arsenic	0E+0	6.07E-7	0E+0	6.07E-7	<1
delta-BHC	0E+0	1.14E-4	6.15E-8	1.14E-4	4.82
gamma-BHC	6.17E-8	1.15E-7	0E+0	1.77E-7	<1
gamma-Chlordane	1.45E-4	4.86E-6	3.42E-8	1.49E-4	6.33
Heptachlor	0E+0	2.48E-7	0E+0	2.48E-7	<1
Total by pathway	2.06E-3	2.99E-4	4.52E-7		
% Contribution by pathway	87.3	12.7	<1		
Scenario Total				2.36E-3	

Table I-69

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond F

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.46E-9	4.46E-9	28.4
Aldrin	1.02E-8	1.02E-8	65.2
alpha-BHC	1.64E-10	1.64E-10	1.05
alpha-Chlordane	3.23E-12	3.23E-12	<1
beta-BHC	3.31E-11	3.31E-11	<1
Dieldrin	2.82E-10	2.82E-10	1.8
gamma-BHC	5.7E-11	5.7E-11	<1
gamma-Chlordane	1.22E-11	1.22E-11	<1
Heptachlor	4.45E-10	4.45E-10	2.84
Heptachlor epoxide	5.57E-12	5.57E-12	<1
Total by pathway	1.57E-8		
% Contribution by pathway	100.0		
Scenario Total		1.57E-8	

Table I-70

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)-Pond F

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.21E-7	1.21E-7	28.4
Aldrin	2.79E-7	2.79E-7	65.5
alpha-BHC	3.84E-9	3.84E-9	<1
alpha-Chlordane	6.36E-11	6.36E-11	<1
beta-BHC	6.32E-10	6.32E-10	<1
Dieldrin	9.27E-9	9.27E-9	2.18
gamma-BHC	1.5E-9	1.5E-9	<1
gamma-Chlordane	3.89E-10	3.89E-10	<1
Heptachlor	1.04E-8	1.04E-8	2.44
Heptachlor epoxide	9.78E-11	9.78E-11	<1
Total by pathway	4.26E-7		
% Contribution by pathway	100.0		
Scenario Total		4.26E-7	

Table I-71

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond F

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	2.04E-4	2.04E-4	21.7
Aldrin	1.56E-4	1.56E-4	16.6
alpha-BHC	4.87E-7	4.87E-7	<1
alpha-Chlordane	1.3E-6	1.3E-6	<1
beta-BHC	4.34E-7	4.34E-7	<1
Cadmium (food)	4.68E-4	4.68E-4	50.0
delta-BHC	9.86E-7	9.86E-7	<1
Dieldrin	2.74E-6	2.74E-6	<1
Endosulfan II	2.76E-12	2.76E-12	<1
Endosulfan sulfate	4.35E-8	4.35E-8	<1
Endrin	6.59E-5	6.59E-5	7.03
gamma-BHC	1.14E-6	1.14E-6	<1
gamma-Chlordane	1.22E-6	1.22E-6	<1
Heptachlor	1.54E-6	1.54E-6	<1
Heptachlor epoxide	3.66E-7	3.66E-7	<1
Isodrin	1.31E-5	1.31E-5	1.4
Methoxychlor	2.03E-5	2.03E-5	2.16
Total by pathway	9.38E-4		
% Contribution by pathway	100.0		
Scenario Total		9.38E-4	

Table I-72

Reasonable Maximum Noncancer Hazard Index Summary Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)-Pond F

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	1.66E-3	1.66E-3	27.2
Aldrin	1.28E-3	1.28E-3	20.9
alpha-BHC	3.42E-6	3.42E-6	<1
alpha-Chlordane	7.72E-6	7.72E-6	<1
beta-BHC	2.48E-6	2.48E-6	<1
Cadmium (food)	2.24E-3	2.24E-3	36.7
delta-BHC	6.62E-6	6.62E-6	<1
Dieldrin	2.7E-5	2.7E-5	<1
Endosulfan II	1.61E-11	1.61E-11	<1
Endosulfan sulfate	2.13E-7	2.13E-7	<1
Endrin	5.99E-4	5.99E-4	9.84
gamma-BHC	8.98E-6	8.98E-6	<1
gamma-Chlordane	1.17E-5	1.17E-5	<1
Heptachlor	1.08E-5	1.08E-5	<1
Heptachlor epoxide	1.93E-6	1.93E-6	<1
Isodrin	9.97E-5	9.97E-5	1.64
Methoxychlor	1.43E-4	1.43E-4	2.35
Total by pathway	6.09E-3		
% Contribution by pathway	100.0		
Scenario Total		6.09E-3	

Table I-73

Average Noncancer Hazard Index Summary
Offsite Agricultural, Child - Future Chronic (Lagoons In or Out of Service)

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	4.76E-4	4.76E-4	2.17E+1
Aldrin	3.63E-4	3.63E-4	1.66E+1
alpha-BHC	1.14E-6	1.14E-6	5.19E-2
alpha-Chlordane	3.04E-6	3.04E-6	1.39E-1
beta-BHC	1.01E-6	1.01E-6	4.63E-2
Cadmium (food)	1.09E-3	1.09E-3	5E+1
delta-BHC	2.3E-6	2.3E-6	1.05E-1
Dieldrin	6.4E-6	6.4E-6	2.92E-1
Endosulfan II	6.44E-12	6.44E-12	2.94E-7
Endosulfan sulfate	1.02E-7	1.02E-7	4.64E-3
Endrin	1.54E-4	1.54E-4	7.03
gamma-BHC	2.65E-6	2.65E-6	1.21E-1
gamma-Chlordane	2.84E-6	2.84E-6	1.3E-1
Heptachlor	3.59E-6	3.59E-6	1.64E-1
Heptachlor epoxide	8.54E-7	8.54E-7	3.9E-2
Isodrin	3.06E-5	3.06E-5	1.4
Methoxychlor	4.73E-5	4.73E-5	2.16
Total by pathway	2.19E-3		
% Contribution by pathway	1E+2		
Scenario Total		2.19E-3	

Table I-74

Reasonable Maximum Noncancer Hazard Index Summary
Offsite Agricultural, Child - Future Chronic (Lagoons In or Out of Service)

	Ingestion of Beef	Total	% Contribution
4,4'-DDT	3.87E-3	3.87E-3	2.72E+1
Aldrin	2.98E-3	2.98E-3	2.09E+1
alpha-BHC	7.99E-6	7.99E-6	5.62E-2
alpha-Chlordane	1.8E-5	1.8E-5	1.27E-1
beta-BHC	5.8E-6	5.8E-6	4.08E-2
Cadmium (food)	5.22E-3	5.22E-3	3.67E+1
delta-BHC	1.54E-5	1.54E-5	1.09E-1
Dieldrin	6.31E-5	6.31E-5	4.44E-1
Endosulfan II	3.76E-11	3.76E-11	2.64E-7
Endosulfan sulfate	4.98E-7	4.98E-7	3.5E-3
Endrin	1.4E-3	1.4E-3	9.84
gamma-BHC	2.1E-5	2.1E-5	1.48E-1
gamma-Chlordane	2.72E-5	2.72E-5	1.91E-1
Heptachlor	2.51E-5	2.51E-5	1.77E-1
Heptachlor epoxide	4.5E-6	4.5E-6	3.17E-2
Isodrin	2.33E-4	2.33E-4	1.64
Methoxychlor	3.34E-4	3.34E-4	2.35
Total by pathway	1.42E-2		
% Contribution by pathway	1E+2		
Scenario Total		1.42E-2	

Table I-75

Average Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)-Pond F

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contribution
4,4'-DDT	6.29E-4	2.7E-5	1.27E-4	5.45E-6	7.89E-4	4.67
alpha-Chlordane	5.89E-3	0E+0	1.19E-3	0E+0	7.07E-3	41.9
Arsenic	2.45E-4	0E+0	4.93E-3	0E+0	5.18E-3	30.7
delta-BHC	0E+0	0E+0	8.45E-4	6.34E-7	8.46E-4	5.01
gamma-BHC	5.48E-5	0E+0	1.1E-5	0E+0	6.58E-5	<1
gamma-Chlordane	2.18E-3	1.75E-5	4.38E-4	3.52E-6	2.63E-3	15.6
Heptachlor	2.4E-4	0E+0	4.84E-5	0E+0	2.88E-4	1.71
Total by pathway	9.23E-3	4.45E-5	7.59E-3	9.6E-6		
% Contribution by pathway	54.7	<1	45.0	<1		
Scenario Total					1.69E-2	

Table I-76

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Future Subchronic (Lagoons Out of Service)
Pond F

	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contribution
4,4'-DDT	1.86E-3	6.76E-5	1.5E-3	5.45E-5	3.49E-3	2.58
alpha-Chlordane	2.43E-2	0E+0	1.96E-2	0E+0	4.38E-2	32.4
Arsenic	7.77E-4	0E+0	6.26E-2	0E+0	6.34E-2	46.9
delta-BHC	0E+0	0E+0	1.17E-2	6.34E-6	1.17E-2	8.69
gamma-BHC	1.48E-4	0E+0	1.19E-4	0E+0	2.67E-4	<1
gamma-Chlordane	6.22E-3	4.37E-5	5.01E-3	3.52E-5	1.13E-2	8.36
Heptachlor	6.18E-4	0E+0	4.98E-4	0E+0	1.12E-3	<1
Total by pathway	3.39E-2	1.11E-4	1.01E-1	9.6E-5		
% Contribution by pathway	25.1	<1	74.8	<1		
Scenario Total					1.35E-1	

POND G

Table I-77

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	1.16E-10	5.06E-13	1.16E-10	24.1
4,4'-DDE	0E+0	3.55E-11	3.63E-13	3.58E-11	7.41
4,4'-DDT	0E+0	1.64E-11	0E+0	1.64E-11	3.38
alpha-BHC	2.32E-12	1.75E-10	7.38E-12	1.85E-10	38.2
Beryllium	0E+0	1.46E-11	0E+0	1.46E-11	3.02
beta-BHC	3.82E-11	0E+0	3.25E-12	4.14E-11	8.57
bis(2-Ethylhexyl)phthalate	2.32E-15	0E+0	0E+0	2.32E-15	<1
gamma-BHC	9.03E-13	0E+0	1.53E-12	2.43E-12	<1
gamma-Chlordane	0E+0	6.72E-11	0E+0	6.72E-11	13.9
Heptachlor	0E+0	0E+0	4.48E-12	4.48E-12	<1
Total by pathway	4.14E-11	4.25E-10	1.75E-11		
% Contribution by pathway	8.57	87.8	3.62		
Scenario Total				4.83E-10	

Table I-78

Reasonable Maximum Cancer Risk
On-site Occupational - Current (Lagoons in Service)-Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	6.95E-10	2.08E-12	6.97E-10	7.99
4,4'-DDE	0E+0	1.72E-10	1.24E-12	1.73E-10	1.98
4,4'-DDT	0E+0	6.47E-11	0E+0	6.47E-11	<1
alpha-BHC	3.52E-10	7.58E-10	2.54E-11	1.14E-9	13.0
alpha-Chlordane	0E+0	1.65E-10	0E+0	1.65E-10	1.89
Beryllium	0E+0	5.36E-11	0E+0	5.36E-11	<1
beta-BHC	5.95E-9	0E+0	1.57E-11	5.97E-9	68.4
bis(2-Ethylhexyl)phthalate	2.37E-13	0E+0	0E+0	2.37E-13	<1
gamma-BHC	7.1E-11	0E+0	5.35E-12	7.63E-11	<1
gamma-Chlordane	0E+0	3.78E-10	0E+0	3.78E-10	4.33
Heptachlor	0E+0	0E+0	1.56E-11	1.56E-11	<1
Total by pathway	6.38E-9	2.29E-9	6.53E-11		
% Contribution by pathway	73.1	26.2	<1		
Scenario Total				8.73E-9	

Table I-79

Average Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	7.51E-6	3.28E-8	7.55E-6	<1
4,4'-DDE	0E+0	2.09E-7	2.14E-9	2.11E-7	<1
4,4'-DDT	0E+0	3.34E-8	0E+0	3.34E-8	<1
alpha-BHC	2.45E-9	1.85E-7	7.78E-9	1.95E-7	<1
Arsenic	1.55E-7	0E+0	2.75E-7	4.3E-7	<1
Beryllium	0E+0	5.28E-9	0E+0	5.28E-9	<1
beta-BHC	5E-7	0E+0	4.26E-8	5.43E-7	<1
bis(2-Ethylhexyl)phthalate	6.44E-11	0E+0	0E+0	6.44E-11	<1
Boron	1.01E-7	0E+0	0E+0	1.01E-7	<1
Endosulfan II	3.11E-16	0E+0	0E+0	3.11E-16	<1
Endosulfan sulfate	0E+0	0E+0	1.9E-10	1.9E-10	<1
gamma-BHC	1.8E-9	0E+0	3.05E-9	4.86E-9	<1
gamma-Chlordane	0E+0	6.7E-6	0E+0	6.7E-6	<1
Heptachlor	0E+0	0E+0	7.94E-9	7.94E-9	<1
Lead (organic)	5.03E-2	0E+0	0E+0	5.03E-2	100
Manganese (water)	3.67E-7	0E+0	0E+0	3.67E-7	<1
Mercury	2.03E-8	0E+0	0E+0	2.03E-8	<1
Total by pathway	5.03E-2	1.46E-5	3.72E-7		
% Contribution by pathway	100	<1	<1		
Scenario Total				5.03E-2	

Table I-80

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Chronic (Lagoons in Service)-Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	1.62E-5	4.84E-8	1.63E-5	<1
4,4'-DDE	0E+0	3.63E-7	2.63E-9	3.66E-7	<1
4,4'-DDT	0E+0	4.76E-8	0E+0	4.76E-8	<1
alpha-BHC	1.34E-7	2.88E-7	9.63E-9	4.31E-7	<1
alpha-Chlordane	0E+0	2.4E-5	0E+0	2.4E-5	<1
Arsenic	6.48E-6	0E+0	3.31E-7	6.81E-6	<1
Beryllium	0E+0	6.98E-9	0E+0	6.98E-9	<1
beta-BHC	2.81E-5	0E+0	7.38E-8	2.81E-5	<1
bis(2-Ethylhexyl)phthalate	2.37E-9	0E+0	0E+0	2.37E-9	<1
Boron	3.17E-6	0E+0	0E+0	3.17E-6	<1
Endosulfan II	8.79E-15	0E+0	0E+0	8.79E-15	<1
Endosulfan sulfate	0E+0	0E+0	2.58E-10	2.58E-10	<1
gamma-BHC	5.09E-8	0E+0	3.84E-9	5.48E-8	<1
gamma-Chlordane	0E+0	1.36E-5	0E+0	1.36E-5	<1
Heptachlor	0E+0	0E+0	9.99E-9	9.99E-9	<1
Lead (organic)	2.21	0E+0	0E+0	2.21	100
Manganese (water)	1.11E-5	0E+0	0E+0	1.11E-5	<1
Mercury	5.73E-7	0E+0	0E+0	5.73E-7	<1
Total by pathway	2.21	5.45E-5	4.8E-7		
% Contribution by pathway	100	<1	<1		
Scenario Total				2.21	

Table I-81

Average Noncancer Hazard Index Summary
On-site Occupational - Current Subchronic
(Lagoons in Service)
Pond G

	Dermal Contact with Surfact Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	0E+0	7.48E-7	0E+0	7.48E-7	<1
Arsenic	1.55E-7	0E+0	2.75E-7	4.3E-7	<1
Beryllium	0E+0	5.28E-9	0E+0	5.28E-9	<1
beta-BHC	4.96E-8	0E+0	4.22E-9	5.38E-8	<1
bis(2-Ethylhexyl)phthalate	6.44E-11	0E+0	0E+0	6.44E-11	<1
Boron	1.01E-7	0E+0	0E+0	1.01E-7	<1
Endosulfan II	4.97E-10	0E+0	0E+0	4.97E-10	<1
gamma-BHC	1.8E-9	0E+0	3.05E-9	4.86E-9	<1
gamma-Chlordane	0E+0	6.7E-6	0E+0	6.7E-6	<1
Heptachlor	0E+0	0E+0	1.55E-8	1.55E-8	<1
Lead (organic)	5.03E-2	0E+0	0E+0	5.03E-2	100
Mercury	2.03E-8	0E+0	0E+0	2.03E-8	<1
Total by pathway	5.03E-2	7.46E-6	2.98E-7		
% Contribution by pathway	100	<1	<1		
Scenario Total				5.03E-2	

Table I-82

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current Subchronic (Lagoons in Service)
Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDT	0E+0	1.07E-6	0E+0	1.07E-6	<1
alpha-Chlordane	0E+0	5.91E-6	0E+0	5.91E-6	<1
Arsenic	6.48E-6	0E+0	3.31E-7	6.81E-6	<1
Beryllium	0E+0	6.98E-9	0E+0	6.98E-9	<1
beta-BHC	2.78E-6	0E+0	7.32E-9	2.79E-6	<1
bis(2-Ethylhexyl)phthalate	2.37E-9	0E+0	0E+0	2.37E-9	<1
Boron	3.17E-6	0E+0	0E+0	3.17E-6	<1
Endosulfan II	1.41E-8	0E+0	0E+0	1.41E-8	<1
gamma-BHC	5.09E-8	0E+0	3.84E-9	5.48E-8	<1
gamma-Chlordane	0E+0	1.36E-5	0E+0	1.36E-5	<1
Heptachlor	0E+0	0E+0	1.95E-8	1.95E-8	<1
Lead (organic)	2.21	0E+0	0E+0	2.21	100
Mercury	5.73E-7	0E+0	0E+0	5.73E-7	<1
Total by pathway	2.21	2.06E-5	3.62E-7		
% Contribution by pathway	100	<1	<1		
Scenario Total				2.21	

Table I-83

Average Cancer Risk
Off-Site Recreational, Adult - Current/Future
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	3.13E-9	3.13E-9	2.91
1,2,3,7,8,9-HxCDF	9.92E-11	9.92E-11	<1
2,3,4,6,7,8-HxCDF	1.24E-11	1.24E-11	<1
1,2,3,4,6,7,8-HpCDD	4.57E-12	4.57E-12	<1
2,3,7,8-TCDD	3.3E-9	3.3E-9	3.07
2,3,7,8-TCDF	3.53E-11	3.53E-11	<1
4,4'-DDD	1.65E-10	1.65E-10	<1
4,4'-DDE	1.89E-10	1.89E-10	<1
4,4'-DDT	3.71E-12	3.71E-12	<1
Aldrin	1.25E-11	1.25E-11	<1
alpha-BHC	1.71E-13	1.71E-13	<1
Beryllium	4.22E-13	4.22E-13	<1
beta-BHC	1.56E-14	1.56E-14	<1
bis(2-Ethylhexyl)phthalate	1.26E-12	1.26E-12	<1
Chlordane	1.46E-13	1.46E-13	<1
Dieldrin	5.36E-13	5.36E-13	<1
gamma-BHC	1.79E-13	1.79E-13	<1
Heptachlor	3.52E-13	3.52E-13	<1
Heptachlor epoxide	2.76E-16	2.76E-16	<1
HpCB	1.04E-10	1.04E-10	<1
HxCB	2.09E-8	2.09E-8	19.4
Hexachlorobenzene	1.91E-13	1.91E-13	<1
n-Nitroso-di-n-propylamine	2.25E-9	2.25E-9	2.09
n-Nitrosodimethylamine	2.6E-10	2.6E-10	<1
OCDD	2.07E-12	2.07E-12	<1
OCDF	1E-12	1E-12	<1
PnCB	6.84E-8	6.84E-8	63.6
TCB	8.63E-9	8.63E-9	
Total by pathway	1.08E-7		
% Contribution by pathway	100		
Scenario Total		1.08E-7	

Table I-84

Reasonable Maximum Cancer Risk
Off-Site Recreational, Adult - Current/Future
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	1.55E-7	1.55E-7	2.92
1,2,3,7,8,9-HxCDF	4.89E-9	4.89E-9	<1
2,3,4,6,7,8-HxCDF	6.08E-10	6.08E-10	<1
1,2,3,4,6,7,8-HpCDD	2.26E-10	2.26E-10	<1
2,3,7,8-TCDD	1.63E-7	1.63E-7	3.08
2,3,7,8-TCDF	1.74E-9	1.74E-9	<1
4,4'-DDD	8.17E-9	8.17E-9	<1
4,4'-DDE	9.37E-9	9.37E-9	<1
4,4'-DDT	1.84E-10	1.84E-10	<1
Aldrin	6.2E-10	6.2E-10	<1
alpha-BHC	8.97E-12	8.97E-12	<1
Beryllium	2.08E-11	2.08E-11	<1
beta-BHC	1.17E-12	1.17E-12	<1
bis(2-Ethylhexyl)phthalate	6.38E-11	6.38E-11	<1
Chlordane	7.2E-12	7.2E-12	<1
Dieldrin	2.66E-11	2.66E-11	<1
gamma-BHC	8.82E-12	8.82E-12	<1
Heptachlor	1.73E-11	1.73E-11	<1
Heptachlor epoxide	1.37E-14	1.37E-14	<1
HpCB	5.11E-9	5.11E-9	<1
HxCB	1.03E-6	1.03E-6	19.5
Hexachlorobenzene	9.4E-12	9.4E-12	<1
n-Nitroso-di-n-propylamine	1.11E-7	1.11E-7	2.09
n-Nitrosodimethylamine	1.28E-8	1.28E-8	<1
OCDD	1.02E-10	1.02E-10	<1
OCDF	4.94E-11	4.94E-11	<1
PnCB	3.36E-6	3.36E-6	63.6
TCB	4.25E-7	4.25E-7	8.03
Total by pathway	5.29E-6		
% Contribution by pathway	100		
Scenario Total		5.29E-6	

Table I-85

Average Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	1.62E-4	1.62E-4	2.98
1,2,3,7,8,9-HxCDF	5.14E-6	5.14E-6	<1
2,3,4,6,7,8-HxCDF	6.41E-7	6.41E-7	<1
1,2,3,4,6,7,8-HpCDD	2.37E-7	2.37E-7	<1
2,3,7,8-TCDD	1.71E-4	1.71E-4	3.13
2,3,7,8-TCDF	1.83E-6	1.83E-6	<1
2,4'-DDD	2.26E-6	2.26E-6	<1
2,4'-DDT	1.29E-6	1.29E-6	<1
4,4'-DDD	1.07E-5	1.07E-5	<1
4,4'-DDE	1.11E-6	1.11E-6	<1
4,4'-DDT	1.7E-7	1.7E-7	<1
Aldrin	1.91E-7	1.91E-7	<1
alpha-BHC	5.07E-10	5.07E-10	<1
Antimony	1.12E-7	1.12E-7	<1
Arsenic	3.55E-5	3.55E-5	<1
Barium	4.88E-9	4.88E-9	<1
Benzyl alcohol	6.45E-13	6.45E-13	<1
Beryllium	1.53E-10	1.53E-10	<1
beta-BHC	2.04E-10	2.04E-10	<1
bis(2-Ethylhexyl)phthalate	3.51E-8	3.51E-8	<1
Boron	2.76E-10	2.76E-10	<1
Cadmium (food)	2.65E-8	2.65E-8	<1
Chlordane	1.46E-8	1.46E-8	<1
Chromium	1.47E-9	1.47E-9	<1
Chromium VI	2.63E-12	2.63E-12	<1
Cyanide	1.4E-7	1.4E-7	<1
delta-BHC	3.49E-9	3.49E-9	<1
Dieldrin	5.21E-9	5.21E-9	<1
Diethylphthalate	8.83E-12	8.83E-12	<1
Endosulfan sulfate	5.46E-14	5.46E-14	<1
Endrin	1.54E-8	1.54E-8	<1

Table I-85

(Continued)

	Ingestion of Waterfowl	Total	% Contribution
gamma-BHC	3.57E-9	3.57E-9	<1
Heptachlor	1.22E-9	1.22E-9	<1
Heptachlor epoxide	1.81E-11	1.81E-11	<1
HpCB	5.41E-6	5.41E-6	<1
HxCB	1.13E-3	1.13E-3	20.7
Hexachlorobenzene	1.16E-9	1.16E-9	<1
Lead (organic)	6.04E-4	6.04E-4	11.1
Manganese (food)	2.7E-8	2.7E-8	<1
Mercury	1.58E-4	1.58E-4	2.89
Mirex	4.45E-13	4.45E-13	<1
Nickel	4.16E-8	4.16E-8	<1
OCDD	1.07E-7	1.07E-7	<1
OCDF	5.18E-8	5.18E-8	<1
PnCB	2.46E-3	2.46E-3	45.1
Pyridine	2.08E-10	2.08E-10	<1
Selenium	1.34E-5	1.34E-5	<1
Silver	8.25E-8	8.25E-8	<1
TCB	5.52E-4	5.52E-4	10.1
Thallium	1.41E-4	1.41E-4	2.58
Vanadium	3.42E-7	3.42E-7	<1
Total by pathway	5.46E-3		
% Contribution by pathway	100		
Scenario Total		5.46E-3	

Table I-86

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	2.41E-3	2.41E-3	3.1
1,2,3,7,8,9-HxCDF	7.6E-5	7.6E-5	<1
2,3,4,6,7,8-HxCDF	9.46E-6	9.46E-6	<1
1,2,3,4,6,7,8-HpCDD	3.51E-6	3.51E-6	<1
2,3,7,8-TCDD	2.53E-3	2.53E-3	3.27
2,3,7,8-TCDF	2.71E-5	2.71E-5	<1
2,4'-DDD	3.35E-5	3.35E-5	<1
2,4'-DDT	1.92E-5	1.92E-5	<1
4,4'-DDD	1.59E-4	1.59E-4	<1
4,4'-DDE	1.65E-5	1.65E-5	<1
4,4'-DDT	2.52E-6	2.52E-6	<1
Aldrin	2.83E-6	2.83E-6	<1
alpha-BHC	7.99E-9	7.99E-9	<1
Antimony	1.67E-6	1.67E-6	<1
Arsenic	5.25E-4	5.25E-4	<1
Barium	6.68E-8	6.68E-8	<1
Benzyl alcohol	9.57E-12	9.57E-12	<1
Beryllium	2.25E-9	2.25E-9	<1
beta-BHC	4.61E-9	4.61E-9	<1
bis(2-Ethylhexyl)phthalate	5.32E-7	5.32E-7	<1
Boron	5.76E-9	5.76E-9	<1
Cadmium (food)	3.91E-7	3.91E-7	<1
Chlordane	2.15E-7	2.15E-7	<1
Chromium	2.51E-8	2.51E-8	<1
Chromium VI	1.04E-10	1.04E-10	<1
Cyanide	2.07E-6	2.07E-6	<1
delta-BHC	5.16E-8	5.16E-8	<1
Dieldrin	7.76E-8	7.76E-8	<1
Diethylphthalate	1.31E-10	1.31E-10	<1
Endosulfan sulfate	8.42E-13	8.42E-13	<1
Endrin	2.27E-7	2.27E-7	<1
gamma-BHC	5.28E-8	5.28E-8	<1

Table I-86

(Continued)

	Ingestion of Waterfowl	Total	% Contribution
Heptachlor	1.8E-8	1.8E-8	<1
Heptachlor epoxide	2.7E-10	2.7E-10	<1
HpCB	8.02E-5	8.02E-5	<1
HxCB	1.67E-2	1.67E-2	21.6
Hexachlorobenzene	1.71E-8	1.71E-8	<1
Lead (organic)	5.77E-3	5.77E-3	7.44
Manganese (food)	4.01E-7	4.01E-7	<1
Mercury	2.33E-3	2.33E-3	3.01
Mirex	6.58E-12	6.58E-12	<1
Nickel	6.18E-7	6.18E-7	<1
OCDD	1.59E-6	1.59E-6	<1
OCDF	7.68E-7	7.68E-7	<1
PnCB	3.63E-2	3.63E-2	46.9
Pyridine	3.08E-9	3.08E-9	<1
Selenium	1.98E-4	1.98E-4	<1
Silver	1.23E-6	1.23E-6	<1
TCB	8.16E-3	8.16E-3	10.5
Thallium	2.09E-3	2.09E-3	2.69
Vanadium	6.91E-6	6.91E-6	<1
Total by pathway	7.75E-2		
% Contribution by pathway	100		
Scenario Total		7.75E-2	

Table I-87

Average Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	4.94E-4	4.94E-4	2.98
1,2,3,7,8,9-HxCDF	1.56E-5	1.56E-5	<1
2,3,4,6,7,8-HxCDF	1.95E-6	1.95E-6	<1
1,2,3,4,6,7,8-HpCDD	7.21E-7	7.21E-7	<1
2,3,7,8-TCDD	5.2E-4	5.2E-4	3.13
2,3,7,8-TCDF	5.57E-6	5.57E-6	<1
2,4'-DDD	6.86E-6	6.86E-6	<1
2,4'-DDT	3.91E-6	3.91E-6	<1
4,4'-DDD	3.25E-5	3.25E-5	<1
4,4'-DDE	3.38E-6	3.38E-6	<1
4,4'-DDT	5.16E-7	5.16E-7	<1
Aldrin	5.79E-7	5.79E-7	<1
alpha-BHC	1.54E-9	1.54E-9	<1
Antimony	3.41E-7	3.41E-7	<1
Arsenic	1.08E-4	1.08E-4	<1
Barium	1.48E-8	1.48E-8	<1
Benzyl alcohol	1.96E-12	1.96E-12	<1
Beryllium	4.64E-10	4.64E-10	<1
beta-BHC	6.2E-10	6.2E-10	<1
bis(2-Ethylhexyl)phthalate	1.07E-7	1.07E-7	<1
Boron	8.38E-10	8.38E-10	<1
Cadmium (food)	8.05E-8	8.05E-8	<1
Chlordane	4.42E-8	4.42E-8	<1
Chromium	4.45E-9	4.45E-9	<1
Chromium VI	7.99E-12	7.99E-12	<1
Cyanide	4.25E-7	4.25E-7	<1
delta-BHC	1.06E-8	1.06E-8	<1
Dieldrin	1.58E-8	1.58E-8	<
Diethylphthalate	2.68E-11	2.68E-11	<1
Endosulfan sulfate	1.66E-13	1.66E-13	<1
Endrin	4.67E-8	4.67E-8	<1
gamma-BHC	1.08E-8	1.08E-8	<1

Table I-87

(Continued)

	Ingestion of Waterfowl	Total	% Contribution
Heptachlor	3.7E-9	3.7E-9	<1
Heptachlor epoxide	5.5E-11	5.5E-11	<1
HpCB	1.64E-5	1.64E-5	<1
HxCB	3.43E-3	3.43E-3	20.7
Hexachlorobenzene	3.52E-9	3.52E-9	<1
Lead (organic)	1.84E-3	1.84E-3	11.1
Manganese (food)	8.21E-8	8.21E-8	<1
Mercury	4.8E-4	4.8E-4	2.89
Mirex	1.35E-12	1.35E-12	<1
Nickel	1.26E-7	1.26E-7	<1
OCDD	3.26E-7	3.26E-7	<1
OCDF	1.58E-7	1.58E-7	<1
PnCB	7.48E-3	7.48E-3	45.1
Pyridine	6.32E-10	6.32E-10	<1
Selenium	4.07E-5	4.07E-5	<1
Silver	2.51E-7	2.51E-7	<1
TCB	1.68E-3	1.68E-3	10.1
Thallium	4.28E-4	4.28E-4	2.58
Vanadium	1.04E-6	1.04E-6	<1
Total by pathway	1.66E-2		
% Contribution by pathway	100.0		
Scenario Total		1.66E-2	

Table I-88

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	6.73E-3	6.73E-3	3.1
1,2,3,7,8,9-HxCDF	2.13E-4	2.13E-4	<1
2,3,4,6,7,8-HxCDF	2.65E-5	2.65E-5	<1
1,2,3,4,6,7,8-HpCDD	9.82E-6	9.82E-6	<1
2,3,7,8-TCDD	7.09E-3	7.09E-3	3.27
2,3,7,8-TCDF	7.59E-5	7.59E-5	<1
2,4'-DDD	9.38E-5	9.38E-5	<1
2,4'-DDT	5.36E-5	5.36E-5	<1
4,4'-DDD	4.45E-4	4.45E-4	<1
4,4'-DDE	4.63E-5	4.63E-5	<1
4,4'-DDT	7.05E-6	7.05E-6	<1
Aldrin	7.94E-6	7.94E-6	<1
alpha-BHC	2.24E-8	2.24E-8	<1
Antimony	4.67E-6	4.67E-6	<1
Arsenic	1.47E-3	1.47E-3	<1
Barium	1.87E-7	1.87E-7	<1
Benzyl alcohol	2.68E-11	2.68E-11	<1
Beryllium	6.31E-9	6.31E-9	<1
beta-BHC	1.29E-8	1.29E-8	<1
bis(2-Ethylhexyl)phthalate	1.49E-6	1.49E-6	<1
Boron	1.61E-8	1.61E-8	<1
Cadmium (food)	1.09E-6	1.09E-6	<1
Chlordane	6.03E-7	6.03E-7	<1
Chromium	7.03E-8	7.03E-8	<1
Chromium VI	2.9E-10	2.9E-10	<1
Cyanide	5.8E-6	5.8E-6	<1
delta-BHC	1.44E-7	1.44E-7	<1
Dieldrin	2.17E-7	2.17E-7	<1
Diethylphthalate	3.66E-10	3.66E-10	<1
Endosulfan sulfate	2.36E-12	2.36E-12	<1
Endrin	6.35E-7	6.35E-7	<1
gamma-BHC	1.48E-7	1.48E-7	<1

Table I-88

(Continued)

	Ingestion of Waterfowl	Total	% Contribution
Heptachlor	5.03E-8	5.03E-8	<1
Heptachlor epoxide	7.56E-10	7.56E-10	<1
HpCB	2.24E-4	2.24E-4	<1
HxCB	4.68E-2	4.68E-2	21.6
Hexachlorobenzene	4.8E-8	4.8E-8	<1
Lead (organic)	1.61E-2	1.61E-2	7.44
Manganese (food)	1.12E-6	1.12E-6	<1
Mercury	6.52E-3	6.52E-3	3.01
Mirex	1.84E-11	1.84E-11	<1
Nickel	1.73E-6	1.73E-6	<1
OCDD	4.45E-6	4.45E-6	<1
OCDF	2.15E-6	2.15E-6	<1
PnCB	1.02E-1	1.02E-1	46.9
Pyridine	8.63E-9	8.63E-9	<1
Selenium	5.55E-4	5.55E-4	<1
Silver	3.44E-6	3.44E-6	<1
TCB	2.28E-2	2.28E-2	10.5
Thallium	5.84E-3	5.84E-3	2.69
Vanadium	1.93E-5	1.93E-5	<1
Total by pathway	2.17E-1		
% Contribution by pathway	100.0		
Scenario Total		2.17E-1	

Table I-89

Average Noncancer Hazard Index Summary
On-site Recreational, Teenage - Current/Future Subchronic
(Lagoons In or Out of Service)
Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Surface Water	Total	% Contribution
4,4'-DDT	0E+0	2.87E-6	0E+0	0E+0	2.87E-6	<1
alpha-BHC	0E+0	0E+0	0E+0	8.55E-9	8.55E-9	<1
Arsenic	1.93E-6	0E+0	1.05E-6	5.11E-6	8.1E-6	<1
Beryllium	0E+0	2.02E-8	0E+0	0E+0	2.02E-8	<1
beta-BHC	6.15E-7	0E+0	1.62E-8	3.11E-8	6.63E-7	<1
bis(2-Ethylhexyl)phthalate	7.99E-10	0E+0	0E+0	1.16E-7	1.17E-7	<1
Boron	1.26E-6	0E+0	0E+0	1.26E-6	2.51E-6	<1
Endosulfan II	6.17E-9	0E+0	0E+0	6.16E-9	1.23E-8	<1
gamma-BHC	2.24E-8	0E+0	1.17E-8	1.13E-9	3.52E-8	<1
gamma-Chlordane	0E+0	2.57E-5	0E+0	0E+0	2.57E-5	<1
Heptachlor	0E+0	0E+0	5.93E-8	0E+0	5.93E-8	<1
Lead (organic)	6.24E-1	0E+0	0E+0	6.23E-1	1.25	100
Mercury	2.51E-7	0E+0	0E+0	2.51E-7	5.03E-7	<1
Total by pathway	6.24E-1	2.86E-5	1.14E-6	6.23E-1		
% Contribution by pathway	50	<1	<1	50		
Scenario Total					1.25	

Table I-90

Reasonable Maximum Noncancer Hazard Index Summary
On-site Recreational, Teenage - Current/Future Subchronic
(Lagoons In or Out of Service)
Pond G

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Surface Water	Total	% Contribution
4,4'-DDT	0E+0	8.17E-6	0E+0	0E+0	8.17E-6	<1
alpha-BHC	0E+0	0E+0	0E+0	3.29E-8	3.29E-8	<1
alpha-Chlordane	0E+0	4.53E-5	0E+0	0E+0	4.53E-5	<1
Arsenic	5.69E-6	0E+0	2.54E-6	1.51E-5	2.33E-5	<1
Beryllium	0E+0	5.35E-8	0E+0	0E+0	5.35E-8	<1
beta-BHC	2.44E-6	0E+0	5.61E-8	1.23E-7	2.62E-6	<1
bis(2-Ethylhexyl)phthalate	2.08E-9	0E+0	0E+0	3.04E-7	3.06E-7	<1
Boron	2.78E-6	0E+0	0E+0	2.78E-6	5.56E-6	<1
Endosulfan II	1.23E-8	0E+0	0E+0	1.23E-8	2.47E-8	<1
gamma-BHC	4.47E-8	0E+0	2.95E-8	2.26E-9	7.64E-8	<1
gamma-Chlordane	0E+0	1.04E-4	0E+0	0E+0	1.04E-4	<1
Heptachlor	0E+0	0E+0	1.49E-7	0E+0	1.49E-7	<1
Lead (organic)	1.94	0E+0	0E+0	1.94	3.88	100
Mercury	5.03E-7	0E+0	0E+0	5.02E-7	1.01E-6	<1
Total by pathway	1.94	1.58E-4	2.77E-6	1.94		
% Contribution by pathway	50	<1	<1	50		
Scenario Total					3.88	

Table I-91

Average Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	3.67E-10	3.67E-10	97.8
alpha-BHC	1.47E-62	1.47E-62	<1
Dieldrin	7.11E-12	7.11E-12	1.9
gamma-BHC	1.23E-21	1.23E-21	<1
gamma-Chlordane	9.79E-13	9.79E-13	<1
Heptachlor	2.96E-13	2.96E-13	<1
Heptachlor epoxide	9.4E-15	9.4E-15	<1
Total by pathway	3.75E-10		
% Contribution by pathway	100.0		
Scenario Total		3.75E-10	

Table I-92

Reasonable Maximum Cancer Risk
Off-site Agricultural, Adult - Future (Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	1.22E-8	1.22E-8	98.4
alpha-BHC	5.07E-61	5.07E-61	<1
Dieldrin	1.58E-10	1.58E-10	1.27
gamma-BHC	4.04E-20	4.04E-20	<1
gamma-Chlordane	3.57E-11	3.57E-11	<1
Heptachlor	5.12E-12	5.12E-12	<1
Heptachlor epoxide	3.44E-13	3.44E-13	<1
Total by pathway	1.24E-8		
% Contribution by pathway	100.0		
Scenario Total		1.24E-8	

Table I-93

Average Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	2.38E-5	2.38E-5	99.3
alpha-BHC	4.35E-59	4.35E-59	<1
Dieldrin	6.91E-8	6.91E-8	<1
Endosulfan I	2.54E-64	2.54E-64	<1
Endosulfan sulfate	3.03E-63	3.03E-63	<1
Endrin	9.27E-13	9.27E-13	<1
gamma-BHC	2.45E-17	2.45E-17	<1
gamma-Chlordane	9.77E-8	9.77E-8	<1
Heptachlor	1.02E-9	1.02E-9	<1
Heptachlor epoxide	6.18E-10	6.18E-10	<1
Methoxychlor	9.3E-32	9.3E-32	<1
Total by pathway	2.39E-5		
% Contribution by pathway	100.0		
Scenario Total		2.39E-5	

Table I-94

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Adult - Future Chronic (Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	2.38E-4	2.38E-4	99.4
alpha-BHC	4.52E-58	4.52E-58	<1
Dieldrin	4.6E-7	4.6E-7	<1
Endosulfan I	1.94E-63	1.94E-63	<1
Endosulfan sulfate	1.76E-62	1.76E-62	<1
Endrin	6.9E-12	6.9E-12	<1
gamma-BHC	2.42E-16	2.42E-16	<1
gamma-Chlordane	1.07E-6	1.07E-6	<1
Heptachlor	5.31E-9	5.31E-9	<1
Heptachlor epoxide	6.79E-9	6.79E-9	<1
Methoxychlor	3.96E-31	3.96E-31	<1
Total by pathway	2.4E-4		
% Contribution by pathway	100.0		
Scenario Total		2.4E-4	

Table I-95

Average Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	5.54E-5	5.54E-5	99.3
alpha-BHC	1.01E-58	1.01E-58	<1
Dieldrin	1.61E-7	1.61E-7	<1
Endosulfan I	5.93E-64	5.93E-64	<1
Endosulfan sulfate	7.06E-63	7.06E-63	<1
Endrin	2.16E-12	2.16E-12	<1
gamma-BHC	5.72E-17	5.72E-17	<1
gamma-Chlordane	2.28E-7	2.28E-7	<1
Heptachlor	2.39E-9	2.39E-9	<1
Heptachlor epoxide	1.44E-9	1.44E-9	<1
Methoxychlor	2.17E-31	2.17E-31	<1
Total by pathway	5.58E-5		
% Contribution by pathway	100.0		
Scenario Total		5.58E-5	

Table I-96

Reasonable Maximum Noncancer Hazard Index Summary
Off-site Agricultural, Child - Future Chronic
(Lagoons In or Out of Service)
Pond G

	Ingestion of Beef	Total	% Contribution
4,4'-DDD	5.56E-4	5.56E-4	99.4
alpha-BHC	1.05E-57	1.05E-57	<1
Dieldrin	1.07E-6	1.07E-6	<1
Endosulfan I	4.54E-63	4.54E-63	<1
Endosulfan sulfate	4.11E-62	4.11E-62	<1
Endrin	1.61E-11	1.61E-11	<1
gamma-BHC	5.64E-16	5.64E-16	<1
gamma-Chlordane	2.49E-6	2.49E-6	<1
Heptachlor	1.24E-8	1.24E-8	<1
Heptachlor epoxide	1.59E-8	1.59E-8	<1
Methoxychlor	9.25E-31	9.25E-31	<1
Total by pathway	5.59E-4		
% Contribution by pathway	100.0		
Scenario Total		5.59E-4	

DITCH

Table I-97

Average Cancer Risk
On-site Occupational - Current (Lagoons in Service)
Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	7.84E-12	7.84E-12	<1
4,4'-DDE	0E+0	2.62E-12	2.62E-12	<1
4,4'-DDT	0E+0	3.9E-12	3.9E-12	<1
Aldrin	0E+0	1.37E-11	1.37E-11	<1
alpha-BHC	1.74E-13	5.31E-12	5.49E-12	<1
alpha-Chlordane	0E+0	3.69E-12	3.69E-12	<1
Benzo(b)fluoranthene	0E+0	2.13E-10	2.13E-10	<1
Benzo(k)fluoranthene	0E+0	1.01E-10	1.01E-10	<1
beta-BHC	0E+0	1.99E-12	1.99E-12	<1
Dieldrin	2.35E-11	0E+0	2.35E-11	<1
gamma-BHC	0E+0	1.75E-12	1.75E-12	<1
gamma-Chlordane	0E+0	5.67E-12	5.67E-12	<1
Heptachlor epoxide	0E+0	6.39E-8	6.39E-8	99.4
Total by pathway	2.37E-11	6.43E-8		
% Contribution by pathway	<1	100		
Scenario Total			6.43E-8	

Table I-98

Reasonable Maximum Cancer Risk
On-site Occupational - Current(Lagoons in Service)
Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	4.71E-11	4.71E-11	<1
4,4'-DDE	0E+0	1.52E-11	1.52E-11	<1
4,4'-DDT	0E+0	2.69E-11	2.69E-11	<1
Aldrin	0E+0	4.24E-11	4.24E-11	<1
alpha-BHC	1.37E-11	1.58E-11	2.95E-11	<1
alpha-Chlordane	0E+0	2.45E-11	2.45E-11	<1
Benzo(b)fluoranthene	0E+0	7.29E-10	7.29E-10	<1
Benzo(k)fluoranthene	0E+0	3.44E-10	3.44E-10	<1
beta-BHC	0E+0	7.88E-12	7.88E-12	<1
Dieldrin	1.85E-9	0E+0	1.85E-9	<1
gamma-BHC	0E+0	7.03E-12	7.03E-12	<1
gamma-Chlordane	0E+0	3.68E-11	3.68E-11	<1
Heptachlor epoxide	0E+0	1.78E-7	1.78E-7	98.3
Total by pathway	1.86E-9	1.79E-7		
% Contribution by pathway	1.03	99		
Scenario Total			1.81E-7	

Table I-99

Average Noncancer Hazard Index Summary
On-site Occupational - Current(Lagoons in Service)
Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	5.08E-7	5.08E-7	<1
4,4'-DDE	0E+0	1.54E-8	1.54E-8	<1
4,4'-DDT	0E+0	7.98E-9	7.98E-9	<1
Aldrin	0E+0	8.31E-8	8.31E-8	<1
alpha-BHC	1.84E-10	5.6E-9	5.79E-9	<1
alpha-Chlordane	0E+0	1.49E-6	1.49E-6	<1
beta-BHC	0E+0	2.61E-8	2.61E-8	<1
delta-BHC	0E+0	4.48E-6	4.48E-6	<1
Dieldrin	1.75E-7	0E+0	1.75E-7	<1
gamma-BHC	0E+0	3.49E-9	3.49E-9	<1
gamma-Chlordane	0E+0	5.65E-7	5.65E-7	<1
Heptachlor epoxide	0E+0	4.2E-3	4.2E-3	99.8
Isodrin	5.62E-10	0E+0	5.62E-10	<1
Mercury	0E+0	2.24E-7	2.24E-7	<1
Total by pathway	1.76E-7	4.21E-3		
% Contribution by pathway	<1	100		
Scenario Total			4.21E-3	

Table I-100

Reasonable Maximum Noncancer Hazard Index Summary
On-site Occupational - Current(Lagoons in Service)
Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contribution
4,4'-DDD	0E+0	1.1E-6	1.1E-6	<1
4,4'-DDE	0E+0	3.22E-8	3.22E-8	<1
4,4'-DDT	0E+0	1.98E-8	1.98E-8	<1
Aldrin	0E+0	9.26E-8	9.26E-8	<1
alpha-BHC	5.21E-9	5.99E-9	1.12E-8	<1
alpha-Chlordane	0E+0	3.57E-6	3.57E-6	<1
beta-BHC	0E+0	3.71E-8	3.71E-8	<1
delta-BHC	0E+0	8.06E-6	8.06E-6	<1
Dieldrin	4.96E-6	0E+0	4.96E-6	<1
gamma-BHC	0E+0	5.05E-9	5.05E-9	<1
gamma-Chlordane	0E+0	1.32E-6	1.32E-6	<1
Heptachlor epoxide	0E+0	4.2E-3	4.2E-3	99.5
Isodrin	1.59E-8	0E+0	1.59E-8	<1
Mercury	0E+0	3.79E-7	3.79E-7	<1
Total by pathway	4.98E-6	4.22E-3		
% Contribution by pathway	<1	99.9		
Scenario Total			4.22E-3	

Table I-101

Average Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	3.13E-10	3.13E-10	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	9.92E-11	9.92E-11	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	1.24E-11	1.24E-11	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	4.57E-11	4.57E-11	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	3.3E-9	3.3E-9	1.09
2,3,7,8-TCDF	0E+0	0E+0	0E+0	3.53E-11	3.53E-11	<1
4,4'-DDD	0E+0	2.43E-11	0E+0	1.65E-10	1.89E-10	<1
4,4'-DDE	0E+0	8.1E-12	0E+0	1.89E-10	1.97E-10	<1
4,4'-DDT	0E+0	1.21E-11	0E+0	3.71E-12	1.58E-11	<1
Aldrin	0E+0	4.24E-11	0E+0	1.25E-11	5.49E-11	<1
alpha-BHC	2.01E-12	1.64E-11	1.55E-12	1.71E-13	2.02E-11	<1
alpha-Chlordane	0E+0	1.14E-11	0E+0	0E+0	1.14E-11	<1
Benzo(b)fluoranthene	0E+0	6.6E-10	0E+0	0E+0	6.6E-10	<1
Benzo(k)fluoranthene	0E+0	3.12E-10	0E+0	0E+0	3.12E-10	<1
Beryllium	0E+0	0E+0	0E+0	4.22E-13	4.22E-13	<1
beta-BHC	0E+0	6.16E-12	0E+0	1.56E-14	6.18E-12	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	1.26E-12	1.26E-12	<1
Chlordane	0E+0	0E+0	0E+0	1.46E-13	1.46E-13	<1
Dieldrin	2.71E-10	0E+0	5.54E-12	5.36E-13	2.78E-10	<1
gamma-BHC	0E+0	5.42E-12	0E+0	0E+0	5.42E-12	<1
gamma-Chlordane	0E+0	1.75E-11	0E+0	0E+0	1.75E-11	<1

Table I-101

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Heptachlor	0E+0	0E+0	0E+0	3.52E-13	3.52E-13	<1
Heptachlor epoxide	0E+0	1.98E-7	0E+0	2.76E-16	1.98E-7	65.1
Hexachlorobenzene	0E+0	0E+0	0E+0	1.91E-13	1.91E-13	<1
HpCB	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	<1
HxCB	0E+0	0E+0	0E+0	2.09E-8	2.09E-8	6.88
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	<1
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	2.6E-10	2.6E-10	<1
OCDD	0E+0	0E+0	0E+0	2.07E-12	2.07E-12	<1
OCDF	0E+0	0E+0	0E+0	1E-12	1E-12	<1
PnCB	0E+0	0E+0	0E+0	6.84E-8	6.84E-8	22.5
TCB	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	2.84
Total by pathway	2.73E-10	1.99E-7	7.08E-12	1.05E-7		
% Contribution by pathway	<1	65.5	<1	34.5		
Scenario Total					3.04E-7	

Table I-102

Reasonable Maximum Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	1.55E-7	1.55E-7	2.33
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	4.89E-9	4.89E-9	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	6.08E-10	6.08E-10	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	2.26E-9	2.26E-9	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	1.63E-7	1.63E-7	2.46
2,3,7,8-TCDF	0E+0	0E+0	0E+0	1.74E-9	1.74E-9	<1
4,4'-DDD	0E+0	3.5E-10	0E+0	8.17E-9	8.52E-9	<1
4,4'-DDE	0E+0	1.13E-10	0E+0	9.37E-9	9.48E-9	<1
4,4'-DDT	0E+0	2E-10	0E+0	1.84E-10	3.84E-10	<1
Aldrin	0E+0	3.15E-10	0E+0	6.2E-10	9.34E-10	<1
alpha-BHC	1.34E-11	1.17E-10	1.03E-11	8.97E-12	1.5E-10	<1
alpha-Chlordane	0E+0	1.82E-10	0E+0	0E+0	1.82E-10	<1
Benzo(b)fluoranthene	0E+0	5.41E-9	0E+0	0E+0	5.41E-9	<1
Benzo(k)fluoranthene	0E+0	2.56E-9	0E+0	0E+0	2.56E-9	<1
Beryllium	0E+0	0E+0	0E+0	2.08E-11	2.08E-11	<1
beta-BHC	0E+0	5.85E-11	0E+0	1.17E-12	5.97E-11	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	6.38E-11	6.38E-11	<1
Chlordane	0E+0	0E+0	0E+0	7.2E-12	7.2E-12	<1
Dieldrin	1.81E-9	0E+0	3.69E-11	2.66E-11	1.87E-9	<1
gamma-BHC	0E+0	5.22E-11	0E+0	0E+0	5.22E-11	<1
gamma-Chlordane	0E+0	2.73E-10	0E+0	0E+0	2.73E-10	<1

Table I-102

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Heptachlor	0E+0	0E+0	0E+0	1.73E-11	1.73E-11	<1
Heptachlor epoxide	0E+0	1.32E-6	0E+0	1.37E-14	1.32E-6	19.9
Hexachlorobenzene	0E+0	0E+0	0E+0	9.4E-12	9.4E-12	<1
HpCB	0E+0	0E+0	0E+0	5.11E-9	5.11E-9	<1
HxCB	0E+0	0E+0	0E+0	1.03E-6	1.03E-6	15.6
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	1.11E-7	1.11E-7	1.67
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	1.28E-8	1.28E-8	<1
OCDD	0E+0	0E+0	0E+0	1.02E-10	1.02E-10	<1
OCDF	0E+0	0E+0	0E+0	4.94E-11	4.94E-11	<1
PnCB	0E+0	0E+0	0E+0	3.36E-6	3.36E-6	50.8
TCB	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	6.41
Total by pathway	1.82E-9	1.33E-6	4.72E-11	5.29E-6		
% Contribution by pathway	<1	20.1	<1	79.9		
Scenario Total					6.62E-6	

Table I-103
Average Non-Cancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	1.62E-5	1.62E-5	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	5.14E-6	5.14E-6	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	6.41E-7	6.41E-7	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	2.37E-6	2.37E-6	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	1.71E-4	1.71E-4	<1
2,3,7,8-TCDF	0E+0	0E+0	0E+0	1.83E-6	1.83E-6	<1
2,4'-DDD	0E+0	0E+0	0E+0	2.26E-6	2.26E-6	<1
2,4'-DDT	0E+0	0E+0	0E+0	1.29E-6	1.29E-6	<1
4,4'-DDD	0E+0	1.57E-6	0E+0	1.07E-5	1.23E-5	<1
4,4'-DDE	0E+0	4.77E-8	0E+0	1.11E-6	1.16E-6	<1
4,4'-DDT	0E+0	2.47E-8	0E+0	1.7E-7	1.95E-7	<1
Aldrin	0E+0	2.57E-7	0E+0	1.91E-7	4.48E-7	<1
alpha-BHC	2.13E-9	1.73E-8	4.59E-9	5.07E-10	2.46E-8	<1
alpha-Chlordane	0E+0	4.62E-6	0E+0	0E+0	4.62E-6	<1
Antimony	0E+0	0E+0	0E+0	1.12E-7	1.12E-7	<1
Arsenic	0E+0	0E+0	0E+0	3.55E-5	3.55E-5	<1
Barium	0E+0	0E+0	0E+0	4.88E-9	4.88E-9	<1
Benzyl alcohol	0E+0	0E+0	0E+0	6.45E-13	6.45E-13	<1
Beryllium	0E+0	0E+0	0E+0	1.53E-10	1.53E-10	<1
beta-BHC	0E+0	8.07E-8	0E+0	2.04E-10	8.09E-8	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	3.51E-8	3.51E-8	<1
Boron	0E+0	0E+0	0E+0	2.76E-10	2.76E-10	<1
Cadmium (food)	0E+0	0E+0	0E+0	2.65E-8	2.65E-8	<1
Chlordane	0E+0	0E+0	0E+0	1.46E-8	1.46E-8	<1
Chromium	0E+0	0E+0	0E+0	1.47E-9	1.47E-9	<1
Chromium VI	0E+0	0E+0	0E+0	2.63E-12	2.63E-12	<1
Cyanide	0E+0	0E+0	0E+0	1.4E-7	1.4E-7	<1

Table I-103
(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
delta-BHC	0E+0	1.39E-5	0E+0	3.49E-9	1.39E-5	<1
Dieldrin	2.02E-6	0E+0	5.38E-8	5.21E-9	2.08E-6	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	5.46E-14	5.46E-14	<1
gamma-BHC	0E+0	1.08E-8	0E+0	0E+0	1.08E-8	<1
gamma-Chlordane	0E+0	1.75E-6	0E+0	0E+0	1.75E-6	<1
Heptachlor	0E+0	0E+0	0E+0	1.22E-9	1.22E-9	<1
Heptachlor epoxide	0E+0	1.3E-2	0E+0	1.81E-11	1.3E-2	70.9
Hexachlorobenzene	0E+0	0E+0	0E+0	1.16E-9	1.16E-9	<1
HpCB	0E+0	0E+0	0E+0	5.41E-6	5.41E-6	<1
HxCB	0E+0	0E+0	0E+0	1.13E-3	1.13E-3	6.15
Isodrin	6.48E-9	0E+0	4.97E-9	0E+0	1.15E-8	<1
Lead (organic)	0E+0	0E+0	0E+0	6.04E-4	6.04E-4	3.29
Manganese (food)	0E+0	0E+0	0E+0	2.7E-8	2.7E-8	<1
Mercury	0E+0	6.95E-7	0E+0	1.58E-4	1.59E-4	<1
Mirex	0E+0	0E+0	0E+0	4.45E-13	4.45E-13	<1
Nickel	0E+0	0E+0	0E+0	4.16E-8	4.16E-8	<1
OCDD	0E+0	0E+0	0E+0	1.07E-7	1.07E-7	<1
OCDF	0E+0	0E+0	0E+0	5.18E-8	5.18E-8	<1
PnCB	0E+0	0E+0	0E+0	2.46E-3	2.46E-3	13.4
Pyridine	0E+0	0E+0	0E+0	2.08E-10	2.08E-10	<1
Selenium	0E+0	0E+0	0E+0	1.34E-5	1.34E-5	<1
Silver	0E+0	0E+0	0E+0	8.25E-8	8.25E-8	<1
TCB	0E+0	0E+0	0E+0	5.52E-4	5.52E-4	3.01
Thallium	0E+0	0E+0	0E+0	1.41E-4	1.41E-4	<1
Vanadium	0E+0	0E+0	0E+0	3.42E-7	3.42E-7	<1
Total by pathway	2.03E-6	1.3E-2	6.34E-8	5.32E-3		
% Contribution by pathway	1.11E-2	7.1E+1	3.45E-4	2.9E+1		
Scenario Total					1.84E-2	

Table I-104
Reasonable Maximum Non-Cancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	2.41E-3	2.41E-3	2.32
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	7.6E-5	7.6E-5	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	9.46E-6	9.46E-6	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	3.51E-5	3.51E-5	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	2.53E-3	2.53E-3	2.44
2,3,7,8-TCDF	0E+0	0E+0	0E+0	2.71E-5	2.71E-5	<1
2,4'-DDD	0E+0	0E+0	0E+0	3.35E-5	3.35E-5	<1
2,4'-DDT	0E+0	0E+0	0E+0	1.92E-5	1.92E-5	<1
4,4'-DDD	0E+0	6.81E-6	0E+0	1.59E-4	1.66E-4	<1
4,4'-DDE	0E+0	1.99E-7	0E+0	1.65E-5	1.67E-5	<1
4,4'-DDT	0E+0	1.23E-7	0E+0	2.52E-6	2.64E-6	<1
Aldrin	0E+0	5.73E-7	0E+0	2.83E-6	3.41E-6	<1
alpha-BHC	4.25E-9	3.71E-8	9.17E-9	7.99E-9	5.85E-8	<1
alpha-Chlordane	0E+0	2.21E-5	0E+0	0E+0	2.21E-5	<1
Antimony	0E+0	0E+0	0E+0	1.67E-6	1.67E-6	<1
Arsenic	0E+0	0E+0	0E+0	5.25E-4	5.25E-4	<1
Barium	0E+0	0E+0	0E+0	6.68E-8	6.68E-8	<1
Benzyl alcohol	0E+0	0E+0	0E+0	9.57E-12	9.57E-12	<1
Beryllium	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	<1
beta-BHC	0E+0	2.3E-7	0E+0	4.61E-9	2.34E-7	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	5.32E-7	5.32E-7	<1
Boron	0E+0	0E+0	0E+0	5.76E-9	5.76E-9	<1
Cadmium (food)	0E+0	0E+0	0E+0	3.91E-7	3.91E-7	<1
Chlordane	0E+0	0E+0	0E+0	2.15E-7	2.15E-7	<1
Chromium	0E+0	0E+0	0E+0	2.51E-8	2.51E-8	<1
Chromium VI	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	<1
Cyanide	0E+0	0E+0	0E+0	2.07E-6	2.07E-6	<1

Table I-104
(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
delta-BHC	0E+0	4.99E-5	0E+0	5.16E-8	4.99E-5	<1
Dieldrin	4.05E-6	0E+0	1.08E-7	7.76E-8	4.23E-6	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	8.42E-13	8.42E-13	<1
gamma-BHC	0E+0	3.12E-8	0E+0	0E+0	3.12E-8	<1
gamma-Chlordane	0E+0	8.18E-6	0E+0	0E+0	8.18E-6	<1
Heptachlor	0E+0	0E+0	0E+0	1.8E-8	1.8E-8	<1
Heptachlor epoxide	0E+0	2.6E-2	0E+0	2.7E-10	2.6E-2	25.1
Hexachlorobenzene	0E+0	0E+0	0E+0	1.71E-8	1.71E-8	<1
HpCB	0E+0	0E+0	0E+0	8.02E-5	8.02E-5	<1
HxCB	0E+0	0E+0	0E+0	1.67E-2	1.67E-2	16.1
Isodrin	1.3E-8	0E+0	9.95E-9	0E+0	2.29E-8	<1
Lead (organic)	0E+0	0E+0	0E+0	5.77E-3	5.77E-3	5.57
Manganese (food)	0E+0	0E+0	0E+0	4.01E-7	4.01E-7	<1
Mercury	0E+0	2.34E-6	0E+0	2.33E-3	2.33E-3	2.25
Mirex	0E+0	0E+0	0E+0	6.58E-12	6.58E-12	<1
Nickel	0E+0	0E+0	0E+0	6.18E-7	6.18E-7	<1
OCDD	0E+0	0E+0	0E+0	1.59E-6	1.59E-6	<1
OCDF	0E+0	0E+0	0E+0	7.68E-7	7.68E-7	<1
PnCB	0E+0	0E+0	0E+0	3.63E-2	3.63E-2	35.1
Pyridine	0E+0	0E+0	0E+0	3.08E-9	3.08E-9	<1
Selenium	0E+0	0E+0	0E+0	1.98E-4	1.98E-4	<1
Silver	0E+0	0E+0	0E+0	1.23E-6	1.23E-6	<1
TCB	0E+0	0E+0	0E+0	8.16E-3	8.16E-3	7.87
Thallium	0E+0	0E+0	0E+0	2.09E-3	2.09E-3	2.01
Vanadium	0E+0	0E+0	0E+0	6.91E-6	6.91E-6	<1
Total by pathway	4.07E-6	2.61E-2	1.27E-7	7.75E-2		
% Contribution by pathway	<1	25.2	<1	74.8		
Scenario Total					1.04E-1	

Table I-105
Average Non-Cancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	4.94E-5	4.94E-5	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	1.56E-5	1.56E-5	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	1.95E-6	1.95E-6	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	7.21E-6	7.21E-6	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	5.2E-4	5.2E-4	1.03
2,3,7,8-TCDF	0E+0	0E+0	0E+0	5.57E-6	5.57E-6	<1
2,4'-DDD	0E+0	0E+0	0E+0	6.86E-6	6.86E-6	<1
2,4'-DDT	0E+0	0E+0	0E+0	3.91E-6	3.91E-6	<1
4,4'-DDD	0E+0	4.16E-6	0E+0	3.25E-5	3.67E-5	<1
4,4'-DDE	0E+0	1.26E-7	0E+0	3.38E-6	3.51E-6	<1
4,4'-DDT	0E+0	6.54E-8	0E+0	5.16E-7	5.81E-7	<1
Aldrin	0E+0	6.81E-7	0E+0	5.79E-7	1.26E-6	<1
alpha-BHC	4.76E-9	4.59E-8	2.14E-8	1.54E-9	7.36E-8	<1
alpha-Chlordane	0E+0	1.22E-5	0E+0	0E+0	1.22E-5	<1
Antimony	0E+0	0E+0	0E+0	3.41E-7	3.41E-7	<1
Arsenic	0E+0	0E+0	0E+0	1.08E-4	1.08E-4	<1
Barium	0E+0	0E+0	0E+0	1.48E-8	1.48E-8	<1
Benzyl alcohol	0E+0	0E+0	0E+0	1.96E-12	1.96E-12	<1
Beryllium	0E+0	0E+0	0E+0	4.64E-10	4.64E-10	<1
beta-BHC	0E+0	2.14E-7	0E+0	6.2E-10	2.14E-7	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	1.07E-7	1.07E-7	<1
Boron	0E+0	0E+0	0E+0	8.38E-10	8.38E-10	<1
Cadmium (food)	0E+0	0E+0	0E+0	8.05E-8	8.05E-8	<1
Chlordane	0E+0	0E+0	0E+0	4.42E-8	4.42E-8	<1
Chromium	0E+0	0E+0	0E+0	4.45E-9	4.45E-9	<1
Chromium VI	0E+0	0E+0	0E+0	7.99E-12	7.99E-12	<1
Cyanide	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	<1

Table I-105
(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
delta-BHC	0E+0	3.67E-5	0E+0	1.06E-8	3.67E-5	<1
Dieldrin	4.53E-6	0E+0	2.51E-7	1.58E-8	4.79E-6	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	1.66E-13	1.66E-13	<1
gamma-BHC	0E+0	2.86E-8	0E+0	0E+0	2.86E-8	<1
gamma-Chlordane	0E+0	4.63E-6	0E+0	0E+0	4.63E-6	<1
Heptachlor	0E+0	0E+0	0E+0	3.7E-9	3.7E-9	<1
Heptachlor epoxide	0E+0	3.44E-2	0E+0	5.5E-11	3.44E-2	68.0
Hexachlorobenzene	0E+0	0E+0	0E+0	3.52E-9	3.52E-9	<1
HpCB	0E+0	0E+0	0E+0	1.64E-5	1.64E-5	<1
HxCB	0E+0	0E+0	0E+0	3.43E-3	3.43E-3	6.77
Isodrin	1.45E-8	0E+0	2.32E-8	0E+0	3.77E-8	<1
Lead (organic)	0E+0	0E+0	0E+0	1.84E-3	1.84E-3	3.62
Manganese (food)	0E+0	0E+0	0E+0	8.21E-8	8.21E-8	<1
Mercury	0E+0	1.84E-6	0E+0	4.8E-4	4.81E-4	<1
Mirex	0E+0	0E+0	0E+0	1.35E-12	1.35E-12	<1
Nickel	0E+0	0E+0	0E+0	1.26E-7	1.26E-7	<1
OCDD	0E+0	0E+0	0E+0	3.26E-7	3.26E-7	<1
OCDF	0E+0	0E+0	0E+0	1.58E-7	1.58E-7	<1
PnCB	0E+0	0E+0	0E+0	7.48E-3	7.48E-3	14.8
Pyridine	0E+0	0E+0	0E+0	6.32E-10	6.32E-10	<1
Selenium	0E+0	0E+0	0E+0	4.07E-5	4.07E-5	<1
Silver	0E+0	0E+0	0E+0	2.51E-7	2.51E-7	<1
TCB	0E+0	0E+0	0E+0	1.68E-3	1.68E-3	3.31
Thallium	0E+0	0E+0	0E+0	4.28E-4	4.28E-4	<1
Vanadium	0E+0	0E+0	0E+0	1.04E-6	1.04E-6	<1
Total by pathway	4.55E-6	3.45E-2	2.96E-7	1.61E-2		
% Contribution by pathway	<1	68.1	<1	31.9		
Scenario Total					5.07E-2	

Table I-106
Reasonable Maximum Non-Cancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service) - Ditch

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	6.73E-3	6.73E-3	2.35
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	2.13E-4	2.13E-4	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	2.65E-5	2.65E-5	<1
1,2,3,4,6,7,8-HpCDF	0E+0	0E+0	0E+0	9.82E-5	9.82E-5	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	7.09E-3	7.09E-3	2.48
2,3,7,8-TCDF	0E+0	0E+0	0E+0	7.59E-5	7.59E-5	<1
2,4'-DDD	0E+0	0E+0	0E+0	9.38E-5	9.38E-5	<1
2,4'-DDT	0E+0	0E+0	0E+0	5.36E-5	5.36E-5	<1
4,4'-DDD	0E+0	1.8E-5	0E+0	4.45E-4	4.63E-4	<1
4,4'-DDE	0E+0	5.28E-7	0E+0	4.63E-5	4.68E-5	<1
4,4'-DDT	0E+0	3.25E-7	0E+0	7.05E-6	7.38E-6	<1
Aldrin	0E+0	1.52E-6	0E+0	7.94E-6	9.45E-6	<1
alpha-BHC	9.51E-9	9.82E-8	4.28E-8	2.24E-8	1.73E-7	<1
alpha-Chlordane	0E+0	5.84E-5	0E+0	0E+0	5.84E-5	<1
Antimony	0E+0	0E+0	0E+0	4.67E-6	4.67E-6	<1
Arsenic	0E+0	0E+0	0E+0	1.47E-3	1.47E-3	<1
Barium	0E+0	0E+0	0E+0	1.87E-7	1.87E-7	<1
Benzyl alcohol	0E+0	0E+0	0E+0	2.68E-11	2.68E-11	<1
Beryllium	0E+0	0E+0	0E+0	6.31E-9	6.31E-9	<1
beta-BHC	0E+0	6.09E-7	0E+0	1.29E-8	6.21E-7	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	1.49E-6	1.49E-6	<1
Boron	0E+0	0E+0	0E+0	1.61E-8	1.61E-8	<1
Cadmium (food)	0E+0	0E+0	0E+0	1.09E-6	1.09E-6	<1
Chlordane	0E+0	0E+0	0E+0	6.03E-7	6.03E-7	<1
Chromium	0E+0	0E+0	0E+0	7.03E-8	7.03E-8	<1
Chromium VI	0E+0	0E+0	0E+0	2.9E-10	2.9E-10	<1
Cyanide	0E+0	0E+0	0E+0	5.8E-6	5.8E-6	<1

Table I-106
(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
delta-BHC	0E+0	1.32E-4	0E+0	1.44E-7	1.32E-4	<1
Dieldrin	9.06E-6	0E+0	5.02E-7	2.17E-7	9.78E-6	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	2.36E-12	2.36E-12	<1
gamma-BHC	0E+0	8.27E-8	0E+0	0E+0	8.27E-8	<1
gamma-Chlordane	0E+0	2.17E-5	0E+0	0E+0	2.17E-5	<1
Heptachlor	0E+0	0E+0	0E+0	5.03E-8	5.03E-8	<1
Heptachlor epoxide	0E+0	6.89E-2	0E+0	7.56E-10	6.89E-2	24.1
Hexachlorobenzene	0E+0	0E+0	0E+0	4.8E-8	4.8E-8	<1
HpCB	0E+0	0E+0	0E+0	2.24E-4	2.24E-4	<1
HxCB	0E+0	0E+0	0E+0	4.68E-2	4.68E-2	16.3
Isodrin	2.9E-8	0E+0	4.64E-8	0E+0	7.54E-8	<1
Lead (organic)	0E+0	0E+0	0E+0	1.61E-2	1.61E-2	5.64
Manganese (food)	0E+0	0E+0	0E+0	1.12E-6	1.12E-6	<1
Mercury	0E+0	6.21E-6	0E+0	6.52E-3	6.53E-3	2.28
Mirex	0E+0	0E+0	0E+0	1.84E-11	1.84E-11	<1
Nickel	0E+0	0E+0	0E+0	1.73E-6	1.73E-6	<1
OCDD	0E+0	0E+0	0E+0	4.45E-6	4.45E-6	<1
OCDF	0E+0	0E+0	0E+0	2.15E-6	2.15E-6	<1
PnCB	0E+0	0E+0	0E+0	1.02E-1	1.02E-1	35.5
Pyridine	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	<1
Selenium	0E+0	0E+0	0E+0	5.55E-4	5.55E-4	<1
Silver	0E+0	0E+0	0E+0	3.44E-6	3.44E-6	<1
TCB	0E+0	0E+0	0E+0	2.28E-2	2.28E-2	7.98
Thallium	0E+0	0E+0	0E+0	5.84E-3	5.84E-3	2.04
Vanadium	0E+0	0E+0	0E+0	1.93E-5	1.93E-5	<1
Total by pathway	9.09E-6	6.91E-2	5.92E-7	2.17E-1		
% Contribution by pathway	<1	24.2	<1	75.8		
Scenario Total					2.86E-1	

LAKE HOLLOMAN

Table I-107
Average Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact With Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	3.13E-9	3.13E-9	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	9.92E-11	9.92E-11	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.24E-11	1.24E-11	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	4.57E-12	4.57E-12	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	3.3E-9	3.3E-9	<1
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	3.53E-11	3.53E-11	<1
4,4'-DDD	1.53E-10	7.85E-11	0E+0	0E+0	6.34E-14	1.65E-10	3.96E-10	<1
4,4'-DDE	0E+0	1.78E-11	3.82E-12	0E+0	0E+0	1.89E-10	2.11E-10	<1
4,4'-DDT	2.81E-9	1.16E-11	0E+0	0E+0	2.5E-13	3.71E-12	2.83E-9	<1
Aldrin	0E+0	0E+0	0E+0	9.35E-10	0E+0	1.25E-11	9.48-10	<1
alpha-BHC	4.55E-12	1.21E-10	6.98E-11	2.52E-10	3.49E-12	1.71E-13	4.51E-10	<1
alpha-Chlordane	0E+0	6.13E-11	0E+0	0E+0	0E+0	0E+0	6.13E-11	<1
Arsenic	0E+0	0E+0	0E+0	2.94E-7	0E+0	0E+0	2.94E-7	67.2
Beryllium	0E+0	0E+0	0E+0	7.2E-11	0E+0	4.22E-13	7.25E-11	<1
beta-BHC	0E+0	0E+0	0E+0	8.41E-11	0E+0	1.56E-14	8.41E-11	<1
bis(2-Ethylhexyl)phthalate	1.67E-13	9.33E-10	0E+0	0E+0	1.87E-11	1.26E-12	9.53E-10	<1
Cadmium (dust)	0E+0	0E+0	0E+0	1.71E-10	0E+0	0E+0	1.71E-10	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	1.46E-13	1.46E-13	<1
Dieldrin	3.36E-10	2.34E-9	0E+0	0E+0	6.84E-12	5.36E-13	2.68E-9	<1
gamma-BHC	1.37E-11	3.06E-11	4.82E-11	0E+0	5.32E-13	1.79E-13	9.32E-11	<1
gamma-Chlordane	0E+0	7.62E-11	0E+0	0E+0	0E+0	0E+0	7.62E-11	<1
Heptachlor	0E+0	7.76E-11	5.15E-11	2.66E-8	0E+0	3.52E-13	2.67E-8	6.1
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	2.76E-16	2.76E-16	<1
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	1.91E-13	1.91E-13	<1
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	<1

Table I-107

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact With Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	2.09E-8	2.09E-8	4.8
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	<1
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	0E+0	0E+0	2.6E-10	2.6E-10	<1
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.07E-12	2.07E-12	<1
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1E-12	1E-12	<1
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	6.84E-8	6.84E-8	15.6
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	2.0
Trichloroethene	0E+0	0E+0	0E+0	8.13E-10	0E+0	0E+0	8.13E-10	<1
Total by pathway	3.32E-9	3.74E-9	1.73E-10	3.23E-7	2.98E-11	1.08E-7		
% Contribution by pathway	<1	<1	<1	73.8	<1	24.6		
Scenario Total							4.38E-7	

Table I-108
Reasonable Maximum Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact With Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.55E-7	1.55E-7	1.2
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	4.89E-9	4.89E-9	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	6.08E-10	6.08E-10	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.26E-10	2.26E-10	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.63E-7	1.63E-7	1.3
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.74E-9	1.74E-9	<1
4,4'-DDD	1.02E-9	1.48E-9	0E+0	0E+0	4.23E-13	8.17E-9	1.07E-8	<1
4,4'-DDE	0E+0	2.08E-10	5.01E-11	0E+0	0E+0	9.37E-9	9.63E-9	<1
4,4'-DDT	2.88E-8	1.1E-10	0E+0	0E+0	2.57E-12	1.84E-10	2.91E-8	<1
Aldrin	0E+0	0E+0	0E+0	2.77E-8	0E+0	6.2E-10	2.83E-8	<1
alpha-BHC	3.34E-11	1.09E-9	9.23E-10	7.63E-9	2.56E-11	8.97E-12	9.72E-9	<1
alpha-Chlordane	0E+0	8.79E-10	0E+0	0E+0	0E+0	0E+0	8.79E-10	<1
Arsenic	0E+0	0E+0	0E+0	6.18E-6	0E+0	0E+0	6.18E-6	47.9
Beryllium	0E+0	0E+0	0E+0	1.33E-9	0E+0	2.08E-11	1.35E-9	<1
beta-BHC	0E+0	0E+0	0E+0	2.37E-9	0E+0	1.17E-12	2.37E-9	<1
bis(2-Ethylhexyl)phthalate	2.45E-12	1.4E-8	0E+0	0E+0	2.74E-10	6.38E-11	1.43E-8	<1
Cadmium (dust)	0E+0	0E+0	0E+0	3.62E-9	0E+0	0E+0	3.62E-9	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	7.2E-12	7.2E-12	<1
Dieldrin	4.24E-9	2.61E-8	0E+0	0E+0	8.66E-11	2.66E-11	3.05E-8	<1
gamma-BHC	1.62E-10	3.02E-10	4.77E-10	0E+0	6.27E-12	5.74E-12	9.53E-10	<1
gamma-Chlordane	0E+0	1.11E-9	0E+0	0E+0	0E+0	0E+0	1.11E-9	<1
Heptachlor	0E+0	7.21E-10	6.68E-10	1.27E-6	0E+0	2.64E-11	1.27E-6	9.9
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	1.37E-14	1.37E-14	<1
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	9.4E-12	9.4E-12	<1
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	5.11E-9	5.11E-9	<1

Table I-108

(Continued)

HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.03E-6	1.03E-6	8.0
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	0E+0	0E+0	1.11E-7	1.11E-7	<1
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	0E+0	0E+0	1.28E-8	1.28E-8	<1
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.02E-10	1.02E-10	<1
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	4.94E-11	4.94E-11	<1
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	3.36E-6	3.36E-6	26.1
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	3.3
Trichloroethene	0E+0	0E+0	0E+0	2.84E-8	0E+0	0E+0	2.84E-8	<1
Total by pathway	3.43E-8	4.6E-8	2.12E-9	7.52E-6	3.96E-10	5.29E-6		
% Contribution by pathway	<1	<1	<1	58.3	<1	41		
Scenario Total							1.29E-5	

Table I-109

Average Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.62E-4	1.62E-4	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	5.14E-6	5.14E-6	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	6.41E-7	6.41E-7	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.37E-7	2.37E-7	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.71E-4	1.71E-4	<1
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.83E-6	1.83E-6	<1
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.26E-6	2.26E-6	<1
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	1.29E-6	1.29E-6	<1
4,4'-DDD	9.89E-6	5.09E-6	0E+0	0E+0	4.11E-9	1.07E-5	2.57E-5	<1
4,4'-DDE	0E+0	1.05E-7	2.25E-8	0E+0	0E+0	1.11E-6	1.24E-6	<1
4,4'-DDT	5.74E-6	2.36E-8	0E+0	0E+0	1.14E-8	1.7E-7	5.95E-6	<1
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	1.91E-7	1.91E-7	<1
alpha-BHC	4.8E-9	1.27E-7	7.36E-8	0E+0	1.03E-8	5.07E-10	2.17E-7	<1
alpha-Chlordane	0E+0	2.48E-5	0E+0	0E+0	0E+0	0E+0	2.48E-5	<1
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	1.12E-7	1.12E-7	<1
Arsenic	5.85E-6	0E+0	2.26E-6	0E+0	1.19E-5	3.55E-5	5.56E-5	<1
Barium	0E+0	0E+0	0E+0	5.26E-2	0E+0	4.88E-9	5.26E-2	2.2
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	6.45E-13	6.45E-13	<1
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	1.53E-10	1.53E-10	<1
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	2.04E-10	2.04E-10	<1
bis(2-Ethylhexyl)phthalate	4.64E-9	2.59E-5	0E+0	0E+0	5.19E-7	3.51E-8	2.65E-5	<1
Boron	2.34E-6	0E+0	0E+0	0E+0	1.79E-6	2.76E-10	4.13E-6	<1
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	0E+0	2.65E-8	2.65E-8	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	1.46E-8	1.46E-8	<1
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	1.47E-9	1.47E-9	<1
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	2.63E-12	2.63E-12	<1
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	1.4E-7	1.4E-7	<1
delta-BHC	0E+0	1.54E-4	9.86E-5	0E+0	0E+0	3.49E-9	2.53E-4	<1
Dieldrin	2.5E-6	1.74E-5	0E+0	0E+0	6.65E-8	5.21E-9	2E-5	<1

Table I-109

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Endosulfan sulfate	1.81E-11	0E+0	0E+0	0E+0	5.71E-11	5.46E-14	7.52E-11	<1
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	1.54E-8	1.54E-8	<1
Endrin ketone	5.98E-7	0E+0	0E+0	0E+0	4.59E-7	0E+0	1.06E-6	<1
gamma-BHC	2.73E-8	6.1E-8	9.6E-8	0E+0	1.06E-8	3.57E-9	1.99E-7	<1
gamma-Chlordane	0E+0	7.6E-6	0E+0	0E+0	0E+0	0E+0	7.6E-6	<1
Heptachlor	0E+0	1.38E-7	9.12E-8	0E+0	0E+0	1.22E-9	2.3E-7	<1
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	1.81E-11	1.81E-11	<1
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	1.16E-9	1.16E-9	<1
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	5.41E-6	5.41E-6	<1
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.13E-3	1.13E-3	<1
Lead (organic)	1.31	0E+0	0E+0	0E+0	1.01	6.04E-4	2.32	97.6
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	2.7E-8	2.7E-8	<1
Manganese (water)	6.96E-6	0E+0	0E+0	0E+0	5.34E-6	0E+0	1.23E-5	<1
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	1.58E-4	1.58E-4	<1
Methoxychlor	1.65E-7	0E+0	0E+0	0E+0	1.93E-6	0E+0	2.09E-6	<1
Mirex	0E+0	0E+0	0E+0	0E+0	0E+0	4.45E-13	4.45E-13	<1
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	4.16E-8	4.16E-8	<1
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.07E-7	1.07E-7	<1
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	5.18E-8	5.18E-8	<1
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	2.46E-3	2.46E-3	<1
Pyridine	0E+0	0E+0	0E+0	0E+0	0E+0	2.08E-10	2.08E-10	<1
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	1.34E-5	1.34E-5	<1
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	8.25E-8	8.25E-8	<1
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	5.52E-4	5.52E-4	<1
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	1.41E-4	1.41E-4	<1
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	3.42E-7	3.42E-7	<1
Total by pathway	1.31	2.35E-4	1.01E-4	5.26E-2	1.01	5.46E-3		
% Contribution by pathway	55.2	<1	<1	2.2	42.3	<1		
Scenario Total							2.38	

Table I-110

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future Chronic (Lagoons In or Out of Service)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	2.41E-3	2.41E-3	3.34E-2
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	7.6E-5	7.6E-5	1.06E-3
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	9.46E-6	9.46E-6	1.31E-4
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	3.51E-6	3.51E-6	4.87E-5
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.53E-3	2.53E-3	3.52E-2
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	2.71E-5	2.71E-5	3.76E-4
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	0E+0	3.35E-5	3.35E-5	4.65E-4
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	1.92E-5	1.92E-5	2.66E-4
4,4'-DDD	1.98E-5	2.88E-5	0E+0	0E+0	8.22E-9	1.59E-4	2.07E-4	2.88E-3
4,4'-DDE	0E+0	3.67E-7	8.84E-8	0E+0	0E+0	1.65E-5	1.7E-5	2.36E-4
4,4'-DDT	1.77E-5	6.73E-8	0E+0	0E+0	3.52E-8	2.52E-6	2.03E-5	2.82E-4
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	2.83E-6	2.83E-6	3.94E-5
alpha-BHC	1.06E-8	3.46E-7	2.92E-7	0E+0	2.28E-8	7.99E-9	6.8E-7	9.44E-6
alpha-Chlordane	0E+0	1.07E-4	0E+0	0E+0	0E+0	0E+0	1.07E-4	1.48E-3
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	1.67E-6	1.67E-6	2.32E-5
Arsenic	1.35E-5	0E+0	5.58E-6	0E+0	2.76E-5	5.25E-4	5.72E-4	7.94E-3
Barium	0E+0	0E+0	0E+0	2.94E-1	0E+0	6.68E-8	2.94E-1	4.08
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	9.57E-12	9.57E-12	1.33E-10
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	3.13E-8
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	4.61E-9	4.61E-9	6.4E-8
bis(2-Ethylhexyl)phthalate	2.04E-8	1.17E-4	0E+0	0E+0	2.28E-6	5.32E-7	1.19E-4	1.66E-3
Boron	5.17E-6	0E+0	0E+0	0E+0	3.97E-6	5.76E-9	9.15E-6	1.27E-4
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	0E+0	3.91E-7	3.91E-7	5.43E-6
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	2.15E-7	2.15E-7	2.99E-6
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	2.51E-8	2.51E-8	3.49E-7
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	1.44E-9
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	2.07E-6	2.07E-6	2.88E-5
delta-BHC	0E+0	8.48E-4	4.31E-4	0E+0	0E+0	1.19E-4	1.4E-3	1.94E-2
Dieldrin	9.49E-6	5.84E-5	0E+0	0E+0	2.52E-7	7.76E-8	6.83E-5	9.48E-4

Table I-110

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Endosulfan sulfate	3.62E-11	0E+0	0E+0	0E+0	1.14E-10	8.42E-13	1.51E-10	2.1E-9
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	2.27E-7	2.27E-7	3.15E-6
Endrin ketone	1.2E-6	0E+0	0E+0	0E+0	9.17E-7	0E+0	2.11E-6	2.93E-5
gamma-BHC	9.66E-8	1.81E-7	2.86E-7	0E+0	3.75E-8	3.44E-8	6.35E-7	8.81E-6
gamma-Chlordane	0E+0	3.32E-5	0E+0	0E+0	0E+0	0E+0	3.32E-5	4.61E-4
Heptachlor	0E+0	3.83E-7	3.55E-7	0E+0	0E+0	2.74E-8	7.66E-7	1.06E-5
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	2.7E-10	2.7E-10	3.75E-9
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	1.71E-8	1.71E-8	2.38E-7
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	8.02E-5	8.02E-5	1.11E-3
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.67E-2	1.67E-2	2.32E-1
Lead (organic)	3.86	0E+0	0E+0	0E+0	2.96	5.77E-3	6.83	9.49E+1
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	4.01E-7	4.01E-7	5.56E-6
Manganese (water)	1.47E-5	0E+0	0E+0	0E+0	1.13E-5	0E+0	2.6E-5	3.61E-4
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	2.33E-3	2.33E-3	3.24E-2
Methoxychlor	6.13E-7	0E+0	0E+0	0E+0	7.15E-6	0E+0	7.76E-6	1.08E-4
Mirex	0E+0	0E+0	0E+0	0E+0	0E+0	6.58E-12	6.58E-12	9.13E-11
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	6.18E-7	6.18E-7	8.58E-6
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.59E-6	1.59E-6	2.21E-5
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	7.68E-7	7.68E-7	1.07E-5
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	3.63E-2	3.63E-2	5.04E-1
Pyridine	0E+0	0E+0	0E+0	0E+0	0E+0	3.08E-9	3.08E-9	4.28E-8
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	1.98E-4	1.98E-4	2.75E-3
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	1.23E-6	1.23E-6	1.71E-5
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	8.16E-3	8.16E-3	1.13E-1
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	2.09E-3	2.09E-3	2.9E-2
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	6.91E-6	6.91E-6	9.6E-5
Total by pathway	3.86	1.19E-3	4.38E-4	2.94E-1	2.96	7.76E-2		
% Contribution by pathway	5.37E+1	1.66E-2	6.08E-3	4.08	4.12E+1	1.08		
Scenario Total							7.2	

Table I-111

Average Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future Subchronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
4,4'-DDT	1.29E-4	5.29E-7	0E+0	0E+0	1.14E-8	1.7E-7	1.29E-4	5.56E-3
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	1.91E-7	1.91E-7	8.18E-6
alpha-BHC	0E+0	0E+0	0E+0	0E+0	1.03E-9	5.07E-11	1.09E-9	4.66E-8
alpha-Chlordane	0E+0	6.11E-6	0E+0	0E+0	0E+0	0E+0	6.11E-6	2.63E-4
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	1.12E-7	1.12E-7	4.82E-6
Arsenic	5.85E-6	0E+0	2.26E-6	0E+0	1.19E-5	3.55E-5	5.56E-5	2.39E-3
Barium	0E+0	0E+0	0E+0	5.26E-3	0E+0	4.88E-9	5.26E-3	2.26E-1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	1.93E-13	1.93E-13	8.31E-12
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	1.53E-10	1.53E-10	6.56E-9
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	2.02E-11	2.02E-11	8.69E-10
bis(2-Ethylhexyl)phthalate	4.64E-9	2.59E-5	0E+0	0E+0	5.19E-7	3.51E-8	2.65E-5	1.14E-3
Boron	2.34E-6	0E+0	0E+0	0E+0	1.79E-6	2.76E-10	4.13E-6	1.78E-4
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	1.46E-8	1.46E-8	6.25E-7
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	1.47E-9	1.47E-9	6.3E-8
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	6.57E-13	6.57E-13	2.82E-11
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	1.4E-7	1.4E-7	6.01E-6
delta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	3.49E-10	3.49E-10	1.5E-8
Dieldrin	3.26E-6	2.27E-5	0E+0	0E+0	6.65E-8	5.21E-9	2.61E-5	1.12E-3
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	1.54E-8	1.54E-8	6.6E-7
gamma-BHC	2.73E-8	6.1E-8	9.6E-8	0E+0	1.06E-9	3.57E-10	1.86E-7	7.98E-6
gamma-Chlordane	0E+0	7.6E-6	0E+0	0E+0	0E+0	0E+0	7.6E-6	3.26E-4
Heptachlor	0E+0	2.68E-7	1.78E-7	0E+0	0E+0	1.22E-9	4.47E-7	1.92E-5
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	1.81E-11	1.81E-11	7.78E-10
Lead (organic)	1.31	0E+0	0E+0	0E+0	1.01	6.04E-4	2.32	9.98E+1
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	3.78E-8	3.78E-8	1.63E-6
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	1.58E-4	1.58E-4	6.78E-3
Methoxychlor	2.51E-6	0E+0	0E+0	0E+0	1.93E-6	0E+0	4.44E-6	1.91E-4
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	4.16E-8	4.16E-8	1.79E-6

Table I-111

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	1.34E-5	1.34E-5	5.75E-4
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	8.25E-8	8.25E-8	3.54E-6
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	1.41E-5	1.41E-5	6.05E-4
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	3.42E-7	3.42E-7	1.47E-5
Total by pathway	1.31	6.32E-5	2.54E-6	5.26E-3	1.01	8.26E-4		
% Contribution by pathway	5.64E+1	2.71E-3	1.09E-4	2.26E-1	4.33E+1	3.55E-2		
Scenario Total							2.33	

Table I-112

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future Subchronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
4,4'-DDT	3.96E-4	1.51E-6	0E+0	0E+0	3.52E-8	2.52E-6	4E-4	5.82E-3
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	2.83E-6	2.83E-6	4.13E-5
alpha-BHC	0E+0	0E+0	0E+0	0E+0	2.28E-9	7.99E-10	3.08E-9	4.49E-8
alpha-Chlordane	0E+0	2.63E-5	0E+0	0E+0	0E+0	0E+0	2.63E-5	3.83E-4
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	1.67E-6	1.67E-6	2.43E-5
Arsenic	1.35E-5	0E+0	5.58E-6	0E+0	2.76E-5	5.25E-4	5.72E-4	8.33E-3
Barium	0E+0	0E+0	0E+0	2.94E-2	0E+0	6.68E-8	2.94E-2	4.27E-1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	2.87E-12	2.87E-12	4.18E-11
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	3.28E-8
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	4.56E-10	4.56E-10	6.65E-9
bis(2-Ethylhexyl)phthalate	2.04E-8	1.17E-4	0E+0	0E+0	2.28E-6	5.32E-7	1.19E-4	1.74E-3
Boron	5.17E-6	0E+0	0E+0	0E+0	3.97E-6	5.76E-9	9.15E-6	1.33E-4
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	2.15E-7	2.15E-7	3.13E-6
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	2.51E-8	2.51E-8	3.66E-7
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	2.59E-11	2.59E-11	3.77E-10
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	2.07E-6	2.07E-6	3.02E-5
delta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	1.19E-5	1.19E-5	1.73E-4
Dieldrin	1.24E-5	7.62E-5	0E+0	0E+0	2.52E-7	7.76E-8	8.89E-5	1.29E-3
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	2.27E-7	2.27E-7	3.3E-6
gamma-BHC	9.66E-8	1.81E-7	2.86E-7	0E+0	3.75E-9	3.44E-9	5.7E-7	8.3E-6
gamma-Chlordane	0E+0	3.32E-5	0E+0	0E+0	0E+0	0E+0	3.32E-5	4.84E-4
Heptachlor	0E+0	7.48E-7	6.93E-7	0E+0	0E+0	2.74E-8	1.47E-6	2.14E-5
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	2.7E-10	2.7E-10	3.93E-9
Lead (organic)	3.86	0E+0	0E+0	0E+0	2.96	5.77E-3	6.83	9.95E+1
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	5.61E-7	5.61E-7	8.17E-6
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	2.33E-3	2.33E-3	3.39E-2
Methoxychlor	9.32E-6	0E+0	0E+0	0E+0	7.15E-6	0E+0	1.65E-5	2.4E-4
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	6.18E-7	6.18E-7	9E-6

Table I-112

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	1.98E-4	1.98E-4	2.89E-3
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	1.23E-6	1.23E-6	1.79E-5
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	2.09E-4	2.09E-4	3.04E-3
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	6.91E-6	6.91E-6	1.01E-4
Total by pathway	3.86	2.55E-4	6.56E-6	2.94E-2	2.96	9.06E-3		
% Contribution by pathway	5.63E+1	3.71E-3	9.55E-5	4.27E-1	4.32E+1	1.32E-1		
Scenario Total							6.87	

Table I-113

Average Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Chronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	4.94E-4	4.94E-4	6.4E-3
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.56E-5	1.56E-5	2.03E-4
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.95E-6	1.95E-6	2.52E-5
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	7.21E-7	7.21E-7	9.34E-6
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	5.2E-4	5.2E-4	6.74E-3
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	5.57E-6	5.57E-6	7.22E-5
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	0E+0	6.86E-6	6.86E-6	8.89E-5
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	3.91E-6	3.91E-6	5.08E-5
4,4'-DDD	2.21E-5	1.35E-5	0E+0	0E+0	1.92E-8	3.25E-5	6.81E-5	8.83E-4
4,4'-DDE	0E+0	2.77E-7	5.95E-8	0E+0	0E+0	3.38E-6	3.72E-6	4.82E-5
4,4'-DDT	1.28E-5	6.25E-8	0E+0	0E+0	5.34E-8	5.16E-7	1.35E-5	1.75E-4
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	5.79E-7	5.79E-7	7.5E-6
alpha-BHC	1.07E-8	3.37E-7	1.95E-7	0E+0	4.83E-8	1.54E-9	5.93E-7	7.68E-6
alpha-Chlordane	0E+0	6.56E-5	0E+0	0E+0	0E+0	0E+0	6.56E-5	8.51E-4
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	3.41E-7	3.41E-7	4.42E-6
Arsenic	1.31E-5	0E+0	5.99E-6	0E+0	5.57E-5	1.08E-4	1.83E-4	2.37E-3
Barium	0E+0	0E+0	0E+0	5.26E-2	0E+0	1.48E-8	5.26E-2	6.82E-1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	1.96E-12	1.96E-12	2.54E-11
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	4.64E-10	4.64E-10	6.01E-9
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	6.2E-10	6.2E-10	8.04E-9
bis(2-Ethylhexyl)phthalate	1.04E-8	6.86E-5	0E+0	0E+0	2.42E-6	1.07E-7	7.11E-5	9.22E-4
Boron	5.23E-6	0E+0	0E+0	0E+0	8.37E-6	8.38E-10	1.36E-5	1.76E-4
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	0E+0	8.05E-8	8.05E-8	1.04E-6
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	4.42E-8	4.42E-8	5.74E-7
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	4.45E-9	4.45E-9	5.77E-8
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	7.99E-12	7.99E-12	1.04E-10
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	5.52E-6
delta-BHC	0E+0	4.07E-4	2.61E-4	0E+0	0E+0	1.06E-8	6.69E-4	8.67E-3

Table I-113

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Dieldrin	5.6E-6	4.61E-5	0E+0	0E+0	3.11E-7	1.58E-8	5.2E-5	6.75E-4
Endosulfan sulfate	4.04E-11	0E+0	0E+0	0E+0	2.66E-10	1.66E-13	3.07E-10	3.98E-9
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	4.67E-8	4.67E-8	6.06E-7
Endrin ketone	1.34E-6	0E+0	0E+0	0E+0	2.14E-6	0E+0	3.48E-6	4.51E-5
gamma-BHC	6.11E-8	1.62E-7	2.54E-7	0E+0	4.95E-8	1.08E-8	5.37E-7	6.96E-6
gamma-Chlordane	0E+0	2.01E-5	0E+0	0E+0	0E+0	0E+0	2.01E-5	2.61E-4
Heptachlor	0E+0	3.64E-7	2.42E-7	0E+0	0E+0	3.7E-9	6.09E-7	7.9E-6
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	5.5E-11	5.5E-11	7.14E-10
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	3.52E-9	3.52E-9	4.56E-8
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.64E-5	1.64E-5	2.13E-4
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	3.43E-3	3.43E-3	4.45E-2
Lead (organic)	2.94	0E+0	0E+0	0E+0	4.7	1.84E-3	7.64	9.91E+1
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	8.21E-8	8.21E-8	1.06E-6
Manganese (water)	1.56E-5	0E+0	0E+0	0E+0	2.49E-5	0E+0	4.05E-5	5.25E-4
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	4.8E-4	4.8E-4	6.22E-3
Methoxychlor	3.7E-7	0E+0	0E+0	0E+0	8.99E-6	0E+0	9.36E-6	1.21E-4
Mirex	0E+0	0E+0	0E+0	0E+0	0E+0	1.35E-12	1.35E-12	1.75E-11
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	1.26E-7	1.26E-7	1.64E-6
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	3.26E-7	3.26E-7	4.23E-6
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.58E-7	1.58E-7	2.04E-6
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	7.48E-3	7.48E-3	9.7E-2
Pyridine	0E+0	0E+0	0E+0	0E+0	0E+0	6.32E-10	6.32E-10	8.2E-9
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	4.07E-5	4.07E-5	5.27E-4
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	2.51E-7	2.51E-7	3.25E-6
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.68E-3	1.68E-3	2.18E-2
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	4.28E-4	4.28E-4	5.55E-3
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	1.04E-6	1.04E-6	1.35E-5
Total by pathway	2.94	6.23E-4	2.68E-4	5.26E-2	4.7	1.66E-2		
% Contribution by pathway	3.81E+1	8.07E-3	3.47E-3	6.82E-1	6.1E+1	2.15E-1		
Scenario Total							7.71	

Table I-114

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Chronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	6.73E-3	6.73E-3	2.93E-2
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	2.13E-4	2.13E-4	9.27E-4
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	2.65E-5	2.65E-5	1.15E-4
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	9.82E-6	9.82E-6	4.28E-5
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	7.09E-3	7.09E-3	3.09E-2
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	7.59E-5	7.59E-5	3.31E-4
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	0E+0	9.38E-5	9.38E-5	4.09E-4
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	5.36E-5	5.36E-5	2.34E-4
4,4'-DDD	4.42E-5	7.62E-5	0E+0	0E+0	3.84E-8	4.45E-4	5.65E-4	2.46E-3
4,4'-DDE	0E+0	9.72E-7	2.34E-7	0E+0	0E+0	4.63E-5	4.75E-5	2.07E-4
4,4'-DDT	3.95E-5	1.78E-7	0E+0	0E+0	1.64E-7	7.05E-6	4.69E-5	2.04E-4
Aldrin	0E+0	0E+0	0E+0	0E+0	0E+0	7.94E-6	7.94E-6	3.46E-5
alpha-BHC	2.37E-8	9.16E-7	7.74E-7	0E+0	1.06E-7	2.24E-8	1.84E-6	8.03E-6
alpha-Chlordane	0E+0	2.82E-4	0E+0	0E+0	0E+0	0E+0	2.82E-4	1.23E-3
Antimony	0E+0	0E+0	0E+0	0E+0	0E+0	4.67E-6	4.67E-6	2.03E-5
Arsenic	3.02E-5	0E+0	1.48E-5	0E+0	1.29E-4	1.47E-3	1.64E-3	7.16E-3
Barium	0E+0	0E+0	0E+0	2.57E-1	0E+0	1.87E-7	2.57E-1	1.12
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	0E+0	2.68E-11	2.68E-11	1.17E-10
Beryllium	0E+0	0E+0	0E+0	0E+0	0E+0	6.31E-9	6.31E-9	2.75E-8
beta-BHC	0E+0	0E+0	0E+0	0E+0	0E+0	1.29E-8	1.29E-8	5.62E-8
bis(2-Ethylhexyl)phthalate	4.57E-8	3.09E-4	0E+0	0E+0	1.07E-5	1.49E-6	3.21E-4	1.4E-3
Boron	1.16E-5	0E+0	0E+0	0E+0	1.85E-5	1.61E-8	3.01E-5	1.31E-4
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	0E+0	1.09E-6	1.09E-6	4.77E-6
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	6.03E-7	6.03E-7	2.63E-6
Chromium	0E+0	0E+0	0E+0	0E+0	0E+0	7.03E-8	7.03E-8	3.06E-7
Chromium VI	0E+0	0E+0	0E+0	0E+0	0E+0	2.9E-10	2.9E-10	1.26E-9
Cyanide	0E+0	0E+0	0E+0	0E+0	0E+0	5.8E-6	5.8E-6	2.53E-5
delta-BHC	0E+0	2.25E-3	1.14E-3	0E+0	0E+0	3.32E-4	3.72E-3	1.62E-2
Dieldrin	2.12E-5	1.55E-4	0E+0	0E+0	1.18E-6	2.17E-7	1.77E-4	7.73E-4

Table I-114

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Endosulfan sulfate	8.09E-11	0E+0	0E+0	0E+0	5.33E-10	2.36E-12	6.16E-10	2.68E-9
Endrin	0E+0	0E+0	0E+0	0E+0	0E+0	6.35E-7	6.35E-7	2.77E-6
Endrin ketone	2.68E-6	0E+0	0E+0	0E+0	4.28E-6	0E+0	6.96E-6	3.03E-5
gamma-BHC	2.16E-7	4.78E-7	7.56E-7	0E+0	1.75E-7	9.62E-8	1.72E-6	7.5E-6
gamma-Chlordane	0E+0	8.8E-5	0E+0	0E+0	0E+0	0E+0	8.8E-5	3.83E-4
Heptachlor	0E+0	1.02E-6	9.41E-7	0E+0	0E+0	7.68E-8	2.03E-6	8.86E-6
Heptachlor epoxide	0E+0	0E+0	0E+0	0E+0	0E+0	7.56E-10	7.56E-10	3.29E-9
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	4.8E-8	4.8E-8	2.09E-7
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	2.24E-4	2.24E-4	9.78E-4
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	4.68E-2	4.68E-2	2.04E-1
Lead (organic)	8.64	0E+0	0E+0	0E+0	1.38E+1	1.61E-2	2.25E+1	9.8E+1
Manganese (food)	0E+0	0E+0	0E+0	0E+0	0E+0	1.12E-6	1.12E-6	4.89E-6
Manganese (water)	3.29E-5	0E+0	0E+0	0E+0	5.27E-5	0E+0	8.56E-5	3.73E-4
Mercury	0E+0	0E+0	0E+0	0E+0	0E+0	6.52E-3	6.52E-3	2.84E-2
Methoxychlor	1.37E-6	0E+0	0E+0	0E+0	3.34E-5	0E+0	3.47E-5	1.51E-4
Mirex	0E+0	0E+0	0E+0	0E+0	0E+0	1.84E-11	1.84E-11	8.02E-11
Nickel	0E+0	0E+0	0E+0	0E+0	0E+0	1.73E-6	1.73E-6	7.54E-6
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	4.45E-6	4.45E-6	1.94E-5
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	2.15E-6	2.15E-6	9.37E-6
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.02E-1	1.02E-1	4.43E-1
Pyridine	0E+0	0E+0	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	3.76E-8
Selenium	0E+0	0E+0	0E+0	0E+0	0E+0	5.55E-4	5.55E-4	2.42E-3
Silver	0E+0	0E+0	0E+0	0E+0	0E+0	3.44E-6	3.44E-6	1.5E-5
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	2.28E-2	2.28E-2	9.95E-2
Thallium	0E+0	0E+0	0E+0	0E+0	0E+0	5.84E-3	5.84E-3	2.54E-2
Vanadium	0E+0	0E+0	0E+0	0E+0	0E+0	1.93E-5	1.93E-5	8.43E-5
Total by pathway	8.64	3.16E-3	1.16E-3	2.57E-1	1.38E+1	2.17E-1		
% Contribution by pathway	3.77E+1	1.38E-2	5.05E-3	1.12	6.03E+1	9.46E-1		
Scenario Total							2.3E+1	

Table I-115

Average Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Subchronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
4,4'-DDT	2.88E-04	1.40E-06	0.00E+00	0.00E+00	5.34E-08	5.16E-07	2.90E-04	<1
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.79E-07	5.79E-07	<1
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.83E-09	1.54E-10	4.98E-09	<1
alpha-Chlordane	0.00E+00	1.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-05	<1
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-07	3.41E-07	<1
Arsenic	1.31E-05	0.00E+00	5.99E-06	0.00E+00	5.57E-05	1.08E-04	1.83E-04	<1
Barium	0.00E+00	0.00E+00	0.00E+00	5.26E-03	0.00E+00	1.48E-08	5.26E-03	<1
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-13	5.88E-13	<1
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-10	4.64E-10	<1
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-11	6.15E-11	<1
bis(2-Ethylhexyl)phthalate	1.04E-08	6.86E-05	0.00E+00	0.00E+00	2.42E-06	1.07E-07	7.11E-05	<1
Boron	5.23E-06	0.00E+00	0.00E+00	0.00E+00	8.37E-06	8.38E-10	1.36E-05	<1
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-08	4.42E-08	<1
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E-09	4.45E-09	<1
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-12	2.00E-12	<1
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	<1
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-09	1.06E-09	<1
Dieldrin	7.30E-06	6.01E-05	0.00E+00	0.00E+00	3.11E-07	1.58E-08	6.78E-05	<1
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-08	4.67E-08	<1
gamma-BHC	6.11E-08	1.62E-07	2.54E-07	0.00E+00	4.95E-09	1.08E-09	4.83E-07	<1
gamma-Chlordane	0.00E+00	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-05	<1
Heptachlor	0.00E+00	7.10E-07	4.71E-07	0.00E+00	0.00E+00	3.70E-09	1.18E-06	<1
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.50E-11	5.50E-11	<1
Lead (organic)	2.94	0.00E+00	0.00E+00	0.00E+00	4.7	1.84E-03	7.64	99.9

Table I-115

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-07	1.15E-07	<1
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-04	4.80E-04	<1
Methoxychlor	5.62E-06	0.00E+00	0.00E+00	0.00E+00	8.99E-06	0.00E+00	1.46E-05	<1
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-07	1.26E-07	<1
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-05	4.07E-05	<1
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-07	2.51E-07	<1
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-05	4.28E-05	<1
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-06	1.04E-06	<1
Total by pathway	2.94	1.67E-04	6.72E-06	5.26E-03	4.7	2.51E-03		
% Contribution by pathway	38.4	<1	<1	<1	61.5	<1		
Scenario Total							7.65	

Table I-116

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Subchronic (Lagoons In or Out of Service)
Lake Holloman

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
4,4'-DDT	8.85E-04	3.99E-06	0.00E+00	0.00E+00	1.64E-07	7.05E-06	8.97E-04	<1
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-06	7.94E-06	<1
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-08	2.24E-09	1.29E-08	<1
alpha-Chlordane	0.00E+00	6.96E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.96E-05	<1
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-06	4.67E-06	<1
Arsenic	3.02E-05	0.00E+00	1.48E-05	0.00E+00	1.29E-04	1.47E-03	1.64E-03	<1
Barium	0.00E+00	0.00E+00	0.00E+00	2.57E-02	0.00E+00	1.87E-07	2.57E-02	<1
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-12	8.04E-12	<1
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-09	6.31E-09	<1
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-09	1.28E-09	<1
bis(2-Ethylhexyl)phthalate	4.57E-08	3.09E-04	0.00E+00	0.00E+00	1.07E-05	1.49E-06	3.21E-04	<1
Boron	1.16E-05	0.00E+00	0.00E+00	0.00E+00	1.85E-05	1.61E-08	3.01E-05	<1
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-07	6.03E-07	<1
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-08	7.03E-08	<1
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.26E-11	7.26E-11	<1
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06	<1
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-05	3.32E-05	<1
Dieldrin	2.77E-05	2.02E-04	0.00E+00	0.00E+00	1.18E-06	2.17E-07	2.31E-04	<1
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.35E-07	6.35E-07	<1
gamma-BHC	2.16E-07	4.78E-07	7.56E-07	0.00E+00	1.75E-08	9.62E-09	1.48E-06	<1
gamma-Chlordane	0.00E+00	8.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-05	<1
Heptachlor	0.00E+00	1.98E-06	1.83E-06	0.00E+00	0.00E+00	7.68E-08	3.89E-06	<1
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-10	7.56E-10	<1
Lead (organic)	8.64	0.00E+00	0.00E+00	0.00E+00	1.38E+01	1.61E-02	2.25E+01	99.8

Table I-116

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-06	1.57E-06	<1
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E-03	6.52E-03	<1
Methoxychlor	2.09E-05	0.00E+00	0.00E+00	0.00E+00	3.34E-05	0.00E+00	5.42E-05	<1
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06	<1
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-04	5.55E-04	<1
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-06	3.44E-06	<1
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-04	5.84E-04	<1
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-05	1.93E-05	<1
Total by pathway	8.64	6.74E-04	1.74E-05	2.57E-02	1.38E+01	2.54E-02		
% Contribution by pathway	38.4	<1	<1	<1	61.4	<1		
Scenario Total							2.25E+01	

Table I-117

Average Cancer Risk
Off-Site Agricultural, Adult - Current/Future
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	3.49E-10	3.49E-10	<12.0
4,4'-DDE	4.45E-13	4.45E-13	<1
4,4'-DDT	1.34E-9	1.34E-9	46.1
Aldrin	4.62E-12	4.62E-12	<1
alpha-BHC	9.68E-11	9.68E-11	3.3
alpha-Chlordane	2.92E-14	2.92E-14	<1
beta-BHC	1.74E-13	1.74E-13	<1
bis(2-Ethylhexyl)phthalate	1.03E-9	1.03E-9	35.2
Dieldrin	7.62E-11	7.62E-11	2.6
gamma-BHC	1.47E-11	1.47E-11	<1
gamma-Chlordane	4.47E-14	4.47E-14	<1
Heptachlor	9.71E-13	9.71E-13	<1
Kepone	6.63E-13	6.63E-13	<1
Total by pathway	2.91E-9		
% Contribution by pathway	100		
Scenario Total		2.91E-9	

Table I-118

Reasonable Maximum Cancer Risk
Off-Site Agricultural, Adult - Current/Future
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	4.95E-9	4.95E-9	7.0
4,4'-DDE	1.18E-11	1.18E-11	<1
4,4'-DDT	2.94E-8	2.94E-8	41.6
Aldrin	1.18E-10	1.18E-10	<1
alpha-BHC	1.54E-9	1.54E-9	2.2
alpha-Chlordane	6.56E-13	6.56E-13	<1
beta-BHC	6.92E-12	6.92E-12	<1
bis(2-Ethylhexyl)phthalate	3.21E-8	3.21E-8	45.5
Dieldrin	2.06E-9	2.06E-9	2.9
gamma-BHC	3.7E-10	3.7E-10	<1
gamma-Chlordane	1.41E-12	1.41E-12	<1
Heptachlor	2.46E-11	2.46E-11	<1
Kepone	2.62E-11	2.62E-11	<1
Total by pathway	7.05E-8		
% Contribution by pathway		100	
Scenario Total		7.05E-8	

Table I-119

Average Noncancer Hazard Index Summary
Off-Site Agricultural, Adult - Current/Future Chronic
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	2.26E-5	2.26E-5	<1
4,4'-DDE	2.62E-9	2.62E-9	<1
4,4'-DDT	6.15E-5	6.15E-5	<1
Aldrin	7.04E-8	7.04E-8	<1
alpha-BHC	2.87E-7	2.87E-7	<1
alpha-Chlordane	1.18E-8	1.18E-8	<1
Arsenic	3.29E-3	3.29E-3	<1
beta-BHC	2.28E-9	2.28E-9	<1
bis(2-Ethylhexyl)phthalate	2.85E-5	2.85E-5	<1
Boron	1.98E-4	1.98E-4	<1
Cadmium (food)	4.49E-6	4.49E-6	<1
delta-BHC	8.35E-9	8.35E-9	<1
Dieldrin	7.41E-7	7.41E-7	<1
Endosulfan I	2.49E-11	2.49E-11	<1
Endosulfan II	7.76E-15	7.76E-15	<1
Endosulfan sulfate	1.42E-9	1.42E-9	<1
Endrin ketone	3.48E-4	3.48E-4	<1
gamma-BHC	2.94E-7	2.94E-7	<1
gamma-Chlordane	4.46E-9	4.46E-9	<1
Heptachlor	3.36E-9	3.36E-9	<1
Isodrin	1.23E-8	1.23E-8	<1
Kepone	4.77E-11	4.77E-11	<1
Lead (organic)	1.96E+1	1.96E+1	99.9
Manganese (food)	1.05E-5	1.05E-5	<1
Methoxychlor	1.03E-2	1.03E-2	<1
Total by pathway	1.96E+1		
% Contribution by pathway	100		
Scenario Total		1.96E+1	

Table I-120

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Agricultural, Adult - Current/Future Chronic
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	9.63E-5	9.63E-5	<1
4,4'-DDE	2.08E-8	2.08E-8	<1
4,4'-DDT	4.03E-4	4.03E-4	<1
Aldrin	5.41E-7	5.41E-7	<1
alpha-BHC	1.37E-6	1.37E-6	<1
alpha-Chlordane	7.96E-8	7.96E-8	<1
Arsenic	1.62E-2	1.62E-2	<1
beta-BHC	2.72E-8	2.72E-8	<1
bis(2-Ethylhexyl)phthalate	2.67E-4	2.67E-4	<1
Boron	9.33E-4	9.33E-4	<1
Cadmium (food)	2.14E-5	2.14E-5	<1
delta-BHC	6.48E-8	6.48E-8	<1
Dieldrin	6.01E-6	6.01E-6	<1
Endosulfan I	3.03E-10	3.03E-10	<1
Endosulfan II	3.31E-14	3.31E-14	<1
Endosulfan sulfate	6.24E-9	6.24E-9	<1
Endrin ketone	1.48E-3	1.48E-3	<1
gamma-BHC	2.21E-6	2.21E-6	<1
gamma-Chlordane	4.22E-8	4.22E-8	<1
Heptachlor	2.55E-8	2.55E-8	<1
Isodrin	1.01E-7	1.01E-7	<1
Kepone	5.64E-10	5.64E-10	<1
Lead (organic)	1.23E+2	1.23E+2	99.9
Manganese (food)	4.74E-5	4.74E-5	<1
Methoxychlor	8.18E-2	8.18E-2	<1
Total by pathway	1.23E+2		
% Contribution by pathway	100		
Scenario Total		1.23E+2	

Table I-121

Average Noncancer Hazard Index Summary
Off-Site Agricultural, Child - Current/Future Chronic
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	5.27E-5	5.27E-5	<1
4,4'-DDE	6.11E-9	6.11E-9	<1
4,4'-DDT	1.43E-4	1.43E-4	<1
Aldrin	1.64E-7	1.64E-7	<1
alpha-BHC	6.71E-7	6.71E-7	<1
alpha-Chlordane	2.75E-8	2.75E-8	<1
Arsenic	7.69E-3	7.69E-3	<1
beta-BHC	5.31E-9	5.31E-9	<1
bis(2-Ethylhexyl)phthalate	6.65E-5	6.65E-5	<1
Boron	4.62E-4	4.62E-4	<1
Cadmium (food)	1.05E-5	1.05E-5	<1
delta-BHC	1.95E-8	1.95E-8	<1
Dieldrin	1.73E-6	1.73E-6	<1
Endosulfan I	5.82E-11	5.82E-11	<1
Endosulfan II	1.81E-14	1.81E-14	<1
Endosulfan sulfate	3.31E-9	3.31E-9	<1
Endrin ketone	8.12E-4	8.12E-4	<1
gamma-BHC	6.86E-7	6.86E-7	<1
gamma-Chlordane	1.04E-8	1.04E-8	<1
Heptachlor	7.83E-9	7.83E-9	<1
Isodrin	2.88E-8	2.88E-8	<1
Kepone	1.11E-10	1.11E-10	<1
Lead (organic)	4.57E+1	4.57E+1	99.9
Manganese (food)	2.46E-5	2.46E-5	<1
Methoxychlor	2.41E-2	2.41E-2	<1
Total by pathway	4.57E+1		
% Contribution by pathway	100		
Scenario Total		4.57E+1	

Table I-122

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Agricultural, Child - Current/Future Chronic
(Lagoons In or Out of Service)
Lake Holloman

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	2.25E-4	2.25E-4	<1
4,4'-DDE	4.86E-8	4.86E-8	<1
4,4'-DDT	9.4E-4	9.4E-4	<1
Aldrin	1.26E-6	1.26E-6	<1
alpha-BHC	3.2E-6	3.2E-6	<1
alpha-Chlordane	1.86E-7	1.86E-7	<1
Arsenic	3.78E-2	3.78E-2	<1
beta-BHC	6.34E-8	6.34E-8	<1
bis(2-Ethylhexyl)phthalate	6.24E-4	6.24E-4	<1
Boron	2.18E-3	2.18E-3	<1
Cadmium (food)	5E-5	5E-5	<1
delta-BHC	1.51E-7	1.51E-7	<1
Dieldrin	1.4E-5	1.4E-5	<1
Endosulfan I	7.08E-10	7.08E-10	<1
Endosulfan II	7.72E-14	7.72E-14	<1
Endosulfan sulfate	1.46E-8	1.46E-8	<1
Endrin ketone	3.46E-3	3.46E-3	<1
gamma-BHC	5.17E-6	5.17E-6	<1
gamma-Chlordane	9.84E-8	9.84E-8	<1
Heptachlor	5.95E-8	5.95E-8	<1
Isodrin	2.35E-7	2.35E-7	<1
Kepone	1.32E-9	1.32E-9	<1
Lead (organic)	2.87E+2	2.87E+2	99.9
Manganese (food)	1.11E-4	1.11E-4	<1
Methoxychlor	1.91E-1	1.91E-1	<1
Total by pathway	2.87E+2		
% Contribution by pathway	100		
Scenario Total		2.87E+2	

LAKE STINKY

Table I-123

Average Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	3.13E-9	3.13E-9	<1
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	9.92E-11	9.92E-11	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.24E-11	1.24E-11	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	4.57E-12	4.57E-12	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	3.3E-9	3.3E-9	<1
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	3.53E-11	3.53E-11	<1
4,4'-DDD	8.68E-10	0E+0	0E+0	0E+0	3.61E-13	1.65E-10	1.03E-9	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	0E+0	1.89E-10	1.89E-10	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	3.71E-12	3.71E-12	<1
Aldrin	8.01E-11	0E+0	4.63E-10	9.35E-10	1.59E-11	1.25E-11	1.51E-9	<1
alpha-BHC	2.84E-11	0E+0	1.26E-10	2.52E-10	2.18E-11	1.71E-13	4.28E-10	<1
Arsenic	0E+0	0E+0	0E+0	2.94E-7	0E+0	0E+0	2.94E-7	56
Beryllium	0E+0	0E+0	1E-10	3.91E-8	0E+0	4.22E-13	3.92E-8	7.46
beta-BHC	0E+0	0E+0	4.09E-11	8.41E-11	0E+0	1.56E-14	1.25E-10	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	0E+0	1.26E-12	1.26E-12	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	1.46E-13	1.46E-13	<1
Dieldrin	5.43E-10	0E+0	0E+0	0E+0	1.11E-11	5.36E-13	5.55E-10	<1
gamma-BHC	2.06E-11	0E+0	4.83E-11	0E+0	8.01E-13	1.79E-13	6.99E-11	<1
Heptachlor	0E+0	7.22E-17	0E+0	0E+0	0E+0	3.52E-13	3.52E-13	<1

Table I-123

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Heptachlor epoxide	5.97E-10	3.73E-16	2.66E-8	5.31E-8	6.53E-12	2.76E-16	8.03E-8	15.3
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	1.91E-13	1.91E-13	<1
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	<1
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	2.09E-8	2.09E-8	3.98
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	0E+0	0E+0	2.25E-9	2.25E-9	<1
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	0E+0	0E+0	2.6E-10	2.6E-10	<1
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.07E-12	2.07E-12	<1
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1E-12	1E-12	<1
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	6.84E-8	6.84E-8	13
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	1.64
Trichloroethene	0E+0	0E+0	1.82E-12	8.13E-10	0E+0	0E+0	8.15E-10	<1
Total by pathway	2.14E-9	4.45E-16	2.74E-8	3.88E-7	5.65E-11	1.08E-7		
% Contribution by pathway	<1	<1	5.21	73.9	<1	20.5		
Scenario Total							5.25E-7	

Table I-124

Reasonable Maximum Cancer Risk
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.55E-7	1.55E-7	1.06
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	4.89E-9	4.89E-9	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	0E+0	6.08E-10	6.08E-10	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	0E+0	2.26E-10	2.26E-10	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.63E-7	1.63E-7	1.11
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	0E+0	1.74E-9	1.74E-9	<1
4,4'-DDD	1.04E-8	0E+0	0E+0	0E+0	4.33E-12	8.17E-9	1.86E-8	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	0E+0	9.37E-9	9.37E-9	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	0E+0	1.84E-10	1.84E-10	<1
Aldrin	8.96E-10	0E+0	5.44E-9	2.77E-8	1.78E-10	6.2E-10	3.48E-8	<1
alpha-BHC	3.44E-10	0E+0	1.52E-9	7.63E-9	2.64E-10	8.97E-12	9.76E-9	<1
Arsenic	0E+0	0E+0	0E+0	6.18E-6	0E+0	0E+0	6.18E-6	42.3
Beryllium	0E+0	0E+0	7.42E-10	1.62E-10	0E+0	2.08E-11	9.25E-10	<1
beta-BHC	0E+0	0E+0	4.57E-10	2.37E-9	0E+0	1.17E-12	2.83E-9	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	0E+0	6.38E-11	6.38E-11	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	0E+0	7.2E-12	7.2E-12	<1
Dieldrin	3.62E-9	0E+0	0E+0	0E+0	7.38E-11	2.66E-11	3.72E-9	<1
gamma-BHC	1.38E-10	0E+0	5.96E-10	0E+0	5.34E-12	8.82E-12	7.48E-10	<1
Heptachlor	0E+0	0E+0	0E+0	0E+0	0E+0	1.73E-11	1.73E-11	<1

Table I-124

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Heptachlor epoxide	6.28E-9	0E+0	5.04E-7	2.54E-6	6.87E-11	1.37E-14	3.05E-6	20.9
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	0E+0	9.4E-12	9.4E-12	<1
HpCB	0E+0	0E+0	0E+0	0E+0	0E+0	5.11E-9	5.11E-9	<1
HxCB	0E+0	0E+0	0E+0	0E+0	0E+0	1.03E-6	1.03E-6	7.05
n-Nitroso-di-n-propylamine	0E+0	0E+0	0E+0	0E+0	0E+0	1.11E-7	1.11E-7	<1
n-Nitrosodimethylamine	0E+0	0E+0	0E+0	0E+0	0E+0	1.28E-8	1.28E-8	<1
OCDD	0E+0	0E+0	0E+0	0E+0	0E+0	1.02E-10	1.02E-10	<1
OCDF	0E+0	0E+0	0E+0	0E+0	0E+0	4.94E-11	4.94E-11	<1
PnCB	0E+0	0E+0	0E+0	0E+0	0E+0	3.36E-6	3.36E-6	23
TCB	0E+0	0E+0	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	2.91
Trichloroethene	0E+0	0E+0	2.53E-11	2.84E-8	0E+0	0E+0	2.85E-8	<1
Total by pathway	2.17E-8	0E+0	5.13E-7	8.79E-6	5.95E-10	5.29E-6		
% Contribution by pathway	<1	0	3.51	60.1	<1	36.2		
Scenario Total							1.46E-5	

Table I-125

Average Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	1.62E-4	1.62E-4	2.18
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	5.14E-6	5.14E-6	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	6.41E-7	6.41E-7	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	2.37E-7	2.37E-7	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	1.71E-4	1.71E-4	2.3
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	1.83E-6	1.83E-6	<1
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	2.26E-6	2.26E-6	<1
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	1.29E-6	1.29E-6	<1
2,4,5-T	0E+0	0E+0	6.41E-8	0E+0	0E+0	6.41E-8	<1
4,4'-DDD	5.63E-5	0E+0	0E+0	2.34E-8	1.07E-5	6.7E-5	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	1.11E-6	1.11E-6	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	1.7E-7	1.7E-7	<1
Aldrin	4.86E-7	0E+0	2.81E-6	2.43E-7	1.91E-7	3.73E-6	<1
alpha-BHC	3E-8	0E+0	1.33E-7	6.47E-8	5.07E-10	2.28E-7	<1
Antimony	0E+0	0E+0	0E+0	0E+0	1.12E-7	1.12E-7	<1
Arsenic	0E+0	0E+0	0E+0	0E+0	3.55E-5	3.55E-5	<1
Barium	0E+0	0E+0	0E+0	0E+0	4.88E-9	4.88E-9	<1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	6.45E-13	6.45E-13	<1
Beryllium	0E+0	0E+0	3.62E-8	0E+0	1.53E-10	3.64E-8	<1
beta-BHC	0E+0	0E+0	5.35E-7	0E+0	2.04E-10	5.35E-7	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	3.51E-8	3.51E-8	<1
Boron	0E+0	0E+0	0E+0	0E+0	2.76E-10	2.76E-10	<1
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	2.65E-8	2.65E-8	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	1.46E-8	1.46E-8	<1
Chromium	0E+0	0E+0	0E+0	0E+0	1.47E-9	1.47E-9	<1
Chromium VI	0E+0	0E+0	0E+0	0E+0	2.63E-12	2.63E-12	<1
Cyanide	0E+0	0E+0	0E+0	0E+0	1.4E-7	1.4E-7	<1
Cyclohexanone	0E+0	0E+0	5.64E-9	0E+0	0E+0	5.64E-9	<1
delta-BHC	0E+0	0E+0	1.25E-4	0E+0	1.13E-5	1.36E-4	1.83
Dieldrin	4.05E-6	0E+0	0E+0	1.08E-7	5.21E-9	4.16E-6	<1

Table I-125

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Endosulfan I	8.67E-10	0E+0	0E+0	6.65E-10	0E+0	1.53E-9	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	0E+0	5.46E-14	5.46E-14	<1
Endrin	0E+0	0E+0	2.99E-7	0E+0	1.54E-8	3.15E-7	<1
gamma-BHC	4.12E-8	0E+0	9.63E-8	1.6E-8	3.57E-9	1.57E-7	<1
Heptachlor	0E+0	1.28E-13	0E+0	0E+0	1.22E-9	1.22E-9	<1
Heptachlor epoxide	3.92E-5	2.45E-11	1.75E-3	4.29E-7	1.81E-11	1.79E-3	24
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	1.16E-9	1.16E-9	<1
HpCB	0E+0	0E+0	0E+0	0E+0	5.41E-6	5.41E-6	<1
HxCB	0E+0	0E+0	0E+0	0E+0	1.13E-3	1.13E-3	15.2
Isodrin	6.25E-8	0E+0	0E+0	4.79E-8	0E+0	1.1E-7	<1
Lead (organic)	0E+0	0E+0	0E+0	0E+0	6.04E-4	6.04E-4	8.11
Manganese (food)	0E+0	0E+0	0E+0	0E+0	2.7E-8	2.7E-8	<1
Mirex	0E+0	0E+0	0E+0	0E+0	4.45E-13	4.45E-13	<1
Mercury	0E+0	0E+0	0E+0	0E+0	1.58E-4	1.58E-4	2.12
Nickel	0E+0	0E+0	0E+0	0E+0	4.16E-8	4.16E-8	<1
OCDD	0E+0	0E+0	0E+0	0E+0	1.07E-7	1.07E-7	<1
OCDF	0E+0	0E+0	0E+0	0E+0	5.18E-8	5.18E-8	<1
PnCB	0E+0	0E+0	0E+0	0E+0	2.46E-3	2.46E-3	33.1
Pyridine	0E+0	0E+0	0E+0	0E+0	2.08E-10	2.08E-10	<1
Selenium	0E+0	0E+0	0E+0	0E+0	1.34E-5	1.34E-5	<1
Silver	0E+0	0E+0	0E+0	0E+0	8.25E-8	8.25E-8	<1
TCB	0E+0	0E+0	0E+0	0E+0	5.52E-4	5.52E-4	7.42
Thallium	0E+0	0E+0	0E+0	0E+0	1.41E-4	1.41E-4	1.89
Vanadium	0E+0	0E+0	0E+0	0E+0	3.42E-7	3.42E-7	<1
Total by pathway	1E-4	2.46E-11	1.88E-3	9.32E-7	5.47E-3		
% Contribution by pathway	1.34	<1	25.2	<1	73.5		
Scenario Total						7.45E-3	

Table I-126

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	2.41E-3	2.41E-3	2.72
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	7.6E-5	7.6E-5	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	9.46E-6	9.46E-6	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	3.51E-6	3.51E-6	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	2.53E-3	2.53E-3	2.87
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	2.71E-5	2.71E-5	<1
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	2.57E-5	2.57E-5	<1
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	1.92E-5	1.92E-5	<1
2,4,5-T	0E+0	0E+0	1.69E-7	0E+0	0E+0	1.69E-7	<1
4,4'-DDD	2.02E-4	0E+0	0E+0	8.41E-8	1.59E-4	3.61E-4	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	1.65E-5	1.65E-5	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	2.52E-6	2.52E-6	<1
Aldrin	1.63E-6	0E+0	9.9E-6	8.15E-7	2.83E-6	1.52E-5	<1
alpha-BHC	1.09E-7	0E+0	4.8E-7	2.35E-7	7.99E-9	8.32E-7	<1
Antimony	0E+0	0E+0	0E+0	0E+0	1.67E-6	1.67E-6	<1
Arsenic	0E+0	0E+0	0E+0	0E+0	5.25E-4	5.25E-4	<1
Barium	0E+0	0E+0	0E+0	0E+0	6.68E-8	6.68E-8	<1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	9.57E-12	9.57E-12	<1
Beryllium	0E+0	0E+0	8.06E-8	0E+0	2.25E-9	8.28E-8	<1
beta-BHC	0E+0	0E+0	1.8E-6	0E+0	4.61E-9	1.8E-6	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	5.32E-7	5.32E-7	<1
Boron	0E+0	0E+0	0E+0	0E+0	5.76E-9	5.76E-9	<1
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	3.91E-7	3.91E-7	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	2.15E-7	2.15E-7	<1
Chromium	0E+0	0E+0	0E+0	0E+0	2.51E-8	2.51E-8	<1
Chromium VI	0E+0	0E+0	0E+0	0E+0	1.04E-10	1.04E-10	<1
Cyanide	0E+0	0E+0	0E+0	0E+0	2.07E-6	2.07E-6	<1
Cyclohexanone	0E+0	0E+0	1.13E-8	0E+0	0E+0	1.13E-8	<1
delta-BHC	0E+0	0E+0	5.19E-4	0E+0	1.19E-4	6.38E-4	<1

Table I-126

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Dieldrin	8.1E-6	0E+0	0E+0	2.15E-7	7.76E-8	8.39E-6	<1
Endosulfan I	3.23E-9	0E+0	0E+0	2.48E-9	0E+0	5.7E-9	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	0E+0	8.42E-13	8.42E-13	<1
Endrin	0E+0	0E+0	1.07E-6	0E+0	2.27E-7	1.3E-6	<1
gamma-BHC	8.23E-8	0E+0	3.57E-7	3.2E-8	5.28E-8	5.24E-7	<1
Heptachlor	0E+0	0E+0	0E+0	0E+0	1.8E-8	1.8E-8	<1
Heptachlor epoxide	1.24E-4	0E+0	9.94E-3	1.35E-6	2.7E-10	1.01E-2	<1
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	1.71E-8	1.71E-8	<1
HpCB	0E+0	0E+0	0E+0	0E+0	8.02E-5	8.02E-5	<1
HxCB	0E+0	0E+0	0E+0	0E+0	1.67E-2	1.67E-2	18.9
Isodrin	2.3E-7	0E+0	0E+0	1.76E-7	0E+0	4.06E-7	<1
Lead (organic)	0E+0	0E+0	0E+0	0E+0	5.77E-3	5.77E-3	6.52
Manganese (food)	0E+0	0E+0	0E+0	0E+0	4.01E-7	4.01E-7	<1
Mirex	0E+0	0E+0	0E+0	0E+0	6.58E-12	6.58E-12	<1
Mercury	0E+0	0E+0	0E+0	0E+0	2.33E-3	2.33E-3	2.64
Nickel	0E+0	0E+0	0E+0	0E+0	6.18E-7	6.18E-7	<1
OCDD	0E+0	0E+0	0E+0	0E+0	1.59E-6	1.59E-6	<1
OCDF	0E+0	0E+0	0E+0	0E+0	7.68E-7	7.68E-7	<1
PnCB	0E+0	0E+0	0E+0	0E+0	3.63E-2	3.63E-2	41.1
Pyridine	0E+0	0E+0	0E+0	0E+0	3.08E-9	3.08E-9	<1
Selenium	0E+0	0E+0	0E+0	0E+0	1.98E-4	1.98E-4	<1
Silver	0E+0	0E+0	0E+0	0E+0	1.23E-6	1.23E-6	<1
TCB	0E+0	0E+0	0E+0	0E+0	8.16E-3	8.16E-3	9.23
Thallium	0E+0	0E+0	0E+0	0E+0	2.09E-3	2.09E-3	2.36
Vanadium	0E+0	0E+0	0E+0	0E+0	6.91E-6	6.91E-6	<1
Total by pathway	3.36E-4	0E+0	1.05E-2	2.92E-6	7.76E-2		
% Contribution by pathway	<1	0	11.9	<1	87.8		
Scenario Total						8.84E-2	

Table I-127

Average Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future Chronic (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	4.94E-4	4.94E-4	2.26
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	1.56E-5	1.56E-5	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	1.95E-6	1.95E-6	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	7.21E-7	7.21E-7	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	5.2E-4	5.2E-4	2.38
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	5.57E-6	5.57E-6	<1
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	6.86E-6	6.86E-6	<1
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	3.91E-6	3.91E-6	<1
2,4,5-T	0E+0	0E+0	1.7E-7	0E+0	0E+0	1.7E-7	<1
4,4'-DDD	1.26E-4	0E+0	0E+0	1.09E-7	3.25E-5	1.58E-4	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	3.38E-6	3.38E-6	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	5.16E-7	5.16E-7	<1
Aldrin	1.09E-6	0E+0	7.44E-6	1.13E-6	5.79E-7	1.02E-5	<1
alpha-BHC	6.71E-8	0E+0	3.51E-7	3.02E-7	1.54E-9	7.22E-7	<1
Antimony	0E+0	0E+0	0E+0	0E+0	3.41E-7	3.41E-7	<1
Arsenic	0E+0	0E+0	0E+0	0E+0	1.08E-4	1.08E-4	<1
Barium	0E+0	0E+0	0E+0	0E+0	1.48E-8	1.48E-8	<1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	1.96E-12	1.96E-12	<1
Beryllium	0E+0	0E+0	9.58E-8	0E+0	4.64E-10	9.63E-8	<1
beta-BHC	0E+0	0E+0	1.42E-6	0E+0	6.2E-10	1.42E-6	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	1.07E-7	1.07E-7	<1
Boron	0E+0	0E+0	0E+0	0E+0	8.38E-10	8.38E-10	<1
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	8.05E-8	8.05E-8	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	4.42E-8	4.42E-8	<1
Chromium	0E+0	0E+0	0E+0	0E+0	4.45E-9	4.45E-9	<1
Chromium VI	0E+0	0E+0	0E+0	0E+0	7.99E-12	7.99E-12	<1
Cyanide	0E+0	0E+0	0E+0	0E+0	4.25E-7	4.25E-7	<1
Cyclohexanone	0E+0	0E+0	1.49E-8	0E+0	0E+0	1.49E-8	<1
delta-BHC	0E+0	0E+0	3.3E-4	0E+0	3.45E-5	3.65E-4	1.67

Table I-127

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Dieldrin	9.06E-6	0E+0	0E+0	5.02E-7	1.58E-8	9.57E-6	<1
Endosulfan I	1.94E-9	0E+0	0E+0	3.1E-9	0E+0	5.04E-9	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	0E+0	1.66E-13	1.66E-13	<1
Endrin	0E+0	0E+0	7.92E-7	0E+0	4.67E-8	8.39E-7	<1
gamma-BHC	9.21E-8	0E+0	2.55E-7	7.46E-8	1.08E-8	4.32E-7	<1
Heptachlor	0E+0	3.39E-13	0E+0	0E+0	3.7E-9	3.7E-9	<1
Heptachlor epoxide	8.77E-5	6.49E-11	4.63E-3	2E-6	5.5E-11	4.72E-3	21.6
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	3.52E-9	3.52E-9	<1
HpCB	0E+0	0E+0	0E+0	0E+0	1.64E-5	1.64E-5	<1
HxCB	0E+0	0E+0	0E+0	0E+0	3.43E-3	3.43E-3	15.7
Isodrin	1.4E-7	0E+0	0E+0	2.24E-7	0E+0	3.64E-7	<1
Lead (organic)	0E+0	0E+0	0E+0	0E+0	1.84E-3	1.84E-3	8.41
Manganese (food)	0E+0	0E+0	0E+0	0E+0	8.21E-8	8.21E-8	<1
Mirex	0E+0	0E+0	0E+0	0E+0	1.35E-12	1.35E-12	<1
Mercury	0E+0	0E+0	0E+0	0E+0	4.8E-4	4.8E-4	2.2
Nickel	0E+0	0E+0	0E+0	0E+0	1.26E-7	1.26E-7	<1
OCDD	0E+0	0E+0	0E+0	0E+0	3.26E-7	3.26E-7	<1
OCDF	0E+0	0E+0	0E+0	0E+0	1.58E-7	1.58E-7	<1
PnCB	0E+0	0E+0	0E+0	0E+0	7.48E-3	7.48E-3	34.3
Pyridine	0E+0	0E+0	0E+0	0E+0	6.32E-10	6.32E-10	<1
Selenium	0E+0	0E+0	0E+0	0E+0	4.07E-5	4.07E-5	<1
Silver	0E+0	0E+0	0E+0	0E+0	2.51E-7	2.51E-7	<1
TCB	0E+0	0E+0	0E+0	0E+0	1.68E-3	1.68E-3	7.69
Thallium	0E+0	0E+0	0E+0	0E+0	4.28E-4	4.28E-4	1.96
Vanadium	0E+0	0E+0	0E+0	0E+0	1.04E-6	1.04E-6	<1
Total by pathway	2.24E-4	6.52E-11	4.97E-3	4.35E-6	1.66E-2		
% Contribution by pathway	1.03	<1	22.8	<1	76.2		
Scenario Total						2.18E-2	

Table I-128

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)
Lake Stinky

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
1,2,3,4,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	6.73E-3	6.73E-3	2.74
1,2,3,7,8,9-HxCDF	0E+0	0E+0	0E+0	0E+0	2.13E-4	2.13E-4	<1
2,3,4,6,7,8-HxCDF	0E+0	0E+0	0E+0	0E+0	2.65E-5	2.65E-5	<1
1,2,3,4,6,7,8-HpCDD	0E+0	0E+0	0E+0	0E+0	9.82E-6	9.82E-6	<1
2,3,7,8-TCDD	0E+0	0E+0	0E+0	0E+0	7.09E-3	7.09E-3	2.89
2,3,7,8-TCDF	0E+0	0E+0	0E+0	0E+0	7.59E-5	7.59E-5	<1
2,4'-DDD	0E+0	0E+0	0E+0	0E+0	7.19E-5	7.19E-5	<1
2,4'-DDT	0E+0	0E+0	0E+0	0E+0	5.36E-5	5.36E-5	<1
2,4,5-T	0E+0	0E+0	4.48E-7	0E+0	0E+0	4.48E-7	<1
4,4'-DDD	4.53E-4	0E+0	0E+0	3.93E-7	4.45E-4	8.98E-4	<1
4,4'-DDE	0E+0	0E+0	0E+0	0E+0	4.63E-5	4.63E-5	<1
4,4'-DDT	0E+0	0E+0	0E+0	0E+0	7.05E-6	7.05E-6	<1
Aldrin	3.65E-6	0E+0	2.62E-5	3.81E-6	7.94E-6	4.16E-5	<1
alpha-BHC	2.44E-7	0E+0	1.27E-6	1.1E-6	2.24E-8	2.63E-6	<1
Antimony	0E+0	0E+0	0E+0	0E+0	4.67E-6	4.67E-6	<1
Arsenic	0E+0	0E+0	0E+0	0E+0	1.47E-3	1.47E-3	<1
Barium	0E+0	0E+0	0E+0	0E+0	1.87E-7	1.87E-7	<1
Benzyl alcohol	0E+0	0E+0	0E+0	0E+0	2.68E-11	2.68E-11	<1
Beryllium	0E+0	0E+0	2.13E-7	0E+0	6.31E-9	2.2E-7	<1
beta-BHC	0E+0	0E+0	4.76E-6	0E+0	1.29E-8	4.77E-6	<1
bis(2-Ethylhexyl)phthalate	0E+0	0E+0	0E+0	0E+0	1.49E-6	1.49E-6	<1
Boron	0E+0	0E+0	0E+0	0E+0	1.61E-8	1.61E-8	<1
Cadmium (food)	0E+0	0E+0	0E+0	0E+0	1.09E-6	1.09E-6	<1
Chlordane	0E+0	0E+0	0E+0	0E+0	6.03E-7	6.03E-7	<1
Chromium	0E+0	0E+0	0E+0	0E+0	7.03E-8	7.03E-8	<1
Chromium VI	0E+0	0E+0	0E+0	0E+0	2.9E-10	2.9E-10	<1
Cyanide	0E+0	0E+0	0E+0	0E+0	5.8E-6	5.8E-6	<1
Cyclohexanone	0E+0	0E+0	2.99E-8	0E+0	0E+0	2.99E-8	<1
delta-BHC	0E+0	0E+0	1.37E-3	0E+0	3.32E-4	1.71E-3	<1

Table I-128

(Continued)

	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contribution
Dieldrin	1.81E-5	0E+0	0E+0	1E-6	2.17E-7	1.93E-5	<1
Endosulfan I	7.22E-9	0E+0	0E+0	1.16E-8	0E+0	1.88E-8	<1
Endosulfan sulfate	0E+0	0E+0	0E+0	0E+0	2.36E-12	2.36E-12	<1
Endrin	0E+0	0E+0	2.84E-6	0E+0	6.35E-7	3.47E-6	<1
gamma-BHC	1.84E-7	0E+0	9.44E-7	1.49E-7	1.48E-7	1.43E-6	<1
Heptachlor	0E+0	0E+0	0E+0	0E+0	5.03E-8	5.03E-8	<1
Heptachlor epoxide	2.77E-4	0E+0	2.63E-2	6.32E-6	7.56E-10	2.66E-2	10.8
Hexachlorobenzene	0E+0	0E+0	0E+0	0E+0	4.8E-8	4.8E-8	<1
HpCB	0E+0	0E+0	0E+0	0E+0	2.24E-4	2.24E-4	<1
HxCB	0E+0	0E+0	0E+0	0E+0	4.68E-2	4.68E-2	19
Isodrin	5.14E-7	0E+0	0E+0	8.22E-7	0E+0	1.34E-6	<1
Lead (organic)	0E+0	0E+0	0E+0	0E+0	1.61E-2	1.61E-2	6.57
Manganese (food)	0E+0	0E+0	0E+0	0E+0	1.12E-6	1.12E-6	<1
Mirex	0E+0	0E+0	0E+0	0E+0	1.84E-11	1.84E-11	<1
Mercury	0E+0	0E+0	0E+0	0E+0	6.52E-3	6.52E-3	2.65
Nickel	0E+0	0E+0	0E+0	0E+0	1.73E-6	1.73E-6	<1
OCDD	0E+0	0E+0	0E+0	0E+0	4.45E-6	4.45E-6	<1
OCDF	0E+0	0E+0	0E+0	0E+0	2.15E-6	2.15E-6	<1
PnCB	0E+0	0E+0	0E+0	0E+0	1.02E-1	1.02E-1	41.4
Pyridine	0E+0	0E+0	0E+0	0E+0	8.63E-9	8.63E-9	<1
Selenium	0E+0	0E+0	0E+0	0E+0	5.55E-4	5.55E-4	<1
Silver	0E+0	0E+0	0E+0	0E+0	3.44E-6	3.44E-6	<1
TCB	0E+0	0E+0	0E+0	0E+0	2.28E-2	2.28E-2	9.3
Thallium	0E+0	0E+0	0E+0	0E+0	5.84E-3	5.84E-3	2.38
Vanadium	0E+0	0E+0	0E+0	0E+0	1.93E-5	1.93E-5	<1
Total by pathway	7.53E-4	0E+0	2.77E-2	1.36E-5	2.17E-1		
% Contribution by pathway	<1	0	11.3	<1	88.4		
Scenario Total						2.46E-1	

Table I-129

Average Cancer Risk
Off-Site Agricultural, Adult - Current/Future
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	9.91E-10	9.91E-10	14.4
4,4'-DDE	4.5E-13	4.5E-13	<1
4,4'-DDT	1.97E-13	1.97E-13	<1
Aldrin	5.51E-9	5.51E-9	80
alpha-BHC	3.01E-10	3.01E-10	4.37
beta-BHC	1.21E-13	1.21E-13	<1
Dieldrin	6.13E-11	6.13E-11	<1
gamma-BHC	1.11E-11	1.11E-11	<1
gamma-Chlordane	1.85E-14	1.85E-14	<1
Heptachlor	1.73E-12	1.73E-12	<1
Heptachlor epoxide	5.67E-12	5.67E-12	<1
Kepone	9.29E-13	9.29E-13	<1
Total by pathway	6.88E-9		
% Contribution by pathway	100		
Scenario Total		6.88E-9	

Table I-130

Reasonable Maximum Cancer Risk
Off-Site Agricultural, Adult - Current/Future
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	2.53E-8	2.53E-8	15.3
4,4'-DDE	9.68E-12	9.68E-12	<1
4,4'-DDT	2.82E-12	2.82E-12	<1
Aldrin	1.31E-7	1.31E-7	79.3
alpha-BHC	7.76E-9	7.76E-9	4.69
beta-BHC	2.45E-12	2.45E-12	<1
Dieldrin	8.76E-10	8.76E-10	<1
gamma-BHC	1.59E-10	1.59E-10	<1
gamma-Chlordane	2.63E-13	2.63E-13	<1
Heptachlor	2.46E-11	2.46E-11	<1
Heptachlor epoxide	1.27E-10	1.27E-10	<1
Kepone	2.63E-11	2.63E-11	<1
Total by pathway	1.66E-7		
% Contribution by pathway	100		
Scenario Total		1.66E-7	

Table I-131

Average Noncancer Hazard Index Summary
Off-Site Agricultural, Adult - Current/Future Chronic
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	6.42E-5	6.42E-5	38.1
4,4'-DDE	2.65E-9	2.65E-9	<1
4,4'-DDT	8.99E-9	8.99E-9	<1
Aldrin	8.4E-5	8.4E-5	49.8
alpha-BHC	8.92E-7	8.92E-7	<1
beta-BHC	1.58E-9	1.58E-9	<1
Dieldrin	5.96E-7	5.96E-7	<1
Endosulfan I	7.81E-9	7.81E-9	<1
Endosulfan II	1.13E-15	1.13E-15	<1
gamma-BHC	2.22E-7	2.22E-7	<1
gamma-Chlordane	1.84E-9	1.84E-9	<1
Heptachlor	5.98E-9	5.98E-9	<1
Heptachlor epoxide	3.73E-7	3.73E-7	<1
Isodrin	1.82E-5	1.82E-5	10.8
Kepone	4.01E-9	4.01E-9	<1
Total by pathway	1.69E-4		
% Contribution by pathway	100		
Scenario Total		1.69E-4	

Table I-132

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Agricultural, Adult - Current/Future
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	4.92E-4	4.92E-4	39.5
4,4'-DDE	1.71E-8	1.71E-8	<1
4,4'-DDT	3.87E-8	3.87E-8	<1
Aldrin	6E-4	6E-4	48.1
alpha-BHC	6.91E-6	6.91E-6	<1
beta-BHC	9.62E-9	9.62E-9	<1
Dieldrin	2.55E-6	2.55E-6	<1
Endosulfan I	6.19E-8	6.19E-8	<1
Endosulfan II	4.82E-15	4.82E-15	<1
gamma-BHC	9.49E-7	9.49E-7	<1
gamma-Chlordane	7.86E-9	7.86E-9	<1
Heptachlor	2.55E-8	2.55E-8	<1
Heptachlor epoxide	2.51E-6	2.51E-6	<1
Isodrin	1.42E-4	1.42E-4	11.4
Kepone	3.4E-8	3.4E-8	<1
Total by pathway	1.25E-3		
% Contribution by pathway	100		
Scenario Total		1.25E-3	

Table I-133

Average Noncancer Hazard Index Summary
Off-Site Agricultural, Child - Current/Future
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	1.5E-4	1.5E-4	38.1
4,4'-DDE	6.17E-9	6.17E-9	<1
4,4'-DDT	2.1E-8	2.1E-8	<1
Aldrin	1.96E-4	1.96E-4	49.8
alpha-BHC	2.08E-6	2.08E-6	<1
beta-BHC	3.69E-9	3.69E-9	<1
Dieldrin	1.39E-6	1.39E-6	<1
Endosulfan I	1.82E-8	1.82E-8	<1
Endosulfan II	2.65E-15	2.65E-15	<1
gamma-BHC	5.17E-7	5.17E-7	<1
gamma-Chlordane	4.3E-9	4.3E-9	<1
Heptachlor	1.4E-8	1.4E-8	<1
Heptachlor epoxide	8.69E-7	8.69E-7	<1
Isodrin	4.24E-5	4.24E-5	10.8
Kepone	9.37E-9	9.37E-9	<1
Total by pathway	3.93E-4		
% Contribution by pathway	100		
Scenario Total		3.93E-4	

Table I-134

Reasonable Maximum Noncancer Hazard Index Summary
Off-Site Agricultural, Child - Current/Future
(Lagoons In or Out of Service)
Lake Stinky

	Ingestion of Meat	Total	% Contribution
4,4'-DDD	1.15E-3	1.15E-3	39.5
4,4'-DDE	3.99E-8	3.99E-8	<1
4,4'-DDT	9.03E-8	9.03E-8	<1
Aldrin	1.4E-3	1.4E-3	48.1
alpha-BHC	1.61E-5	1.61E-5	<1
beta-BHC	2.25E-8	2.25E-8	<1
Dieldrin	5.96E-6	5.96E-6	<1
Endosulfan I	1.44E-7	1.44E-7	<1
Endosulfan II	1.12E-14	1.12E-14	<1
gamma-BHC	2.22E-6	2.22E-6	<1
gamma-Chlordane	1.83E-8	1.83E-8	<1
Heptachlor	5.95E-8	5.95E-8	<1
Heptachlor epoxide	5.85E-6	5.85E-6	<1
Isodrin	3.32E-4	3.32E-4	11.4
Kepone	7.94E-8	7.94E-8	<1
Total by pathway	2.91E-3		
% Contribution by pathway	100		
Scenario Total		2.91E-3	

APPENDIX J

RISK MODEL OUTPUT

Table J-1
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond A

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond A		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	1.27E-01	1.81
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	8.50E-02	3.63E-01
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	1.98E-01	8.47E-01
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond A		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Current (Lagoons in Service)	1.27E-01	1.81
Onsite Occupational - (S) Future (Lagoons Out of Service)	3.90E+01	1.47E+02

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	2.85E-06	0.00E+00	0.00E+00	2.85E-06	2.25E-03	
4,4'-DDE	0.00E+00	1.47E-06	0.00E+00	1.47E-06	1.16E-03	
4,4'-DDT	4.25E-07	0.00E+00	0.00E+00	4.25E-07	3.35E-04	
Antimony	0.00E+00	1.30E-05	0.00E+00	1.30E-05	1.02E-02	
Arsenic	0.00E+00	3.25E-06	1.32E-06	4.57E-06	3.60E-03	
Beryllium	0.00E+00	1.15E-08	1.17E-08	2.32E-08	1.82E-05	
Cadmium (food)	0.00E+00	1.22E-06	0.00E+00	1.22E-06	9.60E-04	
delta-BHC	1.01E-07	0.00E+00	0.00E+00	1.01E-07	7.96E-05	
Dieldrin	2.39E-07	0.00E+00	0.00E+00	2.39E-07	1.88E-04	
Endosulfan I	0.00E+00	1.91E-07	0.00E+00	1.91E-07	1.50E-04	
Endosulfan II	0.00E+00	1.25E-10	0.00E+00	1.25E-10	9.87E-08	
Endosulfan sulfate	1.45E-11	1.55E-07	0.00E+00	1.55E-07	1.22E-04	
gamma-Chlordane	0.00E+00	7.44E-05	0.00E+00	7.44E-05	5.86E-02	
Heptachlor	2.38E-08	2.15E-06	0.00E+00	2.17E-06	1.71E-03	
Heptachlor epoxide	1.49E-06	1.26E-01	0.00E+00	1.26E-01	9.94E+01	
Mercury	0.00E+00	6.70E-06	0.00E+00	6.70E-06	5.28E-03	
OCDD	0.00E+00	6.92E-06	0.00E+00	6.92E-06	5.45E-03	
Silver	0.00E+00	2.62E-05	0.00E+00	2.62E-05	2.07E-02	
Thallium	0.00E+00	0.00E+00	6.77E-04	6.77E-04	5.33E-01	
Total by pathway	5.13E-06	1.26E-01	6.78E-04			
% Contribution by pathway	4.04E-03	9.95E+01	5.34E-01			
Scenario Total				1.27E-01		

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Reas. Max. Non-Cancer Hazard Index Summary					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	8.07E-05	0.00E+00	0.00E+00	8.07E-05	4.45E-03
4,4'-DDE	0.00E+00	2.11E-05	0.00E+00	2.11E-05	1.16E-03
4,4'-DDT	1.20E-05	0.00E+00	0.00E+00	1.20E-05	6.62E-04
Antimony	0.00E+00	1.85E-04	0.00E+00	1.85E-04	1.02E-02
Arsenic	0.00E+00	5.57E-05	2.10E-05	7.67E-05	4.23E-03
Beryllium	0.00E+00	2.10E-07	1.90E-07	4.01E-07	2.21E-05
Cadmium (food)	0.00E+00	2.25E-05	0.00E+00	2.25E-05	1.24E-03
delta-BHC	2.86E-06	0.00E+00	0.00E+00	2.86E-06	1.57E-04
Dieldrin	6.76E-06	0.00E+00	0.00E+00	6.76E-06	3.72E-04
Endosulfan I	0.00E+00	2.73E-06	0.00E+00	2.73E-06	1.50E-04
Endosulfan II	0.00E+00	1.79E-09	0.00E+00	1.79E-09	9.85E-08
Endosulfan sulfate	4.11E-10	2.21E-06	0.00E+00	2.21E-06	1.22E-04
gamma-Chlordane	0.00E+00	1.06E-03	0.00E+00	1.06E-03	5.85E-02
Heptachlor	6.74E-07	3.07E-05	0.00E+00	3.14E-05	1.73E-03
Heptachlor epoxide	4.21E-05	1.8	0.00E+00	1.8	9.92E+01
Mercury	0.00E+00	1.31E-04	0.00E+00	1.31E-04	7.19E-03
OCDD	0.00E+00	9.89E-05	0.00E+00	9.89E-05	5.45E-03
Silver	0.00E+00	4.76E-04	0.00E+00	4.76E-04	2.62E-02
Thallium	0.00E+00	0.00E+00	1.19E-02	1.19E-02	6.58E-01
Total by pathway	1.45E-04	1.8	1.20E-02		
% Contribution by pathway	8.00E-03	9.93E+01	6.59E-01		
Scenario Total				1.82	

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Average Non-Cancer Hazard Index Summary					
Onsite Occupational - (S) Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDT	9.52E-06	0.00E+00	0.00E+00	9.52E-06	7.52E-03
Antimony	0.00E+00	1.30E-05	0.00E+00	1.30E-05	1.03E-02
Arsenic	0.00E+00	3.25E-06	1.32E-06	4.57E-06	3.61E-03
Beryllium	0.00E+00	1.15E-08	1.17E-08	2.32E-08	1.83E-05
Dieldrin	3.12E-07	0.00E+00	0.00E+00	3.12E-07	2.46E-04
Endosulfan I	0.00E+00	9.65E-05	0.00E+00	9.65E-05	7.63E-02
Endosulfan II	0.00E+00	2.00E-04	0.00E+00	2.00E-04	1.58E-01
gamma-Chlordane	0.00E+00	7.44E-05	0.00E+00	7.44E-05	5.87E-02
Heptachlor	4.65E-08	4.19E-06	0.00E+00	4.24E-06	3.35E-03
Heptachlor epoxide	1.49E-06	1.26E-01	0.00E+00	1.26E-01	9.96E+01
Mercury	0.00E+00	6.70E-06	0.00E+00	6.70E-06	5.29E-03
Silver	0.00E+00	2.62E-05	0.00E+00	2.62E-05	2.07E-02
Thallium	0.00E+00	0.00E+00	6.77E-05	6.77E-05	5.34E-02
Total by pathway	1.14E-05	1.27E-01	6.90E-05		
% Contribution by pathway	8.98E-03	9.99E+01	5.45E-02		
Scenario Total				1.27E-01	
Reas. Max. Non-Cancer Hazard Index Summary					
Onsite Occupational - (S) Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDT	2.69E-04	0.00E+00	0.00E+00	2.69E-04	1.49E-02
Antimony	0.00E+00	1.85E-04	0.00E+00	1.85E-04	1.02E-02
Arsenic	0.00E+00	5.57E-05	2.10E-05	7.67E-05	4.24E-03
Beryllium	0.00E+00	2.10E-07	1.90E-07	4.01E-07	2.22E-05
Dieldrin	8.82E-06	0.00E+00	0.00E+00	8.82E-06	4.87E-04
Endosulfan I	0.00E+00	1.38E-03	0.00E+00	1.38E-03	7.62E-02
Endosulfan II	0.00E+00	2.86E-03	0.00E+00	2.86E-03	1.58E-01
gamma-Chlordane	0.00E+00	1.06E-03	0.00E+00	1.06E-03	5.87E-02
Heptachlor	1.31E-06	5.98E-05	0.00E+00	6.12E-05	3.38E-03
Heptachlor epoxide	4.21E-05	1.8	0.00E+00	1.8	9.96E+01
Mercury	0.00E+00	1.31E-04	0.00E+00	1.31E-04	7.22E-03
Silver	0.00E+00	4.76E-04	0.00E+00	4.76E-04	2.63E-02
Thallium	0.00E+00	0.00E+00	1.19E-03	1.19E-03	6.60E-02
Total by pathway	3.22E-04	1.81	1.22E-03		
% Contribution by pathway	1.78E-02	9.99E+01	6.72E-02		
Scenario Total				1.81	

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contrib
Antimony	3.32E-03	0.00E+00	6.69E-03	0.00E+00	1.00E-02	2.57E-02
Arsenic	8.31E-04	3.37E-04	1.68E-02	6.80E-03	2.47E-02	6.34E-02
Beryllium	2.94E-06	2.99E-06	5.92E-05	6.03E-05	1.25E-04	3.21E-04
Endosulfan I	2.47E-02	0.00E+00	0.00E+00	0.00E+00	2.47E-02	6.34E-02
Endosulfan II	5.13E-02	0.00E+00	1.03E-02	0.00E+00	6.16E-02	1.58E-01
gamma-Chlordane	1.90E-02	0.00E+00	3.84E-03	0.00E+00	2.29E-02	5.86E-02
Heptachlor	1.07E-03	0.00E+00	2.16E-04	0.00E+00	1.29E-03	3.30E-03
Heptachlor epoxide	3.23E+01	0.00E+00	6.5	0.00E+00	3.88E+01	9.94E+01
Mercury	1.72E-03	0.00E+00	3.46E-03	0.00E+00	5.17E-03	1.33E-02
Silver	6.71E-03	0.00E+00	1.35E-02	0.00E+00	2.02E-02	5.19E-02
Thallium	0.00E+00	1.73E-02	0.00E+00	3.49E-02	5.22E-02	1.34E-01
Total by pathway	3.24E+01	1.77E-02	6.56	4.17E-02		
% Contribution by pathway	8.30E+01	4.53E-02	1.68E+01	1.07E-01		
Scenario Total					3.90E+01	

Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ingestion of Sediments	Total	% Contrib
Antimony	8.30E-03	0.00E+00	6.69E-02	0.00E+00	7.52E-02	5.11E-02
Arsenic	2.50E-03	9.42E-04	2.01E-01	7.59E-02	2.81E-01	1.91E-01
Beryllium	9.43E-06	8.53E-06	7.60E-04	6.88E-04	1.47E-03	9.96E-04
Endosulfan I	6.18E-02	0.00E+00	0.00E+00	0.00E+00	6.18E-02	4.20E-02
Endosulfan II	1.28E-01	0.00E+00	1.03E-01	0.00E+00	2.32E-01	1.57E-01
gamma-Chlordane	4.76E-02	0.00E+00	3.84E-02	0.00E+00	8.59E-02	5.84E-02
Heptachlor	2.68E-03	0.00E+00	2.16E-03	0.00E+00	4.84E-03	3.29E-03
Heptachlor epoxide	8.07E+01	0.00E+00	6.50E+01	0.00E+00	1.46E+02	9.90E+01
Mercury	5.85E-03	0.00E+00	4.71E-02	0.00E+00	5.30E-02	3.60E-02
Silver	2.13E-02	0.00E+00	1.72E-01	0.00E+00	1.93E-01	1.31E-01
Thallium	0.00E+00	5.35E-02	0.00E+00	4.31E-01	4.85E-01	3.29E-01
Total by pathway	8.10E+01	5.45E-02	6.57E+01	5.08E-01		
% Contribution by pathway	5.50E+01	3.70E-02	4.46E+01	3.45E-01		
Scenario Total					1.47E+02	

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	3.39E-05	3.39E-05	3.99E-02			
4,4'-DDE	3.61E-05	3.61E-05	4.24E-02			
4,4'-DDT	7.94E-05	7.94E-05	9.34E-02			
Aldrin	7.00E-05	7.00E-05	8.23E-02			
alpha-BHC	5.36E-07	5.36E-07	6.30E-04			
alpha-Chlordane	2.80E-06	2.80E-06	3.29E-03			
Antimony	8.47E-02	8.47E-02	9.96E+01			
beta-BHC	6.81E-07	6.81E-07	8.01E-04			
delta-BHC	1.16E-06	1.16E-06	1.36E-03			
Dieldrin	8.53E-07	8.53E-07	1.00E-03			
Endosulfan I	3.28E-09	3.28E-09	3.86E-06			
Endosulfan II	2.51E-12	2.51E-12	2.95E-09			
Endosulfan sulfate	4.35E-08	4.35E-08	5.12E-05			
Endrin	2.43E-05	2.43E-05	2.86E-02			
gamma-BHC	7.25E-07	7.25E-07	8.52E-04			
gamma-Chlordane	3.88E-05	3.88E-05	4.56E-02			
Heptachlor	7.25E-07	7.25E-07	8.53E-04			
Heptachlor epoxide	3.73E-07	3.73E-07	4.38E-04			
Isodrin	1.96E-05	1.96E-05	2.30E-02			
Methoxychlor	8.18E-06	8.18E-06	9.62E-03			
Total by pathway	8.50E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		8.50E-02				

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDD	1.86E-04	1.86E-04	5.12E-02
4,4'-DDE	2.14E-04	2.14E-04	5.89E-02
4,4'-DDT	4.55E-04	4.55E-04	1.25E-01
Aldrin	3.80E-04	3.80E-04	1.05E-01
alpha-BHC	3.15E-06	3.15E-06	8.67E-04
alpha-Chlordane	2.04E-05	2.04E-05	5.62E-03
Antimony	3.61E-01	3.61E-01	9.95E+01
beta-BHC	4.15E-06	4.15E-06	1.14E-03
delta-BHC	7.21E-06	7.21E-06	1.99E-03
Dieldrin	5.24E-06	5.24E-06	1.44E-03
Endosulfan I	1.94E-08	1.94E-08	5.36E-06
Endosulfan II	1.28E-11	1.28E-11	3.53E-09
Endosulfan sulfate	2.09E-07	2.09E-07	5.75E-05
Endrin	1.52E-04	1.52E-04	4.20E-02
gamma-BHC	5.32E-06	5.32E-06	1.47E-03
gamma-Chlordane	3.10E-04	3.10E-04	8.55E-02
Heptachlor	4.11E-06	4.11E-06	1.13E-03
Heptachlor epoxide	1.87E-06	1.87E-06	5.16E-04
Isodrin	1.38E-04	1.38E-04	3.80E-02
Methoxychlor	3.49E-05	3.49E-05	9.61E-03
Total by pathway	3.63E-01		
% Contribution by pathway	1.00E+02		
Scenario Total		3.63E-01	

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	7.91E-05	7.91E-05	3.99E-02			
4,4'-DDE	8.42E-05	8.42E-05	4.24E-02			
4,4'-DDT	1.85E-04	1.85E-04	9.34E-02			
Aldrin	1.63E-04	1.63E-04	8.23E-02			
alpha-BHC	1.25E-06	1.25E-06	6.30E-04			
alpha-Chlordane	6.53E-06	6.53E-06	3.29E-03			
Antimony	1.98E-01	1.98E-01	9.96E+01			
beta-BHC	1.59E-06	1.59E-06	8.01E-04			
delta-BHC	2.70E-06	2.70E-06	1.36E-03			
Dieldrin	1.99E-06	1.99E-06	1.00E-03			
Endosulfan I	7.66E-09	7.66E-09	3.86E-06			
Endosulfan II	5.85E-12	5.85E-12	2.95E-09			
Endosulfan sulfate	1.02E-07	1.02E-07	5.12E-05			
Endrin	5.67E-05	5.67E-05	2.86E-02			
gamma-BHC	1.69E-06	1.69E-06	8.52E-04			
gamma-Chlordane	9.06E-05	9.06E-05	4.56E-02			
Heptachlor	1.69E-06	1.69E-06	8.53E-04			
Heptachlor epoxide	8.70E-07	8.70E-07	4.38E-04			
Isodrin	4.56E-05	4.56E-05	2.30E-02			
Methoxychlor	1.91E-05	1.91E-05	9.62E-03			
Total by pathway	1.98E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		1.98E-01				

Table J-2
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond A

Reas. Max. Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	4.34E-04	4.34E-04	5.12E-02			
4,4'-DDE	4.99E-04	4.99E-04	5.89E-02			
4,4'-DDT	1.06E-03	1.06E-03	1.25E-01			
Aldrin	8.86E-04	8.86E-04	1.05E-01			
alpha-BHC	7.34E-06	7.34E-06	8.67E-04			
alpha-Chlordane	4.76E-05	4.76E-05	5.62E-03			
Antimony	8.42E-01	8.42E-01	9.95E+01			
beta-BHC	9.68E-06	9.68E-06	1.14E-03			
delta-BHC	1.68E-05	1.68E-05	1.99E-03			
Dieldrin	1.22E-05	1.22E-05	1.44E-03			
Endosulfan I	4.54E-08	4.54E-08	5.36E-06			
Endosulfan II	2.99E-11	2.99E-11	3.53E-09			
Endosulfan sulfate	4.87E-07	4.87E-07	5.75E-05			
Endrin	3.56E-04	3.56E-04	4.20E-02			
gamma-BHC	1.24E-05	1.24E-05	1.47E-03			
gamma-Chlordane	7.24E-04	7.24E-04	8.55E-02			
Heptachlor	9.59E-06	9.59E-06	1.13E-03			
Heptachlor epoxide	4.37E-06	4.37E-06	5.16E-04			
Isodrin	3.22E-04	3.22E-04	3.80E-02			
Methoxychlor	8.14E-05	8.14E-05	9.61E-03			
Total by pathway	8.47E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		8.47E-01				

Table J-3
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Non-Cancer Risk Estimates								
Holloman Risk Assessment - Pond A								
Scenario								
	Activity							
		Pathway						
Onsite Occupational - Current (Lagoons in Service)								
	Working around the lagoons							
		DermalContactWithWater: Surface water						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.43E-09	4.04E-08	2.85E-06	8.07E-05
			4,4'-DDT	1.12E-02	4.76E-09	1.35E-07	4.25E-07	1.20E-05
			delta-BHC	2.00E-04	2.02E-11	5.71E-10	1.01E-07	2.86E-06
			Dieldrin	6.52E-05	1.56E-11	4.41E-10	2.39E-07	6.76E-06
			Endosulfan sulfate	2.47E-02	3.59E-13	1.02E-11	1.45E-11	4.11E-10
			Heptachlor	9.75E-04	2.32E-11	6.57E-10	2.38E-08	6.74E-07
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDE	3.89E-03	5.74E-09	8.20E-08	1.47E-06	2.11E-05
			Antimony	4.00E-04	5.19E-09	7.42E-08	1.30E-05	1.85E-04
			Arsenic	3.00E-04	9.74E-10	1.67E-08	3.25E-06	5.57E-05
			Beryllium	5.00E-03	5.74E-11	1.05E-09	1.15E-08	2.10E-07
			Cadmium (food)	1.00E-03	1.22E-09	2.25E-08	1.22E-06	2.25E-05
			Endosulfan I	2.53E-02	4.83E-09	6.90E-08	1.91E-07	2.73E-06
			Endosulfan II	80	1.00E-08	1.43E-07	1.25E-10	1.79E-09
			Endosulfan sulfate	2.47E-02	3.82E-09	5.46E-08	1.55E-07	2.21E-06
			gamma-Chlordane	6.00E-05	4.46E-09	6.37E-08	7.44E-05	1.06E-03
			Heptachlor	9.75E-04	2.09E-09	2.99E-08	2.15E-06	3.07E-05
			Heptachlor epoxide	1.30E-05	1.64E-06	2.34E-05	1.26E-01	1.8
			Mercury	3.00E-04	2.01E-09	3.92E-08	6.70E-06	1.31E-04
			OCDD	1.00E-06	6.92E-12	9.89E-11	6.92E-06	9.89E-05
			Silver	5.00E-03	1.31E-07	2.38E-06	2.62E-05	4.76E-04
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	3.95E-10	6.31E-09	1.32E-06	2.10E-05
			Beryllium	5.00E-03	5.84E-11	9.52E-10	1.17E-08	1.90E-07
			Thallium	8.00E-05	5.41E-08	9.56E-07	6.77E-04	1.19E-02

Table J-3
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Onsite Occupational - (S) Current (Lagoons in Service)								
	Working around the lagoons							
		DermalContactWithWater: Surface water						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	4.76E-09	1.35E-07	9.52E-06	2.69E-04
			Dieldrin	5.00E-05	1.56E-11	4.41E-10	3.12E-07	8.82E-06
			Heptachlor	5.00E-04	2.32E-11	6.57E-10	4.65E-08	1.31E-06
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05
		DermalContactWithSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Antimony	4.00E-04	5.19E-09	7.42E-08	1.30E-05	1.85E-04
			Arsenic	3.00E-04	9.74E-10	1.67E-08	3.25E-06	5.57E-05
			Beryllium	5.00E-03	5.74E-11	1.05E-09	1.15E-08	2.10E-07
			Endosulfan I	5.00E-05	4.83E-09	6.90E-08	9.65E-05	1.38E-03
			Endosulfan II	5.00E-05	1.00E-08	1.43E-07	2.00E-04	2.86E-03
			gamma-Chlordane	6.00E-05	4.46E-09	6.37E-08	7.44E-05	1.06E-03
			Heptachlor	5.00E-04	2.09E-09	2.99E-08	4.19E-06	5.98E-05
			Heptachlor epoxide	1.30E-05	1.64E-06	2.34E-05	1.26E-01	1.8
			Mercury	3.00E-04	2.01E-09	3.92E-08	6.70E-06	1.31E-04
			Silver	5.00E-03	1.31E-07	2.38E-06	2.62E-05	4.76E-04
		DermalContactWithSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	3.95E-10	6.31E-09	1.32E-06	2.10E-05
			Beryllium	5.00E-03	5.84E-11	9.52E-10	1.17E-08	1.90E-07
			Thallium	8.00E-04	5.41E-08	9.56E-07	6.77E-05	1.19E-03

Table J-3
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Onsite Occupational - (S) Future (Lagoons Out of Service)								
	Working around the lagoons							
		DermalContactWithSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Antimony	4.00E-04	1.33E-06	3.32E-06	3.32E-03	8.30E-03
			Arsenic	3.00E-04	2.49E-07	7.49E-07	8.31E-04	2.50E-03
			Beryllium	5.00E-03	1.47E-08	4.71E-08	2.94E-06	9.43E-06
			Endosulfan I	5.00E-05	1.24E-06	3.09E-06	2.47E-02	6.18E-02
			Endosulfan II	5.00E-05	2.56E-06	6.41E-06	5.13E-02	1.28E-01
			gamma-Chlordane	6.00E-05	1.14E-06	2.86E-06	1.90E-02	4.76E-02
			Heptachlor	5.00E-04	5.36E-07	1.34E-06	1.07E-03	2.68E-03
			Heptachlor epoxide	1.30E-05	4.20E-04	1.05E-03	3.23E+01	8.07E+01
			Mercury	3.00E-04	5.15E-07	1.75E-06	1.72E-03	5.85E-03
			Silver	5.00E-03	3.36E-05	1.07E-04	6.71E-03	2.13E-02
		DermalContactWithSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	1.01E-07	2.83E-07	3.37E-04	9.42E-04
			Beryllium	5.00E-03	1.50E-08	4.27E-08	2.99E-06	8.53E-06
			Thallium	8.00E-04	1.39E-05	4.28E-05	1.73E-02	5.35E-02
		IngestionOfSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Antimony	4.00E-04	2.68E-06	2.68E-05	6.69E-03	6.69E-02
			Arsenic	3.00E-04	5.03E-06	6.04E-05	1.68E-02	2.01E-01
			Beryllium	5.00E-03	2.96E-07	3.80E-06	5.92E-05	7.60E-04
			Endosulfan II	5.00E-05	5.17E-07	5.17E-06	1.03E-02	1.03E-01
			gamma-Chlordane	6.00E-05	2.30E-07	2.30E-06	3.84E-03	3.84E-02
			Heptachlor	5.00E-04	1.08E-07	1.08E-06	2.16E-04	2.16E-03
			Heptachlor epoxide	1.30E-05	8.45E-05	8.45E-04	6.5	6.50E+01
			Mercury	3.00E-04	1.04E-06	1.41E-05	3.46E-03	4.71E-02
			Silver	5.00E-03	6.76E-05	8.59E-04	1.35E-02	1.72E-01
		IngestionOfSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	2.04E-06	2.28E-05	6.80E-03	7.59E-02
			Beryllium	5.00E-03	3.01E-07	3.44E-06	6.03E-05	6.88E-04
			Thallium	8.00E-04	2.79E-05	3.45E-04	3.49E-02	4.31E-01
		InhalationOfVapor: Occupational Inhalation						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index

Table J-3
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)								
	Grazing Cattle near the lagoons							
		IngestionOfMeatEggsAndDairy: Beef						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.69E-08	9.29E-08	3.39E-05	1.86E-04
			4,4'-DDE	3.89E-03	1.40E-07	8.31E-07	3.61E-05	2.14E-04
			4,4'-DDT	5.00E-04	3.97E-08	2.27E-07	7.94E-05	4.55E-04
			Aldrin	3.00E-05	2.10E-09	1.14E-08	7.00E-05	3.80E-04
			alpha-BHC	4.16E-04	2.23E-10	1.31E-09	5.36E-07	3.15E-06
			alpha-Chlordane	1.48E-05	4.14E-11	3.02E-10	2.80E-06	2.04E-05
			Antimony	4.00E-04	3.39E-05	1.44E-04	8.47E-02	3.61E-01
			beta-BHC	3.30E-04	2.25E-10	1.37E-09	6.81E-07	4.15E-06
			delta-BHC	2.00E-04	2.32E-10	1.44E-09	1.16E-06	7.21E-06
			Dieldrin	5.00E-05	4.27E-11	2.62E-10	8.53E-07	5.24E-06
			Endosulfan I	2.53E-02	8.30E-11	4.92E-10	3.28E-09	1.94E-08
			Endosulfan II	80	2.00E-10	1.02E-09	2.51E-12	1.28E-11
			Endosulfan sulfate	6.00E-03	2.61E-10	1.25E-09	4.35E-08	2.09E-07
			Endrin	3.00E-04	7.29E-09	4.57E-08	2.43E-05	1.52E-04
			gamma-BHC	3.00E-04	2.17E-10	1.60E-09	7.25E-07	5.32E-06
			gamma-Chlordane	6.00E-05	2.33E-09	1.86E-08	3.88E-05	3.10E-04
			Heptachlor	5.00E-04	3.63E-10	2.05E-09	7.25E-07	4.11E-06
			Heptachlor epoxide	1.30E-05	4.85E-12	2.43E-11	3.73E-07	1.87E-06
			Isodrin	3.00E-04	5.87E-09	4.14E-08	1.96E-05	1.38E-04
			Methoxychlor	5.00E-03	4.09E-08	1.74E-07	8.18E-06	3.49E-05

Table J-3
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Offsite Agricultural, Child - Future (Lagoons In or Out of Service)								
	Grazing Cattle near the lagoons							
		IngestionOfMeatEggsAndDairy: Beef						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	3.95E-08	2.17E-07	7.91E-05	4.34E-04
			4,4'-DDE	3.89E-03	3.28E-07	1.94E-06	8.42E-05	4.99E-04
			4,4'-DDT	5.00E-04	9.26E-08	5.30E-07	1.85E-04	1.06E-03
			Aldrin	3.00E-05	4.90E-09	2.66E-08	1.63E-04	8.86E-04
			alpha-BHC	4.16E-04	5.20E-10	3.05E-09	1.25E-06	7.34E-06
			alpha-Chlordane	1.48E-05	9.67E-11	7.05E-10	6.53E-06	4.76E-05
			Antimony	4.00E-04	7.91E-05	3.37E-04	1.98E-01	8.42E-01
			beta-BHC	3.30E-04	5.25E-10	3.20E-09	1.59E-06	9.68E-06
			delta-BHC	2.00E-04	5.40E-10	3.36E-09	2.70E-06	1.68E-05
			Dieldrin	5.00E-05	9.96E-11	6.11E-10	1.99E-06	1.22E-05
			Endosulfan I	2.53E-02	1.94E-10	1.15E-09	7.66E-09	4.54E-08
			Endosulfan II	80	4.68E-10	2.39E-09	5.85E-12	2.99E-11
			Endosulfan sulfate	6.00E-03	6.10E-10	2.92E-09	1.02E-07	4.87E-07
			Endrin	3.00E-04	1.70E-08	1.07E-07	5.67E-05	3.56E-04
			gamma-BHC	3.00E-04	5.07E-10	3.73E-09	1.69E-06	1.24E-05
			gamma-Chlordane	6.00E-05	5.43E-09	4.34E-08	9.06E-05	7.24E-04
			Heptachlor	5.00E-04	8.46E-10	4.79E-09	1.69E-06	9.59E-06
			Heptachlor epoxide	1.30E-05	1.13E-11	5.68E-11	8.70E-07	4.37E-06
			Isodrin	3.00E-04	1.37E-08	9.67E-08	4.56E-05	3.22E-04
			Methoxychlor	5.00E-03	9.55E-08	4.07E-07	1.91E-05	8.14E-05

Table J-4
Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond A

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond A		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	2.02E-06	8.11E-05
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.40E-08	2.69E-07

Table J-5
Cancer Risk Summary
Holloman AFB, New Mexico
Pond A

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	4.40E-11	0.00E+00	0.00E+00	4.40E-11	2.18E-03
4,4'-DDE	0.00E+00	2.51E-10	0.00E+00	2.51E-10	1.24E-02
4,4'-DDT	2.08E-10	0.00E+00	0.00E+00	2.08E-10	1.03E-02
Benzo(a)anthracene	0.00E+00	1.31E-09	0.00E+00	1.31E-09	6.47E-02
Benzo(a)pyrene	0.00E+00	2.82E-10	0.00E+00	2.82E-10	1.39E-02
Benzo(b)fluoranthene	0.00E+00	1.06E-09	0.00E+00	1.06E-09	5.24E-02
Benzo(k)fluoranthene	0.00E+00	3.17E-10	0.00E+00	3.17E-10	1.56E-02
Beryllium	0.00E+00	3.17E-11	3.23E-11	6.40E-11	3.16E-03
Dieldrin	3.21E-11	0.00E+00	0.00E+00	3.21E-11	1.58E-03
gamma-Chlordane	0.00E+00	7.46E-10	0.00E+00	7.46E-10	3.68E-02
Heptachlor	1.34E-11	1.21E-09	0.00E+00	1.23E-09	6.05E-02
Heptachlor epoxide	2.27E-11	1.92E-06	0.00E+00	1.92E-06	9.47E+01
Indeno(1,2,3-cd)pyrene	0.00E+00	1.06E-09	0.00E+00	1.06E-09	5.22E-02
OCDD	0.00E+00	1.33E-10	0.00E+00	1.33E-10	6.59E-03
PCB-1254	0.00E+00	6.71E-08	0.00E+00	6.71E-08	3.31
PCB-1260	0.00E+00	3.25E-08	0.00E+00	3.25E-08	1.61
Total by pathway	3.20E-10	2.02E-06	3.23E-11		
% Contribution by pathway	1.58E-02	1.00E+02	1.60E-03		
Scenario Total				2.02E-06	
Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	3.46E-09	0.00E+00	0.00E+00	3.46E-09	4.26E-03
4,4'-DDE	0.00E+00	9.95E-09	0.00E+00	9.95E-09	1.23E-02
4,4'-DDT	1.64E-08	0.00E+00	0.00E+00	1.64E-08	2.02E-02
Benzo(a)anthracene	0.00E+00	6.47E-08	0.00E+00	6.47E-08	7.98E-02
Benzo(a)pyrene	0.00E+00	1.12E-08	0.00E+00	1.12E-08	1.38E-02
Benzo(b)fluoranthene	0.00E+00	5.74E-08	0.00E+00	5.74E-08	7.08E-02
Benzo(k)fluoranthene	0.00E+00	1.81E-08	0.00E+00	1.81E-08	2.23E-02
Beryllium	0.00E+00	1.62E-09	1.46E-09	3.08E-09	3.79E-03
Dieldrin	2.52E-09	0.00E+00	0.00E+00	2.52E-09	3.10E-03
gamma-Chlordane	0.00E+00	2.96E-08	0.00E+00	2.96E-08	3.65E-02
Heptachlor	1.06E-09	4.81E-08	0.00E+00	4.91E-08	6.06E-02
Heptachlor epoxide	1.78E-09	7.61E-05	0.00E+00	7.61E-05	9.38E+01
Indeno(1,2,3-cd)pyrene	0.00E+00	4.57E-08	0.00E+00	4.57E-08	5.63E-02
OCDD	0.00E+00	5.30E-09	0.00E+00	5.30E-09	6.53E-03
PCB-1254	0.00E+00	3.23E-06	0.00E+00	3.23E-06	3.99
PCB-1260	0.00E+00	1.48E-06	0.00E+00	1.48E-06	1.83
Total by pathway	2.52E-08	8.11E-05	1.46E-09		
% Contribution by pathway	3.10E-02	1.00E+02	1.80E-03		
Scenario Total				8.11E-05	

Table J-5
Cancer Risk Summary
Holloman AFB, New Mexico
Pond A

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	5.23E-10	5.23E-10	3.75		
4,4'-DDE	6.14E-09	6.14E-09	4.40E+01		
4,4'-DDT	1.74E-09	1.74E-09	1.24E+01		
Aldrin	4.59E-09	4.59E-09	3.29E+01		
alpha-BHC	1.80E-10	1.80E-10	1.29		
alpha-Chlordane	6.93E-12	6.93E-12	4.97E-02		
beta-BHC	5.20E-11	5.20E-11	3.73E-01		
Dieldrin	8.78E-11	8.78E-11	6.29E-01		
gamma-BHC	3.63E-11	3.63E-11	2.60E-01		
gamma-Chlordane	3.89E-10	3.89E-10	2.79		
Heptachlor	2.10E-10	2.10E-10	1.5		
Heptachlor epoxide	5.67E-12	5.67E-12	4.06E-02		
Total by pathway	1.40E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.40E-08			
Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	9.56E-09	9.56E-09	3.56		
4,4'-DDE	1.21E-07	1.21E-07	4.51E+01		
4,4'-DDT	3.31E-08	3.31E-08	1.23E+01		
Aldrin	8.30E-08	8.30E-08	3.09E+01		
alpha-BHC	3.53E-09	3.53E-09	1.32		
alpha-Chlordane	1.68E-10	1.68E-10	6.26E-02		
beta-BHC	1.06E-09	1.06E-09	3.93E-01		
Dieldrin	1.80E-09	1.80E-09	6.69E-01		
gamma-BHC	8.90E-10	8.90E-10	3.31E-01		
gamma-Chlordane	1.04E-08	1.04E-08	3.86		
Heptachlor	3.96E-09	3.96E-09	1.47		
Heptachlor epoxide	9.49E-11	9.49E-11	3.53E-02		
Total by pathway	2.69E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		2.69E-07			
Average Cancer Risk					

Table J-6
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Cancer Risk Estimates									
Holloman Risk Assessment - Pond A									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.83E-10	1.44E-08	4.40E-11	3.46E-09
			4,4'-DDT	3.40E-01	B2	6.12E-10	4.81E-08	2.08E-10	1.64E-08
			Dieldrin	16	B2	2.00E-12	1.57E-10	3.21E-11	2.52E-09
			Heptachlor	4.5	B2	2.99E-12	2.35E-10	1.34E-11	1.06E-09
			Heptachlor epoxide	9.1	B2	2.49E-12	1.96E-10	2.27E-11	1.78E-09
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDE	3.40E-01	B2	7.38E-10	2.93E-08	2.51E-10	9.95E-09
			Benzo(a)anthracene	1.06	B2	1.24E-09	6.11E-08	1.31E-09	6.47E-08
			Benzo(a)pyrene	7.3	B2	3.86E-11	1.53E-09	2.82E-10	1.12E-08
			Benzo(b)fluoranthene	1.02	B2	1.04E-09	5.63E-08	1.06E-09	5.74E-08
			Benzo(k)fluoranthene	4.82E-01	B2	6.57E-10	3.75E-08	3.17E-10	1.81E-08
			Beryllium	4.3	B2	7.38E-12	3.76E-10	3.17E-11	1.62E-09
			gamma-Chlordane	1.3	B2	5.74E-10	2.28E-08	7.46E-10	2.96E-08
			Heptachlor	4.5	B2	2.69E-10	1.07E-08	1.21E-09	4.81E-08
			Heptachlor epoxide	9.1	B2	2.11E-07	8.36E-06	1.92E-06	7.61E-05
			Indeno(1,2,3-cd)pyrene	1.69	B2	6.25E-10	2.70E-08	1.06E-09	4.57E-08
			OCDD	150		8.90E-13	3.53E-11	1.33E-10	5.30E-09
			PCB-1254	7.7	B2	8.71E-09	4.20E-07	6.71E-08	3.23E-06
			PCB-1260	7.7	B2	4.23E-09	1.93E-07	3.25E-08	1.48E-06
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Beryllium	4.3	B2	7.51E-12	3.40E-10	3.23E-11	1.46E-09

Table J-6
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.18E-09	3.98E-08	5.23E-10	9.56E-09
			4,4'-DDE	3.40E-01	B2	1.81E-08	3.56E-07	6.14E-09	1.21E-07
			4,4'-DDT	3.40E-01	B2	5.10E-09	9.74E-08	1.74E-09	3.31E-08
			Aldrin	17	B2	2.70E-10	4.88E-09	4.59E-09	8.30E-08
			alpha-BHC	6.3	B2	2.86E-11	5.61E-10	1.80E-10	3.53E-09
			alpha-Chlordane	1.3	B2	5.33E-12	1.29E-10	6.93E-12	1.68E-10
			beta-BHC	1.8	C	2.89E-11	5.87E-10	5.20E-11	1.06E-09
			Dieldrin	16	B2	5.49E-12	1.12E-10	8.78E-11	1.80E-09
			gamma-BHC	1.3	B2/C	2.79E-11	6.84E-10	3.63E-11	8.90E-10
			gamma-Chlordane	1.3	B2	2.99E-10	7.98E-09	3.89E-10	1.04E-08
			Heptachlor	4.5	B2	4.66E-11	8.80E-10	2.10E-10	3.96E-09
			Heptachlor epoxide	9.1	B2	6.23E-13	1.04E-11	5.67E-12	9.49E-11

Table J-7
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond B

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond B		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	2.29E-02	8.35E-01
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	8.50E-02	3.63E-01
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	1.98E-01	8.47E-01
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond B		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Current (Lagoons in Service)	2.29E-02	8.36E-01
Onsite Occupational - (S) Future (Lagoons Out of Service)	3.52E-01	6.79

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	4.38E-06	0.00E+00	0.00E+00	4.38E-06	1.92E-02	
4,4'-DDE	4.03E-06	0.00E+00	0.00E+00	4.03E-06	1.76E-02	
4,4'-DDT	3.83E-07	0.00E+00	0.00E+00	3.83E-07	1.67E-03	
alpha-BHC	5.29E-10	0.00E+00	0.00E+00	5.29E-10	2.31E-06	
alpha-Chlordane	7.05E-06	0.00E+00	0.00E+00	7.05E-06	3.08E-02	
Antimony	1.52E-06	0.00E+00	0.00E+00	1.52E-06	6.64E-03	
Arsenic	1.10E-07	4.20E-06	1.05E-06	5.36E-06	2.34E-02	
Beryllium	0.00E+00	1.72E-08	9.87E-09	2.70E-08	1.18E-04	
bis(2-Ethylhexyl)phthalate	8.05E-11	1.39E-05	0.00E+00	1.39E-05	6.08E-02	
Boron	1.20E-07	0.00E+00	0.00E+00	1.20E-07	5.23E-04	
Chlordane	2.16E-05	0.00E+00	0.00E+00	2.16E-05	9.46E-02	
Chromium VI	2.76E-09	0.00E+00	0.00E+00	2.76E-09	1.21E-05	
delta-BHC	4.64E-08	0.00E+00	0.00E+00	4.64E-08	2.03E-04	
Dieldrin	3.51E-07	0.00E+00	0.00E+00	3.51E-07	1.53E-03	
Endosulfan I	0.00E+00	0.00E+00	3.59E-10	3.59E-10	1.57E-06	
Endosulfan sulfate	1.34E-11	0.00E+00	0.00E+00	1.34E-11	5.86E-08	
gamma-BHC	1.82E-09	0.00E+00	0.00E+00	1.82E-09	7.95E-06	
Heptachlor epoxide	1.49E-06	0.00E+00	0.00E+00	1.49E-06	6.51E-03	
Isophorone	0.00E+00	5.88E-08	0.00E+00	5.88E-08	2.57E-04	
Lead (organic)	2.28E-02	0.00E+00	0.00E+00	2.28E-02	9.96E+01	
Manganese (water)	3.28E-07	0.00E+00	0.00E+00	3.28E-07	1.43E-03	
Mercury	3.29E-08	1.49E-05	0.00E+00	1.49E-05	6.53E-02	
Silver	3.48E-08	1.74E-05	0.00E+00	1.74E-05	7.61E-02	
Vanadium	3.42E-08	0.00E+00	0.00E+00	3.42E-08	1.50E-04	
Total by pathway	2.28E-02	5.05E-05	1.07E-06			
% Contribution by pathway	9.98E+01	2.21E-01	4.66E-03			
Scenario Total				2.29E-02		

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	1.24E-04	0.00E+00	0.00E+00	1.24E-04	1.49E-02	
4,4'-DDE	2.75E-04	0.00E+00	0.00E+00	2.75E-04	3.29E-02	
4,4'-DDT	1.08E-05	0.00E+00	0.00E+00	1.08E-05	1.30E-03	
alpha-BHC	2.67E-08	0.00E+00	0.00E+00	2.67E-08	3.20E-06	
alpha-Chlordane	1.99E-04	0.00E+00	0.00E+00	1.99E-04	2.39E-02	
Antimony	7.26E-05	0.00E+00	0.00E+00	7.26E-05	8.69E-03	
Arsenic	3.35E-06	6.42E-05	2.16E-05	8.91E-05	1.07E-02	
Beryllium	0.00E+00	3.11E-07	1.79E-07	4.90E-07	5.87E-05	
bis(2-Ethylhexyl)phthalate	3.05E-09	2.62E-04	0.00E+00	2.62E-04	3.14E-02	
Boron	4.40E-06	0.00E+00	0.00E+00	4.40E-06	5.28E-04	
Chlordane	1.23E-03	0.00E+00	0.00E+00	1.23E-03	1.47E-01	
Chromium VI	1.92E-07	0.00E+00	0.00E+00	1.92E-07	2.30E-05	
delta-BHC	1.31E-06	0.00E+00	0.00E+00	1.31E-06	1.57E-04	
Dieldrin	9.92E-06	0.00E+00	0.00E+00	9.92E-06	1.19E-03	
Endosulfan I	0.00E+00	0.00E+00	7.34E-09	7.34E-09	8.80E-07	
Endosulfan sulfate	3.80E-10	0.00E+00	0.00E+00	3.80E-10	4.55E-08	
gamma-BHC	5.15E-08	0.00E+00	0.00E+00	5.15E-08	6.17E-06	
Heptachlor epoxide	4.21E-05	0.00E+00	0.00E+00	4.21E-05	5.05E-03	
Isophorone	0.00E+00	1.20E-06	0.00E+00	1.20E-06	1.44E-04	
Lead (organic)	8.32E-01	0.00E+00	0.00E+00	8.32E-01	9.96E+01	
Manganese (water)	1.19E-05	0.00E+00	0.00E+00	1.19E-05	1.42E-03	
Mercury	1.33E-06	2.52E-04	0.00E+00	2.54E-04	3.04E-02	
Silver	1.53E-06	3.97E-04	0.00E+00	3.98E-04	4.77E-02	
Vanadium	1.09E-06	0.00E+00	0.00E+00	1.09E-06	1.30E-04	
Total by pathway	8.34E-01	9.77E-04	2.18E-05			
% Contribution by pathway	9.99E+01	1.17E-01	2.61E-03			
Scenario Total				8.35E-01		

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDT	8.57E-06	0.00E+00	0.00E+00	8.57E-06	3.74E-02	
alpha-Chlordane	1.74E-06	0.00E+00	0.00E+00	1.74E-06	7.59E-03	
Antimony	1.52E-06	0.00E+00	0.00E+00	1.52E-06	6.63E-03	
Arsenic	1.10E-07	4.20E-06	1.05E-06	5.36E-06	2.34E-02	
Beryllium	0.00E+00	1.72E-08	9.87E-09	2.70E-08	1.18E-04	
bis(2-Ethylhexyl)phthalate	8.05E-11	1.39E-05	0.00E+00	1.39E-05	6.07E-02	
Boron	1.20E-07	0.00E+00	0.00E+00	1.20E-07	5.23E-04	
Chlordane	4.47E-05	0.00E+00	0.00E+00	4.47E-05	1.95E-01	
Chromium VI	6.90E-10	0.00E+00	0.00E+00	6.90E-10	3.02E-06	
Dieldrin	4.57E-07	0.00E+00	0.00E+00	4.57E-07	2.00E-03	
Endosulfan I	0.00E+00	0.00E+00	1.82E-07	1.82E-07	7.94E-04	
gamma-BHC	1.82E-09	0.00E+00	0.00E+00	1.82E-09	7.95E-06	
Heptachlor epoxide	1.49E-06	0.00E+00	0.00E+00	1.49E-06	6.51E-03	
Isophorone	0.00E+00	5.88E-09	0.00E+00	5.88E-09	2.57E-05	
Lead (organic)	2.28E-02	0.00E+00	0.00E+00	2.28E-02	9.95E+01	
Mercury	3.29E-08	1.49E-05	0.00E+00	1.49E-05	6.52E-02	
Silver	3.48E-08	1.74E-05	0.00E+00	1.74E-05	7.61E-02	
Vanadium	3.42E-08	0.00E+00	0.00E+00	3.42E-08	1.49E-04	
Total by pathway	2.28E-02	5.04E-05	1.25E-06			
% Contribution by pathway	9.98E+01	2.20E-01	5.44E-03			
Scenario Total				2.29E-02		

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDT	2.42E-04	0.00E+00	0.00E+00	2.42E-04	2.90E-02	
alpha-Chlordane	4.92E-05	0.00E+00	0.00E+00	4.92E-05	5.88E-03	
Antimony	7.26E-05	0.00E+00	0.00E+00	7.26E-05	8.68E-03	
Arsenic	3.35E-06	6.42E-05	2.16E-05	8.91E-05	1.07E-02	
Beryllium	0.00E+00	3.11E-07	1.79E-07	4.90E-07	5.86E-05	
bis(2-Ethylhexyl)phthalate	3.05E-09	2.62E-04	0.00E+00	2.62E-04	3.14E-02	
Boron	4.40E-06	0.00E+00	0.00E+00	4.40E-06	5.27E-04	
Chlordane	2.54E-03	0.00E+00	0.00E+00	2.54E-03	3.04E-01	
Chromium VI	4.80E-08	0.00E+00	0.00E+00	4.80E-08	5.75E-06	
Dieldrin	1.29E-05	0.00E+00	0.00E+00	1.29E-05	1.55E-03	
Endosulfan I	0.00E+00	0.00E+00	3.72E-06	3.72E-06	4.45E-04	
gamma-BHC	5.15E-08	0.00E+00	0.00E+00	5.15E-08	6.16E-06	
Heptachlor epoxide	4.21E-05	0.00E+00	0.00E+00	4.21E-05	5.04E-03	
Isophorone	0.00E+00	1.20E-07	0.00E+00	1.20E-07	1.44E-05	
Lead (organic)	8.32E-01	0.00E+00	0.00E+00	8.32E-01	9.95E+01	
Mercury	1.33E-06	2.52E-04	0.00E+00	2.54E-04	3.04E-02	
Silver	1.53E-06	3.97E-04	0.00E+00	3.98E-04	4.76E-02	
Vanadium	1.09E-06	0.00E+00	0.00E+00	1.09E-06	1.30E-04	
Total by pathway	8.35E-01	9.76E-04	2.55E-05			
% Contribution by pathway	9.99E+01	1.17E-01	3.05E-03			
Scenario Total				8.36E-01		

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sedime	Incidential Ingestion of Sludge	Incidential Inges	Inhalation of Fu	% Contrib
Arsenic	1.07E-03	2.70E-04	2.17E-02	5.44E-03	0.00E+00	8.08
Beryllium	4.40E-06	2.53E-06	8.86E-05	5.09E-05	0.00E+00	4.16E-02
bis(2-Ethylhexyl)phthalate	3.56E-03	0.00E+00	7.17E-04	0.00E+00	0.00E+00	1.22
Endosulfan I	0.00E+00	4.65E-05	0.00E+00	0.00E+00	0.00E+00	1.32E-02
Isophorone	1.51E-06	0.00E+00	3.03E-07	0.00E+00	0.00E+00	5.14E-04
Manganese (dust)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-01	8.34E+01
Mercury	3.81E-03	0.00E+00	7.68E-03	0.00E+00	4.24E-04	3.39
Silver	4.45E-03	0.00E+00	8.97E-03	0.00E+00	0.00E+00	3.81
Total by pathway	1.29E-02	3.19E-04	3.91E-02	5.49E-03	2.94E-01	
% Contribution by pathway	3.67	9.07E-02	1.11E+01	1.56	8.36E+01	
Scenario Total						
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sedime	Incidential Ingestion of Sludge	Incidential Inges	Inhalation of Fu	% Contrib
Arsenic	2.87E-03	9.67E-04	2.32E-01	7.79E-02	0.00E+00	4.61
Beryllium	1.39E-05	8.00E-06	1.12E-03	6.45E-04	0.00E+00	2.64E-02
bis(2-Ethylhexyl)phthalate	1.17E-02	0.00E+00	9.46E-03	0.00E+00	0.00E+00	3.12E-01
Endosulfan I	0.00E+00	1.66E-04	0.00E+00	0.00E+00	0.00E+00	2.45E-03
Isophorone	5.39E-06	0.00E+00	4.34E-06	0.00E+00	0.00E+00	1.43E-04
Manganese (dust)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.19	9.11E+01
Mercury	1.13E-02	0.00E+00	9.11E-02	0.00E+00	5.10E-03	1.58
Silver	1.78E-02	0.00E+00	1.43E-01	0.00E+00	0.00E+00	2.37
Total by pathway	4.37E-02	1.14E-03	4.76E-01	7.86E-02	6.19	
% Contribution by pathway	6.43E-01	1.68E-02	7.02	1.16	9.12E+01	
Scenario Total						

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	3.39E-05	3.39E-05	3.99E-02			
4,4'-DDE	3.61E-05	3.61E-05	4.24E-02			
4,4'-DDT	7.94E-05	7.94E-05	9.34E-02			
Aldrin	7.00E-05	7.00E-05	8.23E-02			
alpha-BHC	5.36E-07	5.36E-07	6.30E-04			
alpha-Chlordane	2.80E-06	2.80E-06	3.29E-03			
Antimony	8.47E-02	8.47E-02	9.96E+01			
beta-BHC	6.81E-07	6.81E-07	8.01E-04			
delta-BHC	1.16E-06	1.16E-06	1.36E-03			
Dieldrin	8.53E-07	8.53E-07	1.00E-03			
Endosulfan I	3.28E-09	3.28E-09	3.86E-06			
Endosulfan II	2.51E-12	2.51E-12	2.95E-09			
Endosulfan sulfate	4.35E-08	4.35E-08	5.12E-05			
Endrin	2.43E-05	2.43E-05	2.86E-02			
gamma-BHC	7.25E-07	7.25E-07	8.52E-04			
gamma-Chlordane	3.88E-05	3.88E-05	4.56E-02			
Heptachlor	7.25E-07	7.25E-07	8.53E-04			
Heptachlor epoxide	3.73E-07	3.73E-07	4.38E-04			
Isodrin	1.96E-05	1.96E-05	2.30E-02			
Methoxychlor	2.42E-06	2.42E-06	2.84E-03			
Total by pathway	8.50E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		8.50E-02				

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Reas. Max. Non-Cancer Hazard Index Summary						
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	1.86E-04	1.86E-04	5.12E-02			
4,4'-DDE	2.14E-04	2.14E-04	5.89E-02			
4,4'-DDT	4.55E-04	4.55E-04	1.25E-01			
Aldrin	3.80E-04	3.80E-04	1.05E-01			
alpha-BHC	3.15E-06	3.15E-06	8.67E-04			
alpha-Chlordane	2.04E-05	2.04E-05	5.62E-03			
Antimony	3.61E-01	3.61E-01	9.95E+01			
beta-BHC	4.15E-06	4.15E-06	1.14E-03			
delta-BHC	7.21E-06	7.21E-06	1.99E-03			
Dieldrin	5.24E-06	5.24E-06	1.44E-03			
Endosulfan I	1.94E-08	1.94E-08	5.36E-06			
Endosulfan II	1.28E-11	1.28E-11	3.53E-09			
Endosulfan sulfate	2.09E-07	2.09E-07	5.75E-05			
Endrin	1.52E-04	1.52E-04	4.20E-02			
gamma-BHC	5.32E-06	5.32E-06	1.47E-03			
gamma-Chlordane	3.10E-04	3.10E-04	8.55E-02			
Heptachlor	4.11E-06	4.11E-06	1.13E-03			
Heptachlor epoxide	1.87E-06	1.87E-06	5.16E-04			
Isodrin	1.38E-04	1.38E-04	3.80E-02			
Methoxychlor	1.03E-05	1.03E-05	2.84E-03			
Total by pathway	3.63E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		3.63E-01				

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	7.91E-05	7.91E-05	3.99E-02			
4,4'-DDE	8.42E-05	8.42E-05	4.24E-02			
4,4'-DDT	1.85E-04	1.85E-04	9.34E-02			
Aldrin	1.63E-04	1.63E-04	8.23E-02			
alpha-BHC	1.25E-06	1.25E-06	6.30E-04			
alpha-Chlordane	6.53E-06	6.53E-06	3.29E-03			
Antimony	1.98E-01	1.98E-01	9.96E+01			
beta-BHC	1.59E-06	1.59E-06	8.01E-04			
delta-BHC	2.70E-06	2.70E-06	1.36E-03			
Dieldrin	1.99E-06	1.99E-06	1.00E-03			
Endosulfan I	7.66E-09	7.66E-09	3.86E-06			
Endosulfan II	5.85E-12	5.85E-12	2.95E-09			
Endosulfan sulfate	1.02E-07	1.02E-07	5.12E-05			
Endrin	5.67E-05	5.67E-05	2.86E-02			
gamma-BHC	1.69E-06	1.69E-06	8.52E-04			
gamma-Chlordane	9.06E-05	9.06E-05	4.56E-02			
Heptachlor	1.69E-06	1.69E-06	8.53E-04			
Heptachlor epoxide	8.70E-07	8.70E-07	4.38E-04			
Isodrin	4.56E-05	4.56E-05	2.30E-02			
Methoxychlor	5.64E-06	5.64E-06	2.84E-03			
Total by pathway	1.98E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		1.98E-01				

Table J-8
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B

Reas. Max. Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDD	4.34E-04	4.34E-04	5.12E-02			
4,4'-DDE	4.99E-04	4.99E-04	5.89E-02			
4,4'-DDT	1.06E-03	1.06E-03	1.25E-01			
Aldrin	8.86E-04	8.86E-04	1.05E-01			
alpha-BHC	7.34E-06	7.34E-06	8.67E-04			
alpha-Chlordane	4.76E-05	4.76E-05	5.62E-03			
Antimony	8.42E-01	8.42E-01	9.95E+01			
beta-BHC	9.68E-06	9.68E-06	1.14E-03			
delta-BHC	1.68E-05	1.68E-05	1.99E-03			
Dieldrin	1.22E-05	1.22E-05	1.44E-03			
Endosulfan I	4.54E-08	4.54E-08	5.36E-06			
Endosulfan II	2.99E-11	2.99E-11	3.53E-09			
Endosulfan sulfate	4.87E-07	4.87E-07	5.75E-05			
Endrin	3.56E-04	3.56E-04	4.20E-02			
gamma-BHC	1.24E-05	1.24E-05	1.47E-03			
gamma-Chlordane	7.24E-04	7.24E-04	8.55E-02			
Heptachlor	9.59E-06	9.59E-06	1.13E-03			
Heptachlor epoxide	4.37E-06	4.37E-06	5.16E-04			
Isodrin	3.22E-04	3.22E-04	3.80E-02			
Methoxychlor	2.40E-05	2.40E-05	2.84E-03			
Total by pathway	8.47E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		8.47E-01				

Table J-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond B									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.19E-09	6.20E-08	4.38E-06	1.24E-04	
			4,4'-DDE	3.89E-03	1.57E-08	1.07E-06	4.03E-06	2.75E-04	
			4,4'-DDT	1.12E-02	4.28E-09	1.21E-07	3.83E-07	1.08E-05	
			alpha-BHC	1.17E-03	6.19E-13	3.12E-11	5.29E-10	2.67E-08	
			alpha-Chlordane	1.48E-05	1.04E-10	2.95E-09	7.05E-06	1.99E-04	
			Antimony	4.00E-04	6.08E-10	2.90E-08	1.52E-06	7.26E-05	
			Arsenic	3.00E-04	3.31E-11	1.01E-09	1.10E-07	3.35E-06	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.61E-12	6.10E-11	8.05E-11	3.05E-09	
			Boron	9.00E-02	1.08E-08	3.96E-07	1.20E-07	4.40E-06	
			Chlordane	1.24E-04	2.68E-09	1.53E-07	2.16E-05	1.23E-03	
			Chromium VI	5.00E-03	1.38E-11	9.61E-10	2.76E-09	1.92E-07	
			delta-BHC	2.00E-04	9.28E-12	2.62E-10	4.64E-08	1.31E-06	
			Dieldrin	6.52E-05	2.29E-11	6.46E-10	3.51E-07	9.92E-06	
			Endosulfan sulfate	2.47E-02	3.31E-13	9.37E-12	1.34E-11	3.80E-10	
			gamma-BHC	3.00E-03	5.46E-12	1.54E-10	1.82E-09	5.15E-08	
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05	
			Lead (organic)	1.00E-07	2.28E-09	8.32E-08	2.28E-02	8.32E-01	
			Manganese (water)	5.00E-03	1.64E-09	5.93E-08	3.28E-07	1.19E-05	
			Mercury	3.00E-04	9.87E-12	3.99E-10	3.29E-08	1.33E-06	
			Silver	5.00E-03	1.74E-10	7.64E-09	3.48E-08	1.53E-06	
			Vanadium	7.00E-03	2.40E-10	7.62E-09	3.42E-08	1.09E-06	

Table J-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.26E-09	1.92E-08	4.20E-06	6.42E-05	
			Beryllium	5.00E-03	8.59E-11	1.56E-09	1.72E-08	3.11E-07	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.78E-07	5.24E-06	1.39E-05	2.62E-04	
			Isophorone	2.00E-01	1.18E-08	2.41E-07	5.88E-08	1.20E-06	
			Mercury	3.00E-04	4.47E-09	7.57E-08	1.49E-05	2.52E-04	
			Silver	5.00E-03	8.69E-08	1.98E-06	1.74E-05	3.97E-04	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	3.16E-10	6.48E-09	1.05E-06	2.16E-05	
			Beryllium	5.00E-03	4.93E-11	8.93E-10	9.87E-09	1.79E-07	
			Endosulfan 1	2.53E-02	9.09E-12	1.86E-10	3.59E-10	7.34E-09	
Onsite Occupational - (S) Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	4.28E-09	1.21E-07	8.57E-06	2.42E-04	
			alpha-Chlordane	6.00E-05	1.04E-10	2.95E-09	1.74E-06	4.92E-05	
			Antimony	4.00E-04	6.08E-10	2.90E-08	1.52E-06	7.26E-05	
			Arsenic	3.00E-04	3.31E-11	1.01E-09	1.10E-07	3.35E-06	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.61E-12	6.10E-11	8.05E-11	3.05E-09	
			Boron	9.00E-02	1.08E-08	3.96E-07	1.20E-07	4.40E-06	
			Chlordane	6.00E-05	2.68E-09	1.53E-07	4.47E-05	2.54E-03	
			Chromium VI	2.00E-02	1.38E-11	9.61E-10	6.90E-10	4.80E-08	
			Dieldrin	5.00E-05	2.29E-11	6.46E-10	4.57E-07	1.29E-05	
			gamma-BHC	3.00E-03	5.46E-12	1.54E-10	1.82E-09	5.15E-08	
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05	
			Lead (organic)	1.00E-07	2.28E-09	8.32E-08	2.28E-02	8.32E-01	
			Mercury	3.00E-04	9.87E-12	3.99E-10	3.29E-08	1.33E-06	
			Silver	5.00E-03	1.74E-10	7.64E-09	3.48E-08	1.53E-06	
			Vanadium	7.00E-03	2.40E-10	7.62E-09	3.42E-08	1.09E-06	

Table J-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.26E-09	1.92E-08	4.20E-06	6.42E-05	
			Beryllium	5.00E-03	8.59E-11	1.56E-09	1.72E-08	3.11E-07	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.78E-07	5.24E-06	1.39E-05	2.62E-04	
			Isophorone	2	1.18E-08	2.41E-07	5.88E-09	1.20E-07	
			Mercury	3.00E-04	4.47E-09	7.57E-08	1.49E-05	2.52E-04	
			Silver	5.00E-03	8.69E-08	1.98E-06	1.74E-05	3.97E-04	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	3.16E-10	6.48E-09	1.05E-06	2.16E-05	
			Beryllium	5.00E-03	4.93E-11	8.93E-10	9.87E-09	1.79E-07	
			Endosulfan I	5.00E-05	9.09E-12	1.86E-10	1.82E-07	3.72E-06	
Onsite Occupational - (S) Future (Lagoons Out of Service)									
	Working around the lagoons								
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	3.22E-07	8.62E-07	1.07E-03	2.87E-03	
			Beryllium	5.00E-03	2.20E-08	6.97E-08	4.40E-06	1.39E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	7.12E-05	2.35E-04	3.56E-03	1.17E-02	
			Isophorone	2	3.01E-06	1.08E-05	1.51E-06	5.39E-06	
			Mercury	3.00E-04	1.14E-06	3.39E-06	3.81E-03	1.13E-02	
			Silver	5.00E-03	2.22E-05	8.88E-05	4.45E-03	1.78E-02	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	8.10E-08	2.90E-07	2.70E-04	9.67E-04	
			Beryllium	5.00E-03	1.26E-08	4.00E-08	2.53E-06	8.00E-06	
			Endosulfan I	5.00E-05	2.33E-09	8.32E-09	4.65E-05	1.66E-04	
		IngestionOfSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	6.50E-06	6.95E-05	2.17E-02	2.32E-01	
			Beryllium	5.00E-03	4.43E-07	5.62E-06	8.86E-05	1.12E-03	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.43E-05	1.89E-04	7.17E-04	9.46E-03	
			Isophorone	2	6.07E-07	8.68E-06	3.03E-07	4.34E-06	
			Mercury	3.00E-04	2.31E-06	2.73E-05	7.68E-03	9.11E-02	
			Silver	5.00E-03	4.48E-05	7.16E-04	8.97E-03	1.43E-01	

Table J-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

		IngestionOfSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.63E-06	2.34E-05	5.44E-03	7.79E-02	
			Beryllium	5.00E-03	2.54E-07	3.22E-06	5.09E-05	6.45E-04	
		InhalationOfVapor: Occupational Inhalation							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Manganese (dust)*	4.00E-01	1.17E-01	2.47	2.94E-01	6.19	
			Mercury*	3.00E-01	1.27E-04	1.53E-03	4.24E-04	5.10E-03	
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.69E-08	9.29E-08	3.39E-05	1.86E-04	
			4,4'-DDE	3.89E-03	1.40E-07	8.31E-07	3.61E-05	2.14E-04	
			4,4'-DDT	5.00E-04	3.97E-08	2.27E-07	7.94E-05	4.55E-04	
			Aldrin	3.00E-05	2.10E-09	1.14E-08	7.00E-05	3.80E-04	
			alpha-BHC	4.16E-04	2.23E-10	1.31E-09	5.36E-07	3.15E-06	
			alpha-Chlordane	1.48E-05	4.14E-11	3.02E-10	2.80E-06	2.04E-05	
			Antimony	4.00E-04	3.39E-05	1.44E-04	8.47E-02	3.61E-01	
			beta-BHC	3.30E-04	2.25E-10	1.37E-09	6.81E-07	4.15E-06	
			delta-BHC	2.00E-04	2.32E-10	1.44E-09	1.16E-06	7.21E-06	
			Dieldrin	5.00E-05	4.27E-11	2.62E-10	8.53E-07	5.24E-06	
			Endosulfan I	2.53E-02	8.30E-11	4.92E-10	3.28E-09	1.94E-08	
			Endosulfan II	80	2.00E-10	1.02E-09	2.51E-12	1.28E-11	
			Endosulfan sulfate	6.00E-03	2.61E-10	1.25E-09	4.35E-08	2.09E-07	
			Endrin	3.00E-04	7.29E-09	4.57E-08	2.43E-05	1.52E-04	
			gamma-BHC	3.00E-04	2.17E-10	1.60E-09	7.25E-07	5.32E-06	
			gamma-Chlordane	6.00E-05	2.33E-09	1.86E-08	3.88E-05	3.10E-04	
			Heptachlor	5.00E-04	3.63E-10	2.05E-09	7.25E-07	4.11E-06	
			Heptachlor epoxide	1.30E-05	4.85E-12	2.43E-11	3.73E-07	1.87E-06	
			Isodrin	3.00E-04	5.87E-09	4.14E-08	1.96E-05	1.38E-04	
			Methoxychlor	5.00E-03	1.21E-08	5.15E-08	2.42E-06	1.03E-05	

Table J-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

Offsite Agricultural, Child - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.95E-08	2.17E-07	7.91E-05	4.34E-04	
			4,4'-DDE	3.89E-03	3.28E-07	1.94E-06	8.42E-05	4.99E-04	
			4,4'-DDT	5.00E-04	9.26E-08	5.30E-07	1.85E-04	1.06E-03	
			Aldrin	3.00E-05	4.90E-09	2.66E-08	1.63E-04	8.86E-04	
			alpha-BHC	4.16E-04	5.20E-10	3.05E-09	1.25E-06	7.34E-06	
			alpha-Chlordane	1.48E-05	9.67E-11	7.05E-10	6.53E-06	4.76E-05	
			Antimony	4.00E-04	7.91E-05	3.37E-04	1.98E-01	8.42E-01	
			beta-BHC	3.30E-04	5.25E-10	3.20E-09	1.59E-06	9.68E-06	
			delta-BHC	2.00E-04	5.40E-10	3.36E-09	2.70E-06	1.68E-05	
			Dieldrin	5.00E-05	9.96E-11	6.11E-10	1.99E-06	1.22E-05	
			Endosulfan I	2.53E-02	1.94E-10	1.15E-09	7.66E-09	4.54E-08	
			Endosulfan II	80	4.68E-10	2.39E-09	5.85E-12	2.99E-11	
			Endosulfan sulfate	6.00E-03	6.10E-10	2.92E-09	1.02E-07	4.87E-07	
			Endrin	3.00E-04	1.70E-08	1.07E-07	5.67E-05	3.56E-04	
			gamma-BHC	3.00E-04	5.07E-10	3.73E-09	1.69E-06	1.24E-05	
			gamma-Chlordane	6.00E-05	5.43E-09	4.34E-08	9.06E-05	7.24E-04	
			Heptachlor	5.00E-04	8.46E-10	4.79E-09	1.69E-06	9.59E-06	
			Heptachlor epoxide	1.30E-05	1.13E-11	5.68E-11	8.70E-07	4.37E-06	
			Isodrin	3.00E-04	1.37E-08	9.67E-08	4.56E-05	3.22E-04	
			Methoxychlor	5.00E-03	2.82E-08	1.20E-07	5.64E-06	2.40E-05	

Table J-10
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond B

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond B		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	8.09E-08	4.04E-06
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.40E-08	2.69E-07

Table J-11
Cancer Risk Summary
Holloman AFB, New Mexico
Pond B

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	6.76E-11	0.00E+00	0.00E+00	6.76E-11	8.36E-02
4,4'-DDE	6.85E-10	0.00E+00	0.00E+00	6.85E-10	8.47E-01
4,4'-DDT	1.87E-10	0.00E+00	0.00E+00	1.87E-10	2.32E-01
alpha-BHC	5.01E-13	0.00E+00	0.00E+00	5.01E-13	6.20E-04
alpha-Chlordane	1.74E-11	0.00E+00	0.00E+00	1.74E-11	2.16E-02
Benzo(a)pyrene	0.00E+00	2.70E-09	0.00E+00	2.70E-09	3.34
Benzo(b)fluoranthene	0.00E+00	6.64E-10	0.00E+00	6.64E-10	8.21E-01
Beryllium	0.00E+00	4.75E-11	2.73E-11	7.48E-11	9.24E-02
bis(2-Ethylhexyl)phthalate	2.90E-15	5.01E-10	0.00E+00	5.01E-10	6.19E-01
Chlordane	4.49E-10	0.00E+00	0.00E+00	4.49E-10	5.55E-01
Dieldrin	4.70E-11	0.00E+00	0.00E+00	4.70E-11	5.81E-02
gamma-BHC	9.12E-13	0.00E+00	0.00E+00	9.12E-13	1.13E-03
Heptachlor epoxide	2.27E-11	0.00E+00	0.00E+00	2.27E-11	2.80E-02
Isophorone	0.00E+00	1.44E-12	0.00E+00	1.44E-12	1.78E-03
PCB-1254	0.00E+00	5.38E-08	0.00E+00	5.38E-08	6.66E+01
PCB-1260	0.00E+00	2.16E-08	0.00E+00	2.16E-08	2.67E+01
Total by pathway	1.48E-09	7.94E-08	2.73E-11		
% Contribution by pathway	1.83	9.81E+01	3.37E-02		
Scenario Total				8.09E-08	

Table J-11
Cancer Risk Summary
Holloman AFB, New Mexico
Pond B

Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	5.31E-09	0.00E+00	0.00E+00	5.31E-09	1.32E-01
4,4'-DDE	1.30E-07	0.00E+00	0.00E+00	1.30E-07	3.22
4,4'-DDT	1.47E-08	0.00E+00	0.00E+00	1.47E-08	3.64E-01
alpha-BHC	7.03E-11	0.00E+00	0.00E+00	7.03E-11	1.74E-03
alpha-Chlordane	1.37E-09	0.00E+00	0.00E+00	1.37E-09	3.39E-02
Benzo(a)pyrene	0.00E+00	1.26E-07	0.00E+00	1.26E-07	3.11
Benzo(b)fluoranthene	0.00E+00	3.10E-08	0.00E+00	3.10E-08	7.68E-01
Beryllium	0.00E+00	2.39E-09	1.37E-09	3.76E-09	9.32E-02
bis(2-Ethylhexyl)phthalate	3.05E-13	2.62E-08	0.00E+00	2.62E-08	6.49E-01
Chlordane	7.08E-08	0.00E+00	0.00E+00	7.08E-08	1.75
Dieldrin	3.69E-09	0.00E+00	0.00E+00	3.69E-09	9.15E-02
gamma-BHC	7.17E-11	0.00E+00	0.00E+00	7.17E-11	1.77E-03
Heptachlor epoxide	1.78E-09	0.00E+00	0.00E+00	1.78E-09	4.41E-02
Isophorone	0.00E+00	8.16E-11	0.00E+00	8.16E-11	2.02E-03
PCB-1254	0.00E+00	2.63E-06	0.00E+00	2.63E-06	6.51E+01
PCB-1260	0.00E+00	9.96E-07	0.00E+00	9.96E-07	2.47E+01
Total by pathway	2.28E-07	3.81E-06	1.37E-09		
% Contribution by pathway	5.64	9.43E+01	3.40E-02		
Scenario Total				4.04E-06	

Table J-11
Cancer Risk Summary
Holloman AFB, New Mexico
Pond B

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	5.23E-10	5.23E-10	3.75		
4,4'-DDE	6.14E-09	6.14E-09	4.40E+01		
4,4'-DDT	1.74E-09	1.74E-09	1.24E+01		
Aldrin	4.59E-09	4.59E-09	3.29E+01		
alpha-BHC	1.80E-10	1.80E-10	1.29		
alpha-Chlordane	6.93E-12	6.93E-12	4.97E-02		
beta-BHC	5.20E-11	5.20E-11	3.73E-01		
Dieldrin	8.78E-11	8.78E-11	6.29E-01		
gamma-BHC	3.63E-11	3.63E-11	2.60E-01		
gamma-Chlordane	3.89E-10	3.89E-10	2.79		
Heptachlor	2.10E-10	2.10E-10	1.5		
Heptachlor epoxide	5.67E-12	5.67E-12	4.06E-02		
Total by pathway	1.40E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.40E-08			
Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	9.56E-09	9.56E-09	3.56		
4,4'-DDE	1.21E-07	1.21E-07	4.51E+01		
4,4'-DDT	3.31E-08	3.31E-08	1.23E+01		
Aldrin	8.30E-08	8.30E-08	3.09E+01		
alpha-BHC	3.53E-09	3.53E-09	1.32		
alpha-Chlordane	1.68E-10	1.68E-10	6.26E-02		
beta-BHC	1.06E-09	1.06E-09	3.93E-01		
Dieldrin	1.80E-09	1.80E-09	6.69E-01		
gamma-BHC	8.90E-10	8.90E-10	3.31E-01		
gamma-Chlordane	1.04E-08	1.04E-08	3.86		
Heptachlor	3.96E-09	3.96E-09	1.47		
Heptachlor epoxide	9.49E-11	9.49E-11	3.53E-02		
Total by pathway	2.69E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		2.69E-07			

Table J-12
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

Cancer Risk Estimates									
Holloman Risk Assessment - Pond B									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.82E-10	2.21E-08	6.76E-11	5.31E-09
			4,4'-DDE	3.40E-01	B2	2.01E-09	3.82E-07	6.85E-10	1.30E-07
			4,4'-DDT	3.40E-01	B2	5.51E-10	4.33E-08	1.87E-10	1.47E-08
			alpha-BHC	6.3	B2	7.95E-14	1.12E-11	5.01E-13	7.03E-11
			alpha-Chlordane	1.3	B2	1.34E-11	1.05E-09	1.74E-11	1.37E-09
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	2.07E-13	2.18E-11	2.90E-15	3.05E-13
			Chlordane	1.3	B2	3.45E-10	5.45E-08	4.49E-10	7.08E-08
			Dieldrin	16	B2	2.94E-12	2.31E-10	4.70E-11	3.69E-09
			gamma-BHC	1.3	B2/C	7.02E-13	5.51E-11	9.12E-13	7.17E-11
			Heptachlor epoxide	9.1	B2	2.49E-12	1.96E-10	2.27E-11	1.78E-09
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Benzo(a)pyrene	7.3	B2	3.70E-10	1.72E-08	2.70E-09	1.26E-07
			Benzo(b)fluoranthene	1.02	B2	6.51E-10	3.04E-08	6.64E-10	3.10E-08
			Beryllium	4.3	B2	1.10E-11	5.56E-10	4.75E-11	2.39E-09
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	3.58E-08	1.87E-06	5.01E-10	2.62E-08
			Isophorone	9.50E-04	C	1.51E-09	8.59E-08	1.44E-12	8.16E-11
			PCB-1254	7.7	B2	6.99E-09	3.41E-07	5.38E-08	2.63E-06
			PCB-1260	7.7	B2	2.81E-09	1.29E-07	2.16E-08	9.96E-07
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Beryllium	4.3	B2	6.34E-12	3.19E-10	2.73E-11	1.37E-09

Table J-12
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.18E-09	3.98E-08	5.23E-10	9.56E-09
			4,4'-DDE	3.40E-01	B2	1.81E-08	3.56E-07	6.14E-09	1.21E-07
			4,4'-DDT	3.40E-01	B2	5.10E-09	9.74E-08	1.74E-09	3.31E-08
			Aldrin	17	B2	2.70E-10	4.88E-09	4.59E-09	8.30E-08
			alpha-BHC	6.3	B2	2.86E-11	5.61E-10	1.80E-10	3.53E-09
			alpha-Chlordane	1.3	B2	5.33E-12	1.29E-10	6.93E-12	1.68E-10
			beta-BHC	1.8	C	2.89E-11	5.87E-10	5.20E-11	1.06E-09
			Dieldrin	16	B2	5.49E-12	1.12E-10	8.78E-11	1.80E-09
			gamma-BHC	1.3	B2/C	2.79E-11	6.84E-10	3.63E-11	8.90E-10
			gamma-Chlordane	1.3	B2	2.99E-10	7.98E-09	3.89E-10	1.04E-08
			Heptachlor	4.5	B2	4.66E-11	8.80E-10	2.10E-10	3.96E-09
			Heptachlor epoxide	9.1	B2	6.23E-13	1.04E-11	5.67E-12	9.49E-11

Table J-13
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond C

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond C		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	2.54E-04	6.24E-03
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	2.90E-04	2.40E-03
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	6.77E-04	5.60E-03
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond C		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Future (Lagoons Out of Service)	4.44E-01	7.16

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Average Non-Cancer Hazard Index Summary							
Onsite Occupational - Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
2,4,5-T	0.00E+00	9.14E-08	0.00E+00	9.14E-08	3.60E-02		
4,4'-DDD	0.00E+00	4.23E-05	1.11E-06	4.34E-05	1.71E+01		
4,4'-DDE	0.00E+00	2.32E-06	7.03E-08	2.39E-06	9.44E-01		
4,4'-DDT	0.00E+00	1.37E-07	6.43E-09	1.44E-07	5.67E-02		
Aldrin	0.00E+00	0.00E+00	5.06E-07	5.06E-07	1.99E-01		
alpha-Chlordane	0.00E+00	4.25E-05	0.00E+00	4.25E-05	1.67E+01		
Arsenic	8.38E-08	1.97E-07	0.00E+00	2.81E-07	1.11E-01		
Beryllium	0.00E+00	5.82E-09	7.29E-09	1.31E-08	5.17E-03		
beta-BHC	4.96E-08	0.00E+00	2.57E-07	3.06E-07	1.21E-01		
Boron	6.87E-08	0.00E+00	0.00E+00	6.87E-08	2.71E-02		
Chromium VI	6.30E-08	0.00E+00	0.00E+00	6.30E-08	2.48E-02		
Cyanide	0.00E+00	2.61E-05	0.00E+00	2.61E-05	1.03E+01		
delta-BHC	0.00E+00	6.86E-05	1.87E-07	6.88E-05	2.71E+01		
Endosulfan 1	0.00E+00	2.97E-07	2.79E-08	3.25E-07	1.28E-01		
Endosulfan sulfate	0.00E+00	0.00E+00	2.00E-09	2.00E-09	7.89E-04		
gamma-Chlordane	0.00E+00	1.62E-05	0.00E+00	1.62E-05	6.37		
Heptachlor epoxide	0.00E+00	0.00E+00	2.75E-06	2.75E-06	1.09		
Manganese (water)	3.59E-07	0.00E+00	0.00E+00	3.59E-07	1.42E-01		
Silver	2.78E-05	1.74E-05	0.00E+00	4.52E-05	1.78E+01		
Vanadium	0.00E+00	4.18E-06	0.00E+00	4.18E-06	1.65		
Total by pathway	2.85E-05	2.20E-04	4.92E-06				
% Contribution by pathway	1.12E+01	8.68E+01	1.94				
Scenario Total				2.54E-04			

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Reas. Max. Non-Cancer Hazard Index Summary							
Onsite Occupational - Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
2,4,5-T	0.00E+00	1.97E-06	0.00E+00	1.97E-06	3.15E-02		
4,4'-DDD	0.00E+00	1.23E-03	2.40E-05	1.25E-03	2.01E+01		
4,4'-DDE	0.00E+00	7.25E-05	1.99E-06	7.45E-05	1.19		
4,4'-DDT	0.00E+00	3.03E-06	1.99E-07	3.23E-06	5.17E-02		
Aldrin	0.00E+00	0.00E+00	1.51E-05	1.51E-05	2.42E-01		
alpha-Chlordane	0.00E+00	8.63E-04	0.00E+00	8.63E-04	1.38E+01		
Arsenic	3.56E-06	9.34E-06	0.00E+00	1.29E-05	2.07E-01		
Beryllium	0.00E+00	1.08E-07	1.09E-07	2.17E-07	3.48E-03		
beta-BHC	1.40E-06	0.00E+00	9.40E-06	1.08E-05	1.73E-01		
Boron	2.40E-06	0.00E+00	0.00E+00	2.40E-06	3.85E-02		
Chromium VI	4.87E-06	0.00E+00	0.00E+00	4.87E-06	7.80E-02		
Cyanide	0.00E+00	1.09E-03	0.00E+00	1.09E-03	1.74E+01		
delta-BHC	0.00E+00	1.97E-03	5.65E-06	1.97E-03	3.16E+01		
Endosulfan I	0.00E+00	8.81E-06	7.88E-07	9.59E-06	1.54E-01		
Endosulfan sulfate	0.00E+00	0.00E+00	4.43E-08	4.43E-08	7.09E-04		
gamma-Chlordane	0.00E+00	3.61E-04	0.00E+00	3.61E-04	5.78		
Heptachlor epoxide	0.00E+00	0.00E+00	8.57E-05	8.57E-05	1.37		
Manganese (water)	1.18E-05	0.00E+00	0.00E+00	1.18E-05	1.89E-01		
Silver	0.00E+00	3.97E-04	0.00E+00	3.97E-04	6.36		
Vanadium	0.00E+00	7.27E-05	0.00E+00	7.27E-05	1.17		
Total by pathway	2.40E-05	6.07E-03	1.43E-04				
% Contribution by pathway	3.85E-01	9.73E+01	2.29				
Scenario Total				6.24E-03			

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Average Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Future (Lagoons Out of Service)							
	Dermal Contact with Sludge	Dermal Contact with Sedime	Incidential Ingestion of Sludge	Incidential Inges	Inhalation of Fu	Total	% Contrib
2,4,5-T	2.34E-06	0.00E+00	4.71E-07	0.00E+00	0.00E+00	2.81E-06	6.33E-04
4,4'-DDT	7.87E-04	3.69E-05	1.59E-04	7.43E-06	0.00E+00	9.90E-04	2.23E-01
Aldrin	0.00E+00	3.25E-04	0.00E+00	6.56E-05	0.00E+00	3.91E-04	8.80E-02
alpha-Chlordane	2.68E-03	0.00E+00	5.40E-04	0.00E+00	0.00E+00	3.22E-03	7.25E-01
Arsenic	5.05E-05	0.00E+00	1.02E-03	0.00E+00	0.00E+00	1.07E-03	2.40E-01
Beryllium	1.49E-06	1.86E-06	3.00E-05	3.76E-05	0.00E+00	7.09E-05	1.60E-02
beta-BHC	0.00E+00	6.51E-06	0.00E+00	1.31E-06	0.00E+00	7.82E-06	1.76E-03
Cyanide	6.67E-03	0.00E+00	1.34E-03	0.00E+00	0.00E+00	8.02E-03	1.8
delta-BHC	0.00E+00	0.00E+00	3.54E-04	9.63E-07	0.00E+00	3.55E-04	7.99E-02
Endosulfan I	3.85E-02	3.62E-03	0.00E+00	0.00E+00	0.00E+00	4.21E-02	9.48
gamma-Chlordane	4.14E-03	0.00E+00	8.34E-04	0.00E+00	0.00E+00	4.97E-03	1.12
Heptachlor epoxide	0.00E+00	7.04E-04	0.00E+00	1.42E-04	0.00E+00	8.46E-04	1.91E-01
Manganese (dust)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.65E-01	3.65E-01	8.23E+01
Silver	4.45E-03	0.00E+00	8.97E-03	0.00E+00	0.00E+00	1.34E-02	3.02
Vanadium	1.07E-03	0.00E+00	2.16E-03	0.00E+00	0.00E+00	3.23E-03	7.27E-01
Total by pathway	5.84E-02	4.69E-03	1.54E-02	2.55E-04	3.65E-01		
% Contribution by pathway	1.31E+01	1.06	3.47	5.74E-02	8.23E+01		
Scenario Total						4.44E-01	

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Reas. Max. Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Future (Lagoons Out of Service)							
	Dermal Contact with Sludge	Dermal Contact with Sedime	Incidential Ingestion of Sludge	Incidential Inges	Inhalation of Fu	Total	% Contrib
2,4,5-T	8.81E-06	0.00E+00	7.10E-06	0.00E+00	0.00E+00	1.59E-05	2.22E-04
4,4'-DDT	3.04E-03	2.00E-04	2.45E-03	1.61E-04	0.00E+00	5.85E-03	8.17E-02
Aldrin	0.00E+00	1.70E-03	0.00E+00	1.37E-03	0.00E+00	3.07E-03	4.29E-02
alpha-Chlordane	9.54E-03	0.00E+00	7.69E-03	0.00E+00	0.00E+00	1.72E-02	2.41E-01
Arsenic	4.18E-04	0.00E+00	3.37E-02	0.00E+00	0.00E+00	3.41E-02	4.77E-01
Beryllium	4.84E-06	4.88E-06	3.90E-04	3.93E-04	0.00E+00	7.93E-04	1.11E-02
beta-BHC	0.00E+00	4.17E-05	0.00E+00	3.36E-05	0.00E+00	7.53E-05	1.05E-03
Cyanide	4.87E-02	0.00E+00	3.93E-02	0.00E+00	0.00E+00	8.80E-02	1.23
delta-BHC	0.00E+00	0.00E+00	7.11E-03	2.04E-05	0.00E+00	7.13E-03	9.96E-02
Endosulfan I	2.00E-01	1.79E-02	0.00E+00	0.00E+00	0.00E+00	2.17E-01	3.04
gamma-Chlordane	1.62E-02	0.00E+00	1.30E-02	0.00E+00	0.00E+00	2.92E-02	4.08E-01
Heptachlor epoxide	0.00E+00	3.84E-03	0.00E+00	3.09E-03	0.00E+00	6.93E-03	9.68E-02
Manganese (dust)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.56	6.56	9.16E+01
Silver	1.78E-02	0.00E+00	1.43E-01	0.00E+00	0.00E+00	1.61E-01	2.25
Vanadium	3.26E-03	0.00E+00	2.62E-02	0.00E+00	0.00E+00	2.95E-02	4.12E-01
Total by pathway	2.98E-01	2.36E-02	2.73E-01	5.07E-03	6.56		
% Contribution by pathway	4.17	3.30E-01	3.81	7.09E-02	9.16E+01		
Scenario Total						7.16	

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Average Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDE	3.75E-05	3.75E-05	1.29E+01
4,4'-DDT	5.88E-05	5.88E-05	2.03E+01
Aldrin	9.25E-05	9.25E-05	3.19E+01
alpha-Chlordane	2.00E-06	2.00E-06	6.90E-01
Dieldrin	1.98E-07	1.98E-07	6.82E-02
Endosulfan II	2.00E-12	2.00E-12	6.89E-07
Endosulfan sulfate	2.30E-08	2.30E-08	7.93E-03
Endrin	3.57E-07	3.57E-07	1.23E-01
gamma-BHC	1.06E-05	1.06E-05	3.67
gamma-Chlordane	8.81E-05	8.81E-05	3.04E+01
Isodrin	1.44E-08	1.44E-08	4.97E-03
Total by pathway	2.90E-04		
% Contribution by pathway	1.00E+02		
Scenario Total		2.90E-04	
Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDE	3.60E-04	3.60E-04	1.50E+01
4,4'-DDT	3.43E-04	3.43E-04	1.43E+01
Aldrin	8.70E-04	8.70E-04	3.63E+01
alpha-Chlordane	8.54E-06	8.54E-06	3.56E-01
Dieldrin	1.96E-06	1.96E-06	8.18E-02
Endosulfan II	1.24E-11	1.24E-11	5.16E-07
Endosulfan sulfate	1.88E-07	1.88E-07	7.83E-03
Endrin	3.60E-06	3.60E-06	1.50E-01
gamma-BHC	1.02E-04	1.02E-04	4.26
gamma-Chlordane	7.11E-04	7.11E-04	2.96E+01
Isodrin	6.27E-08	6.27E-08	2.61E-03
Total by pathway	2.40E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		2.40E-03	

Table J-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C

Average Non-Cancer Hazard Index Summary			
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDE	8.75E-05	8.75E-05	1.29E+01
4,4'-DDT	1.37E-04	1.37E-04	2.03E+01
Aldrin	2.16E-04	2.16E-04	3.19E+01
alpha-Chlordane	4.67E-06	4.67E-06	6.90E-01
Dieldrin	4.62E-07	4.62E-07	6.82E-02
Endosulfan II	4.67E-12	4.67E-12	6.89E-07
Endosulfan sulfate	5.37E-08	5.37E-08	7.93E-03
Endrin	8.33E-07	8.33E-07	1.23E-01
gamma-BHC	2.48E-05	2.48E-05	3.67
gamma-Chlordane	2.06E-04	2.06E-04	3.04E+01
Isodrin	3.37E-08	3.37E-08	4.97E-03
Total by pathway	6.77E-04		
% Contribution by pathway	1.00E+02		
Scenario Total		6.77E-04	
Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDE	8.41E-04	8.41E-04	1.50E+01
4,4'-DDT	7.99E-04	7.99E-04	1.43E+01
Aldrin	2.03E-03	2.03E-03	3.63E+01
alpha-Chlordane	1.99E-05	1.99E-05	3.56E-01
Dieldrin	4.58E-06	4.58E-06	8.18E-02
Endosulfan II	2.89E-11	2.89E-11	5.16E-07
Endosulfan sulfate	4.39E-07	4.39E-07	7.83E-03
Endrin	8.39E-06	8.39E-06	1.50E-01
gamma-BHC	2.39E-04	2.39E-04	4.26
gamma-Chlordane	1.66E-03	1.66E-03	2.96E+01
Isodrin	1.46E-07	1.46E-07	2.61E-03
Total by pathway	5.60E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		5.60E-03	

Table J-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond C									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	2.51E-11	1.07E-09	8.38E-08	3.56E-06	
			beta-BHC	3.30E-04	1.64E-11	4.63E-10	4.96E-08	1.40E-06	
			Boron	9.00E-02	6.19E-09	2.16E-07	6.87E-08	2.40E-06	
			Chromium VI	5.00E-03	3.15E-10	2.43E-08	6.30E-08	4.87E-06	
			Manganese (water)	5.00E-03	1.80E-09	5.91E-08	3.59E-07	1.18E-05	
			Silver	5.00E-03	1.39E-07	0.00E+00	2.78E-05	0.00E+00	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	9.14E-10	1.97E-08	9.14E-08	1.97E-06	
			4,4'-DDD	5.00E-04	2.12E-08	6.14E-07	4.23E-05	1.23E-03	
			4,4'-DDE	3.89E-03	9.04E-09	2.82E-07	2.32E-06	7.25E-05	
			4,4'-DDT	1.12E-02	1.54E-09	3.39E-08	1.37E-07	3.03E-06	
			alpha-Chlordane	1.48E-05	6.28E-10	1.28E-08	4.25E-05	8.63E-04	
			Arsenic	3.00E-04	5.92E-11	2.80E-09	1.97E-07	9.34E-06	
			Beryllium	5.00E-03	2.91E-11	5.40E-10	5.82E-09	1.08E-07	
			Cyanide	2.00E-02	5.21E-07	2.18E-05	2.61E-05	1.09E-03	
			delta-BHC	2.00E-04	1.37E-08	3.94E-07	6.86E-05	1.97E-03	
			Endosulfan I	2.53E-02	7.52E-09	2.23E-07	2.97E-07	8.81E-06	
			gamma-Chlordane	6.00E-05	9.70E-10	2.17E-08	1.62E-05	3.61E-04	
			Silver	5.00E-03	8.69E-08	1.98E-06	1.74E-05	3.97E-04	
			Vanadium	7.00E-03	2.93E-08	5.09E-07	4.18E-06	7.27E-05	

Table J-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	5.54E-10	1.20E-08	1.11E-06	2.40E-05	
			4,4'-DDE	3.89E-03	2.73E-10	7.76E-09	7.03E-08	1.99E-06	
			4,4'-DDT	1.12E-02	7.21E-11	2.23E-09	6.43E-09	1.99E-07	
			Aldrin	7.54E-05	3.81E-11	1.14E-09	5.06E-07	1.51E-05	
			Beryllium	5.00E-03	3.64E-11	5.44E-10	7.29E-09	1.09E-07	
			beta-BHC	3.30E-04	8.47E-11	3.10E-09	2.57E-07	9.40E-06	
			delta-BHC	2.00E-04	3.73E-11	1.13E-09	1.87E-07	5.65E-06	
			Endosulfan I	2.53E-02	7.07E-10	1.99E-08	2.79E-08	7.88E-07	
			Endosulfan sulfate	2.47E-02	4.94E-11	1.09E-09	2.00E-09	4.43E-08	
			Heptachlor epoxide	1.30E-05	3.58E-11	1.11E-09	2.75E-06	8.57E-05	
Onsite Occupational - (S) Future (Lagoons Out of Service)									
	Working around the lagoons								
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-01	2.34E-07	8.81E-07	2.34E-06	8.81E-06	
			4,4'-DDT	5.00E-04	3.94E-07	1.52E-06	7.87E-04	3.04E-03	
			alpha-Chlordane	6.00E-05	1.61E-07	5.72E-07	2.68E-03	9.54E-03	
			Arsenic	3.00E-04	1.52E-08	1.26E-07	5.05E-05	4.18E-04	
			Beryllium	5.00E-03	7.44E-09	2.42E-08	1.49E-06	4.84E-06	
			Cyanide	2.00E-02	1.33E-04	9.74E-04	6.67E-03	4.87E-02	
			Endosulfan I	5.00E-05	1.93E-06	9.98E-06	3.85E-02	2.00E-01	
			gamma-Chlordane	6.00E-05	2.48E-07	9.70E-07	4.14E-03	1.62E-02	
			Silver	5.00E-03	2.22E-05	8.88E-05	4.45E-03	1.78E-02	
			Vanadium	7.00E-03	7.50E-06	2.28E-05	1.07E-03	3.26E-03	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.84E-08	1.00E-07	3.69E-05	2.00E-04	
			Aldrin	3.00E-05	9.76E-09	5.10E-08	3.25E-04	1.70E-03	
			Beryllium	5.00E-03	9.32E-09	2.44E-08	1.86E-06	4.88E-06	
			beta-BHC	3.33E-03	2.17E-08	1.39E-07	6.51E-06	4.17E-05	
			Endosulfan I	5.00E-05	1.81E-07	8.93E-07	3.62E-03	1.79E-02	
			Heptachlor epoxide	1.30E-05	9.16E-09	4.99E-08	7.04E-04	3.84E-03	

Table J-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

		IngestionOfSoil:	Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-01	4.71E-08	7.10E-07	4.71E-07	7.10E-06	
			4,4'-DDT	5.00E-04	7.93E-08	1.22E-06	1.59E-04	2.45E-03	
			alpha-Chlordane	6.00E-05	3.24E-08	4.61E-07	5.40E-04	7.69E-03	
			Arsenic	3.00E-04	3.05E-07	1.01E-05	1.02E-03	3.37E-02	
			Beryllium	5.00E-03	1.50E-07	1.95E-06	3.00E-05	3.90E-04	
			Cyanide	2.00E-02	2.69E-05	7.85E-04	1.34E-03	3.93E-02	
			delta-BHC	2.00E-03	7.08E-07	1.42E-05	3.54E-04	7.11E-03	
			gamma-Chlordane	6.00E-05	5.00E-08	7.82E-07	8.34E-04	1.30E-02	
			Silver	5.00E-03	4.48E-05	7.16E-04	8.97E-03	1.43E-01	
			Vanadium	7.00E-03	1.51E-05	1.84E-04	2.16E-03	2.62E-02	
		IngestionOfSoil:	Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	3.72E-09	8.06E-08	7.43E-06	1.61E-04	
			Aldrin	3.00E-05	1.97E-09	4.11E-08	6.56E-05	1.37E-03	
			Beryllium	5.00E-03	1.88E-07	1.96E-06	3.76E-05	3.93E-04	
			beta-BHC	3.33E-03	4.37E-09	1.12E-07	1.31E-06	3.36E-05	
			delta-BHC	2.00E-03	1.93E-09	4.08E-08	9.63E-07	2.04E-05	
			Heptachlor epoxide	1.30E-05	1.85E-09	4.02E-08	1.42E-04	3.09E-03	
		InhalationOfVapor:	Occupational Inhalation						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Manganese (dust)*	4.00E-01	1.46E-01	2.62	3.65E-01	6.56	

Table J-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	1.46E-07	1.40E-06	3.75E-05	3.60E-04	
			4,4'-DDT	5.00E-04	2.94E-08	1.71E-07	5.88E-05	3.43E-04	
			Aldrin	3.00E-05	2.78E-09	2.61E-08	9.25E-05	8.70E-04	
			alpha-Chlordane	1.48E-05	2.96E-11	1.26E-10	2.00E-06	8.54E-06	
			Dieldrin	5.00E-05	9.90E-12	9.81E-11	1.98E-07	1.96E-06	
			Endosulfan II	80	1.60E-10	9.91E-10	2.00E-12	1.24E-11	
			Endosulfan sulfate	6.00E-03	1.38E-10	1.13E-09	2.30E-08	1.88E-07	
			Endrin	3.00E-04	1.07E-10	1.08E-09	3.57E-07	3.60E-06	
			gamma-BHC	3.00E-04	3.19E-09	3.07E-08	1.06E-05	1.02E-04	
			gamma-Chlordane	6.00E-05	5.29E-09	4.26E-08	8.81E-05	7.11E-04	
			Isodrin	3.00E-04	4.33E-12	1.88E-11	1.44E-08	6.27E-08	
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	3.40E-07	3.27E-06	8.75E-05	8.41E-04	
			4,4'-DDT	5.00E-04	6.86E-08	4.00E-07	1.37E-04	7.99E-04	
			Aldrin	3.00E-05	6.48E-09	6.09E-08	2.16E-04	2.03E-03	
			alpha-Chlordane	1.48E-05	6.92E-11	2.95E-10	4.67E-06	1.99E-05	
			Dieldrin	5.00E-05	2.31E-11	2.29E-10	4.62E-07	4.58E-06	
			Endosulfan II	80	3.73E-10	2.31E-09	4.67E-12	2.89E-11	
			Endosulfan sulfate	6.00E-03	3.22E-10	2.63E-09	5.37E-08	4.39E-07	
			Endrin	3.00E-04	2.50E-10	2.52E-09	8.33E-07	8.39E-06	
			gamma-BHC	3.00E-04	7.45E-09	7.16E-08	2.48E-05	2.39E-04	
			gamma-Chlordane	6.00E-05	1.23E-08	9.95E-08	2.06E-04	1.66E-03	
			Isodrin	3.00E-04	1.01E-11	4.39E-11	3.37E-08	1.46E-07	

Table J-16
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond C

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond C		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	1.60E-09	1.24E-07
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.52E-08	4.61E-07

Table J-17
Cancer Risk Summary
Holloman AFB, New Mexico
Pond C

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	6.53E-10	1.71E-11	6.70E-10	4.19E+01
4,4'-DDE	0.00E+00	3.95E-10	1.20E-11	4.07E-10	2.55E+01
4,4'-DDT	0.00E+00	6.72E-11	3.15E-12	7.04E-11	4.4
Aldrin	0.00E+00	0.00E+00	8.34E-11	8.34E-11	5.21
alpha-Chlordane	0.00E+00	1.05E-10	0.00E+00	1.05E-10	6.57
Beryllium	0.00E+00	1.61E-11	2.01E-11	3.62E-11	2.26
beta-BHC	3.79E-12	0.00E+00	1.96E-11	2.34E-11	1.46
gamma-Chlordane	0.00E+00	1.62E-10	0.00E+00	1.62E-10	1.01E+01
Heptachlor epoxide	0.00E+00	0.00E+00	4.19E-11	4.19E-11	2.62
Total by pathway	3.79E-12	1.40E-09	1.97E-10		
% Contribution by pathway	2.37E-01	8.74E+01	1.23E+01		
Scenario Total				1.60E-09	
Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	5.26E-08	1.03E-09	5.36E-08	4.34E+01
4,4'-DDE	0.00E+00	3.42E-08	9.42E-10	3.52E-08	2.84E+01
4,4'-DDT	0.00E+00	4.12E-09	2.71E-10	4.39E-09	3.55
Aldrin	0.00E+00	0.00E+00	6.91E-09	6.91E-09	5.59
alpha-Chlordane	0.00E+00	5.93E-09	0.00E+00	5.93E-09	4.8
Beryllium	0.00E+00	8.29E-10	8.36E-10	1.66E-09	1.35
beta-BHC	2.98E-10	0.00E+00	1.99E-09	2.29E-09	1.85
gamma-Chlordane	0.00E+00	1.01E-08	0.00E+00	1.01E-08	8.13
Heptachlor epoxide	0.00E+00	0.00E+00	3.62E-09	3.62E-09	2.93
Total by pathway	2.98E-10	1.08E-07	1.56E-08		
% Contribution by pathway	2.41E-01	8.71E+01	1.26E+01		
Scenario Total				1.24E-07	

Table J-17
Cancer Risk Summary
Holloman AFB, New Mexico
Pond C

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDE	6.38E-09	6.38E-09	4.20E+01		
4,4'-DDT	1.29E-09	1.29E-09	8.48		
Aldrin	6.07E-09	6.07E-09	4.00E+01		
alpha-Chlordane	4.96E-12	4.96E-12	3.27E-02		
Dieldrin	2.04E-11	2.04E-11	1.34E-01		
gamma-BHC	5.34E-10	5.34E-10	3.52		
gamma-Chlordane	8.84E-10	8.84E-10	5.82		
Total by pathway	1.52E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.52E-08			
Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDE	2.04E-07	2.04E-07	4.43E+01		
4,4'-DDT	2.50E-08	2.50E-08	5.41		
Aldrin	1.90E-07	1.90E-07	4.13E+01		
alpha-Chlordane	7.04E-11	7.04E-11	1.53E-02		
Dieldrin	6.73E-10	6.73E-10	1.46E-01		
gamma-BHC	1.71E-08	1.71E-08	3.71		
gamma-Chlordane	2.38E-08	2.38E-08	5.15		
Total by pathway	4.61E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		4.61E-07			

J-18
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

Cancer Risk Estimates									
Holloman Risk Assessment - Pond C									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			beta-BHC	1.8	C	2.11E-12	1.65E-10	3.79E-12	2.98E-10
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.72E-09	2.19E-07	6.53E-10	5.26E-08
			4,4'-DDE	3.40E-01	B2	1.16E-09	1.01E-07	3.95E-10	3.42E-08
			4,4'-DDT	3.40E-01	B2	1.98E-10	1.21E-08	6.72E-11	4.12E-09
			alpha-Chlordane	1.3	B2	8.08E-11	4.56E-09	1.05E-10	5.93E-09
			Beryllium	4.3	B2	3.74E-12	1.93E-10	1.61E-11	8.29E-10
			gamma-Chlordane	1.3	B2	1.25E-10	7.73E-09	1.62E-10	1.01E-08
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	7.13E-11	4.29E-09	1.71E-11	1.03E-09
			4,4'-DDE	3.40E-01	B2	3.52E-11	2.77E-09	1.20E-11	9.42E-10
			4,4'-DDT	3.40E-01	B2	9.26E-12	7.98E-10	3.15E-12	2.71E-10
			Aldrin	17	B2	4.90E-12	4.07E-10	8.34E-11	6.91E-09
			Beryllium	4.3	B2	4.68E-12	1.94E-10	2.01E-11	8.36E-10
			beta-BHC	1.8	C	1.09E-11	1.11E-09	1.96E-11	1.99E-09
			Heptachlor epoxide	9.1	B2	4.60E-12	3.98E-10	4.19E-11	3.62E-09

J-18
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDE	3.40E-01	B2	1.88E-08	6.01E-07	6.38E-09	2.04E-07
			4,4'-DDT	3.40E-01	B2	3.78E-09	7.34E-08	1.29E-09	2.50E-08
			Aldrin	17	B2	3.57E-10	1.12E-08	6.07E-09	1.90E-07
			alpha-Chlordane	1.3	B2	3.81E-12	5.41E-11	4.96E-12	7.04E-11
			Dieldrin	16	B2	1.27E-12	4.21E-11	2.04E-11	6.73E-10
			gamma-BHC	1.3	B2/C	4.10E-10	1.32E-08	5.34E-10	1.71E-08
			gamma-Chlordane	1.3	B2	6.80E-10	1.83E-08	8.84E-10	2.38E-08

Table J-19
Summary of Non-Cancer Risks by Scenaio
Holloman AFB, New Mexico
Pond D

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond D		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	1.98E-02	7.77E-01
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	4.69E-04	3.86E-03
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	1.09E-03	9.01E-03
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond D		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Future (Lagoons Out of Service)	2.12E-03	3.08E-02

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Average Non-Cancer Hazard Index Summary				
Onsite Occupational - Current (Lagoons in Service)				
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	3.57E-06	2.58E-07	3.82E-06	1.93E-02
4,4'-DDE	0.00E+00	5.98E-09	5.98E-09	3.02E-05
4,4'-DDT	0.00E+00	3.48E-09	3.48E-09	1.76E-05
Arsenic	1.43E-07	1.87E-07	3.29E-07	1.66E-03
beta-BHC	0.00E+00	8.78E-08	8.78E-08	4.43E-04
bis(2-Ethylhexyl)phthalate	9.75E-11	0.00E+00	9.75E-11	4.93E-07
Boron	8.59E-08	0.00E+00	8.59E-08	4.34E-04
delta-BHC	5.73E-08	1.00E-07	1.58E-07	7.96E-04
Dieldrin	2.39E-07	0.00E+00	2.39E-07	1.21E-03
Endosulfan sulfate	1.45E-11	2.01E-09	2.02E-09	1.02E-05
gamma-BHC	1.82E-09	5.71E-09	7.53E-09	3.80E-05
gamma-Chlordane	2.97E-06	3.42E-08	3.00E-06	1.51E-02
Heptachlor	0.00E+00	1.29E-08	1.29E-08	6.53E-05
Heptachlor epoxide	1.49E-06	0.00E+00	1.49E-06	7.52E-03
Lead (organic)	1.98E-02	0.00E+00	1.98E-02	1.00E+02
Manganese (water)	3.12E-07	0.00E+00	3.12E-07	1.58E-03
Mercury	3.33E-08	0.00E+00	3.33E-08	1.68E-04
Methoxychlor	7.27E-12	0.00E+00	7.27E-12	3.67E-08
Total by pathway	1.98E-02	6.97E-07		
% Contribution by pathway	1.00E+02	3.52E-03		
Scenario Total			1.98E-02	

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Average Non-Cancer Hazard Index Summary				
Onsite Occupational - Current (Lagoons in Service)				
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	1.01E-04	7.06E-07	1.02E-04	1.31E-02
4,4'-DDE	0.00E+00	1.42E-08	1.42E-08	1.82E-06
4,4'-DDT	0.00E+00	7.60E-08	7.60E-08	9.79E-06
Arsenic	5.19E-06	2.55E-07	5.45E-06	7.01E-04
beta-BHC	0.00E+00	1.60E-07	1.60E-07	2.06E-05
bis(2-Ethylhexyl)phthalate	4.04E-09	0.00E+00	4.04E-09	5.21E-07
Boron	2.60E-06	0.00E+00	2.60E-06	3.35E-04
delta-BHC	1.62E-06	1.86E-07	1.81E-06	2.33E-04
Dieldrin	6.76E-06	0.00E+00	6.76E-06	8.70E-04
Endosulfan sulfate	4.11E-10	4.02E-09	4.43E-09	5.70E-07
gamma-BHC	5.15E-08	1.02E-08	6.16E-08	7.93E-06
gamma-Chlordane	8.39E-05	3.42E-08	8.39E-05	1.08E-02
Heptachlor	0.00E+00	2.41E-08	2.41E-08	3.10E-06
Heptachlor epoxide	4.21E-05	0.00E+00	4.21E-05	5.42E-03
Lead (organic)	7.76E-01	0.00E+00	7.76E-01	1.00E+02
Manganese (water)	1.12E-05	0.00E+00	1.12E-05	1.44E-03
Mercury	1.58E-06	0.00E+00	1.58E-06	2.03E-04
Methoxychlor	2.06E-10	0.00E+00	2.06E-10	2.65E-08
Total by pathway	7.77E-01	1.47E-06		
% Contribution by pathway	1.00E+02	1.89E-04		
Scenario Total			7.77E-01	

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Average Non-Cancer Hazard Index Summary				
Onsite Occupational - (S) Future (Lagoons Out of Service)				
	Dermal Contact with Sediments	Incidential Ingestion of Sedimen	Total	% Contrib
4,4'-DDT	3.99E-05	8.04E-06	4.79E-05	2.27
Arsenic	9.56E-05	1.93E-03	2.02E-03	9.55E+01
beta-BHC	4.45E-06	8.97E-07	5.35E-06	2.53E-01
delta-BHC	0.00E+00	1.04E-06	1.04E-06	4.90E-02
gamma-BHC	2.92E-06	5.89E-07	3.51E-06	1.66E-01
gamma-Chlordane	1.75E-05	3.52E-06	2.10E-05	9.93E-01
Heptachlor	1.29E-05	2.60E-06	1.55E-05	7.33E-01
Total by pathway	1.73E-04	1.94E-03		
% Contribution by pathway	8.19	9.18E+01		
Scenario Total			2.12E-03	
Reas. Max. Non-Cancer Hazard Index Summary				
Onsite Occupational - (S) Future (Lagoons Out of Service)				
	Dermal Contact with Sediments	Incidential Ingestion of Sedimen	Total	% Contrib
4,4'-DDT	2.18E-03	1.76E-03	3.94E-03	1.28E+01
Arsenic	3.26E-04	2.63E-02	2.66E-02	8.64E+01
beta-BHC	2.03E-05	1.64E-05	3.67E-05	1.19E-01
delta-BHC	0.00E+00	1.92E-05	1.92E-05	6.23E-02
gamma-BHC	1.30E-05	1.05E-05	2.35E-05	7.62E-02
gamma-Chlordane	4.37E-05	3.52E-05	7.89E-05	2.56E-01
Heptachlor	6.00E-05	4.84E-05	1.08E-04	3.52E-01
Total by pathway	2.64E-03	2.82E-02		
% Contribution by pathway	8.57	9.14E+01		
Scenario Total			3.08E-02	

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Average Non-Cancer Hazard Index Summary				
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	2.04E-04	2.04E-04	4.35E+01	
Aldrin	1.56E-04	1.56E-04	3.32E+01	
alpha-BHC	4.88E-07	4.88E-07	1.04E-01	
alpha-Chlordane	1.30E-06	1.30E-06	2.78E-01	
beta-BHC	4.35E-07	4.35E-07	9.27E-02	
delta-BHC	9.85E-07	9.85E-07	2.10E-01	
Dieldrin	2.74E-06	2.74E-06	5.85E-01	
Endosulfan II	2.76E-12	2.76E-12	5.89E-07	
Endosulfan sulfate	4.36E-08	4.36E-08	9.29E-03	
Endrin	6.58E-05	6.58E-05	1.40E+01	
gamma-BHC	1.14E-06	1.14E-06	2.42E-01	
gamma-Chlordane	1.21E-06	1.21E-06	2.59E-01	
Heptachlor	1.54E-06	1.54E-06	3.29E-01	
Heptachlor epoxide	3.66E-07	3.66E-07	7.81E-02	
Isodrin	1.31E-05	1.31E-05	2.8	
Methoxychlor	2.02E-05	2.02E-05	4.31	
Total by pathway	4.69E-04			
% Contribution by pathway	1.00E+02			
Scenario Total		4.69E-04		

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Reas. Max. Non-Cancer Hazard Index Summary				
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	1.66E-03	1.66E-03	4.30E+01	
Aldrin	1.28E-03	1.28E-03	3.31E+01	
alpha-BHC	3.42E-06	3.42E-06	8.86E-02	
alpha-Chlordane	7.71E-06	7.71E-06	2.00E-01	
beta-BHC	2.49E-06	2.49E-06	6.44E-02	
delta-BHC	6.61E-06	6.61E-06	1.71E-01	
Dieldrin	2.70E-05	2.70E-05	7.01E-01	
Endosulfan II	1.61E-11	1.61E-11	4.18E-07	
Endosulfan sulfate	2.13E-07	2.13E-07	5.53E-03	
Endrin	5.99E-04	5.99E-04	1.55E+01	
gamma-BHC	8.99E-06	8.99E-06	2.33E-01	
gamma-Chlordane	1.17E-05	1.17E-05	3.02E-01	
Heptachlor	1.08E-05	1.08E-05	2.79E-01	
Heptachlor epoxide	1.93E-06	1.93E-06	5.00E-02	
Isodrin	9.97E-05	9.97E-05	2.58	
Methoxychlor	1.43E-04	1.43E-04	3.71	
Total by pathway	3.86E-03			
% Contribution by pathway	1.00E+02			
Scenario Total		3.86E-03		

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Average Non-Cancer Hazard Index Summary				
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	4.76E-04	4.76E-04	4.35E+01	
Aldrin	3.63E-04	3.63E-04	3.32E+01	
alpha-BHC	1.14E-06	1.14E-06	1.04E-01	
alpha-Chlordane	3.04E-06	3.04E-06	2.78E-01	
beta-BHC	1.01E-06	1.01E-06	9.27E-02	
delta-BHC	2.30E-06	2.30E-06	2.10E-01	
Dieldrin	6.40E-06	6.40E-06	5.85E-01	
Endosulfan II	6.45E-12	6.45E-12	5.89E-07	
Endosulfan sulfate	1.02E-07	1.02E-07	9.29E-03	
Endrin	1.54E-04	1.54E-04	1.40E+01	
gamma-BHC	2.65E-06	2.65E-06	2.42E-01	
gamma-Chlordane	2.83E-06	2.83E-06	2.59E-01	
Heptachlor	3.60E-06	3.60E-06	3.29E-01	
Heptachlor epoxide	8.55E-07	8.55E-07	7.81E-02	
Isodrin	3.06E-05	3.06E-05	2.8	
Methoxychlor	4.72E-05	4.72E-05	4.31	
Total by pathway	1.09E-03			
% Contribution by pathway	1.00E+02			
Scenario Total		1.09E-03		

Table J-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond D

Reas. Max. Non-Cancer Hazard Index Summary				
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	3.87E-03	3.87E-03	4.30E+01	
Aldrin	2.98E-03	2.98E-03	3.31E+01	
alpha-BHC	7.98E-06	7.98E-06	8.86E-02	
alpha-Chlordane	1.80E-05	1.80E-05	2.00E-01	
beta-BHC	5.81E-06	5.81E-06	6.44E-02	
delta-BHC	1.54E-05	1.54E-05	1.71E-01	
Dieldrin	6.31E-05	6.31E-05	7.01E-01	
Endosulfan II	3.76E-11	3.76E-11	4.18E-07	
Endosulfan sulfate	4.98E-07	4.98E-07	5.53E-03	
Endrin	1.40E-03	1.40E-03	1.55E+01	
gamma-BHC	2.10E-05	2.10E-05	2.33E-01	
gamma-Chlordane	2.72E-05	2.72E-05	3.02E-01	
Heptachlor	2.51E-05	2.51E-05	2.79E-01	
Heptachlor epoxide	4.50E-06	4.50E-06	5.00E-02	
Isodrin	2.33E-04	2.33E-04	2.58	
Methoxychlor	3.34E-04	3.34E-04	3.71	
Total by pathway	9.01E-03			
% Contribution by pathway	1.00E+02			
Scenario Total		9.01E-03		

Table J-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond D									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.78E-09	5.04E-08	3.57E-06	1.01E-04	
			Arsenic	3.00E-04	4.28E-11	1.56E-09	1.43E-07	5.19E-06	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.95E-12	8.09E-11	9.75E-11	4.04E-09	
			Boron	9.00E-02	7.73E-09	2.34E-07	8.59E-08	2.60E-06	
			delta-BHC	2.00E-04	1.15E-11	3.24E-10	5.73E-08	1.62E-06	
			Dieldrin	6.52E-05	1.56E-11	4.41E-10	2.39E-07	6.76E-06	
			Endosulfan sulfate	2.47E-02	3.59E-13	1.02E-11	1.45E-11	4.11E-10	
			gamma-BHC	3.00E-03	5.46E-12	1.54E-10	1.82E-09	5.15E-08	
			gamma-Chlordane	6.00E-05	1.78E-10	5.03E-09	2.97E-06	8.39E-05	
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05	
			Lead (organic)	1.00E-07	1.98E-09	7.76E-08	1.98E-02	7.76E-01	
			Manganese (water)	5.00E-03	1.56E-09	5.60E-08	3.12E-07	1.12E-05	
			Mercury	3.00E-04	1.00E-11	4.73E-10	3.33E-08	1.58E-06	
			Methoxychlor	7.60E-02	5.52E-13	1.56E-11	7.27E-12	2.06E-10	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.29E-10	3.53E-10	2.58E-07	7.06E-07	
			4,4'-DDE	3.89E-03	2.33E-11	5.51E-11	5.98E-09	1.42E-08	
			4,4'-DDT	1.12E-02	3.90E-11	8.51E-10	3.48E-09	7.60E-08	
			Arsenic	3.00E-04	5.60E-11	7.65E-11	1.87E-07	2.55E-07	
			beta-BHC	3.30E-04	2.90E-11	5.28E-11	8.78E-08	1.60E-07	
			delta-BHC	2.00E-04	2.01E-11	3.72E-11	1.00E-07	1.86E-07	
			Endosulfan sulfate	2.47E-02	4.96E-11	9.93E-11	2.01E-09	4.02E-09	
			gamma-BHC	3.00E-03	1.71E-11	3.05E-11	5.71E-09	1.02E-08	
			gamma-Chlordane	6.00E-05	2.05E-12	2.05E-12	3.42E-08	3.42E-08	
			Heptachlor	9.75E-04	1.26E-11	2.35E-11	1.29E-08	2.41E-08	

Table J-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Onsite Occupational - (S) Future (Lagoons Out of Service)									
	Working around the lagoons								
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.00E-08	1.09E-06	3.99E-05	2.18E-03	
			Arsenic	3.00E-04	2.87E-08	9.79E-08	9.56E-05	3.26E-04	
			beta-BHC	3.33E-03	1.48E-08	6.76E-08	4.45E-06	2.03E-05	
			gamma-BHC	3.00E-03	8.76E-09	3.90E-08	2.92E-06	1.30E-05	
			gamma-Chlordane	6.00E-05	1.05E-09	2.62E-09	1.75E-05	4.37E-05	
			Heptachlor	5.00E-04	6.46E-09	3.00E-08	1.29E-05	6.00E-05	
		IngestionOfSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
		IngestionOfSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	4.02E-09	8.78E-07	8.04E-06	1.76E-03	
			Arsenic	3.00E-04	5.78E-07	7.89E-06	1.93E-03	2.63E-02	
			beta-BHC	3.33E-03	2.99E-09	5.45E-08	8.97E-07	1.64E-05	
			delta-BHC	2.00E-03	2.07E-09	3.84E-08	1.04E-06	1.92E-05	
			gamma-BHC	3.00E-03	1.77E-09	3.15E-08	5.89E-07	1.05E-05	
			gamma-Chlordane	6.00E-05	2.11E-10	2.11E-09	3.52E-06	3.52E-05	
			Heptachlor	5.00E-04	1.30E-09	2.42E-08	2.60E-06	4.84E-05	
		InhalationOfVapor: Occupational Inhalation							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	

Table J-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.02E-07	8.29E-07	2.04E-04	1.66E-03	
			Aldrin	3.00E-05	4.67E-09	3.84E-08	1.56E-04	1.28E-03	
			alpha-BHC	4.16E-04	2.03E-10	1.42E-09	4.88E-07	3.42E-06	
			alpha-Chlordane	1.48E-05	1.93E-11	1.14E-10	1.30E-06	7.71E-06	
			beta-BHC	3.30E-04	1.43E-10	8.21E-10	4.35E-07	2.49E-06	
			delta-BHC	2.00E-04	1.97E-10	1.32E-09	9.85E-07	6.61E-06	
			Dieldrin	5.00E-05	1.37E-10	1.35E-09	2.74E-06	2.70E-05	
			Endosulfan II	80	2.21E-10	1.29E-09	2.76E-12	1.61E-11	
			Endosulfan sulfate	6.00E-03	2.61E-10	1.28E-09	4.36E-08	2.13E-07	
			Endrin	3.00E-04	1.97E-08	1.80E-07	6.58E-05	5.99E-04	
			gamma-BHC	3.00E-04	3.41E-10	2.70E-09	1.14E-06	8.99E-06	
			gamma-Chlordane	6.00E-05	7.29E-11	7.00E-10	1.21E-06	1.17E-05	
			Heptachlor	5.00E-04	7.72E-10	5.38E-09	1.54E-06	1.08E-05	
			Heptachlor epoxide	1.30E-05	4.76E-12	2.51E-11	3.66E-07	1.93E-06	
			Isodrin	3.00E-04	3.93E-09	2.99E-08	1.31E-05	9.97E-05	
			Methoxychlor	5.00E-03	1.01E-07	7.16E-07	2.02E-05	1.43E-04	

Table J-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Offsite Agricultural, Child - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.38E-07	1.94E-06	4.76E-04	3.87E-03	
			Aldrin	3.00E-05	1.09E-08	8.95E-08	3.63E-04	2.98E-03	
			alpha-BHC	4.16E-04	4.73E-10	3.32E-09	1.14E-06	7.98E-06	
			alpha-Chlordane	1.48E-05	4.50E-11	2.66E-10	3.04E-06	1.80E-05	
			beta-BHC	3.30E-04	3.35E-10	1.92E-09	1.01E-06	5.81E-06	
			delta-BHC	2.00E-04	4.60E-10	3.09E-09	2.30E-06	1.54E-05	
			Dieldrin	5.00E-05	3.20E-10	3.16E-09	6.40E-06	6.31E-05	
			Endosulfan II	80	5.16E-10	3.01E-09	6.45E-12	3.76E-11	
			Endosulfan sulfate	6.00E-03	6.10E-10	2.99E-09	1.02E-07	4.98E-07	
			Endrin	3.00E-04	4.61E-08	4.19E-07	1.54E-04	1.40E-03	
			gamma-BHC	3.00E-04	7.95E-10	6.29E-09	2.65E-06	2.10E-05	
			gamma-Chlordane	6.00E-05	1.70E-10	1.63E-09	2.83E-06	2.72E-05	
			Heptachlor	5.00E-04	1.80E-09	1.26E-08	3.60E-06	2.51E-05	
			Heptachlor epoxide	1.30E-05	1.11E-11	5.85E-11	8.55E-07	4.50E-06	
			Isodrin	3.00E-04	9.18E-09	6.98E-08	3.06E-05	2.33E-04	
			Methoxychlor	5.00E-03	2.36E-07	1.67E-06	4.72E-05	3.34E-04	

Table J-22
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond D

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond D		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	1.64E-10	1.13E-08
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.57E-08	4.27E-07

Table J-23
Cancer Risk Summary
Holloman AFB, New Mexico
Pond D

Average Cancer Risk				
Onsite Occupational - Current (Lagoons in Service)				
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	5.50E-11	3.98E-12	5.90E-11	3.59E+01
4,4'-DDE	0.00E+00	1.02E-12	1.02E-12	6.19E-01
4,4'-DDT	0.00E+00	1.70E-12	1.70E-12	1.04
beta-BHC	0.00E+00	6.70E-12	6.70E-12	4.08
bis(2-Ethylhexyl)phthalate	3.51E-15	0.00E+00	3.51E-15	2.14E-03
Dieldrin	3.21E-11	0.00E+00	3.21E-11	1.95E+01
gamma-BHC	9.12E-13	2.86E-12	3.77E-12	2.3
gamma-Chlordane	2.97E-11	3.42E-13	3.01E-11	1.83E+01
Heptachlor	0.00E+00	7.30E-12	7.30E-12	4.44
Heptachlor epoxide	2.27E-11	0.00E+00	2.27E-11	1.38E+01
Total by pathway	1.40E-10	2.39E-11		
% Contribution by pathway	8.55E+01	1.45E+01		
Scenario Total			1.64E-10	
Reas. Max. Cancer Risk				
Onsite Occupational - Current (Lagoons in Service)				
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	4.32E-09	3.02E-11	4.35E-09	3.87E+01
4,4'-DDE	0.00E+00	6.69E-12	6.69E-12	5.94E-02
4,4'-DDT	0.00E+00	1.03E-10	1.03E-10	9.18E-01
beta-BHC	0.00E+00	3.40E-11	3.40E-11	3.02E-01
bis(2-Ethylhexyl)phthalate	4.04E-13	0.00E+00	4.04E-13	3.59E-03
Dieldrin	2.52E-09	0.00E+00	2.52E-09	2.24E+01
gamma-BHC	7.17E-11	1.42E-11	8.58E-11	7.62E-01
gamma-Chlordane	2.34E-09	9.51E-13	2.34E-09	2.08E+01
Heptachlor	0.00E+00	3.77E-11	3.77E-11	3.35E-01
Heptachlor epoxide	1.78E-09	0.00E+00	1.78E-09	1.58E+01
Total by pathway	1.10E-08	2.27E-10		
% Contribution by pathway	9.80E+01	2.02		
Scenario Total			1.13E-08	

Table J-23
Cancer Risk Summary
Holloman AFB, New Mexico
Pond D

Average Cancer Risk				
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	4.46E-09	4.46E-09	2.84E+01	
Aldrin	1.02E-08	1.02E-08	6.52E+01	
alpha-BHC	1.64E-10	1.64E-10	1.05	
alpha-Chlordane	3.22E-12	3.22E-12	2.06E-02	
beta-BHC	3.32E-11	3.32E-11	2.12E-01	
Dieldrin	2.82E-10	2.82E-10	1.8	
gamma-BHC	5.69E-11	5.69E-11	3.63E-01	
gamma-Chlordane	1.22E-11	1.22E-11	7.77E-02	
Heptachlor	4.47E-10	4.47E-10	2.85	
Heptachlor epoxide	5.57E-12	5.57E-12	3.56E-02	
Total by pathway	1.57E-08			
% Contribution by pathway	1.00E+02			
Scenario Total		1.57E-08		
Reas. Max. Cancer Risk				
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)				
	Ingestion of Beef	Total	% Contrib	
4,4'-DDT	1.21E-07	1.21E-07	2.83E+01	
Aldrin	2.80E-07	2.80E-07	6.55E+01	
alpha-BHC	3.84E-09	3.84E-09	9.01E-01	
alpha-Chlordane	6.36E-11	6.36E-11	1.49E-02	
beta-BHC	6.33E-10	6.33E-10	1.48E-01	
Dieldrin	9.27E-09	9.27E-09	2.17	
gamma-BHC	1.50E-09	1.50E-09	3.52E-01	
gamma-Chlordane	3.90E-10	3.90E-10	9.14E-02	
Heptachlor	1.04E-08	1.04E-08	2.43	
Heptachlor epoxide	9.78E-11	9.78E-11	2.29E-02	
Total by pathway	4.27E-07			
% Contribution by pathway	1.00E+02			
Scenario Total		4.27E-07		

Table J-24
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Cancer Risk Estimates									
Holloman Risk Assessment - Pond D									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.29E-10	1.80E-08	5.50E-11	4.32E-09
			bis(2-Ethylhexyl)phthalat	1.40E-02	B2	2.51E-13	2.89E-11	3.51E-15	4.04E-13
			Dieldrin	16	B2	2.00E-12	1.57E-10	3.21E-11	2.52E-09
			gamma-BHC	1.3	B2/C	7.02E-13	5.51E-11	9.12E-13	7.17E-11
			gamma-Chlordane	1.3	B2	2.29E-11	1.80E-09	2.97E-11	2.34E-09
			Heptachlor epoxide	9.1	B2	2.49E-12	1.96E-10	2.27E-11	1.78E-09
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.66E-11	1.26E-10	3.98E-12	3.02E-11
			4,4'-DDE	3.40E-01	B2	2.99E-12	1.97E-11	1.02E-12	6.69E-12
			4,4'-DDT	3.40E-01	B2	5.01E-12	3.04E-10	1.70E-12	1.03E-10
			beta-BHC	1.8	C	3.72E-12	1.89E-11	6.70E-12	3.40E-11
			gamma-BHC	1.3	B2/C	2.20E-12	1.09E-11	2.86E-12	1.42E-11
			gamma-Chlordane	1.3	B2	2.63E-13	7.32E-13	3.42E-13	9.51E-13
			Heptachlor	4.5	B2	1.62E-12	8.38E-12	7.30E-12	3.77E-11

Table J-24
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDT	3.40E-01	B2	1.31E-08	3.55E-07	4.46E-09	1.21E-07
			Aldrin	17	B2	6.01E-10	1.64E-08	1.02E-08	2.80E-07
			alpha-BHC	6.3	B2	2.61E-11	6.10E-10	1.64E-10	3.84E-09
			alpha-Chlordane	1.3	B2	2.48E-12	4.89E-11	3.22E-12	6.36E-11
			beta-BHC	1.8	C	1.84E-11	3.52E-10	3.32E-11	6.33E-10
			Dieldrin	16	B2	1.76E-11	5.80E-10	2.82E-10	9.27E-09
			gamma-BHC	1.3	B2/C	4.38E-11	1.16E-09	5.69E-11	1.50E-09
			gamma-Chlordane	1.3	B2	9.37E-12	3.00E-10	1.22E-11	3.90E-10
			Heptachlor	4.5	B2	9.93E-11	2.31E-09	4.47E-10	1.04E-08
			Heptachlor epoxide	9.1	B2	6.12E-13	1.08E-11	5.57E-12	9.78E-11

Table J-25
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond E

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond E		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	4.40E-02	6.10E-01
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	9.40E-04	6.10E-03
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	2.20E-03	1.40E-02
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond E		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Future (Lagoons Out of Service)	1.70E+01	6.30E+01

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Average Non-Cancer Hazard Index Summary							
Onsite Occupational - Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDD	2.65E-06	9.13E-06	1.16E-07	1.19E-05	2.74E-02		
4,4'-DDE	4.25E-06	4.29E-07	2.85E-09	4.68E-06	1.08E-02		
4,4'-DDT	0.00E+00	4.11E-08	1.18E-09	4.23E-08	9.73E-05		
Aldrin	0.00E+00	0.00E+00	8.89E-08	8.89E-08	2.04E-04		
alpha-BHC	0.00E+00	0.00E+00	5.73E-09	5.73E-09	1.32E-05		
alpha-Chlordane	0.00E+00	0.00E+00	3.89E-07	3.89E-07	8.94E-04		
Antimony	0.00E+00	7.51E-06	7.51E-06	1.50E-05	3.46E-02		
Arsenic	0.00E+00	2.50E-07	2.49E-07	4.99E-07	1.15E-03		
beta-BHC	0.00E+00	0.00E+00	6.98E-08	6.98E-08	1.60E-04		
bis(2-Ethylhexyl)phthalate	7.26E-11	0.00E+00	0.00E+00	7.26E-11	1.67E-07		
Boron	9.00E-08	0.00E+00	0.00E+00	9.00E-08	2.07E-04		
delta-BHC	0.00E+00	0.00E+00	6.54E-08	6.54E-08	1.50E-04		
Dieldrin	2.31E-07	0.00E+00	0.00E+00	2.31E-07	5.31E-04		
Endosulfan II	0.00E+00	0.00E+00	1.94E-13	1.94E-13	4.46E-10		
Endosulfan sulfate	0.00E+00	0.00E+00	6.30E-10	6.30E-10	1.45E-06		
gamma-BHC	2.64E-09	1.02E-07	0.00E+00	1.05E-07	2.41E-04		
gamma-Chlordane	2.66E-06	1.18E-05	1.40E-07	1.46E-05	3.35E-02		
Heptachlor	0.00E+00	2.76E-06	6.54E-09	2.76E-06	6.35E-03		
Heptachlor epoxide	1.49E-06	2.73E-02	0.00E+00	2.73E-02	6.28E+01		
Lead (organic)	1.61E-02	0.00E+00	0.00E+00	1.61E-02	3.70E+01		
Manganese (water)	1.86E-07	0.00E+00	0.00E+00	1.86E-07	4.28E-04		
Mercury	4.53E-08	0.00E+00	0.00E+00	4.53E-08	1.04E-04		
Total by pathway	1.61E-02	2.74E-02	8.65E-06				
% Contribution by pathway	3.71E+01	6.29E+01	1.99E-02				
Scenario Total				4.35E-02			

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Reas. Max. Non-Cancer Hazard Index Summary							
Onsite Occupational - Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDD	7.50E-05	2.41E-05	2.66E-07	9.94E-05	1.62E-02		
4,4'-DDE	2.16E-04	9.59E-07	4.42E-09	2.17E-04	3.53E-02		
4,4'-DDT	0.00E+00	5.12E-08	1.30E-09	5.25E-08	8.55E-06		
Aldrin	0.00E+00	0.00E+00	1.02E-07	1.02E-07	1.66E-05		
alpha-BHC	0.00E+00	0.00E+00	6.23E-09	6.23E-09	1.01E-06		
alpha-Chlordane	0.00E+00	0.00E+00	4.43E-07	4.43E-07	7.21E-05		
Antimony	0.00E+00	7.51E-06	7.51E-06	1.50E-05	2.44E-03		
Arsenic	0.00E+00	3.48E-07	3.21E-07	6.69E-07	1.09E-04		
beta-BHC	0.00E+00	0.00E+00	1.21E-07	1.21E-07	1.97E-05		
bis(2-Ethylhexyl)phthalate	3.05E-09	0.00E+00	0.00E+00	3.05E-09	4.95E-07		
Boron	2.77E-06	0.00E+00	0.00E+00	2.77E-06	4.51E-04		
delta-BHC	0.00E+00	0.00E+00	1.12E-07	1.12E-07	1.83E-05		
Dieldrin	6.54E-06	0.00E+00	0.00E+00	6.54E-06	1.06E-03		
Endosulfan II	0.00E+00	0.00E+00	2.39E-13	2.39E-13	3.89E-11		
Endosulfan sulfate	0.00E+00	0.00E+00	9.49E-10	9.49E-10	1.54E-07		
gamma-BHC	7.46E-08	1.45E-07	0.00E+00	2.20E-07	3.58E-05		
gamma-Chlordane	7.52E-05	2.38E-05	2.07E-07	9.92E-05	1.61E-02		
Heptachlor	0.00E+00	2.76E-06	7.49E-09	2.76E-06	4.50E-04		
Heptachlor epoxide	4.21E-05	2.73E-02	0.00E+00	2.74E-02	4.45		
Lead (organic)	5.87E-01	0.00E+00	0.00E+00	5.87E-01	9.55E+01		
Manganese (water)	6.11E-06	0.00E+00	0.00E+00	6.11E-06	9.94E-04		
Mercury	1.46E-06	0.00E+00	0.00E+00	1.46E-06	2.37E-04		
Total by pathway	5.87E-01	2.74E-02	9.11E-06				
% Contribution by pathway	9.55E+01	4.45	1.48E-03				
Scenario Total				6.15E-01			

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Average Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDT	0.00E+00	9.22E-07	2.65E-08	9.48E-07	2.18E-03		
Aldrin	0.00E+00	0.00E+00	2.23E-07	2.23E-07	5.14E-04		
alpha-Chlordane	0.00E+00	0.00E+00	9.59E-08	9.59E-08	2.21E-04		
Antimony	0.00E+00	7.51E-06	7.51E-06	1.50E-05	3.46E-02		
Arsenic	0.00E+00	2.50E-07	2.49E-07	4.99E-07	1.15E-03		
beta-BHC	0.00E+00	0.00E+00	6.91E-09	6.91E-09	1.59E-05		
bis(2-Ethylhexyl)phthalate	7.26E-11	0.00E+00	0.00E+00	7.26E-11	1.67E-07		
Boron	9.00E-08	0.00E+00	0.00E+00	9.00E-08	2.07E-04		
Dieldrin	3.01E-07	0.00E+00	0.00E+00	3.01E-07	6.93E-04		
Endosulfan II	0.00E+00	0.00E+00	3.10E-07	3.10E-07	7.13E-04		
gamma-BHC	2.64E-09	1.02E-07	0.00E+00	1.05E-07	2.41E-04		
gamma-Chlordane	2.66E-06	1.18E-05	1.40E-07	1.46E-05	3.35E-02		
Heptachlor	0.00E+00	5.37E-06	1.28E-08	5.39E-06	1.24E-02		
Heptachlor epoxide	1.49E-06	2.73E-02	0.00E+00	2.73E-02	6.29E+01		
Lead (organic)	1.61E-02	0.00E+00	0.00E+00	1.61E-02	3.71E+01		
Mercury	4.53E-08	0.00E+00	0.00E+00	4.53E-08	1.04E-04		
Total by pathway	1.61E-02	2.73E-02	8.58E-06				
% Contribution by pathway	3.71E+01	6.29E+01	1.97E-02				
Scenario Total				4.35E-02			

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Reas. Max. Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Current (Lagoons in Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDT	0.00E+00	1.15E-06	2.91E-08	1.18E-06	1.92E-04		
Aldrin	0.00E+00	0.00E+00	2.57E-07	2.57E-07	4.18E-05		
alpha-Chlordane	0.00E+00	0.00E+00	1.09E-07	1.09E-07	1.78E-05		
Antimony	0.00E+00	7.51E-06	7.51E-06	1.50E-05	2.45E-03		
Arsenic	0.00E+00	3.48E-07	3.21E-07	6.69E-07	1.09E-04		
beta-BHC	0.00E+00	0.00E+00	1.20E-08	1.20E-08	1.95E-06		
bis(2-Ethylhexyl)phthalate	3.05E-09	0.00E+00	0.00E+00	3.05E-09	4.96E-07		
Boron	2.77E-06	0.00E+00	0.00E+00	2.77E-06	4.52E-04		
Dieldrin	8.52E-06	0.00E+00	0.00E+00	8.52E-06	1.39E-03		
Endosulfan II	0.00E+00	0.00E+00	3.83E-07	3.83E-07	6.23E-05		
gamma-BHC	7.46E-08	1.45E-07	0.00E+00	2.20E-07	3.58E-05		
gamma-Chlordane	7.52E-05	2.38E-05	2.07E-07	9.92E-05	1.62E-02		
Heptachlor	0.00E+00	5.37E-06	1.46E-08	5.39E-06	8.77E-04		
Heptachlor epoxide	4.21E-05	2.73E-02	0.00E+00	2.74E-02	4.45		
Lead (organic)	5.87E-01	0.00E+00	0.00E+00	5.87E-01	9.55E+01		
Mercury	1.46E-06	0.00E+00	0.00E+00	1.46E-06	2.37E-04		
Total by pathway	5.87E-01	2.74E-02	8.85E-06				
% Contribution by pathway	9.55E+01	4.45	1.44E-03				
Scenario Total				6.14E-01			

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Average Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Future (Lagoons Out of Service)							
	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ing	Inhalation of	Total	% Contrib
4,4'-DDT	4.72E-04	1.35E-05	9.51E-05	2.73E-06	0.00E+00	5.83E-04	3.46E-03
Aldrin	0.00E+00	1.14E-04	0.00E+00	2.30E-05	0.00E+00	1.37E-04	8.16E-04
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	1.66E-07	0.00E+00	1.66E-07	9.87E-07
alpha-Chlordane	0.00E+00	4.91E-05	0.00E+00	9.89E-06	0.00E+00	5.90E-05	3.50E-04
Antimony	3.85E-03	3.85E-03	7.75E-03	7.75E-03	0.00E+00	2.32E-02	1.38E-01
Arsenic	1.28E-04	1.27E-04	2.58E-03	2.57E-03	0.00E+00	5.41E-03	3.21E-02
beta-BHC	0.00E+00	3.54E-06	0.00E+00	7.13E-07	0.00E+00	4.25E-06	2.52E-05
delta-BHC	0.00E+00	0.00E+00	0.00E+00	6.74E-07	0.00E+00	6.74E-07	4.00E-06
Endosulfan II	0.00E+00	1.59E-04	0.00E+00	3.20E-05	0.00E+00	1.91E-04	1.13E-03
gamma-BHC	5.24E-05	0.00E+00	1.06E-05	0.00E+00	0.00E+00	6.29E-05	3.74E-04
gamma-Chlordane	6.02E-03	7.19E-05	1.21E-03	1.45E-05	0.00E+00	7.32E-03	4.35E-02
Heptachlor	2.75E-03	6.53E-06	5.54E-04	1.32E-06	0.00E+00	3.31E-03	1.97E-02
Heptachlor epoxide	1.40E+01	0.00E+00	2.82	0.00E+00	0.00E+00	1.68E+01	9.98E+01
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-04	9.57E-04	5.68E-03
Total by pathway	1.40E+01	4.39E-03	2.83	1.04E-02	9.57E-04		
% Contribution by pathway	8.31E+01	2.61E-02	1.68E+01	6.18E-02	5.68E-03		
Scenario Total						1.68E+01	
Reas. Max. Non-Cancer Hazard Index Summary							
Onsite Occupational - (S) Future (Lagoons Out of Service)							
	Dermal Contact with Sludge	Dermal Contact with Sediments	Incidential Ingestion of Sludge	Incidential Ing	Inhalation of	Total	% Contrib
4,4'-DDT	1.47E-03	3.72E-05	1.18E-03	3.00E-05	0.00E+00	2.72E-03	4.28E-03
Aldrin	0.00E+00	3.28E-04	0.00E+00	2.65E-04	0.00E+00	5.93E-04	9.34E-04
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	1.81E-06	0.00E+00	1.81E-06	2.85E-06
alpha-Chlordane	0.00E+00	1.40E-04	0.00E+00	1.13E-04	0.00E+00	2.53E-04	3.98E-04
Antimony	9.62E-03	9.62E-03	7.75E-02	7.75E-02	0.00E+00	1.74E-01	2.74E-01
Arsenic	4.45E-04	4.11E-04	3.59E-02	3.31E-02	0.00E+00	6.98E-02	1.10E-01
beta-BHC	0.00E+00	1.54E-05	0.00E+00	1.24E-05	0.00E+00	2.78E-05	4.37E-05
delta-BHC	0.00E+00	0.00E+00	0.00E+00	1.16E-05	0.00E+00	1.16E-05	1.83E-05
Endosulfan II	0.00E+00	4.90E-04	0.00E+00	3.95E-04	0.00E+00	8.85E-04	1.39E-03
gamma-BHC	1.86E-04	0.00E+00	1.50E-04	0.00E+00	0.00E+00	3.36E-04	5.29E-04
gamma-Chlordane	3.05E-02	2.66E-04	2.46E-02	2.14E-04	0.00E+00	5.55E-02	8.75E-02
Heptachlor	6.88E-03	1.87E-05	5.54E-03	1.51E-05	0.00E+00	1.25E-02	1.96E-02
Heptachlor epoxide	3.50E+01	0.00E+00	2.82E+01	0.00E+00	0.00E+00	6.31E+01	9.95E+01
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-02	1.84E-02	2.91E-02
Total by pathway	3.50E+01	1.13E-02	2.83E+01	1.12E-01	1.84E-02		
% Contribution by pathway	5.52E+01	1.78E-02	4.46E+01	1.76E-01	2.91E-02		
Scenario Total						6.35E+01	

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Average Non-Cancer Hazard Index Summary							
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)							
	Ingestion of Beef	Total	% Contrib				
4,4'-DDT	2.04E-04	2.04E-04	2.17E+01				
Aldrin	1.56E-04	1.56E-04	1.66E+01				
alpha-BHC	4.87E-07	4.87E-07	5.19E-02				
alpha-Chlordane	1.30E-06	1.30E-06	1.39E-01				
beta-BHC	4.34E-07	4.34E-07	4.63E-02				
Cadmium (food)	4.68E-04	4.68E-04	5.00E+01				
delta-BHC	9.86E-07	9.86E-07	1.05E-01				
Dieldrin	2.74E-06	2.74E-06	2.92E-01				
Endosulfan II	2.76E-12	2.76E-12	2.94E-07				
Endosulfan sulfate	4.35E-08	4.35E-08	4.64E-03				
Endrin	6.59E-05	6.59E-05	7.03				
gamma-BHC	1.14E-06	1.14E-06	1.21E-01				
gamma-Chlordane	1.22E-06	1.22E-06	1.30E-01				
Heptachlor	1.54E-06	1.54E-06	1.64E-01				
Heptachlor epoxide	3.66E-07	3.66E-07	3.90E-02				
Isodrin	1.31E-05	1.31E-05	1.4				
Methoxychlor	2.03E-05	2.03E-05	2.16				
Total by pathway	9.38E-04						
% Contribution by pathway	1.00E+02						
Scenario Total		9.38E-04					

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDT	1.66E-03	1.66E-03	2.72E+01
Aldrin	1.28E-03	1.28E-03	2.09E+01
alpha-BHC	3.42E-06	3.42E-06	5.62E-02
alpha-Chlordane	7.72E-06	7.72E-06	1.27E-01
beta-BHC	2.48E-06	2.48E-06	4.08E-02
Cadmium (food)	2.24E-03	2.24E-03	3.67E+01
delta-BHC	6.62E-06	6.62E-06	1.09E-01
Dieldrin	2.70E-05	2.70E-05	4.44E-01
Endosulfan II	1.61E-11	1.61E-11	2.64E-07
Endosulfan sulfate	2.13E-07	2.13E-07	3.50E-03
Endrin	5.99E-04	5.99E-04	9.84
gamma-BHC	8.98E-06	8.98E-06	1.48E-01
gamma-Chlordane	1.17E-05	1.17E-05	1.91E-01
Heptachlor	1.08E-05	1.08E-05	1.77E-01
Heptachlor epoxide	1.93E-06	1.93E-06	3.17E-02
Isodrin	9.97E-05	9.97E-05	1.64
Methoxychlor	1.43E-04	1.43E-04	2.35
Total by pathway	6.09E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		6.09E-03	
Average Non-Cancer Hazard Index Summary			
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDT	4.76E-04	4.76E-04	2.17E+01
Aldrin	3.63E-04	3.63E-04	1.66E+01
alpha-BHC	1.14E-06	1.14E-06	5.19E-02
alpha-Chlordane	3.04E-06	3.04E-06	1.39E-01
beta-BHC	1.01E-06	1.01E-06	4.63E-02
Cadmium (food)	1.09E-03	1.09E-03	5.00E+01
delta-BHC	2.30E-06	2.30E-06	1.05E-01
Dieldrin	6.40E-06	6.40E-06	2.92E-01
Endosulfan II	6.44E-12	6.44E-12	2.94E-07
Endosulfan sulfate	1.02E-07	1.02E-07	4.64E-03
Endrin	1.54E-04	1.54E-04	7.03
gamma-BHC	2.65E-06	2.65E-06	1.21E-01
gamma-Chlordane	2.84E-06	2.84E-06	1.30E-01
Heptachlor	3.59E-06	3.59E-06	1.64E-01
Heptachlor epoxide	8.54E-07	8.54E-07	3.90E-02
Isodrin	3.06E-05	3.06E-05	1.4
Methoxychlor	4.73E-05	4.73E-05	2.16
Total by pathway	2.19E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		2.19E-03	

Table J-26
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E

Reas. Max. Non-Cancer Hazard Index Summary							
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)							
	Ingestion of Beef	Total	% Contrib				
4,4'-DDT	3.87E-03	3.87E-03	2.72E+01				
Aldrin	2.98E-03	2.98E-03	2.09E+01				
alpha-BHC	7.99E-06	7.99E-06	5.62E-02				
alpha-Chlordane	1.80E-05	1.80E-05	1.27E-01				
beta-BHC	5.80E-06	5.80E-06	4.08E-02				
Cadmium (food)	5.22E-03	5.22E-03	3.67E+01				
delta-BHC	1.54E-05	1.54E-05	1.09E-01				
Dieldrin	6.31E-05	6.31E-05	4.44E-01				
Endosulfan II	3.76E-11	3.76E-11	2.64E-07				
Endosulfan sulfate	4.98E-07	4.98E-07	3.50E-03				
Endrin	1.40E-03	1.40E-03	9.84				
gamma-BHC	2.10E-05	2.10E-05	1.48E-01				
gamma-Chlordane	2.72E-05	2.72E-05	1.91E-01				
Heptachlor	2.51E-05	2.51E-05	1.77E-01				
Heptachlor epoxide	4.50E-06	4.50E-06	3.17E-02				
Isodrin	2.33E-04	2.33E-04	1.64				
Methoxychlor	3.34E-04	3.34E-04	2.35				
Total by pathway	1.42E-02						
% Contribution by pathway	1.00E+02						
Scenario Total		1.42E-02					

Table J-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Non-Cancer Risk Estimates								
Holloman Risk Assessment - Pond E								
Scenario	Activity							
		Pathway						
Onsite Occupa	Working around the lagoons							
		DermalContactWithWater: Surface water						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.32E-09	3.75E-08	2.65E-06	7.50E-05
			4,4'-DDE	3.89E-03	1.65E-08	8.41E-07	4.25E-06	2.16E-04
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.45E-12	6.09E-11	7.26E-11	3.05E-09
			Boron	9.00E-02	8.10E-09	2.50E-07	9.00E-08	2.77E-06
			Dieldrin	6.52E-05	1.51E-11	4.26E-10	2.31E-07	6.54E-06
			gamma-BHC	3.00E-03	7.91E-12	2.24E-10	2.64E-09	7.46E-08
			gamma-Chlordane	6.00E-05	1.60E-10	4.51E-09	2.66E-06	7.52E-05
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05
			Lead (organic)	1.00E-07	1.61E-09	5.87E-08	1.61E-02	5.87E-01
			Manganese (water)	5.00E-03	9.30E-10	3.06E-08	1.86E-07	6.11E-06
			Mercury	3.00E-04	1.36E-11	4.37E-10	4.53E-08	1.46E-06
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	4.57E-09	1.21E-08	9.13E-06	2.41E-05
			4,4'-DDE	3.89E-03	1.67E-09	3.73E-09	4.29E-07	9.59E-07
			4,4'-DDT	1.12E-02	4.61E-10	5.74E-10	4.11E-08	5.12E-08
			Antimony	4.00E-04	3.01E-09	3.01E-09	7.51E-06	7.51E-06
			Arsenic	3.00E-04	7.51E-11	1.04E-10	2.50E-07	3.48E-07
			gamma-BHC	3.00E-03	3.07E-10	4.36E-10	1.02E-07	1.45E-07
			gamma-Chlordane	6.00E-05	7.06E-10	1.43E-09	1.18E-05	2.38E-05
			Heptachlor	9.75E-04	2.69E-09	2.69E-09	2.76E-06	2.76E-06
			Heptachlor epoxide	1.30E-05	3.55E-07	3.55E-07	2.73E-02	2.73E-02
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	5.81E-11	1.33E-10	1.16E-07	2.66E-07
			4,4'-DDE	3.89E-03	1.11E-11	1.72E-11	2.85E-09	4.42E-09
			4,4'-DDT	1.12E-02	1.32E-11	1.45E-11	1.18E-09	1.30E-09
			Aldrin	7.54E-05	6.70E-12	7.70E-12	8.89E-08	1.02E-07
			alpha-BHC	1.17E-03	6.70E-12	7.29E-12	5.73E-09	6.23E-09
			alpha-Chlordane	1.48E-05	5.75E-12	6.56E-12	3.89E-07	4.43E-07
			Antimony	4.00E-04	3.01E-09	3.01E-09	7.51E-06	7.51E-06
			Arsenic	3.00E-04	7.47E-11	9.63E-11	2.49E-07	3.21E-07
			beta-BHC	3.30E-04	2.30E-11	4.00E-11	6.98E-08	1.21E-07
			delta-BHC	2.00E-04	1.31E-11	2.25E-11	6.54E-08	1.12E-07
			Endosulfan II	80	1.55E-11	1.91E-11	1.94E-13	2.39E-13
			Endosulfan sulfate	2.47E-02	1.56E-11	2.34E-11	6.30E-10	9.49E-10
			gamma-Chlordane	6.00E-05	8.42E-12	1.24E-11	1.40E-07	2.07E-07
			Heptachlor	9.75E-04	6.38E-12	7.31E-12	6.54E-09	7.49E-09

Table J-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Onsite Occupa	Working around the lagoons							
		DermalContactWithWater: Surface water						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.45E-12	6.09E-11	7.26E-11	3.05E-09
			Boron	9.00E-02	8.10E-09	2.50E-07	9.00E-08	2.77E-06
			Dieldrin	5.00E-05	1.51E-11	4.26E-10	3.01E-07	8.52E-06
			gamma-BHC	3.00E-03	7.91E-12	2.24E-10	2.64E-09	7.46E-08
			gamma-Chlordane	6.00E-05	1.60E-10	4.51E-09	2.66E-06	7.52E-05
			Heptachlor epoxide	1.30E-05	1.94E-11	5.48E-10	1.49E-06	4.21E-05
			Lead (organic)	1.00E-07	1.61E-09	5.87E-08	1.61E-02	5.87E-01
			Mercury	3.00E-04	1.36E-11	4.37E-10	4.53E-08	1.46E-06
		DermalContactWithSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	4.61E-10	5.74E-10	9.22E-07	1.15E-06
			Antimony	4.00E-04	3.01E-09	3.01E-09	7.51E-06	7.51E-06
			Arsenic	3.00E-04	7.51E-11	1.04E-10	2.50E-07	3.48E-07
			gamma-BHC	3.00E-03	3.07E-10	4.36E-10	1.02E-07	1.45E-07
			gamma-Chlordane	6.00E-05	7.06E-10	1.43E-09	1.18E-05	2.38E-05
			Heptachlor	5.00E-04	2.69E-09	2.69E-09	5.37E-06	5.37E-06
			Heptachlor epoxide	1.30E-05	3.55E-07	3.55E-07	2.73E-02	2.73E-02
		DermalContactWithSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	1.32E-11	1.45E-11	2.65E-08	2.91E-08
			Aldrin	3.00E-05	6.70E-12	7.70E-12	2.23E-07	2.57E-07
			alpha-Chlordane	6.00E-05	5.75E-12	6.56E-12	9.59E-08	1.09E-07
			Antimony	4.00E-04	3.01E-09	3.01E-09	7.51E-06	7.51E-06
			Arsenic	3.00E-04	7.47E-11	9.63E-11	2.49E-07	3.21E-07
			beta-BHC	3.33E-03	2.30E-11	4.00E-11	6.91E-09	1.20E-08
			Endosulfan II	5.00E-05	1.55E-11	1.91E-11	3.10E-07	3.83E-07
			gamma-Chlordane	6.00E-05	8.42E-12	1.24E-11	1.40E-07	2.07E-07
			Heptachlor	5.00E-04	6.38E-12	7.31E-12	1.28E-08	1.46E-08

Table J-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Onsite Occupa	Working around the lagoons							
		DermalContactWithSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	2.36E-07	7.34E-07	4.72E-04	1.47E-03
			Antimony	4.00E-04	1.54E-06	3.85E-06	3.85E-03	9.62E-03
			Arsenic	3.00E-04	3.85E-08	1.33E-07	1.28E-04	4.45E-04
			gamma-BHC	3.00E-03	1.57E-07	5.58E-07	5.24E-05	1.86E-04
			gamma-Chlordane	6.00E-05	3.61E-07	1.83E-06	6.02E-03	3.05E-02
			Heptachlor	5.00E-04	1.38E-06	3.44E-06	2.75E-03	6.88E-03
			Heptachlor epoxide	1.30E-05	1.82E-04	4.55E-04	1.40E+01	3.50E+01
		DermalContactWithSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	6.77E-09	1.86E-08	1.35E-05	3.72E-05
			Aldrin	3.00E-05	3.43E-09	9.85E-09	1.14E-04	3.28E-04
			alpha-Chlordane	6.00E-05	2.94E-09	8.39E-09	4.91E-05	1.40E-04
			Antimony	4.00E-04	1.54E-06	3.85E-06	3.85E-03	9.62E-03
			Arsenic	3.00E-04	3.82E-08	1.23E-07	1.27E-04	4.11E-04
			beta-BHC	3.33E-03	1.18E-08	5.12E-08	3.54E-06	1.54E-05
			Endosulfan II	5.00E-05	7.94E-09	2.45E-08	1.59E-04	4.90E-04
			gamma-Chlordane	6.00E-05	4.31E-09	1.59E-08	7.19E-05	2.66E-04
			Heptachlor	5.00E-04	3.27E-09	9.35E-09	6.53E-06	1.87E-05
		IngestionOfSoil: Sludge						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	4.75E-08	5.92E-07	9.51E-05	1.18E-03
			Antimony	4.00E-04	3.10E-06	3.10E-05	7.75E-03	7.75E-02
			Arsenic	3.00E-04	7.75E-07	1.08E-05	2.58E-03	3.59E-02
			gamma-BHC	3.00E-03	3.17E-08	4.50E-07	1.06E-05	1.50E-04
			gamma-Chlordane	6.00E-05	7.28E-08	1.47E-06	1.21E-03	2.46E-02
			Heptachlor	5.00E-04	2.77E-07	2.77E-06	5.54E-04	5.54E-03
			Heptachlor epoxide	1.30E-05	3.66E-05	3.66E-04	2.82	2.82E+01
		IngestionOfSoil: Soil						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	1.36E-09	1.50E-08	2.73E-06	3.00E-05
			Aldrin	3.00E-05	6.91E-10	7.94E-09	2.30E-05	2.65E-04
			alpha-BHC	4.16E-03	6.91E-10	7.52E-09	1.66E-07	1.81E-06
			alpha-Chlordane	6.00E-05	5.93E-10	6.76E-09	9.89E-06	1.13E-04
			Antimony	4.00E-04	3.10E-06	3.10E-05	7.75E-03	7.75E-02
			Arsenic	3.00E-04	7.70E-07	9.93E-06	2.57E-03	3.31E-02
			beta-BHC	3.33E-03	2.37E-09	4.12E-08	7.13E-07	1.24E-05
			delta-BHC	2.00E-03	1.35E-09	2.32E-08	6.74E-07	1.16E-05
			Endosulfan II	5.00E-05	1.60E-09	1.97E-08	3.20E-05	3.95E-04
			gamma-Chlordane	6.00E-05	8.69E-10	1.28E-08	1.45E-05	2.14E-04
			Heptachlor	5.00E-04	6.58E-10	7.54E-09	1.32E-06	1.51E-05
		InhalationOfVapor: Occupational Inhalation						
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index

Table J-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

			Mercury*	3.00E-01	2.87E-04	5.53E-03	9.57E-04	1.84E-02
Offsite Agricul	Grazing Cattle near the lagoons							
		IngestionOfMeatEggsAndDairy: Beef						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	1.02E-07	8.28E-07	2.04E-04	1.66E-03
			Aldrin	3.00E-05	4.67E-09	3.83E-08	1.56E-04	1.28E-03
			alpha-BHC	4.16E-04	2.03E-10	1.42E-09	4.87E-07	3.42E-06
			alpha-Chlordane	1.48E-05	1.93E-11	1.14E-10	1.30E-06	7.72E-06
			beta-BHC	3.30E-04	1.43E-10	8.20E-10	4.34E-07	2.48E-06
			Cadmium (food)	1.00E-03	4.68E-07	2.24E-06	4.68E-04	2.24E-03
			delta-BHC	2.00E-04	1.97E-10	1.32E-09	9.86E-07	6.62E-06
			Dieldrin	5.00E-05	1.37E-10	1.35E-09	2.74E-06	2.70E-05
			Endosulfan II	80	2.21E-10	1.29E-09	2.76E-12	1.61E-11
			Endosulfan sulfate	6.00E-03	2.61E-10	1.28E-09	4.35E-08	2.13E-07
			Endrin	3.00E-04	1.98E-08	1.80E-07	6.59E-05	5.99E-04
			gamma-BHC	3.00E-04	3.41E-10	2.70E-09	1.14E-06	8.98E-06
			gamma-Chlordane	6.00E-05	7.29E-11	6.99E-10	1.22E-06	1.17E-05
			Heptachlor	5.00E-04	7.70E-10	5.38E-09	1.54E-06	1.08E-05
			Heptachlor epoxide	1.30E-05	4.76E-12	2.51E-11	3.66E-07	1.93E-06
			Isodrin	3.00E-04	3.94E-09	2.99E-08	1.31E-05	9.97E-05
			Methoxychlor	5.00E-03	1.01E-07	7.16E-07	2.03E-05	1.43E-04

Table J-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Offsite Agricul	Grazing Cattle near the lagoons							
		IngestionOfMeatEggsAndDairy: Beef						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	2.38E-07	1.93E-06	4.76E-04	3.87E-03
			Aldrin	3.00E-05	1.09E-08	8.93E-08	3.63E-04	2.98E-03
			alpha-BHC	4.16E-04	4.73E-10	3.32E-09	1.14E-06	7.99E-06
			alpha-Chlordane	1.48E-05	4.50E-11	2.66E-10	3.04E-06	1.80E-05
			beta-BHC	3.30E-04	3.34E-10	1.91E-09	1.01E-06	5.80E-06
			Cadmium (food)	1.00E-03	1.09E-06	5.22E-06	1.09E-03	5.22E-03
			delta-BHC	2.00E-04	4.60E-10	3.09E-09	2.30E-06	1.54E-05
			Dieldrin	5.00E-05	3.20E-10	3.15E-09	6.40E-06	6.31E-05
			Endosulfan II	80	5.15E-10	3.01E-09	6.44E-12	3.76E-11
			Endosulfan sulfate	6.00E-03	6.10E-10	2.99E-09	1.02E-07	4.98E-07
			Endrin	3.00E-04	4.62E-08	4.20E-07	1.54E-04	1.40E-03
			gamma-BHC	3.00E-04	7.95E-10	6.29E-09	2.65E-06	2.10E-05
			gamma-Chlordane	6.00E-05	1.70E-10	1.63E-09	2.84E-06	2.72E-05
			Heptachlor	5.00E-04	1.80E-09	1.26E-08	3.59E-06	2.51E-05
			Heptachlor epoxide	1.30E-05	1.11E-11	5.85E-11	8.54E-07	4.50E-06
			Isodrin	3.00E-04	9.18E-09	6.98E-08	3.06E-05	2.33E-04
			Methoxychlor	5.00E-03	2.36E-07	1.67E-06	4.73E-05	3.34E-04

Table J-28
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond E

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond E		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	4.18E-07	1.27E-06
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.57E-08	4.26E-07

Table J-29
Cancer Risk Summary
Holloman AFB, New Mexico
Pond E

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	4.09E-11	1.41E-10	1.79E-12	1.84E-10	4.39E-02
4,4'-DDE	7.22E-10	7.30E-11	4.85E-13	7.96E-10	1.90E-01
4,4'-DDT	0.00E+00	2.01E-11	5.78E-13	2.07E-11	4.95E-03
Aldrin	0.00E+00	0.00E+00	1.47E-11	1.47E-11	3.50E-03
alpha-BHC	0.00E+00	0.00E+00	5.43E-12	5.43E-12	1.30E-03
alpha-Chlordane	0.00E+00	0.00E+00	9.61E-13	9.61E-13	2.30E-04
beta-BHC	0.00E+00	0.00E+00	5.33E-12	5.33E-12	1.27E-03
bis(2-Ethylhexyl)phthalate	2.61E-15	0.00E+00	0.00E+00	2.61E-15	6.25E-07
Dieldrin	3.10E-11	0.00E+00	0.00E+00	3.10E-11	7.41E-03
gamma-BHC	1.32E-12	5.13E-11	0.00E+00	5.26E-11	1.26E-02
gamma-Chlordane	2.67E-11	1.18E-10	1.41E-12	1.46E-10	3.49E-02
Heptachlor	0.00E+00	1.55E-09	3.69E-12	1.56E-09	3.72E-01
Heptachlor epoxide	2.27E-11	4.16E-07	0.00E+00	4.16E-07	9.93E+01
Total by pathway	8.45E-10	4.18E-07	3.43E-11		
% Contribution by pathway	2.02E-01	9.98E+01	8.20E-03		
Scenario Total				4.18E-07	
Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	3.21E-09	1.03E-09	1.14E-11	4.26E-09	3.35E-01
4,4'-DDE	1.02E-07	4.53E-10	2.09E-12	1.03E-07	8.06
4,4'-DDT	0.00E+00	6.97E-11	1.77E-12	7.14E-11	5.61E-03
Aldrin	0.00E+00	0.00E+00	4.67E-11	4.67E-11	3.67E-03
alpha-BHC	0.00E+00	0.00E+00	1.64E-11	1.64E-11	1.29E-03
alpha-Chlordane	0.00E+00	0.00E+00	3.04E-12	3.04E-12	2.39E-04
beta-BHC	0.00E+00	0.00E+00	2.57E-11	2.57E-11	2.02E-03
bis(2-Ethylhexyl)phthalate	3.05E-13	0.00E+00	0.00E+00	3.05E-13	2.39E-05
Dieldrin	2.43E-09	0.00E+00	0.00E+00	2.43E-09	1.91E-01
gamma-BHC	1.04E-10	2.02E-10	0.00E+00	3.06E-10	2.41E-02
gamma-Chlordane	2.09E-09	6.64E-10	5.78E-12	2.76E-09	2.17E-01
Heptachlor	0.00E+00	4.32E-09	1.17E-11	4.33E-09	3.40E-01
Heptachlor epoxide	1.78E-09	1.15E-06	0.00E+00	1.16E-06	9.08E+01
Total by pathway	1.12E-07	1.16E-06	1.25E-10		
% Contribution by pathway	8.78	9.12E+01	9.80E-03		
Scenario Total				1.27E-06	

Table J-29
Cancer Risk Summary
Holloman AFB, New Mexico
Pond E

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDT	4.46E-09	4.46E-09	2.84E+01		
Aldrin	1.02E-08	1.02E-08	6.52E+01		
alpha-BHC	1.64E-10	1.64E-10	1.05		
alpha-Chlordane	3.23E-12	3.23E-12	2.06E-02		
beta-BHC	3.31E-11	3.31E-11	2.11E-01		
Dieldrin	2.82E-10	2.82E-10	1.8		
gamma-BHC	5.70E-11	5.70E-11	3.64E-01		
gamma-Chlordane	1.22E-11	1.22E-11	7.78E-02		
Heptachlor	4.45E-10	4.45E-10	2.84		
Heptachlor epoxide	5.57E-12	5.57E-12	3.55E-02		
Total by pathway	1.57E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.57E-08			

Table J-29
Cancer Risk Summary
Holloman AFB, New Mexico
Pond E

Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDT	1.21E-07	1.21E-07	2.84E+01		
Aldrin	2.79E-07	2.79E-07	6.55E+01		
alpha-BHC	3.84E-09	3.84E-09	9.03E-01		
alpha-Chlordane	6.36E-11	6.36E-11	1.49E-02		
beta-BHC	6.32E-10	6.32E-10	1.49E-01		
Dieldrin	9.27E-09	9.27E-09	2.18		
gamma-BHC	1.50E-09	1.50E-09	3.53E-01		
gamma-Chlordane	3.89E-10	3.89E-10	9.15E-02		
Heptachlor	1.04E-08	1.04E-08	2.44		
Heptachlor epoxide	9.78E-11	9.78E-11	2.30E-02		
Total by pathway	4.26E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		4.26E-07			
Average Cancer Risk					

Table J-30
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Cancer Risk Estimates									
Holloman Risk Assessment - Pond E									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.70E-10	1.34E-08	4.09E-11	3.21E-09
			4,4'-DDE	3.40E-01	B2	2.12E-09	3.00E-07	7.22E-10	1.02E-07
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	1.87E-13	2.18E-11	2.61E-15	3.05E-13
			Dieldrin	16	B2	1.94E-12	1.52E-10	3.10E-11	2.43E-09
			gamma-BHC	1.3	B2/C	1.02E-12	7.99E-11	1.32E-12	1.04E-10
			gamma-Chlordane	1.3	B2	2.05E-11	1.61E-09	2.67E-11	2.09E-09
			Heptachlor epoxide	9.1	B2	2.49E-12	1.96E-10	2.27E-11	1.78E-09
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	5.87E-10	4.31E-09	1.41E-10	1.03E-09
			4,4'-DDE	3.40E-01	B2	2.15E-10	1.33E-09	7.30E-11	4.53E-10
			4,4'-DDT	3.40E-01	B2	5.92E-11	2.05E-10	2.01E-11	6.97E-11
			gamma-BHC	1.3	B2/C	3.95E-11	1.56E-10	5.13E-11	2.02E-10
			gamma-Chlordane	1.3	B2	9.07E-11	5.10E-10	1.18E-10	6.64E-10
			Heptachlor	4.5	B2	3.45E-10	9.59E-10	1.55E-09	4.32E-09
			Heptachlor epoxide	9.1	B2	4.57E-08	1.27E-07	4.16E-07	1.15E-06
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	7.47E-12	4.76E-11	1.79E-12	1.14E-11
			4,4'-DDE	3.40E-01	B2	1.43E-12	6.15E-12	4.85E-13	2.09E-12
			4,4'-DDT	3.40E-01	B2	1.70E-12	5.20E-12	5.78E-13	1.77E-12
			Aldrin	17	B2	8.62E-13	2.75E-12	1.47E-11	4.67E-11
			alpha-BHC	6.3	B2	8.62E-13	2.60E-12	5.43E-12	1.64E-11
			alpha-Chlordane	1.3	B2	7.40E-13	2.34E-12	9.61E-13	3.04E-12
			beta-BHC	1.8	C	2.96E-12	1.43E-11	5.33E-12	2.57E-11
			gamma-Chlordane	1.3	B2	1.08E-12	4.45E-12	1.41E-12	5.78E-12
			Heptachlor	4.5	B2	8.20E-13	2.61E-12	3.69E-12	1.17E-11

Table J-30
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDT	3.40E-01	B2	1.31E-08	3.55E-07	4.46E-09	1.21E-07
			Aldrin	17	B2	6.01E-10	1.64E-08	1.02E-08	2.79E-07
			alpha-BHC	6.3	B2	2.60E-11	6.10E-10	1.64E-10	3.84E-09
			alpha-Chlordane	1.3	B2	2.48E-12	4.89E-11	3.23E-12	6.36E-11
			beta-BHC	1.8	C	1.84E-11	3.51E-10	3.31E-11	6.32E-10
			Dieldrin	16	B2	1.76E-11	5.79E-10	2.82E-10	9.27E-09
			gamma-BHC	1.3	B2/C	4.38E-11	1.16E-09	5.70E-11	1.50E-09
			gamma-Chlordane	1.3	B2	9.37E-12	3.00E-10	1.22E-11	3.89E-10
			Heptachlor	4.5	B2	9.89E-11	2.31E-09	4.45E-10	1.04E-08
			Heptachlor epoxide	9.1	B2	6.12E-13	1.08E-11	5.57E-12	9.78E-11

Table J-31
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond F

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond F		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	2.65E-04	2.36E-03
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	9.38E-04	6.09E-03
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	2.19E-03	1.42E-02
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond F		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Future (Lagoons Out of Service)	1.69E-02	1.35E-01

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	3.57E-06	5.65E-05	3.37E-07	6.04E-05	2.28E+01	
4,4'-DDE	2.03E-06	1.62E-06	1.76E-08	3.67E-06	1.38	
4,4'-DDT	0.00E+00	5.49E-08	2.36E-09	5.72E-08	2.16E-02	
alpha-Chlordane	6.22E-05	4.66E-05	0.00E+00	1.09E-04	4.10E+01	
Arsenic	0.00E+00	4.78E-07	0.00E+00	4.78E-07	1.80E-01	
delta-BHC	0.00E+00	8.20E-05	6.15E-08	8.20E-05	3.09E+01	
gamma-BHC	2.18E-09	1.07E-07	0.00E+00	1.09E-07	4.12E-02	
gamma-Chlordane	5.11E-06	4.25E-06	3.42E-08	9.40E-06	3.54	
Heptachlor	0.00E+00	2.41E-07	0.00E+00	2.41E-07	9.07E-02	
Total by pathway	7.29E-05	1.92E-04	4.52E-07			
% Contribution by pathway	2.75E+01	7.23E+01	1.71E-01			
Scenario Total				2.65E-04		
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	1.01E-04	1.00E-04	3.37E-07	2.01E-04	8.53	
4,4'-DDE	5.74E-05	2.22E-06	1.76E-08	5.96E-05	2.52	
4,4'-DDT	0.00E+00	6.50E-08	2.36E-09	6.74E-08	2.85E-03	
alpha-Chlordane	1.76E-03	7.69E-05	0.00E+00	1.84E-03	7.77E+01	
Arsenic	0.00E+00	6.07E-07	0.00E+00	6.07E-07	2.57E-02	
delta-BHC	0.00E+00	1.14E-04	6.15E-08	1.14E-04	4.82	
gamma-BHC	6.17E-08	1.15E-07	0.00E+00	1.77E-07	7.50E-03	
gamma-Chlordane	1.45E-04	4.86E-06	3.42E-08	1.49E-04	6.33	
Heptachlor	0.00E+00	2.48E-07	0.00E+00	2.48E-07	1.05E-02	
Total by pathway	2.06E-03	2.99E-04	4.52E-07			
% Contribution by pathway	8.73E+01	1.27E+01	1.92E-02			
Scenario Total				2.36E-03		

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sedim	Incidential Ingestion of Sludge	Incidential I	Total	% Contrib
4,4'-DDT	6.29E-04	2.70E-05	1.27E-04	5.45E-06	7.89E-04	4.67
alpha-Chlordane	5.89E-03	0.00E+00	1.19E-03	0.00E+00	7.07E-03	4.19E+01
Arsenic	2.45E-04	0.00E+00	4.93E-03	0.00E+00	5.18E-03	3.07E+01
delta-BHC	0.00E+00	0.00E+00	8.45E-04	6.34E-07	8.46E-04	5.01
gamma-BHC	5.48E-05	0.00E+00	1.10E-05	0.00E+00	6.58E-05	3.90E-01
gamma-Chlordane	2.18E-03	1.75E-05	4.38E-04	3.52E-06	2.63E-03	1.56E+01
Heptachlor	2.40E-04	0.00E+00	4.84E-05	0.00E+00	2.88E-04	1.71
Total by pathway	9.23E-03	4.45E-05	7.59E-03	9.60E-06		
% Contribution by pathway	5.47E+01	2.64E-01	4.50E+01	5.69E-02		
Scenario Total					1.69E-02	
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Future (Lagoons Out of Service)						
	Dermal Contact with Sludge	Dermal Contact with Sedim	Incidential Ingestion of Sludge	Incidential I	Total	% Contrib
4,4'-DDT	1.86E-03	6.76E-05	1.50E-03	5.45E-05	3.49E-03	2.58
alpha-Chlordane	2.43E-02	0.00E+00	1.96E-02	0.00E+00	4.38E-02	3.24E+01
Arsenic	7.77E-04	0.00E+00	6.26E-02	0.00E+00	6.34E-02	4.69E+01
delta-BHC	0.00E+00	0.00E+00	1.17E-02	6.34E-06	1.17E-02	8.69
gamma-BHC	1.48E-04	0.00E+00	1.19E-04	0.00E+00	2.67E-04	1.97E-01
gamma-Chlordane	6.22E-03	4.37E-05	5.01E-03	3.52E-05	1.13E-02	8.36
Heptachlor	6.18E-04	0.00E+00	4.98E-04	0.00E+00	1.12E-03	8.25E-01
Total by pathway	3.39E-02	1.11E-04	1.01E-01	9.60E-05		
% Contribution by pathway	2.51E+01	8.23E-02	7.48E+01	7.11E-02		
Scenario Total					1.35E-01	

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDT	2.04E-04	2.04E-04	2.17E+01			
Aldrin	1.56E-04	1.56E-04	1.66E+01			
alpha-BHC	4.87E-07	4.87E-07	5.19E-02			
alpha-Chlordane	1.30E-06	1.30E-06	1.39E-01			
beta-BHC	4.34E-07	4.34E-07	4.63E-02			
Cadmium (food)	4.68E-04	4.68E-04	5.00E+01			
delta-BHC	9.86E-07	9.86E-07	1.05E-01			
Dieldrin	2.74E-06	2.74E-06	2.92E-01			
Endosulfan II	2.76E-12	2.76E-12	2.94E-07			
Endosulfan sulfate	4.35E-08	4.35E-08	4.64E-03			
Endrin	6.59E-05	6.59E-05	7.03			
gamma-BHC	1.14E-06	1.14E-06	1.21E-01			
gamma-Chlordane	1.22E-06	1.22E-06	1.30E-01			
Heptachlor	1.54E-06	1.54E-06	1.64E-01			
Heptachlor epoxide	3.66E-07	3.66E-07	3.90E-02			
Isodrin	1.31E-05	1.31E-05	1.4			
Methoxychlor	2.03E-05	2.03E-05	2.16			
Total by pathway	9.38E-04					
% Contribution by pathway	1.00E+02					
Scenario Total		9.38E-04				

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Reas. Max. Non-Cancer Hazard Index Summary						
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDT	1.66E-03	1.66E-03	2.72E+01			
Aldrin	1.28E-03	1.28E-03	2.09E+01			
alpha-BHC	3.42E-06	3.42E-06	5.62E-02			
alpha-Chlordane	7.72E-06	7.72E-06	1.27E-01			
beta-BHC	2.48E-06	2.48E-06	4.08E-02			
Cadmium (food)	2.24E-03	2.24E-03	3.67E+01			
delta-BHC	6.62E-06	6.62E-06	1.09E-01			
Dieldrin	2.70E-05	2.70E-05	4.44E-01			
Endosulfan II	1.61E-11	1.61E-11	2.64E-07			
Endosulfan sulfate	2.13E-07	2.13E-07	3.50E-03			
Endrin	5.99E-04	5.99E-04	9.84			
gamma-BHC	8.98E-06	8.98E-06	1.48E-01			
gamma-Chlordane	1.17E-05	1.17E-05	1.91E-01			
Heptachlor	1.08E-05	1.08E-05	1.77E-01			
Heptachlor epoxide	1.93E-06	1.93E-06	3.17E-02			
Isodrin	9.97E-05	9.97E-05	1.64			
Methoxychlor	1.43E-04	1.43E-04	2.35			
Total by pathway	6.09E-03					
% Contribution by pathway	1.00E+02					
Scenario Total		6.09E-03				

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Average Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDT	4.76E-04	4.76E-04	2.17E+01			
Aldrin	3.63E-04	3.63E-04	1.66E+01			
alpha-BHC	1.14E-06	1.14E-06	5.19E-02			
alpha-Chlordane	3.04E-06	3.04E-06	1.39E-01			
beta-BHC	1.01E-06	1.01E-06	4.63E-02			
Cadmium (food)	1.09E-03	1.09E-03	5.00E+01			
delta-BHC	2.30E-06	2.30E-06	1.05E-01			
Dieldrin	6.40E-06	6.40E-06	2.92E-01			
Endosulfan II	6.44E-12	6.44E-12	2.94E-07			
Endosulfan sulfate	1.02E-07	1.02E-07	4.64E-03			
Endrin	1.54E-04	1.54E-04	7.03			
gamma-BHC	2.65E-06	2.65E-06	1.21E-01			
gamma-Chlordane	2.84E-06	2.84E-06	1.30E-01			
Heptachlor	3.59E-06	3.59E-06	1.64E-01			
Heptachlor epoxide	8.54E-07	8.54E-07	3.90E-02			
Isodrin	3.06E-05	3.06E-05	1.4			
Methoxychlor	4.73E-05	4.73E-05	2.16			
Total by pathway	2.19E-03					
% Contribution by pathway	1.00E+02					
Scenario Total		2.19E-03				

Table J-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F

Reas. Max. Non-Cancer Hazard Index Summary						
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)						
	Ingestion of Beef	Total	% Contrib			
4,4'-DDT	3.87E-03	3.87E-03	2.72E+01			
Aldrin	2.98E-03	2.98E-03	2.09E+01			
alpha-BHC	7.99E-06	7.99E-06	5.62E-02			
alpha-Chlordane	1.80E-05	1.80E-05	1.27E-01			
beta-BHC	5.80E-06	5.80E-06	4.08E-02			
Cadmium (food)	5.22E-03	5.22E-03	3.67E+01			
delta-BHC	1.54E-05	1.54E-05	1.09E-01			
Dieldrin	6.31E-05	6.31E-05	4.44E-01			
Endosulfan II	3.76E-11	3.76E-11	2.64E-07			
Endosulfan sulfate	4.98E-07	4.98E-07	3.50E-03			
Endrin	1.40E-03	1.40E-03	9.84			
gamma-BHC	2.10E-05	2.10E-05	1.48E-01			
gamma-Chlordane	2.72E-05	2.72E-05	1.91E-01			
Heptachlor	2.51E-05	2.51E-05	1.77E-01			
Heptachlor epoxide	4.50E-06	4.50E-06	3.17E-02			
Isodrin	2.33E-04	2.33E-04	1.64			
Methoxychlor	3.34E-04	3.34E-04	2.35			
Total by pathway	1.42E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		1.42E-02				

Table J-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond F									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.78E-09	5.04E-08	3.57E-06	1.01E-04	
			4,4'-DDE	3.89E-03	7.89E-09	2.23E-07	2.03E-06	5.74E-05	
			alpha-Chlordane	1.48E-05	9.20E-10	2.60E-08	6.22E-05	1.76E-03	
			gamma-BHC	3.00E-03	6.55E-12	1.85E-10	2.18E-09	6.17E-08	
			gamma-Chlordane	6.00E-05	3.07E-10	8.68E-09	5.11E-06	1.45E-04	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.82E-08	5.01E-08	5.65E-05	1.00E-04	
			4,4'-DDE	3.89E-03	6.31E-09	8.65E-09	1.62E-06	2.22E-06	
			4,4'-DDT	1.12E-02	6.15E-10	7.29E-10	5.49E-08	6.50E-08	
			alpha-Chlordane	1.48E-05	6.90E-10	1.14E-09	4.66E-05	7.69E-05	
			Arsenic	3.00E-04	1.43E-10	1.82E-10	4.78E-07	6.07E-07	
			delta-BHC	2.00E-04	1.64E-08	2.28E-08	8.20E-05	1.14E-04	
			gamma-BHC	3.00E-03	3.21E-10	3.46E-10	1.07E-07	1.15E-07	
			gamma-Chlordane	6.00E-05	2.55E-10	2.91E-10	4.25E-06	4.86E-06	
			Heptachlor	9.75E-04	2.35E-10	2.41E-10	2.41E-07	2.48E-07	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.68E-10	1.68E-10	3.37E-07	3.37E-07	
			4,4'-DDE	3.89E-03	6.83E-11	6.83E-11	1.76E-08	1.76E-08	
			4,4'-DDT	1.12E-02	2.64E-11	2.64E-11	2.36E-09	2.36E-09	
			delta-BHC	2.00E-04	1.23E-11	1.23E-11	6.15E-08	6.15E-08	
			gamma-Chlordane	6.00E-05	2.05E-12	2.05E-12	3.42E-08	3.42E-08	

Table J-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Onsite Occupational - (S) Future (Lagoons Out of Service)									
	Working around the lagoons								
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	3.15E-07	9.32E-07	6.29E-04	1.86E-03	
			alpha-Chlordane	6.00E-05	3.53E-07	1.46E-06	5.89E-03	2.43E-02	
			Arsenic	3.00E-04	7.34E-08	2.33E-07	2.45E-04	7.77E-04	
			gamma-BHC	3.00E-03	1.64E-07	4.43E-07	5.48E-05	1.48E-04	
			gamma-Chlordane	6.00E-05	1.31E-07	3.73E-07	2.18E-03	6.22E-03	
			Heptachlor	5.00E-04	1.20E-07	3.09E-07	2.40E-04	6.18E-04	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.35E-08	3.38E-08	2.70E-05	6.76E-05	
			gamma-Chlordane	6.00E-05	1.05E-09	2.62E-09	1.75E-05	4.37E-05	
		IngestionOfSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	6.34E-08	7.51E-07	1.27E-04	1.50E-03	
			alpha-Chlordane	6.00E-05	7.12E-08	1.17E-06	1.19E-03	1.96E-02	
			Arsenic	3.00E-04	1.48E-06	1.88E-05	4.93E-03	6.26E-02	
			delta-BHC	2.00E-03	1.69E-06	2.35E-05	8.45E-04	1.17E-02	
			gamma-BHC	3.00E-03	3.31E-08	3.57E-07	1.10E-05	1.19E-04	
			gamma-Chlordane	6.00E-05	2.63E-08	3.01E-07	4.38E-04	5.01E-03	
			Heptachlor	5.00E-04	2.42E-08	2.49E-07	4.84E-05	4.98E-04	
		IngestionOfSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.72E-09	2.72E-08	5.45E-06	5.45E-05	
			delta-BHC	2.00E-03	1.27E-09	1.27E-08	6.34E-07	6.34E-06	
			gamma-Chlordane	6.00E-05	2.11E-10	2.11E-09	3.52E-06	3.52E-05	
		InhalationOfVapor: Occupational Inhalation							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	

Table J-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.02E-07	8.28E-07	2.04E-04	1.66E-03	
			Aldrin	3.00E-05	4.67E-09	3.83E-08	1.56E-04	1.28E-03	
			alpha-BHC	4.16E-04	2.03E-10	1.42E-09	4.87E-07	3.42E-06	
			alpha-Chlordane	1.48E-05	1.93E-11	1.14E-10	1.30E-06	7.72E-06	
			beta-BHC	3.30E-04	1.43E-10	8.20E-10	4.34E-07	2.48E-06	
			Cadmium (food)	1.00E-03	4.68E-07	2.24E-06	4.68E-04	2.24E-03	
			delta-BHC	2.00E-04	1.97E-10	1.32E-09	9.86E-07	6.62E-06	
			Dieldrin	5.00E-05	1.37E-10	1.35E-09	2.74E-06	2.70E-05	
			Endosulfan II	80	2.21E-10	1.29E-09	2.76E-12	1.61E-11	
			Endosulfan sulfate	6.00E-03	2.61E-10	1.28E-09	4.35E-08	2.13E-07	
			Endrin	3.00E-04	1.98E-08	1.80E-07	6.59E-05	5.99E-04	
			gamma-BHC	3.00E-04	3.41E-10	2.70E-09	1.14E-06	8.98E-06	
			gamma-Chlordane	6.00E-05	7.29E-11	6.99E-10	1.22E-06	1.17E-05	
			Heptachlor	5.00E-04	7.70E-10	5.38E-09	1.54E-06	1.08E-05	
			Heptachlor epoxide	1.30E-05	4.76E-12	2.51E-11	3.66E-07	1.93E-06	
			Isodrin	3.00E-04	3.94E-09	2.99E-08	1.31E-05	9.97E-05	
			Methoxychlor	5.00E-03	1.01E-07	7.16E-07	2.03E-05	1.43E-04	

Table J-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Offsite Agricultural, Child - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.38E-07	1.93E-06	4.76E-04	3.87E-03	
			Aldrin	3.00E-05	1.09E-08	8.93E-08	3.63E-04	2.98E-03	
			alpha-BHC	4.16E-04	4.73E-10	3.32E-09	1.14E-06	7.99E-06	
			alpha-Chlordane	1.48E-05	4.50E-11	2.66E-10	3.04E-06	1.80E-05	
			beta-BHC	3.30E-04	3.34E-10	1.91E-09	1.01E-06	5.80E-06	
			Cadmium (food)	1.00E-03	1.09E-06	5.22E-06	1.09E-03	5.22E-03	
			delta-BHC	2.00E-04	4.60E-10	3.09E-09	2.30E-06	1.54E-05	
			Dieldrin	5.00E-05	3.20E-10	3.15E-09	6.40E-06	6.31E-05	
			Endosulfan II	80	5.15E-10	3.01E-09	6.44E-12	3.76E-11	
			Endosulfan sulfate	6.00E-03	6.10E-10	2.99E-09	1.02E-07	4.98E-07	
			Endrin	3.00E-04	4.62E-08	4.20E-07	1.54E-04	1.40E-03	
			gamma-BHC	3.00E-04	7.95E-10	6.29E-09	2.65E-06	2.10E-05	
			gamma-Chlordane	6.00E-05	1.70E-10	1.63E-09	2.84E-06	2.72E-05	
			Heptachlor	5.00E-04	1.80E-09	1.26E-08	3.59E-06	2.51E-05	
			Heptachlor epoxide	1.30E-05	1.11E-11	5.85E-11	8.54E-07	4.50E-06	
			Isodrin	3.00E-04	9.18E-09	6.98E-08	3.06E-05	2.33E-04	
			Methoxychlor	5.00E-03	2.36E-07	1.67E-06	4.73E-05	3.34E-04	

Table J-34
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond F

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond F		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	2.14E-09	5.43E-08
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	1.57E-08	4.26E-07

Table J-35
Cancer Risk Summary
Holloman AFB, New Mexico
Pond F

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	5.50E-11	8.70E-10	5.20E-12	9.30E-10	4.36E+01
4,4'-DDE	3.40E-10	2.80E-10	3.00E-12	6.20E-10	2.92E+01
4,4'-DDT	0.00E+00	2.70E-11	1.20E-12	2.80E-11	1.31
alpha-Chlordane	1.50E-10	1.20E-10	0.00E+00	2.70E-10	1.26E+01
gamma-BHC	1.10E-12	5.40E-11	0.00E+00	5.50E-11	2.56
gamma-Chlordane	5.10E-11	4.30E-11	3.40E-13	9.40E-11	4.41
Heptachlor	0.00E+00	1.40E-10	0.00E+00	1.40E-10	6.35
Total by pathway	6.10E-10	1.50E-09	9.70E-12		
% Contribution by pathway	2.84E+01	7.12E+01	4.53E-01		
Scenario Total				2.10E-09	
Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	4.30E-09	4.30E-09	1.40E-11	8.60E-09	1.59E+01
4,4'-DDE	2.70E-08	1.10E-09	8.30E-12	2.80E-08	5.19E+01
4,4'-DDT	0.00E+00	8.80E-11	3.20E-12	9.20E-11	1.69E-01
alpha-Chlordane	1.20E-08	5.30E-10	0.00E+00	1.30E-08	2.32E+01
gamma-BHC	8.60E-11	1.60E-10	0.00E+00	2.50E-10	4.54E-01
gamma-Chlordane	4.00E-09	1.40E-10	9.50E-13	4.20E-09	7.67
Heptachlor	0.00E+00	3.90E-10	0.00E+00	3.90E-10	7.14E-01
Total by pathway	4.80E-08	6.60E-09	2.70E-11		
% Contribution by pathway	8.77E+01	1.22E+01	4.95E-02		
Scenario Total				5.40E-08	

Table J-35
Cancer Risk Summary
Holloman AFB, New Mexico
Pond F

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDT	4.50E-09	4.50E-09	2.84E+01		
Aldrin	1.00E-08	1.00E-08	6.52E+01		
alpha-BHC	1.60E-10	1.60E-10	1.05		
alpha-Chlordane	3.20E-12	3.20E-12	2.06E-02		
beta-BHC	3.30E-11	3.30E-11	2.11E-01		
Dieldrin	2.80E-10	2.80E-10	1.8		
gamma-BHC	5.70E-11	5.70E-11	3.64E-01		
gamma-Chlordane	1.20E-11	1.20E-11	7.78E-02		
Heptachlor	4.50E-10	4.50E-10	2.84		
Heptachlor epoxide	5.60E-12	5.60E-12	3.55E-02		
Total by pathway	1.60E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.60E-08			
Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDT	1.20E-07	1.20E-07	2.84E+01		
Aldrin	2.80E-07	2.80E-07	6.55E+01		
alpha-BHC	3.80E-09	3.80E-09	9.03E-01		
alpha-Chlordane	6.40E-11	6.40E-11	1.49E-02		
beta-BHC	6.30E-10	6.30E-10	1.49E-01		
Dieldrin	9.30E-09	9.30E-09	2.18		
gamma-BHC	1.50E-09	1.50E-09	3.53E-01		
gamma-Chlordane	3.90E-10	3.90E-10	9.15E-02		
Heptachlor	1.00E-08	1.00E-08	2.44		
Heptachlor epoxide	9.80E-11	9.80E-11	2.30E-02		
Total by pathway	4.30E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		4.30E-07			

Table J-36
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Cancer Risk Estimates									
Holloman Risk Assessment - Pond F									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.29E-10	1.80E-08	5.50E-11	4.32E-09
			4,4'-DDE	3.40E-01	B2	1.01E-09	7.97E-08	3.45E-10	2.71E-08
			alpha-Chlordane	1.3	B2	1.18E-10	9.30E-09	1.54E-10	1.21E-08
			gamma-BHC	1.3	B2/C	8.42E-13	6.62E-11	1.09E-12	8.60E-11
			gamma-Chlordane	1.3	B2	3.94E-11	3.10E-09	5.13E-11	4.03E-09
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	3.63E-09	1.79E-08	8.71E-10	4.29E-09
			4,4'-DDE	3.40E-01	B2	8.11E-10	3.09E-09	2.76E-10	1.05E-09
			4,4'-DDT	3.40E-01	B2	7.90E-11	2.60E-10	2.69E-11	8.85E-11
			alpha-Chlordane	1.3	B2	8.87E-11	4.07E-10	1.15E-10	5.29E-10
			gamma-BHC	1.3	B2/C	4.13E-11	1.24E-10	5.37E-11	1.61E-10
			gamma-Chlordane	1.3	B2	3.28E-11	1.04E-10	4.26E-11	1.35E-10
			Heptachlor	4.5	B2	3.02E-11	8.62E-11	1.36E-10	3.88E-10
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.17E-11	6.02E-11	5.20E-12	1.44E-11
			4,4'-DDE	3.40E-01	B2	8.78E-12	2.44E-11	2.99E-12	8.29E-12
			4,4'-DDT	3.40E-01	B2	3.40E-12	9.43E-12	1.15E-12	3.21E-12
			gamma-Chlordane	1.3	B2	2.63E-13	7.32E-13	3.42E-13	9.51E-13

Table J-36
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDT	3.40E-01	B2	1.31E-08	3.55E-07	4.46E-09	1.21E-07
			Aldrin	17	B2	6.01E-10	1.64E-08	1.02E-08	2.79E-07
			alpha-BHC	6.3	B2	2.60E-11	6.10E-10	1.64E-10	3.84E-09
			alpha-Chlordane	1.3	B2	2.48E-12	4.89E-11	3.23E-12	6.36E-11
			beta-BHC	1.8	C	1.84E-11	3.51E-10	3.31E-11	6.32E-10
			Dieldrin	16	B2	1.76E-11	5.79E-10	2.82E-10	9.27E-09
			gamma-BHC	1.3	B2/C	4.38E-11	1.16E-09	5.70E-11	1.50E-09
			gamma-Chlordane	1.3	B2	9.37E-12	3.00E-10	1.22E-11	3.89E-10
			Heptachlor	4.5	B2	9.89E-11	2.31E-09	4.45E-10	1.04E-08
			Heptachlor epoxide	9.1	B2	6.12E-13	1.08E-11	5.57E-12	9.78E-11

Table J-37
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond G

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond G		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	5.03E-02	2.21
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	2.39E-05	2.40E-04
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)	5.58E-05	5.59E-04
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)	5.46E-03	7.75E-02
Onsite Recreational - Fowl, Child - Current/Future (Lagoons In or Out of Service)	1.66E-02	2.17E-01
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond G		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - (S) Current (Lagoons in Service)	5.03E-02	2.21
Onsite Recreational, Child - (S-4yrs) Current/Future (Lagoons In or Out of Service)	1.25	3.88

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	0.00E+00	7.51E-06	3.28E-08	7.55E-06	1.50E-02	
4,4'-DDE	0.00E+00	2.09E-07	2.14E-09	2.11E-07	4.19E-04	
4,4'-DDT	0.00E+00	3.34E-08	0.00E+00	3.34E-08	6.64E-05	
alpha-BHC	2.45E-09	1.85E-07	7.78E-09	1.95E-07	3.88E-04	
Arsenic	1.55E-07	0.00E+00	2.75E-07	4.30E-07	8.56E-04	
Beryllium	0.00E+00	5.28E-09	0.00E+00	5.28E-09	1.05E-05	
beta-BHC	5.00E-07	0.00E+00	4.26E-08	5.43E-07	1.08E-03	
bis(2-Ethylhexyl)phthalate	6.44E-11	0.00E+00	0.00E+00	6.44E-11	1.28E-07	
Boron	1.01E-07	0.00E+00	0.00E+00	1.01E-07	2.01E-04	
Endosulfan II	3.11E-16	0.00E+00	0.00E+00	3.11E-16	6.18E-13	
Endosulfan sulfate	0.00E+00	0.00E+00	1.90E-10	1.90E-10	3.78E-07	
gamma-BHC	1.80E-09	0.00E+00	3.05E-09	4.86E-09	9.66E-06	
gamma-Chlordane	0.00E+00	6.70E-06	0.00E+00	6.70E-06	1.33E-02	
Heptachlor	0.00E+00	0.00E+00	7.94E-09	7.94E-09	1.58E-05	
Lead (organic)	5.03E-02	0.00E+00	0.00E+00	5.03E-02	1.00E+02	
Manganese (water)	3.67E-07	0.00E+00	0.00E+00	3.67E-07	7.29E-04	
Mercury	2.03E-08	0.00E+00	0.00E+00	2.03E-08	4.03E-05	
Total by pathway	5.03E-02	1.46E-05	3.72E-07			
% Contribution by pathway	1.00E+02	2.91E-02	7.39E-04			
Scenario Total				5.03E-02		

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDD	0.00E+00	1.62E-05	4.84E-08	1.63E-05	7.35E-04	
4,4'-DDE	0.00E+00	3.63E-07	2.63E-09	3.66E-07	1.65E-05	
4,4'-DDT	0.00E+00	4.76E-08	0.00E+00	4.76E-08	2.15E-06	
alpha-BHC	1.34E-07	2.88E-07	9.63E-09	4.31E-07	1.95E-05	
alpha-Chlordane	0.00E+00	2.40E-05	0.00E+00	2.40E-05	1.08E-03	
Arsenic	6.48E-06	0.00E+00	3.31E-07	6.81E-06	3.08E-04	
Beryllium	0.00E+00	6.98E-09	0.00E+00	6.98E-09	3.15E-07	
beta-BHC	2.81E-05	0.00E+00	7.38E-08	2.81E-05	1.27E-03	
bis(2-Ethylhexyl)phthalate	2.37E-09	0.00E+00	0.00E+00	2.37E-09	1.07E-07	
Boron	3.17E-06	0.00E+00	0.00E+00	3.17E-06	1.43E-04	
Endosulfan II	8.79E-15	0.00E+00	0.00E+00	8.79E-15	3.97E-13	
Endosulfan sulfate	0.00E+00	0.00E+00	2.58E-10	2.58E-10	1.17E-08	
gamma-BHC	5.09E-08	0.00E+00	3.84E-09	5.48E-08	2.48E-06	
gamma-Chlordane	0.00E+00	1.36E-05	0.00E+00	1.36E-05	6.14E-04	
Heptachlor	0.00E+00	0.00E+00	9.99E-09	9.99E-09	4.51E-07	
Lead (organic)	2.21	0.00E+00	0.00E+00	2.21	1.00E+02	
Manganese (water)	1.11E-05	0.00E+00	0.00E+00	1.11E-05	5.01E-04	
Mercury	5.73E-07	0.00E+00	0.00E+00	5.73E-07	2.59E-05	
Total by pathway	2.21	5.45E-05	4.80E-07			
% Contribution by pathway	1.00E+02	2.46E-03	2.17E-05			
Scenario Total				2.21		

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDT	0.00E+00	7.48E-07	0.00E+00	7.48E-07	1.49E-03	
Arsenic	1.55E-07	0.00E+00	2.75E-07	4.30E-07	8.56E-04	
Beryllium	0.00E+00	5.28E-09	0.00E+00	5.28E-09	1.05E-05	
beta-BHC	4.96E-08	0.00E+00	4.22E-09	5.38E-08	1.07E-04	
bis(2-Ethylhexyl)phthalate	6.44E-11	0.00E+00	0.00E+00	6.44E-11	1.28E-07	
Boron	1.01E-07	0.00E+00	0.00E+00	1.01E-07	2.01E-04	
Endosulfan II	4.97E-10	0.00E+00	0.00E+00	4.97E-10	9.89E-07	
gamma-BHC	1.80E-09	0.00E+00	3.05E-09	4.86E-09	9.66E-06	
gamma-Chlordane	0.00E+00	6.70E-06	0.00E+00	6.70E-06	1.33E-02	
Heptachlor	0.00E+00	0.00E+00	1.55E-08	1.55E-08	3.08E-05	
Lead (organic)	5.03E-02	0.00E+00	0.00E+00	5.03E-02	1.00E+02	
Mercury	2.03E-08	0.00E+00	0.00E+00	2.03E-08	4.03E-05	
Total by pathway	5.03E-02	7.46E-06	2.98E-07			
% Contribution by pathway	1.00E+02	1.48E-02	5.93E-04			
Scenario Total				5.03E-02		
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - (S) Current (Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib	
4,4'-DDT	0.00E+00	1.07E-06	0.00E+00	1.07E-06	4.82E-05	
alpha-Chlordane	0.00E+00	5.91E-06	0.00E+00	5.91E-06	2.67E-04	
Arsenic	6.48E-06	0.00E+00	3.31E-07	6.81E-06	3.08E-04	
Beryllium	0.00E+00	6.98E-09	0.00E+00	6.98E-09	3.15E-07	
beta-BHC	2.78E-06	0.00E+00	7.32E-09	2.79E-06	1.26E-04	
bis(2-Ethylhexyl)phthalate	2.37E-09	0.00E+00	0.00E+00	2.37E-09	1.07E-07	
Boron	3.17E-06	0.00E+00	0.00E+00	3.17E-06	1.43E-04	
Endosulfan II	1.41E-08	0.00E+00	0.00E+00	1.41E-08	6.36E-07	
gamma-BHC	5.09E-08	0.00E+00	3.84E-09	5.48E-08	2.48E-06	
gamma-Chlordane	0.00E+00	1.36E-05	0.00E+00	1.36E-05	6.14E-04	
Heptachlor	0.00E+00	0.00E+00	1.95E-08	1.95E-08	8.80E-07	
Lead (organic)	2.21	0.00E+00	0.00E+00	2.21	1.00E+02	
Mercury	5.73E-07	0.00E+00	0.00E+00	5.73E-07	2.59E-05	
Total by pathway	2.21	2.06E-05	3.62E-07			
% Contribution by pathway	1.00E+02	9.29E-04	1.64E-05			
Scenario Total				2.21		

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDD	2.38E-05	2.38E-05	9.93E+01
alpha-BHC	4.35E-59	4.35E-59	1.82E-52
Dieldrin	6.91E-08	6.91E-08	2.89E-01
Endosulfan I	2.54E-64	2.54E-64	1.06E-57
Endosulfan sulfate	3.03E-63	3.03E-63	1.26E-56
Endrin	9.27E-13	9.27E-13	3.87E-06
gamma-BHC	2.45E-17	2.45E-17	1.02E-10
gamma-Chlordane	9.77E-08	9.77E-08	4.08E-01
Heptachlor	1.02E-09	1.02E-09	4.28E-03
Heptachlor epoxide	6.18E-10	6.18E-10	2.58E-03
Methoxychlor	9.30E-32	9.30E-32	3.89E-25
Total by pathway	2.39E-05		
% Contribution by pathway	1.00E+02		
Scenario Total		2.39E-05	
Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDD	2.38E-04	2.38E-04	9.94E+01
alpha-BHC	4.52E-58	4.52E-58	1.88E-52
Dieldrin	4.60E-07	4.60E-07	1.92E-01
Endosulfan I	1.94E-63	1.94E-63	8.11E-58
Endosulfan sulfate	1.76E-62	1.76E-62	7.34E-57
Endrin	6.90E-12	6.90E-12	2.88E-06
gamma-BHC	2.42E-16	2.42E-16	1.01E-10
gamma-Chlordane	1.07E-06	1.07E-06	4.46E-01
Heptachlor	5.31E-09	5.31E-09	2.22E-03
Heptachlor epoxide	6.79E-09	6.79E-09	2.83E-03
Methoxychlor	3.96E-31	3.96E-31	1.65E-25
Total by pathway	2.40E-04		
% Contribution by pathway	1.00E+02		
Scenario Total		2.40E-04	

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary			
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDD	5.54E-05	5.54E-05	9.93E+01
alpha-BHC	1.01E-58	1.01E-58	1.82E-52
Dieldrin	1.61E-07	1.61E-07	2.89E-01
Endosulfan I	5.93E-64	5.93E-64	1.06E-57
Endosulfan sulfate	7.06E-63	7.06E-63	1.26E-56
Endrin	2.16E-12	2.16E-12	3.87E-06
gamma-BHC	5.72E-17	5.72E-17	1.02E-10
gamma-Chlordane	2.28E-07	2.28E-07	4.08E-01
Heptachlor	2.39E-09	2.39E-09	4.28E-03
Heptachlor epoxide	1.44E-09	1.44E-09	2.58E-03
Methoxychlor	2.17E-31	2.17E-31	3.89E-25
Total by pathway	5.58E-05		
% Contribution by pathway	1.00E+02		
Scenario Total		5.58E-05	
Reas. Max. Non-Cancer Hazard Index Summary			
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)			
	Ingestion of Beef	Total	% Contrib
4,4'-DDD	5.56E-04	5.56E-04	9.94E+01
alpha-BHC	1.05E-57	1.05E-57	1.88E-52
Dieldrin	1.07E-06	1.07E-06	1.92E-01
Endosulfan I	4.54E-63	4.54E-63	8.11E-58
Endosulfan sulfate	4.11E-62	4.11E-62	7.34E-57
Endrin	1.61E-11	1.61E-11	2.88E-06
gamma-BHC	5.64E-16	5.64E-16	1.01E-10
gamma-Chlordane	2.49E-06	2.49E-06	4.46E-01
Heptachlor	1.24E-08	1.24E-08	2.22E-03
Heptachlor epoxide	1.59E-08	1.59E-08	2.83E-03
Methoxychlor	9.25E-31	9.25E-31	1.65E-25
Total by pathway	5.59E-04		
% Contribution by pathway	1.00E+02		
Scenario Total		5.59E-04	

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary						
Onsite Recreational, Child - (S-4yrs) Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Surface Water	Total	% Contrib
4,4'-DDT	0.00E+00	2.87E-06	0.00E+00	0.00E+00	2.87E-06	2.30E-04
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	8.55E-09	8.55E-09	6.85E-07
Arsenic	1.93E-06	0.00E+00	1.05E-06	5.11E-06	8.10E-06	6.49E-04
Beryllium	0.00E+00	2.02E-08	0.00E+00	0.00E+00	2.02E-08	1.62E-06
beta-BHC	6.15E-07	0.00E+00	1.62E-08	3.11E-08	6.63E-07	5.31E-05
bis(2-Ethylhexyl)phthalate	7.99E-10	0.00E+00	0.00E+00	1.16E-07	1.17E-07	9.40E-06
Boron	1.26E-06	0.00E+00	0.00E+00	1.26E-06	2.51E-06	2.01E-04
Endosulfan II	6.17E-09	0.00E+00	0.00E+00	6.16E-09	1.23E-08	9.89E-07
gamma-BHC	2.24E-08	0.00E+00	1.17E-08	1.13E-09	3.52E-08	2.82E-06
gamma-Chlordane	0.00E+00	2.57E-05	0.00E+00	0.00E+00	2.57E-05	2.06E-03
Heptachlor	0.00E+00	0.00E+00	5.93E-08	0.00E+00	5.93E-08	4.76E-06
Lead (organic)	6.24E-01	0.00E+00	0.00E+00	6.23E-01	1.25	1.00E+02
Mercury	2.51E-07	0.00E+00	0.00E+00	2.51E-07	5.03E-07	4.03E-05
Total by pathway	6.24E-01	2.86E-05	1.14E-06	6.23E-01		
% Contribution by pathway	5.00E+01	2.29E-03	9.15E-05	5.00E+01		
Scenario Total					1.25	
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Recreational, Child - (S-4yrs) Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Surface Water	Total	% Contrib
4,4'-DDT	0.00E+00	8.17E-06	0.00E+00	0.00E+00	8.17E-06	2.10E-04
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	3.29E-08	3.29E-08	8.48E-07
alpha-Chlordane	0.00E+00	4.53E-05	0.00E+00	0.00E+00	4.53E-05	1.17E-03
Arsenic	5.69E-06	0.00E+00	2.54E-06	1.51E-05	2.33E-05	6.01E-04
Beryllium	0.00E+00	5.35E-08	0.00E+00	0.00E+00	5.35E-08	1.38E-06
beta-BHC	2.44E-06	0.00E+00	5.61E-08	1.23E-07	2.62E-06	6.75E-05
bis(2-Ethylhexyl)phthalate	2.08E-09	0.00E+00	0.00E+00	3.04E-07	3.06E-07	7.88E-06
Boron	2.78E-06	0.00E+00	0.00E+00	2.78E-06	5.56E-06	1.43E-04
Endosulfan II	1.23E-08	0.00E+00	0.00E+00	1.23E-08	2.47E-08	6.36E-07
gamma-BHC	4.47E-08	0.00E+00	2.95E-08	2.26E-09	7.64E-08	1.97E-06
gamma-Chlordane	0.00E+00	1.04E-04	0.00E+00	0.00E+00	1.04E-04	2.68E-03
Heptachlor	0.00E+00	0.00E+00	1.49E-07	0.00E+00	1.49E-07	3.85E-06
Lead (organic)	1.94	0.00E+00	0.00E+00	1.94	3.88	1.00E+02
Mercury	5.03E-07	0.00E+00	0.00E+00	5.02E-07	1.01E-06	2.59E-05
Total by pathway	1.94	1.58E-04	2.77E-06	1.94		
% Contribution by pathway	5.00E+01	4.06E-03	7.14E-05	5.00E+01		
Scenario Total					3.88	

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary						
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Ingestion of Waterfowl	Total	% Contrib			
1,2,3,4,7,8-HxCDF	1.62E-04	1.62E-04	2.98			
1,2,3,7,8,9-HxCDF	5.14E-06	5.14E-06	9.42E-02			
2,3,4,6,7,8-HxCDF	6.41E-07	6.41E-07	1.17E-02			
1,2,3,4,6,7,8-HpCDD	2.37E-07	2.37E-07	4.34E-03			
2,3,7,8-TCDD	1.71E-04	1.71E-04	3.13			
2,3,7,8-TCDF	1.83E-06	1.83E-06	3.36E-02			
2,4'-DDD	2.26E-06	2.26E-06	4.14E-02			
2,4'-DDT	1.29E-06	1.29E-06	2.36E-02			
4,4'-DDD	1.07E-05	1.07E-05	1.96E-01			
4,4'-DDE	1.11E-06	1.11E-06	2.04E-02			
4,4'-DDT	1.70E-07	1.70E-07	3.11E-03			
Aldrin	1.91E-07	1.91E-07	3.49E-03			
alpha-BHC	5.07E-10	5.07E-10	9.29E-06			
Antimony	1.12E-07	1.12E-07	2.06E-03			
Arsenic	3.55E-05	3.55E-05	6.50E-01			
Barium	4.88E-09	4.88E-09	8.93E-05			
Benzyl alcohol	6.45E-13	6.45E-13	1.18E-08			
Beryllium	1.53E-10	1.53E-10	2.80E-06			
beta-BHC	2.04E-10	2.04E-10	3.74E-06			
bis(2-Ethylhexyl)phthalate	3.51E-08	3.51E-08	6.43E-04			
Boron	2.76E-10	2.76E-10	5.05E-06			
Cadmium (food)	2.65E-08	2.65E-08	4.85E-04			
Chlordane	1.46E-08	1.46E-08	2.67E-04			
Chromium	1.47E-09	1.47E-09	2.68E-05			
Chromium VI	2.63E-12	2.63E-12	4.81E-08			
Cyanide	1.40E-07	1.40E-07	2.56E-03			
delta-BHC	3.49E-09	3.49E-09	6.39E-05			
Dieldrin	5.21E-09	5.21E-09	9.54E-05			
Diethylphthalate	8.83E-12	8.83E-12	1.62E-07			
Endosulfan sulfate	5.46E-14	5.46E-14	9.99E-10			
Endrin	1.54E-08	1.54E-08	2.82E-04			
gamma-BHC	3.57E-09	3.57E-09	6.53E-05			
Heptachlor	1.22E-09	1.22E-09	2.23E-05			
Heptachlor epoxide	1.81E-11	1.81E-11	3.32E-07			
HpCB	5.41E-06	5.41E-06	9.91E-02			
HxCB	1.13E-03	1.13E-03	2.07E+01			

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Hexachlorobenzene	1.16E-09	1.16E-09	2.12E-05			
Lead (organic)	6.04E-04	6.04E-04	1.11E+01			
Manganese (food)	2.70E-08	2.70E-08	4.95E-04			
Mercury	1.58E-04	1.58E-04	2.89			
Mirex	4.45E-13	4.45E-13	8.15E-09			
Nickel	4.16E-08	4.16E-08	7.63E-04			
OCDD	1.07E-07	1.07E-07	1.97E-03			
OCDF	5.18E-08	5.18E-08	9.50E-04			
PnCB	2.46E-03	2.46E-03	4.51E+01			
Pyridine	2.08E-10	2.08E-10	3.81E-06			
Selenium	1.34E-05	1.34E-05	2.45E-01			
Silver	8.25E-08	8.25E-08	1.51E-03			
TCB	5.52E-04	5.52E-04	1.01E+01			
Thallium	1.41E-04	1.41E-04	2.58			
Vanadium	3.42E-07	3.42E-07	6.26E-03			
Total by pathway	5.46E-03					
% Contribution by pathway	1.00E+02					
Scenario Total		5.46E-03				
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Ingestion of Waterfowl	Total	% Contrib			
1,2,3,4,7,8-HxCDF	2.41E-03	2.41E-03	3.1			
1,2,3,7,8,9-HxCDF	7.60E-05	7.60E-05	9.81E-02			
2,3,4,6,7,8-HxCDF	9.46E-06	9.46E-06	1.22E-02			
1,2,3,4,6,7,8-HpCDD	3.51E-06	3.51E-06	4.53E-03			
2,3,7,8-TCDD	2.53E-03	2.53E-03	3.27			
2,3,7,8-TCDF	2.71E-05	2.71E-05	3.50E-02			
2,4'-DDD	3.35E-05	3.35E-05	4.33E-02			
2,4'-DDT	1.92E-05	1.92E-05	2.47E-02			
4,4'-DDD	1.59E-04	1.59E-04	2.05E-01			
4,4'-DDE	1.65E-05	1.65E-05	2.13E-02			
4,4'-DDT	2.52E-06	2.52E-06	3.25E-03			
Aldrin	2.83E-06	2.83E-06	3.66E-03			
alpha-BHC	7.99E-09	7.99E-09	1.03E-05			
Antimony	1.67E-06	1.67E-06	2.15E-03			
Arsenic	5.25E-04	5.25E-04	6.78E-01			
Barium	6.68E-08	6.68E-08	8.63E-05			
Benzyl alcohol	9.57E-12	9.57E-12	1.23E-08			

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Beryllium	2.25E-09	2.25E-09	2.91E-06			
beta-BHC	4.61E-09	4.61E-09	5.95E-06			
bis(2-Ethylhexyl)phthalate	5.32E-07	5.32E-07	6.86E-04			
Boron	5.76E-09	5.76E-09	7.43E-06			
Cadmium (food)	3.91E-07	3.91E-07	5.04E-04			
Chlordane	2.15E-07	2.15E-07	2.78E-04			
Chromium	2.51E-08	2.51E-08	3.24E-05			
Chromium VI	1.04E-10	1.04E-10	1.34E-07			
Cyanide	2.07E-06	2.07E-06	2.68E-03			
delta-BHC	5.16E-08	5.16E-08	6.66E-05			
Dieldrin	7.76E-08	7.76E-08	1.00E-04			
Diethylphthalate	1.31E-10	1.31E-10	1.69E-07			
Endosulfan sulfate	8.42E-13	8.42E-13	1.09E-09			
Endrin	2.27E-07	2.27E-07	2.93E-04			
gamma-BHC	5.28E-08	5.28E-08	6.82E-05			
Heptachlor	1.80E-08	1.80E-08	2.32E-05			
Heptachlor epoxide	2.70E-10	2.70E-10	3.48E-07			
HpCB	8.02E-05	8.02E-05	1.03E-01			
HxCB	1.67E-02	1.67E-02	2.16E+01			
Hexachlorobenzene	1.71E-08	1.71E-08	2.21E-05			
Lead (organic)	5.77E-03	5.77E-03	7.44			
Manganese (food)	4.01E-07	4.01E-07	5.17E-04			
Mercury	2.33E-03	2.33E-03	3.01			
Mirex	6.58E-12	6.58E-12	8.49E-09			
Nickel	6.18E-07	6.18E-07	7.98E-04			
OCDD	1.59E-06	1.59E-06	2.05E-03			
OCDF	7.68E-07	7.68E-07	9.91E-04			
PnCB	3.63E-02	3.63E-02	4.69E+01			
Pyridine	3.08E-09	3.08E-09	3.98E-06			
Selenium	1.98E-04	1.98E-04	2.56E-01			
Silver	1.23E-06	1.23E-06	1.58E-03			
TCB	8.16E-03	8.16E-03	1.05E+01			
Thallium	2.09E-03	2.09E-03	2.69			
Vanadium	6.91E-06	6.91E-06	8.92E-03			
Total by pathway	7.75E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		7.75E-02				

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Average Non-Cancer Hazard Index Summary						
Onsite Recreational - Fowl, Child - Current/Future (Lagoons In or Out of Service)						
	Ingestion of Waterfowl	Total	% Contrib			
1,2,3,4,7,8-HxCDF	4.94E-04	4.94E-04	2.98			
1,2,3,7,8,9-HxCDF	1.56E-05	1.56E-05	9.42E-02			
2,3,4,6,7,8-HxCDF	1.95E-06	1.95E-06	1.17E-02			
1,2,3,4,6,7,8-HpCDD	7.21E-07	7.21E-07	4.34E-03			
2,3,7,8-TCDD	5.20E-04	5.20E-04	3.13			
2,3,7,8-TCDF	5.57E-06	5.57E-06	3.36E-02			
2,4'-DDD	6.86E-06	6.86E-06	4.14E-02			
2,4'-DDT	3.91E-06	3.91E-06	2.36E-02			
4,4'-DDD	3.25E-05	3.25E-05	1.96E-01			
4,4'-DDE	3.38E-06	3.38E-06	2.04E-02			
4,4'-DDT	5.16E-07	5.16E-07	3.11E-03			
Aldrin	5.79E-07	5.79E-07	3.49E-03			
alpha-BHC	1.54E-09	1.54E-09	9.29E-06			
Antimony	3.41E-07	3.41E-07	2.06E-03			
Arsenic	1.08E-04	1.08E-04	6.50E-01			
Barium	1.48E-08	1.48E-08	8.93E-05			
Benzyl alcohol	1.96E-12	1.96E-12	1.18E-08			
Beryllium	4.64E-10	4.64E-10	2.80E-06			
beta-BHC	6.20E-10	6.20E-10	3.74E-06			
bis(2-Ethylhexyl)phthalate	1.07E-07	1.07E-07	6.43E-04			
Boron	8.38E-10	8.38E-10	5.05E-06			
Cadmium (food)	8.05E-08	8.05E-08	4.85E-04			
Chlordane	4.42E-08	4.42E-08	2.67E-04			
Chromium	4.45E-09	4.45E-09	2.68E-05			
Chromium VI	7.99E-12	7.99E-12	4.81E-08			
Cyanide	4.25E-07	4.25E-07	2.56E-03			
delta-BHC	1.06E-08	1.06E-08	6.39E-05			
Dieldrin	1.58E-08	1.58E-08	9.54E-05			
Diethylphthalate	2.68E-11	2.68E-11	1.62E-07			
Endosulfan sulfate	1.66E-13	1.66E-13	9.99E-10			
Endrin	4.67E-08	4.67E-08	2.82E-04			
gamma-BHC	1.08E-08	1.08E-08	6.53E-05			
Heptachlor	3.70E-09	3.70E-09	2.23E-05			
Heptachlor epoxide	5.50E-11	5.50E-11	3.32E-07			
HpCB	1.64E-05	1.64E-05	9.91E-02			
HxCB	3.43E-03	3.43E-03	2.07E+01			

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Hexachlorobenzene	3.52E-09	3.52E-09	2.12E-05			
Lead (organic)	1.84E-03	1.84E-03	1.11E+01			
Manganese (food)	8.21E-08	8.21E-08	4.95E-04			
Mercury	4.80E-04	4.80E-04	2.89			
Mirex	1.35E-12	1.35E-12	8.15E-09			
Nickel	1.26E-07	1.26E-07	7.63E-04			
OCDD	3.26E-07	3.26E-07	1.97E-03			
OCDF	1.58E-07	1.58E-07	9.50E-04			
PnCB	7.48E-03	7.48E-03	4.51E+01			
Pyridine	6.32E-10	6.32E-10	3.81E-06			
Selenium	4.07E-05	4.07E-05	2.45E-01			
Silver	2.51E-07	2.51E-07	1.51E-03			
TCB	1.68E-03	1.68E-03	1.01E+01			
Thallium	4.28E-04	4.28E-04	2.58			
Vanadium	1.04E-06	1.04E-06	6.26E-03			
Total by pathway	1.66E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		1.66E-02				
Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Recreational - Fowl, Child - Current/Future (Lagoons In or Out of Service)						
	Ingestion of Waterfowl	Total	% Contrib			
1,2,3,4,7,8-HxCDF	6.73E-03	6.73E-03	3.1			
1,2,3,7,8,9-HxCDF	2.13E-04	2.13E-04	9.81E-02			
2,3,4,6,7,8-HxCDF	2.65E-05	2.65E-05	1.22E-02			
1,2,3,4,6,7,8-HpCDD	9.82E-06	9.82E-06	4.53E-03			
2,3,7,8-TCDD	7.09E-03	7.09E-03	3.27			
2,3,7,8-TCDF	7.59E-05	7.59E-05	3.50E-02			
2,4'-DDD	9.38E-05	9.38E-05	4.33E-02			
2,4'-DDT	5.36E-05	5.36E-05	2.47E-02			
4,4'-DDD	4.45E-04	4.45E-04	2.05E-01			
4,4'-DDE	4.63E-05	4.63E-05	2.13E-02			
4,4'-DDT	7.05E-06	7.05E-06	3.25E-03			
Aldrin	7.94E-06	7.94E-06	3.66E-03			
alpha-BHC	2.24E-08	2.24E-08	1.03E-05			
Antimony	4.67E-06	4.67E-06	2.15E-03			
Arsenic	1.47E-03	1.47E-03	6.78E-01			
Barium	1.87E-07	1.87E-07	8.63E-05			
Benzyl alcohol	2.68E-11	2.68E-11	1.23E-08			

Table J-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G

Beryllium	6.31E-09	6.31E-09	2.91E-06			
beta-BHC	1.29E-08	1.29E-08	5.95E-06			
bis(2-Ethylhexyl)phthalate	1.49E-06	1.49E-06	6.86E-04			
Boron	1.61E-08	1.61E-08	7.43E-06			
Cadmium (food)	1.09E-06	1.09E-06	5.04E-04			
Chlordane	6.03E-07	6.03E-07	2.78E-04			
Chromium	7.03E-08	7.03E-08	3.24E-05			
Chromium VI	2.90E-10	2.90E-10	1.34E-07			
Cyanide	5.80E-06	5.80E-06	2.68E-03			
delta-BHC	1.44E-07	1.44E-07	6.66E-05			
Dieldrin	2.17E-07	2.17E-07	1.00E-04			
Diethylphthalate	3.66E-10	3.66E-10	1.69E-07			
Endosulfan sulfate	2.36E-12	2.36E-12	1.09E-09			
Endrin	6.35E-07	6.35E-07	2.93E-04			
gamma-BHC	1.48E-07	1.48E-07	6.82E-05			
Heptachlor	5.03E-08	5.03E-08	2.32E-05			
Heptachlor epoxide	7.56E-10	7.56E-10	3.48E-07			
HpCB	2.24E-04	2.24E-04	1.03E-01			
HxCB	4.68E-02	4.68E-02	2.16E+01			
Hexachlorobenzene	4.80E-08	4.80E-08	2.21E-05			
Lead (organic)	1.61E-02	1.61E-02	7.44			
Manganese (food)	1.12E-06	1.12E-06	5.17E-04			
Mercury	6.52E-03	6.52E-03	3.01			
Mirex	1.84E-11	1.84E-11	8.49E-09			
Nickel	1.73E-06	1.73E-06	7.98E-04			
OCDD	4.45E-06	4.45E-06	2.05E-03			
OCDF	2.15E-06	2.15E-06	9.91E-04			
PnCB	1.02E-01	1.02E-01	4.69E+01			
Pyridine	8.63E-09	8.63E-09	3.98E-06			
Selenium	5.55E-04	5.55E-04	2.56E-01			
Silver	3.44E-06	3.44E-06	1.58E-03			
TCB	2.28E-02	2.28E-02	1.05E+01			
Thallium	5.84E-03	5.84E-03	2.69			
Vanadium	1.93E-05	1.93E-05	8.92E-03			
Total by pathway	2.17E-01					
% Contribution by pathway	1.00E+02					
Scenario Total		2.17E-01				

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond G									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			alpha-BHC	1.17E-03	2.87E-12	1.56E-10	2.45E-09	1.34E-07	
			Arsenic	3.00E-04	4.65E-11	1.94E-09	1.55E-07	6.48E-06	
			beta-BHC	3.30E-04	1.65E-10	9.26E-09	5.00E-07	2.81E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.29E-12	4.75E-11	6.44E-11	2.37E-09	
			Boron	9.00E-02	9.11E-09	2.85E-07	1.01E-07	3.17E-06	
			Endosulfan II	80	2.49E-14	7.03E-13	3.11E-16	8.79E-15	
			gamma-BHC	3.00E-03	5.40E-12	1.53E-10	1.80E-09	5.09E-08	
			Lead (organic)	1.00E-07	5.03E-09	2.21E-07	5.03E-02	2.21	
			Manganese (water)	5.00E-03	1.83E-09	5.55E-08	3.67E-07	1.11E-05	
			Mercury	3.00E-04	6.08E-12	1.72E-10	2.03E-08	5.73E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.76E-09	8.11E-09	7.51E-06	1.62E-05	
			4,4'-DDE	3.89E-03	8.11E-10	1.41E-09	2.09E-07	3.63E-07	
			4,4'-DDT	1.12E-02	3.74E-10	5.33E-10	3.34E-08	4.76E-08	
			alpha-BHC	1.17E-03	2.16E-10	3.37E-10	1.85E-07	2.88E-07	
			alpha-Chlordane	1.48E-05	0.00E+00	3.55E-10	0.00E+00	2.40E-05	
			Beryllium	5.00E-03	2.64E-11	3.49E-11	5.28E-09	6.98E-09	
			gamma-Chlordane	6.00E-05	4.02E-10	8.14E-10	6.70E-06	1.36E-05	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.64E-11	2.42E-11	3.28E-08	4.84E-08	
			4,4'-DDE	3.89E-03	8.31E-12	1.02E-11	2.14E-09	2.63E-09	
			alpha-BHC	1.17E-03	9.11E-12	1.13E-11	7.78E-09	9.63E-09	
			Arsenic	3.00E-04	8.25E-11	9.93E-11	2.75E-07	3.31E-07	
			beta-BHC	3.30E-04	1.41E-11	2.44E-11	4.26E-08	7.38E-08	
			Endosulfan sulfate	2.47E-02	4.69E-12	6.38E-12	1.90E-10	2.58E-10	
			gamma-BHC	3.00E-03	9.16E-12	1.15E-11	3.05E-09	3.84E-09	
			Heptachlor	9.75E-04	7.74E-12	9.74E-12	7.94E-09	9.99E-09	

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Onsite Occupational - (S) Current (Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	4.65E-11	1.94E-09	1.55E-07	6.48E-06	
			beta-BHC	3.33E-03	1.65E-10	9.26E-09	4.96E-08	2.78E-06	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.29E-12	4.75E-11	6.44E-11	2.37E-09	
			Boron	9.00E-02	9.11E-09	2.85E-07	1.01E-07	3.17E-06	
			Endosulfan II	5.00E-05	2.49E-14	7.03E-13	4.97E-10	1.41E-08	
			gamma-BHC	3.00E-03	5.40E-12	1.53E-10	1.80E-09	5.09E-08	
			Lead (organic)	1.00E-07	5.03E-09	2.21E-07	5.03E-02	2.21	
			Mercury	3.00E-04	6.08E-12	1.72E-10	2.03E-08	5.73E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	3.74E-10	5.33E-10	7.48E-07	1.07E-06	
			alpha-Chlordane	6.00E-05	0.00E+00	3.55E-10	0.00E+00	5.91E-06	
			Beryllium	5.00E-03	2.64E-11	3.49E-11	5.28E-09	6.98E-09	
			gamma-Chlordane	6.00E-05	4.02E-10	8.14E-10	6.70E-06	1.36E-05	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	8.25E-11	9.93E-11	2.75E-07	3.31E-07	
			beta-BHC	3.33E-03	1.41E-11	2.44E-11	4.22E-09	7.32E-09	
			gamma-BHC	3.00E-03	9.16E-12	1.15E-11	3.05E-09	3.84E-09	
			Heptachlor	5.00E-04	7.74E-12	9.74E-12	1.55E-08	1.95E-08	

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.19E-08	1.19E-07	2.38E-05	2.38E-04	
			alpha-BHC	4.16E-04	1.81E-62	1.88E-61	4.35E-59	4.52E-58	
			Dieldrin	5.00E-05	3.46E-12	2.30E-11	6.91E-08	4.60E-07	
			Endosulfan I	2.53E-02	6.43E-66	4.92E-65	2.54E-64	1.94E-63	
			Endosulfan sulfate	6.00E-03	1.82E-65	1.06E-64	3.03E-63	1.76E-62	
			Endrin	3.00E-04	2.78E-16	2.07E-15	9.27E-13	6.90E-12	
			gamma-BHC	3.00E-04	7.36E-21	7.25E-20	2.45E-17	2.42E-16	
			gamma-Chlordane	6.00E-05	5.86E-12	6.42E-11	9.77E-08	1.07E-06	
			Heptachlor	5.00E-04	5.12E-13	2.66E-12	1.02E-09	5.31E-09	
			Heptachlor epoxide	1.30E-05	8.03E-15	8.83E-14	6.18E-10	6.79E-09	
			Methoxychlor	5.00E-03	4.65E-34	1.98E-33	9.30E-32	3.96E-31	
Offsite Agricultural, Child - Future (Lagoons In or Out of Service)									
	Grazing Cattle near the lagoons								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.77E-08	2.78E-07	5.54E-05	5.56E-04	
			alpha-BHC	4.16E-04	4.22E-62	4.38E-61	1.01E-58	1.05E-57	
			Dieldrin	5.00E-05	8.06E-12	5.36E-11	1.61E-07	1.07E-06	
			Endosulfan I	2.53E-02	1.50E-65	1.15E-64	5.93E-64	4.54E-63	
			Endosulfan sulfate	6.00E-03	4.24E-65	2.46E-64	7.06E-63	4.11E-62	
			Endrin	3.00E-04	6.49E-16	4.83E-15	2.16E-12	1.61E-11	
			gamma-BHC	3.00E-04	1.72E-20	1.69E-19	5.72E-17	5.64E-16	
			gamma-Chlordane	6.00E-05	1.37E-11	1.50E-10	2.28E-07	2.49E-06	
			Heptachlor	5.00E-04	1.20E-12	6.20E-12	2.39E-09	1.24E-08	
			Heptachlor epoxide	1.30E-05	1.87E-14	2.06E-13	1.44E-09	1.59E-08	
			Methoxychlor	5.00E-03	1.09E-33	4.62E-33	2.17E-31	9.25E-31	

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Onsite Recreational, Child - (S-4yrs) Current/Future (Lagoons In or Out of Service)									
	Playing around the lagoons								
		DermalContactWithWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	5.78E-10	1.71E-09	1.93E-06	5.69E-06	
			beta-BHC	3.33E-03	2.05E-09	8.13E-09	6.15E-07	2.44E-06	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.60E-11	4.17E-11	7.99E-10	2.08E-09	
			Boron	9.00E-02	1.13E-07	2.50E-07	1.26E-06	2.78E-06	
			Endosulfan II	5.00E-05	3.09E-13	6.17E-13	6.17E-09	1.23E-08	
			gamma-BHC	3.00E-03	6.71E-11	1.34E-10	2.24E-08	4.47E-08	
			Lead (organic)	1.00E-07	6.24E-08	1.94E-07	6.24E-01	1.94	
			Mercury	3.00E-04	7.54E-11	1.51E-10	2.51E-07	5.03E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.43E-09	4.09E-09	2.87E-06	8.17E-06	
			alpha-Chlordane	6.00E-05	0.00E+00	2.72E-09	0.00E+00	4.53E-05	
			Beryllium	5.00E-03	1.01E-10	2.67E-10	2.02E-08	5.35E-08	
			gamma-Chlordane	6.00E-05	1.54E-09	6.24E-09	2.57E-05	1.04E-04	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	3.16E-10	7.62E-10	1.05E-06	2.54E-06	
			beta-BHC	3.33E-03	5.39E-11	1.87E-10	1.62E-08	5.61E-08	
			gamma-BHC	3.00E-03	3.51E-11	8.84E-11	1.17E-08	2.95E-08	
			Heptachlor	5.00E-04	2.97E-11	7.47E-11	5.93E-08	1.49E-07	
		IncidentalIngestionOfWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			alpha-BHC	4.16E-03	3.55E-11	1.37E-10	8.55E-09	3.29E-08	
			Arsenic	3.00E-04	1.53E-09	4.53E-09	5.11E-06	1.51E-05	
			beta-BHC	3.33E-03	1.04E-10	4.11E-10	3.11E-08	1.23E-07	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.33E-09	6.07E-09	1.16E-07	3.04E-07	
			Boron	9.00E-02	1.13E-07	2.50E-07	1.26E-06	2.78E-06	
			Endosulfan II	5.00E-05	3.08E-13	6.16E-13	6.16E-09	1.23E-08	
			gamma-BHC	3.00E-03	3.39E-12	6.78E-12	1.13E-09	2.26E-09	
			Lead (organic)	1.00E-07	6.23E-08	1.94E-07	6.23E-01	1.94	
			Mercury	3.00E-04	7.53E-11	1.51E-10	2.51E-07	5.02E-07	

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Birding/Hunting around the lagoons							
		IngestionOfMeatEggsAndDairy: Duck						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			1,2,3,4,7,8-HxCDF	1.00E-08	1.62E-12	2.41E-11	1.62E-04	2.41E-03
			1,2,3,7,8,9-HxCDF	1.00E-08	5.14E-14	7.60E-13	5.14E-06	7.60E-05
			2,3,4,6,7,8-HxCDF	1.00E-08	6.41E-15	9.46E-14	6.41E-07	9.46E-06
			1,2,3,4,6,7,8-HpCDD	1.00E-07	2.37E-14	3.51E-13	2.37E-07	3.51E-06
			2,3,7,8-TCDD	1.00E-09	1.71E-13	2.53E-12	1.71E-04	2.53E-03
			2,3,7,8-TCDF	1.00E-08	1.83E-14	2.71E-13	1.83E-06	2.71E-05
			2,4'-DDD	2.26E-04	5.10E-10	7.57E-09	2.26E-06	3.35E-05
			2,4'-DDT	3.58E-05	4.61E-11	6.86E-10	1.29E-06	1.92E-05
			4,4'-DDD	5.00E-04	5.35E-09	7.95E-08	1.07E-05	1.59E-04
			4,4'-DDE	3.89E-03	4.33E-09	6.43E-08	1.11E-06	1.65E-05
			4,4'-DDT	5.00E-04	8.49E-11	1.26E-09	1.70E-07	2.52E-06
			Aldrin	3.00E-05	5.72E-12	8.50E-11	1.91E-07	2.83E-06
			alpha-BHC	4.16E-04	2.11E-13	3.32E-12	5.07E-10	7.99E-09
			Antimony	4.00E-04	4.49E-11	6.67E-10	1.12E-07	1.67E-06
			Arsenic	3.00E-04	1.07E-08	1.58E-07	3.55E-05	5.25E-04
			Barium	7.00E-02	3.41E-10	4.68E-09	4.88E-09	6.68E-08
			Benzyl alcohol	3.00E-01	1.93E-13	2.87E-12	6.45E-13	9.57E-12
			Beryllium	5.00E-03	7.63E-13	1.13E-11	1.53E-10	2.25E-09
			beta-BHC	3.30E-04	6.74E-14	1.52E-12	2.04E-10	4.61E-09
			bis(2-Ethylhexyl)phthalate	2.00E-02	7.02E-10	1.06E-08	3.51E-08	5.32E-07
			Boron	9.00E-02	2.48E-11	5.18E-10	2.76E-10	5.76E-09
			Cadmium (food)	1.00E-03	2.65E-11	3.91E-10	2.65E-08	3.91E-07
			Chlordane	6.00E-05	8.74E-13	1.29E-11	1.46E-08	2.15E-07
			Chromium	1	1.47E-09	2.51E-08	1.47E-09	2.51E-08
			Chromium VI	5.00E-03	1.31E-14	5.18E-13	2.63E-12	1.04E-10
			Cyanide	2.00E-02	2.80E-09	4.15E-08	1.40E-07	2.07E-06
			delta-BHC	2.00E-04	6.98E-13	1.03E-11	3.49E-09	5.16E-08
			Dieldrin	5.00E-05	2.60E-13	3.88E-12	5.21E-09	7.76E-08
			Diethylphthalate	8.00E-01	7.06E-12	1.04E-10	8.83E-12	1.31E-10
			Endosulfan sulfate	6.00E-03	3.27E-16	5.05E-15	5.46E-14	8.42E-13
			Endrin	3.00E-04	4.61E-12	6.80E-11	1.54E-08	2.27E-07
			gamma-BHC	3.00E-04	1.07E-12	1.58E-11	3.57E-09	5.28E-08
			Heptachlor	5.00E-04	6.08E-13	8.98E-12	1.22E-09	1.80E-08
			Heptachlor epoxide	1.30E-05	2.36E-16	3.51E-15	1.81E-11	2.70E-10

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

			HpCB	6.20E-05	3.36E-10	4.97E-09	5.41E-06	8.02E-05	
			HxCB	6.00E-07	6.78E-10	1.00E-08	1.13E-03	1.67E-02	
			Hexachlorobenzene	8.00E-04	9.27E-13	1.37E-11	1.16E-09	1.71E-08	
			Lead (organic)	1.00E-07	6.04E-11	5.77E-10	6.04E-04	5.77E-03	
			Manganese (food)	1.40E-01	3.78E-09	5.61E-08	2.70E-08	4.01E-07	
			Mercury	3.00E-04	4.74E-08	6.99E-07	1.58E-04	2.33E-03	
			Mirex	2.00E-04	8.90E-17	1.32E-15	4.45E-13	6.58E-12	
			Nickel	2.00E-02	8.33E-10	1.24E-08	4.16E-08	6.18E-07	
			OCDD	1.00E-06	1.07E-13	1.59E-12	1.07E-07	1.59E-06	
			OCDF	1.00E-06	5.18E-14	7.68E-13	5.18E-08	7.68E-07	
			PnCB	9.00E-07	2.22E-09	3.27E-08	2.46E-03	3.63E-02	
			Pyridine	1.00E-03	2.08E-13	3.08E-12	2.08E-10	3.08E-09	
			Selenium	5.00E-03	6.69E-08	9.91E-07	1.34E-05	1.98E-04	
			Silver	5.00E-03	4.12E-10	6.14E-09	8.25E-08	1.23E-06	
			TCB	3.00E-07	1.66E-10	2.45E-09	5.52E-04	8.16E-03	
			Thallium	8.00E-05	1.13E-08	1.67E-07	1.41E-04	2.09E-03	
			Vanadium	7.00E-03	2.39E-09	4.84E-08	3.42E-07	6.91E-06	
Onsite Recreational - Fowl, Child - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting around the lagoons								
		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			1,2,3,4,7,8-HxCDF	1.00E-08	4.94E-12	6.73E-11	4.94E-04	6.73E-03	
			1,2,3,7,8,9-HxCDF	1.00E-08	1.56E-13	2.13E-12	1.56E-05	2.13E-04	
			2,3,4,6,7,8-HxCDF	1.00E-08	1.95E-14	2.65E-13	1.95E-06	2.65E-05	
			1,2,3,4,6,7,8-HpCDD	1.00E-07	7.21E-14	9.82E-13	7.21E-07	9.82E-06	
			2,3,7,8-TCDD	1.00E-09	5.20E-13	7.09E-12	5.20E-04	7.09E-03	
			2,3,7,8-TCDF	1.00E-08	5.57E-14	7.59E-13	5.57E-06	7.59E-05	
			2,4'-DDD	2.26E-04	1.55E-09	2.12E-08	6.86E-06	9.38E-05	
			2,4'-DDT	3.58E-05	1.40E-10	1.92E-09	3.91E-06	5.36E-05	
			4,4'-DDD	5.00E-04	1.62E-08	2.22E-07	3.25E-05	4.45E-04	
			4,4'-DDE	3.89E-03	1.31E-08	1.80E-07	3.38E-06	4.63E-05	
			4,4'-DDT	5.00E-04	2.58E-10	3.53E-09	5.16E-07	7.05E-06	
			Aldrin	3.00E-05	1.74E-11	2.38E-10	5.79E-07	7.94E-06	
			alpha-BHC	4.16E-04	6.41E-13	9.30E-12	1.54E-09	2.24E-08	
			Antimony	4.00E-04	1.36E-10	1.87E-09	3.41E-07	4.67E-06	

Table J-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

			Arsenic	3.00E-04	3.24E-08	4.41E-07	1.08E-04	1.47E-03	
			Barium	7.00E-02	1.04E-09	1.31E-08	1.48E-08	1.87E-07	
			Benzyl alcohol	3.00E-01	5.88E-13	8.04E-12	1.96E-12	2.68E-11	
			Beryllium	5.00E-03	2.32E-12	3.16E-11	4.64E-10	6.31E-09	
			beta-BHC	3.30E-04	2.05E-13	4.26E-12	6.20E-10	1.29E-08	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.13E-09	2.98E-08	1.07E-07	1.49E-06	
			Boron	9.00E-02	7.54E-11	1.45E-09	8.38E-10	1.61E-08	
			Cadmium (food)	1.00E-03	8.05E-11	1.09E-09	8.05E-08	1.09E-06	
			Chlordane	6.00E-05	2.65E-12	3.62E-11	4.42E-08	6.03E-07	
			Chromium	1	4.45E-09	7.03E-08	4.45E-09	7.03E-08	
			Chromium VI	5.00E-03	3.99E-14	1.45E-12	7.99E-12	2.90E-10	
			Cyanide	2.00E-02	8.51E-09	1.16E-07	4.25E-07	5.80E-06	
			delta-BHC	2.00E-04	2.12E-12	2.89E-11	1.06E-08	1.44E-07	
			Dieldrin	5.00E-05	7.91E-13	1.09E-11	1.58E-08	2.17E-07	
			Diethylphthalate	8.00E-01	2.15E-11	2.92E-10	2.68E-11	3.66E-10	
			Endosulfan sulfate	6.00E-03	9.95E-16	1.41E-14	1.66E-13	2.36E-12	
			Endrin	3.00E-04	1.40E-11	1.90E-10	4.67E-08	6.35E-07	
			gamma-BHC	3.00E-04	3.25E-12	4.43E-11	1.08E-08	1.48E-07	
			Heptachlor	5.00E-04	1.85E-12	2.52E-11	3.70E-09	5.03E-08	
			Heptachlor epoxide	1.30E-05	7.16E-16	9.82E-15	5.50E-11	7.56E-10	
			HpCB	6.20E-05	1.02E-09	1.39E-08	1.64E-05	2.24E-04	
			HxCB	6.00E-07	2.06E-09	2.81E-08	3.43E-03	4.68E-02	
			Hexachlorobenzene	8.00E-04	2.82E-12	3.84E-11	3.52E-09	4.80E-08	
			Lead (organic)	1.00E-07	1.84E-10	1.61E-09	1.84E-03	1.61E-02	
			Manganese (food)	1.40E-01	1.15E-08	1.57E-07	8.21E-08	1.12E-06	
			Mercury	3.00E-04	1.44E-07	1.96E-06	4.80E-04	6.52E-03	
			Mirex	2.00E-04	2.70E-16	3.68E-15	1.35E-12	1.84E-11	
			Nickel	2.00E-02	2.53E-09	3.46E-08	1.26E-07	1.73E-06	
			OCDD	1.00E-06	3.26E-13	4.45E-12	3.26E-07	4.45E-06	
			OCDF	1.00E-06	1.58E-13	2.15E-12	1.58E-07	2.15E-06	
			PnCB	9.00E-07	6.73E-09	9.15E-08	7.48E-03	1.02E-01	
			Pyridine	1.00E-03	6.32E-13	8.63E-12	6.32E-10	8.63E-09	
			Selenium	5.00E-03	2.03E-07	2.78E-06	4.07E-05	5.55E-04	
			Silver	5.00E-03	1.25E-09	1.72E-08	2.51E-07	3.44E-06	
			TCB	3.00E-07	5.04E-10	6.85E-09	1.68E-03	2.28E-02	
			Thallium	8.00E-05	3.42E-08	4.67E-07	4.28E-04	5.84E-03	
			Vanadium	7.00E-03	7.27E-09	1.35E-07	1.04E-06	1.93E-05	

Table J-40
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond G

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond G		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current (Lagoons in Service)	4.83E-10	8.73E-09
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)	3.75E-10	1.24E-08
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)	1.08E-07	5.29E-06

Table J-41
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G

Average Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	1.16E-10	5.06E-13	1.16E-10	2.41E+01
4,4'-DDE	0.00E+00	3.55E-11	3.63E-13	3.58E-11	7.41
4,4'-DDT	0.00E+00	1.64E-11	0.00E+00	1.64E-11	3.38
alpha-BHC	2.32E-12	1.75E-10	7.38E-12	1.85E-10	3.82E+01
Beryllium	0.00E+00	1.46E-11	0.00E+00	1.46E-11	3.02
beta-BHC	3.82E-11	0.00E+00	3.25E-12	4.14E-11	8.57
bis(2-Ethylhexyl)phthalate	2.32E-15	0.00E+00	0.00E+00	2.32E-15	4.79E-04
gamma-BHC	9.03E-13	0.00E+00	1.53E-12	2.43E-12	5.04E-01
gamma-Chlordane	0.00E+00	6.72E-11	0.00E+00	6.72E-11	1.39E+01
Heptachlor	0.00E+00	0.00E+00	4.48E-12	4.48E-12	9.26E-01
Total by pathway	4.14E-11	4.25E-10	1.75E-11		
% Contribution by pathway	8.57	8.78E+01	3.62		
Scenario Total				4.83E-10	
Reas. Max. Cancer Risk					
Onsite Occupational - Current (Lagoons in Service)					
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	6.95E-10	2.08E-12	6.97E-10	7.99
4,4'-DDE	0.00E+00	1.72E-10	1.24E-12	1.73E-10	1.98
4,4'-DDT	0.00E+00	6.47E-11	0.00E+00	6.47E-11	7.41E-01
alpha-BHC	3.52E-10	7.58E-10	2.54E-11	1.14E-09	1.30E+01
alpha-Chlordane	0.00E+00	1.65E-10	0.00E+00	1.65E-10	1.89
Beryllium	0.00E+00	5.36E-11	0.00E+00	5.36E-11	6.14E-01
beta-BHC	5.95E-09	0.00E+00	1.57E-11	5.97E-09	6.84E+01
bis(2-Ethylhexyl)phthalate	2.37E-13	0.00E+00	0.00E+00	2.37E-13	2.72E-03
gamma-BHC	7.10E-11	0.00E+00	5.35E-12	7.63E-11	8.74E-01
gamma-Chlordane	0.00E+00	3.78E-10	0.00E+00	3.78E-10	4.33
Heptachlor	0.00E+00	0.00E+00	1.56E-11	1.56E-11	1.79E-01
Total by pathway	6.38E-09	2.29E-09	6.53E-11		
% Contribution by pathway	7.31E+01	2.62E+01	7.49E-01		
Scenario Total				8.73E-09	

Table J-41
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G

Average Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	3.67E-10	3.67E-10	9.78E+01		
alpha-BHC	1.47E-62	1.47E-62	3.91E-51		
Dieldrin	7.11E-12	7.11E-12	1.9		
gamma-BHC	1.23E-21	1.23E-21	3.28E-10		
gamma-Chlordane	9.79E-13	9.79E-13	2.61E-01		
Heptachlor	2.96E-13	2.96E-13	7.90E-02		
Heptachlor epoxide	9.40E-15	9.40E-15	2.51E-03		
Total by pathway	3.75E-10				
% Contribution by pathway	1.00E+02				
Scenario Total		3.75E-10			
Reas. Max. Cancer Risk					
Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)					
	Ingestion of Beef	Total	% Contrib		
4,4'-DDD	1.22E-08	1.22E-08	9.84E+01		
alpha-BHC	5.07E-61	5.07E-61	4.07E-51		
Dieldrin	1.58E-10	1.58E-10	1.27		
gamma-BHC	4.04E-20	4.04E-20	3.24E-10		
gamma-Chlordane	3.57E-11	3.57E-11	2.87E-01		
Heptachlor	5.12E-12	5.12E-12	4.11E-02		
Heptachlor epoxide	3.44E-13	3.44E-13	2.77E-03		
Total by pathway	1.24E-08				
% Contribution by pathway	1.00E+02				
Scenario Total		1.24E-08			

Table J-41
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G

Average Cancer Risk					
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)					
	Ingestion of Waterfowl	Total	% Contrib		
1,2,3,4,7,8-HxCDF	3.13E-09	3.13E-09	2.91		
1,2,3,7,8,9-HxCDF	9.92E-11	9.92E-11	9.23E-02		
2,3,4,6,7,8-HxCDF	1.24E-11	1.24E-11	1.15E-02		
1,2,3,4,6,7,8-HpCDD	4.57E-12	4.57E-12	4.25E-03		
2,3,7,8-TCDD	3.30E-09	3.30E-09	3.07		
2,3,7,8-TCDF	3.53E-11	3.53E-11	3.29E-02		
4,4'-DDD	1.65E-10	1.65E-10	1.53E-01		
4,4'-DDE	1.89E-10	1.89E-10	1.76E-01		
4,4'-DDT	3.71E-12	3.71E-12	3.45E-03		
Aldrin	1.25E-11	1.25E-11	1.16E-02		
alpha-BHC	1.71E-13	1.71E-13	1.59E-04		
Beryllium	4.22E-13	4.22E-13	3.93E-04		
beta-BHC	1.56E-14	1.56E-14	1.45E-05		
bis(2-Ethylhexyl)phthalate	1.26E-12	1.26E-12	1.18E-03		
Chlordane	1.46E-13	1.46E-13	1.36E-04		
Dieldrin	5.36E-13	5.36E-13	4.98E-04		
gamma-BHC	1.79E-13	1.79E-13	1.66E-04		
Heptachlor	3.52E-13	3.52E-13	3.27E-04		
Heptachlor epoxide	2.76E-16	2.76E-16	2.56E-07		
HpCB	1.04E-10	1.04E-10	9.63E-02		
HxCB	2.09E-08	2.09E-08	1.94E+01		
Hexachlorobenzene	1.91E-13	1.91E-13	1.77E-04		
n-Nitroso-di-n-propylamine	2.25E-09	2.25E-09	2.09		
n-Nitrosodimethylamine	2.60E-10	2.60E-10	2.42E-01		
OCDD	2.07E-12	2.07E-12	1.93E-03		
OCDF	1.00E-12	1.00E-12	9.30E-04		
PnCB	6.84E-08	6.84E-08	6.36E+01		
TCB	8.63E-09	8.63E-09	8.03		
Total by pathway	1.08E-07				
% Contribution by pathway	1.00E+02				
Scenario Total		1.08E-07			

Table J-41
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G

Reas. Max. Cancer Risk					
Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)					
	Ingestion of Waterfowl	Total	% Contrib		
1,2,3,4,7,8-HxCDF	1.55E-07	1.55E-07	2.92		
1,2,3,7,8,9-HxCDF	4.89E-09	4.89E-09	9.24E-02		
2,3,4,6,7,8-HxCDF	6.08E-10	6.08E-10	1.15E-02		
1,2,3,4,6,7,8-HpCDD	2.26E-10	2.26E-10	4.26E-03		
2,3,7,8-TCDD	1.63E-07	1.63E-07	3.08		
2,3,7,8-TCDF	1.74E-09	1.74E-09	3.29E-02		
4,4'-DDD	8.17E-09	8.17E-09	1.55E-01		
4,4'-DDE	9.37E-09	9.37E-09	1.77E-01		
4,4'-DDT	1.84E-10	1.84E-10	3.47E-03		
Aldrin	6.20E-10	6.20E-10	1.17E-02		
alpha-BHC	8.97E-12	8.97E-12	1.70E-04		
Beryllium	2.08E-11	2.08E-11	3.93E-04		
beta-BHC	1.17E-12	1.17E-12	2.22E-05		
bis(2-Ethylhexyl)phthalate	6.38E-11	6.38E-11	1.21E-03		
Chlordane	7.20E-12	7.20E-12	1.36E-04		
Dieldrin	2.66E-11	2.66E-11	5.03E-04		
gamma-BHC	8.82E-12	8.82E-12	1.67E-04		
Heptachlor	1.73E-11	1.73E-11	3.27E-04		
Heptachlor epoxide	1.37E-14	1.37E-14	2.59E-07		
HpCB	5.11E-09	5.11E-09	9.66E-02		
HxCB	1.03E-06	1.03E-06	1.95E+01		
Hexachlorobenzene	9.40E-12	9.40E-12	1.78E-04		
n-Nitroso-di-n-propylamine	1.11E-07	1.11E-07	2.09		
n-Nitrosodimethylamine	1.28E-08	1.28E-08	2.43E-01		
OCDD	1.02E-10	1.02E-10	1.93E-03		
OCDF	4.94E-11	4.94E-11	9.33E-04		
PnCB	3.36E-06	3.36E-06	6.36E+01		
TCB	4.25E-07	4.25E-07	8.03		
Total by pathway	5.29E-06				
% Contribution by pathway	1.00E+02				
Scenario Total		5.29E-06			

Table J-42
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Cancer Risk Estimates										
Holloman Risk Assessment - Pond G										
Scenario										
	Activity									
		Pathway								
Onsite Occupational - Current (Lagoons in Service)										
	Working around the lagoons									
		DermalContactWithWater: Surface water								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			alpha-BHC	6.3	B2	3.69E-13	5.58E-11	2.32E-12	3.52E-10	
			beta-BHC	1.8	C	2.12E-11	3.31E-09	3.82E-11	5.95E-09	
			bis(2-Ethylhexyl)p	1.40E-02	B2	1.66E-13	1.70E-11	2.32E-15	2.37E-13	
			gamma-BHC	1.3	B2/C	6.95E-13	5.46E-11	9.03E-13	7.10E-11	
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	4.83E-10	2.90E-09	1.16E-10	6.95E-10	
			4,4'-DDE	3.40E-01	B2	1.04E-10	5.04E-10	3.55E-11	1.72E-10	
			4,4'-DDT	3.40E-01	B2	4.81E-11	1.90E-10	1.64E-11	6.47E-11	
			alpha-BHC	6.3	B2	2.78E-11	1.20E-10	1.75E-10	7.58E-10	
			alpha-Chlordane	1.3	B2	0.00E+00	1.27E-10	0.00E+00	1.65E-10	
			Beryllium	4.3	B2	3.39E-12	1.25E-11	1.46E-11	5.36E-11	
			gamma-Chlordane	1.3	B2	5.17E-11	2.91E-10	6.72E-11	3.78E-10	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.11E-12	8.65E-12	5.06E-13	2.08E-12	
			4,4'-DDE	3.40E-01	B2	1.07E-12	3.65E-12	3.63E-13	1.24E-12	
			alpha-BHC	6.3	B2	1.17E-12	4.02E-12	7.38E-12	2.54E-11	
			beta-BHC	1.8	C	1.81E-12	8.70E-12	3.25E-12	1.57E-11	
			gamma-BHC	1.3	B2/C	1.18E-12	4.12E-12	1.53E-12	5.35E-12	
			Heptachlor	4.5	B2	9.95E-13	3.48E-12	4.48E-12	1.56E-11	

Table J-42
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Offsite Agricultural, Adult - Future (Lagoons In or Out of Service)										
	Grazing Cattle near the lagoons									
		IngestionOfMeatEggsAndDairy: Beef								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.53E-09	5.10E-08	3.67E-10	1.22E-08	
			alpha-BHC	6.3	B2	2.33E-63	8.05E-62	1.47E-62	5.07E-61	
			Dieldrin	16	B2	4.44E-13	9.85E-12	7.11E-12	1.58E-10	
			gamma-BHC	1.3	B2/C	9.46E-22	3.11E-20	1.23E-21	4.04E-20	
			gamma-Chlordane	1.3	B2	7.53E-13	2.75E-11	9.79E-13	3.57E-11	
			Heptachlor	4.5	B2	6.59E-14	1.14E-12	2.96E-13	5.12E-12	
			Heptachlor epoxid	9.1	B2	1.03E-15	3.78E-14	9.40E-15	3.44E-13	

Table J-42
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G

Onsite Recreational, Adult - Current/Future (Lagoons In or Out of Service)										
	Birding/Hunting around the lagoons									
		IngestionOfMeatEggsAndDairy: Duck								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			1,2,3,4,7,8-HxCD	15000		2.09E-13	1.03E-11	3.13E-09	1.55E-07	
			1,2,3,7,8,9-HxCD	15000		6.61E-15	3.26E-13	9.92E-11	4.89E-09	
			2,3,4,6,7,8-HxCD	15000		8.24E-16	4.05E-14	1.24E-11	6.08E-10	
			1,2,3,4,6,7,8-HpC	1500		3.05E-15	1.50E-13	4.57E-12	2.26E-10	
			2,3,7,8-TCDD	150000	B2	2.20E-14	1.09E-12	3.30E-09	1.63E-07	
			2,3,7,8-TCDF	15000		2.36E-15	1.16E-13	3.53E-11	1.74E-09	
			4,4'-DDD	2.40E-01	B2	6.88E-10	3.41E-08	1.65E-10	8.17E-09	
			4,4'-DDE	3.40E-01	B2	5.56E-10	2.76E-08	1.89E-10	9.37E-09	
			4,4'-DDT	3.40E-01	B2	1.09E-11	5.40E-10	3.71E-12	1.84E-10	
			Aldrin	17	B2	7.35E-13	3.64E-11	1.25E-11	6.20E-10	
			alpha-BHC	6.3	B2	2.71E-14	1.42E-12	1.71E-13	8.97E-12	
			Beryllium	4.3	B2	9.81E-14	4.83E-12	4.22E-13	2.08E-11	
			beta-BHC	1.8	C	8.66E-15	6.51E-13	1.56E-14	1.17E-12	
			bis(2-Ethylhexyl)p	1.40E-02	B2	9.03E-11	4.56E-09	1.26E-12	6.38E-11	
			Chlordane	1.3	B2	1.12E-13	5.54E-12	1.46E-13	7.20E-12	
			Dieldrin	16	B2	3.35E-14	1.66E-12	5.36E-13	2.66E-11	
			gamma-BHC	1.3	B2/C	1.38E-13	6.79E-12	1.79E-13	8.82E-12	
			Heptachlor	4.5	B2	7.82E-14	3.85E-12	3.52E-13	1.73E-11	
			Heptachlor epoxid	9.1	B2	3.03E-17	1.50E-15	2.76E-16	1.37E-14	
			HpCB	2.4		4.31E-11	2.13E-09	1.04E-10	5.11E-09	
			HxCB	240		8.71E-11	4.29E-09	2.09E-08	1.03E-06	
			Hexachlorobenzen	1.6	B2	1.19E-13	5.88E-12	1.91E-13	9.40E-12	
			n-Nitroso-di-n-pro	7		3.22E-10	1.58E-08	2.25E-09	1.11E-07	
			n-Nitrosodimethyl	51	B2	5.10E-12	2.52E-10	2.60E-10	1.28E-08	
			OCDD	150		1.38E-14	6.81E-13	2.07E-12	1.02E-10	
			OCDF	150		6.67E-15	3.29E-13	1.00E-12	4.94E-11	
			PnCB	240		2.85E-10	1.40E-08	6.84E-08	3.36E-06	
			TCB	405		2.13E-11	1.05E-09	8.63E-09	4.25E-07	

Table J-43
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Ditch

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Ditch		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current(Lagoons in Service)	4.21E-03	4.22E-03
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	1.84E-02	1.04E-01
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)	5.07E-02	2.86E-01

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Average Non-Cancer Hazard Index Summary						
Onsite Occupational - Current(Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDD	0.00E+00	5.08E-07	5.08E-07	1.21E-02		
4,4'-DDE	0.00E+00	1.54E-08	1.54E-08	3.66E-04		
4,4'-DDT	0.00E+00	7.98E-09	7.98E-09	1.89E-04		
Aldrin	0.00E+00	8.31E-08	8.31E-08	1.97E-03		
alpha-BHC	1.84E-10	5.60E-09	5.79E-09	1.37E-04		
alpha-Chlordane	0.00E+00	1.49E-06	1.49E-06	3.54E-02		
beta-BHC	0.00E+00	2.61E-08	2.61E-08	6.19E-04		
delta-BHC	0.00E+00	4.48E-06	4.48E-06	1.06E-01		
Dieldrin	1.75E-07	0.00E+00	1.75E-07	4.16E-03		
gamma-BHC	0.00E+00	3.49E-09	3.49E-09	8.29E-05		
gamma-Chlordane	0.00E+00	5.65E-07	5.65E-07	1.34E-02		
Heptachlor epoxide	0.00E+00	4.20E-03	4.20E-03	9.98E+01		
Isodrin	5.62E-10	0.00E+00	5.62E-10	1.33E-05		
Mercury	0.00E+00	2.24E-07	2.24E-07	5.33E-03		
Total by pathway	1.76E-07	4.21E-03				
% Contribution by pathway	4.18E-03	1.00E+02				
Scenario Total			4.21E-03			

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Reas. Max. Non-Cancer Hazard Index Summary						
Onsite Occupational - Current(Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Total	% Contrib		
4,4'-DDD	0.00E+00	1.10E-06	1.10E-06	2.61E-02		
4,4'-DDE	0.00E+00	3.22E-08	3.22E-08	7.63E-04		
4,4'-DDT	0.00E+00	1.98E-08	1.98E-08	4.69E-04		
Aidrin	0.00E+00	9.26E-08	9.26E-08	2.19E-03		
alpha-BHC	5.21E-09	5.99E-09	1.12E-08	2.65E-04		
alpha-Chlordane	0.00E+00	3.57E-06	3.57E-06	8.44E-02		
beta-BHC	0.00E+00	3.71E-08	3.71E-08	8.79E-04		
delta-BHC	0.00E+00	8.06E-06	8.06E-06	1.91E-01		
Dieldrin	4.96E-06	0.00E+00	4.96E-06	1.17E-01		
gamma-BHC	0.00E+00	5.05E-09	5.05E-09	1.19E-04		
gamma-Chlordane	0.00E+00	1.32E-06	1.32E-06	3.13E-02		
Heptachlor epoxide	0.00E+00	4.20E-03	4.20E-03	9.95E+01		
Isodrin	1.59E-08	0.00E+00	1.59E-08	3.76E-04		
Mercury	0.00E+00	3.79E-07	3.79E-07	8.97E-03		
Total by pathway	4.98E-06	4.22E-03				
% Contribution by pathway	1.18E-01	9.99E+01				
Scenario Total			4.22E-03			

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Average Non-Cancer Hazard Index Summary						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediment	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.62E-05	1.62E-05	8.85E-02
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	5.14E-06	5.14E-06	2.80E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	6.41E-07	6.41E-07	3.49E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	2.37E-06	2.37E-06	1.29E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	1.71E-04	1.71E-04	9.32E-01
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06	9.99E-03
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	2.26E-06	2.26E-06	1.23E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	1.29E-06	1.29E-06	7.02E-03
4,4'-DDD	0.00E+00	1.57E-06	0.00E+00	1.07E-05	1.23E-05	6.69E-02
4,4'-DDE	0.00E+00	4.77E-08	0.00E+00	1.11E-06	1.16E-06	6.32E-03
4,4'-DDT	0.00E+00	2.47E-08	0.00E+00	1.70E-07	1.95E-07	1.06E-03
Aldrin	0.00E+00	2.57E-07	0.00E+00	1.91E-07	4.48E-07	2.44E-03
alpha-BHC	2.13E-09	1.73E-08	4.59E-09	5.07E-10	2.46E-08	1.34E-04
alpha-Chlordane	0.00E+00	4.62E-06	0.00E+00	0.00E+00	4.62E-06	2.52E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	1.12E-07	1.12E-07	6.12E-04
Arsenic	0.00E+00	0.00E+00	0.00E+00	3.55E-05	3.55E-05	1.94E-01
Barium	0.00E+00	0.00E+00	0.00E+00	4.88E-09	4.88E-09	2.66E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	6.45E-13	6.45E-13	3.51E-09
Beryllium	0.00E+00	0.00E+00	0.00E+00	1.53E-10	1.53E-10	8.32E-07
beta-BHC	0.00E+00	8.07E-08	0.00E+00	2.04E-10	8.09E-08	4.41E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	3.51E-08	3.51E-08	1.91E-04
Boron	0.00E+00	0.00E+00	0.00E+00	2.76E-10	2.76E-10	1.50E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	2.65E-08	2.65E-08	1.44E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	1.46E-08	1.46E-08	7.93E-05
Chromium	0.00E+00	0.00E+00	0.00E+00	1.47E-09	1.47E-09	7.99E-06
Chromium VI	0.00E+00	0.00E+00	0.00E+00	2.63E-12	2.63E-12	1.43E-08
Cyanide	0.00E+00	0.00E+00	0.00E+00	1.40E-07	1.40E-07	7.63E-04
delta-BHC	0.00E+00	1.39E-05	0.00E+00	3.49E-09	1.39E-05	7.56E-02
Dieldrin	2.02E-06	0.00E+00	5.38E-08	5.21E-09	2.08E-06	1.14E-02
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	5.46E-14	5.46E-14	2.97E-10
gamma-BHC	0.00E+00	1.08E-08	0.00E+00	0.00E+00	1.08E-08	5.89E-05
gamma-Chlordane	0.00E+00	1.75E-06	0.00E+00	0.00E+00	1.75E-06	9.53E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.22E-09	1.22E-09	6.63E-06

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Heptachlor epoxide	0.00E+00	1.30E-02	0.00E+00	1.81E-11	1.30E-02	7.09E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	1.16E-09	1.16E-09	6.31E-06
HpCB	0.00E+00	0.00E+00	0.00E+00	5.41E-06	5.41E-06	2.95E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	1.13E-03	1.13E-03	6.15
Isodrin	6.48E-09	0.00E+00	4.97E-09	0.00E+00	1.15E-08	6.24E-05
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	6.04E-04	6.04E-04	3.29
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	2.70E-08	2.70E-08	1.47E-04
Mercury	0.00E+00	6.95E-07	0.00E+00	1.58E-04	1.59E-04	8.64E-01
Mirex	0.00E+00	0.00E+00	0.00E+00	4.45E-13	4.45E-13	2.42E-09
Nickel	0.00E+00	0.00E+00	0.00E+00	4.16E-08	4.16E-08	2.27E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	1.07E-07	1.07E-07	5.85E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	5.18E-08	5.18E-08	2.83E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	2.46E-03	2.46E-03	1.34E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	2.08E-10	2.08E-10	1.13E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	1.34E-05	1.34E-05	7.30E-02
Silver	0.00E+00	0.00E+00	0.00E+00	8.25E-08	8.25E-08	4.49E-04
TCB	0.00E+00	0.00E+00	0.00E+00	5.52E-04	5.52E-04	3.01
Thallium	0.00E+00	0.00E+00	0.00E+00	1.41E-04	1.41E-04	7.67E-01
Vanadium	0.00E+00	0.00E+00	0.00E+00	3.42E-07	3.42E-07	1.86E-03
Total by pathway	2.03E-06	1.30E-02	6.34E-08	5.32E-03		
% Contribution by pathway	1.11E-02	7.10E+01	3.45E-04	2.90E+01		
Scenario Total					1.84E-02	

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Reas. Max. Non-Cancer Hazard Index Summary						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediment	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.41E-03	2.41E-03	2.32
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	7.60E-05	7.60E-05	7.34E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	9.46E-06	9.46E-06	9.13E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	3.51E-05	3.51E-05	3.39E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	2.53E-03	2.53E-03	2.44
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	2.71E-05	2.71E-05	2.62E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	3.35E-05	3.35E-05	3.23E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	1.92E-05	1.92E-05	1.85E-02
4,4'-DDD	0.00E+00	6.81E-06	0.00E+00	1.59E-04	1.66E-04	1.60E-01
4,4'-DDE	0.00E+00	1.99E-07	0.00E+00	1.65E-05	1.67E-05	1.61E-02
4,4'-DDT	0.00E+00	1.23E-07	0.00E+00	2.52E-06	2.64E-06	2.55E-03
Aldrin	0.00E+00	5.73E-07	0.00E+00	2.83E-06	3.41E-06	3.29E-03
alpha-BHC	4.25E-09	3.71E-08	9.17E-09	7.99E-09	5.85E-08	5.65E-05
alpha-Chlordane	0.00E+00	2.21E-05	0.00E+00	0.00E+00	2.21E-05	2.13E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	1.67E-06	1.67E-06	1.61E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	5.25E-04	5.25E-04	5.07E-01
Barium	0.00E+00	0.00E+00	0.00E+00	6.68E-08	6.68E-08	6.45E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	9.57E-12	9.57E-12	9.23E-09
Beryllium	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	2.18E-06
beta-BHC	0.00E+00	2.30E-07	0.00E+00	4.61E-09	2.34E-07	2.26E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	5.32E-07	5.32E-07	5.13E-04
Boron	0.00E+00	0.00E+00	0.00E+00	5.76E-09	5.76E-09	5.56E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	3.91E-07	3.91E-07	3.77E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	2.15E-07	2.15E-07	2.08E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	2.51E-08	2.51E-08	2.42E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	1.00E-07
Cyanide	0.00E+00	0.00E+00	0.00E+00	2.07E-06	2.07E-06	2.00E-03
delta-BHC	0.00E+00	4.99E-05	0.00E+00	5.16E-08	4.99E-05	4.82E-02
Dieldrin	4.05E-06	0.00E+00	1.08E-07	7.76E-08	4.23E-06	4.09E-03
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	8.42E-13	8.42E-13	8.12E-10
gamma-BHC	0.00E+00	3.12E-08	0.00E+00	0.00E+00	3.12E-08	3.01E-05
gamma-Chlordane	0.00E+00	8.18E-06	0.00E+00	0.00E+00	8.18E-06	7.90E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.80E-08	1.80E-08	1.73E-05

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Heptachlor epoxide	0.00E+00	2.60E-02	0.00E+00	2.70E-10	2.60E-02	2.51E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	1.71E-08	1.71E-08	1.65E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	8.02E-05	8.02E-05	7.74E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	1.67E-02	1.67E-02	1.61E+01
Isodrin	1.30E-08	0.00E+00	9.95E-09	0.00E+00	2.29E-08	2.21E-05
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	5.77E-03	5.77E-03	5.57
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	4.01E-07	4.01E-07	3.87E-04
Mercury	0.00E+00	2.34E-06	0.00E+00	2.33E-03	2.33E-03	2.25
Mirex	0.00E+00	0.00E+00	0.00E+00	6.58E-12	6.58E-12	6.35E-09
Nickel	0.00E+00	0.00E+00	0.00E+00	6.18E-07	6.18E-07	5.96E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	1.59E-06	1.59E-06	1.53E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	7.68E-07	7.68E-07	7.41E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	3.63E-02	3.63E-02	3.51E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	3.08E-09	3.08E-09	2.98E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	1.98E-04	1.98E-04	1.91E-01
Silver	0.00E+00	0.00E+00	0.00E+00	1.23E-06	1.23E-06	1.18E-03
TCB	0.00E+00	0.00E+00	0.00E+00	8.16E-03	8.16E-03	7.87
Thallium	0.00E+00	0.00E+00	0.00E+00	2.09E-03	2.09E-03	2.01
Vanadium	0.00E+00	0.00E+00	0.00E+00	6.91E-06	6.91E-06	6.67E-03
Total by pathway	4.07E-06	2.61E-02	1.27E-07	7.75E-02		
% Contribution by pathway	3.92E-03	2.52E+01	1.22E-04	7.48E+01		
Scenario Total					1.04E-01	

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Average Non-Cancer Hazard Index Summary						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedimen	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	4.94E-05	4.94E-05	9.74E-02
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.56E-05	1.56E-05	3.08E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.95E-06	1.95E-06	3.84E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	7.21E-06	7.21E-06	1.42E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	5.20E-04	5.20E-04	1.03
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	5.57E-06	5.57E-06	1.10E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	6.86E-06	6.86E-06	1.35E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	3.91E-06	3.91E-06	7.73E-03
4,4'-DDD	0.00E+00	4.16E-06	0.00E+00	3.25E-05	3.67E-05	7.24E-02
4,4'-DDE	0.00E+00	1.26E-07	0.00E+00	3.38E-06	3.51E-06	6.92E-03
4,4'-DDT	0.00E+00	6.54E-08	0.00E+00	5.16E-07	5.81E-07	1.15E-03
Aldrin	0.00E+00	6.81E-07	0.00E+00	5.79E-07	1.26E-06	2.49E-03
alpha-BHC	4.76E-09	4.59E-08	2.14E-08	1.54E-09	7.36E-08	1.45E-04
alpha-Chlordane	0.00E+00	1.22E-05	0.00E+00	0.00E+00	1.22E-05	2.41E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	3.41E-07	3.41E-07	6.73E-04
Arsenic	0.00E+00	0.00E+00	0.00E+00	1.08E-04	1.08E-04	2.13E-01
Barium	0.00E+00	0.00E+00	0.00E+00	1.48E-08	1.48E-08	2.92E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	1.96E-12	1.96E-12	3.87E-09
Beryllium	0.00E+00	0.00E+00	0.00E+00	4.64E-10	4.64E-10	9.16E-07
beta-BHC	0.00E+00	2.14E-07	0.00E+00	6.20E-10	2.14E-07	4.23E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.07E-07	1.07E-07	2.11E-04
Boron	0.00E+00	0.00E+00	0.00E+00	8.38E-10	8.38E-10	1.65E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	8.05E-08	8.05E-08	1.59E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	4.42E-08	4.42E-08	8.73E-05
Chromium	0.00E+00	0.00E+00	0.00E+00	4.45E-09	4.45E-09	8.79E-06
Chromium VI	0.00E+00	0.00E+00	0.00E+00	7.99E-12	7.99E-12	1.58E-08
Cyanide	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	8.40E-04
delta-BHC	0.00E+00	3.67E-05	0.00E+00	1.06E-08	3.67E-05	7.25E-02
Dieldrin	4.53E-06	0.00E+00	2.51E-07	1.58E-08	4.79E-06	9.47E-03
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	1.66E-13	1.66E-13	3.27E-10
gamma-BHC	0.00E+00	2.86E-08	0.00E+00	0.00E+00	2.86E-08	5.65E-05
gamma-Chlordane	0.00E+00	4.63E-06	0.00E+00	0.00E+00	4.63E-06	9.14E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	3.70E-09	3.70E-09	7.30E-06

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Heptachlor epoxide	0.00E+00	3.44E-02	0.00E+00	5.50E-11	3.44E-02	6.80E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	3.52E-09	3.52E-09	6.95E-06
HpCB	0.00E+00	0.00E+00	0.00E+00	1.64E-05	1.64E-05	3.25E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	3.43E-03	3.43E-03	6.77
Isodrin	1.45E-08	0.00E+00	2.32E-08	0.00E+00	3.77E-08	7.45E-05
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	1.84E-03	1.84E-03	3.62
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	8.21E-08	8.21E-08	1.62E-04
Mercury	0.00E+00	1.84E-06	0.00E+00	4.80E-04	4.81E-04	9.50E-01
Mirex	0.00E+00	0.00E+00	0.00E+00	1.35E-12	1.35E-12	2.67E-09
Nickel	0.00E+00	0.00E+00	0.00E+00	1.26E-07	1.26E-07	2.50E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	3.26E-07	3.26E-07	6.44E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	1.58E-07	1.58E-07	3.11E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	7.48E-03	7.48E-03	1.48E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	6.32E-10	6.32E-10	1.25E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	4.07E-05	4.07E-05	8.03E-02
Silver	0.00E+00	0.00E+00	0.00E+00	2.51E-07	2.51E-07	4.95E-04
TCB	0.00E+00	0.00E+00	0.00E+00	1.68E-03	1.68E-03	3.31
Thallium	0.00E+00	0.00E+00	0.00E+00	4.28E-04	4.28E-04	8.45E-01
Vanadium	0.00E+00	0.00E+00	0.00E+00	1.04E-06	1.04E-06	2.05E-03
Total by pathway	4.55E-06	3.45E-02	2.96E-07	1.61E-02		
% Contribution by pathway	8.98E-03	6.81E+01	5.84E-04	3.19E+01		
Scenario Total					5.07E-02	

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Reas. Max. Non-Cancer Hazard Index Summary						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedimen	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	6.73E-03	6.73E-03	2.35
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.13E-04	2.13E-04	7.44E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.65E-05	2.65E-05	9.26E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	9.82E-05	9.82E-05	3.43E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	7.09E-03	7.09E-03	2.48
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	7.59E-05	7.59E-05	2.65E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	9.38E-05	9.38E-05	3.28E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	5.36E-05	5.36E-05	1.87E-02
4,4'-DDD	0.00E+00	1.80E-05	0.00E+00	4.45E-04	4.63E-04	1.62E-01
4,4'-DDE	0.00E+00	5.28E-07	0.00E+00	4.63E-05	4.68E-05	1.64E-02
4,4'-DDT	0.00E+00	3.25E-07	0.00E+00	7.05E-06	7.38E-06	2.58E-03
Aldrin	0.00E+00	1.52E-06	0.00E+00	7.94E-06	9.45E-06	3.30E-03
alpha-BHC	9.51E-09	9.82E-08	4.28E-08	2.24E-08	1.73E-07	6.04E-05
alpha-Chlordane	0.00E+00	5.84E-05	0.00E+00	0.00E+00	5.84E-05	2.04E-02
Antimony	0.00E+00	0.00E+00	0.00E+00	4.67E-06	4.67E-06	1.63E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	1.47E-03	1.47E-03	5.14E-01
Barium	0.00E+00	0.00E+00	0.00E+00	1.87E-07	1.87E-07	6.54E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	2.68E-11	2.68E-11	9.36E-09
Beryllium	0.00E+00	0.00E+00	0.00E+00	6.31E-09	6.31E-09	2.21E-06
beta-BHC	0.00E+00	6.09E-07	0.00E+00	1.29E-08	6.21E-07	2.17E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.49E-06	1.49E-06	5.20E-04
Boron	0.00E+00	0.00E+00	0.00E+00	1.61E-08	1.61E-08	5.63E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06	3.82E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	6.03E-07	6.03E-07	2.11E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	7.03E-08	7.03E-08	2.46E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	2.90E-10	2.90E-10	1.01E-07
Cyanide	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06	2.03E-03
delta-BHC	0.00E+00	1.32E-04	0.00E+00	1.44E-07	1.32E-04	4.62E-02
Dieldrin	9.06E-06	0.00E+00	5.02E-07	2.17E-07	9.78E-06	3.42E-03
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	2.36E-12	2.36E-12	8.24E-10
gamma-BHC	0.00E+00	8.27E-08	0.00E+00	0.00E+00	8.27E-08	2.89E-05
gamma-Chlordane	0.00E+00	2.17E-05	0.00E+00	0.00E+00	2.17E-05	7.57E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	5.03E-08	5.03E-08	1.76E-05

Table J-44
Non-Cancer Hazard Index Summary
Holloman AFB, NM
Ditch

Heptachlor epoxide	0.00E+00	6.89E-02	0.00E+00	7.56E-10	6.89E-02	2.41E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	4.80E-08	4.80E-08	1.68E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	2.24E-04	2.24E-04	7.84E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	4.68E-02	4.68E-02	1.63E+01
Isodrin	2.90E-08	0.00E+00	4.64E-08	0.00E+00	7.54E-08	2.64E-05
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	1.61E-02	1.61E-02	5.64
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	1.12E-06	1.12E-06	3.92E-04
Mercury	0.00E+00	6.21E-06	0.00E+00	6.52E-03	6.53E-03	2.28
Mirex	0.00E+00	0.00E+00	0.00E+00	1.84E-11	1.84E-11	6.44E-09
Nickel	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06	6.05E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	4.45E-06	4.45E-06	1.56E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	2.15E-06	2.15E-06	7.52E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	1.02E-01	1.02E-01	3.55E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	3.02E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	5.55E-04	5.55E-04	1.94E-01
Silver	0.00E+00	0.00E+00	0.00E+00	3.44E-06	3.44E-06	1.20E-03
TCB	0.00E+00	0.00E+00	0.00E+00	2.28E-02	2.28E-02	7.98
Thallium	0.00E+00	0.00E+00	0.00E+00	5.84E-03	5.84E-03	2.04
Vanadium	0.00E+00	0.00E+00	0.00E+00	1.93E-05	1.93E-05	6.76E-03
Total by pathway	9.09E-06	6.91E-02	5.92E-07	2.17E-01		
% Contribution by pathway	3.18E-03	2.42E+01	2.07E-04	7.58E+01		
Scenario Total					2.86E-01	

Table J-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Ditch									
Scenario									
	Activity								
		Pathway							
Onsite Occupational - Current(Lagoons in Service)									
	Working around the lagoons								
		DermalContactWithWater: Surface water onsite							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			alpha-BHC	1.17E-03	2.15E-13	6.09E-12	1.84E-10	5.21E-09	
			Dieldrin.	6.52E-05	1.14E-11	3.23E-10	1.75E-07	4.96E-06	
			Isodrin	3.00E-04	1.68E-13	4.77E-12	5.62E-10	1.59E-08	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.54E-10	5.50E-10	5.08E-07	1.10E-06	
			4,4'-DDE	3.89E-03	5.99E-11	1.25E-10	1.54E-08	3.22E-08	
			4,4'-DDT	1.12E-02	8.93E-11	2.22E-10	7.98E-09	1.98E-08	
			Aldrin	7.54E-05	6.27E-12	6.98E-12	8.31E-08	9.26E-08	
			alpha-BHC	1.17E-03	6.56E-12	7.01E-12	5.60E-09	5.99E-09	
			alpha-Chlordane	1.48E-05	2.21E-11	5.28E-11	1.49E-06	3.57E-06	
			beta-BHC	3.30E-04	8.61E-12	1.23E-11	2.61E-08	3.71E-08	
			delta-BHC	2.00E-04	8.96E-10	1.61E-09	4.48E-06	8.06E-06	
			gamma-BHC	3.00E-03	1.05E-11	1.51E-11	3.49E-09	5.05E-09	
			gamma-Chlordane	6.00E-05	3.39E-11	7.93E-11	5.65E-07	1.32E-06	
			Heptachlor epoxide	1.30E-05	5.46E-08	5.46E-08	4.20E-03	4.20E-03	
			Mercury	3.00E-04	6.73E-11	1.14E-10	2.24E-07	3.79E-07	

Table J-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Birding/Hunting around the Lake							
		DermalContactWithWater: Surface water onsite						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			alpha-BHC	1.17E-03	2.49E-12	4.97E-12	2.13E-09	4.25E-09
			Dieldrin	6.52E-05	1.32E-10	2.64E-10	2.02E-06	4.05E-06
			Isodrin	3.00E-04	1.95E-12	3.89E-12	6.48E-09	1.30E-08
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	7.86E-10	3.41E-09	1.57E-06	6.81E-06
			4,4'-DDE	3.89E-03	1.85E-10	7.76E-10	4.77E-08	1.99E-07
			4,4'-DDT	1.12E-02	2.76E-10	1.37E-09	2.47E-08	1.23E-07
			Aldrin	7.54E-05	1.94E-11	4.32E-11	2.57E-07	5.73E-07
			alpha-BHC	1.17E-03	2.03E-11	4.34E-11	1.73E-08	3.71E-08
			alpha-Chlordane	1.48E-05	6.84E-11	3.27E-10	4.62E-06	2.21E-05
			beta-BHC	3.30E-04	2.66E-11	7.59E-11	8.07E-08	2.30E-07
			delta-BHC	2.00E-04	2.77E-09	9.98E-09	1.39E-05	4.99E-05
			gamma-BHC	3.00E-03	3.24E-11	9.37E-11	1.08E-08	3.12E-08
			gamma-Chlordane	6.00E-05	1.05E-10	4.91E-10	1.75E-06	8.18E-06
			Heptachlor epoxide	1.30E-05	1.69E-07	3.38E-07	1.30E-02	2.60E-02
			Mercury	3.00E-04	2.08E-10	7.03E-10	6.95E-07	2.34E-06
		IncidentalIngestionOfWater: Surface water onsite						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			alpha-BHC	4.16E-04	1.91E-12	3.82E-12	4.59E-09	9.17E-09
			Dieldrin	5.00E-05	2.69E-12	5.38E-12	5.38E-08	1.08E-07
			Isodrin	3.00E-04	1.49E-12	2.98E-12	4.97E-09	9.95E-09
		IngestionOfMeatEggsAndDairy: Duck						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			1,2,3,4,7,8-HxCDF	1.00E-08	1.62E-13	2.41E-11	1.62E-05	2.41E-03
			1,2,3,7,8,9-HxCDF	1.00E-08	5.14E-14	7.60E-13	5.14E-06	7.60E-05
			2,3,4,6,7,8-HxCDF	1.00E-08	6.41E-15	9.46E-14	6.41E-07	9.46E-06
			1,2,3,4,6,7,8-HpCDF	1.00E-08	2.37E-14	3.51E-13	2.37E-06	3.51E-05
			2,3,7,8-TCDD	1.00E-09	1.71E-13	2.53E-12	1.71E-04	2.53E-03
			2,3,7,8-TCDF	1.00E-08	1.83E-14	2.71E-13	1.83E-06	2.71E-05
			2,4'-DDD	2.26E-04	5.10E-10	7.57E-09	2.26E-06	3.35E-05
			2,4'-DDT	3.58E-05	4.61E-11	6.86E-10	1.29E-06	1.92E-05
			4,4'-DDD	5.00E-04	5.35E-09	7.95E-08	1.07E-05	1.59E-04
			4,4'-DDE	3.89E-03	4.33E-09	6.43E-08	1.11E-06	1.65E-05
			4,4'-DDT	5.00E-04	8.49E-11	1.26E-09	1.70E-07	2.52E-06
			Aldrin	3.00E-05	5.72E-12	8.50E-11	1.91E-07	2.83E-06
			alpha-BHC	4.16E-04	2.11E-13	3.32E-12	5.07E-10	7.99E-09
			Antimony	4.00E-04	4.49E-11	6.67E-10	1.12E-07	1.67E-06
			Arsenic	3.00E-04	1.07E-08	1.58E-07	3.55E-05	5.25E-04
			Barium	7.00E-02	3.41E-10	4.68E-09	4.88E-09	6.68E-08
			Benzyl alcohol	3.00E-01	1.93E-13	2.87E-12	6.45E-13	9.57E-12

Table J-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

			Beryllium	5.00E-03	7.63E-13	1.13E-11	1.53E-10	2.25E-09	
			beta-BHC	3.30E-04	6.74E-14	1.52E-12	2.04E-10	4.61E-09	
			bis(2-Ethylhexyl)phthalate	2.00E-02	7.02E-10	1.06E-08	3.51E-08	5.32E-07	
			Boron	9.00E-02	2.48E-11	5.18E-10	2.76E-10	5.76E-09	
			Cadmium (food)	1.00E-03	2.65E-11	3.91E-10	2.65E-08	3.91E-07	
			Chlordane	6.00E-05	8.74E-13	1.29E-11	1.46E-08	2.15E-07	
			Chromium	1	1.47E-09	2.51E-08	1.47E-09	2.51E-08	
			Chromium VI	5.00E-03	1.31E-14	5.18E-13	2.63E-12	1.04E-10	
			Cyanide	2.00E-02	2.80E-09	4.15E-08	1.40E-07	2.07E-06	
			delta-BHC	2.00E-04	6.98E-13	1.03E-11	3.49E-09	5.16E-08	
			Dieldrin	5.00E-05	2.60E-13	3.88E-12	5.21E-09	7.76E-08	
			Endosulfan sulfate	6.00E-03	3.27E-16	5.05E-15	5.46E-14	8.42E-13	
			Heptachlor	5.00E-04	6.08E-13	8.98E-12	1.22E-09	1.80E-08	
			Heptachlor epoxide	1.30E-05	2.36E-16	3.51E-15	1.81E-11	2.70E-10	
			Hexachlorobenzene	8.00E-04	9.27E-13	1.37E-11	1.16E-09	1.71E-08	
			HpCB	6.20E-05	3.36E-10	4.97E-09	5.41E-06	8.02E-05	
			HxCB	6.00E-07	6.78E-10	1.00E-08	1.13E-03	1.67E-02	
			Lead (organic)	1.00E-07	6.04E-11	5.77E-10	6.04E-04	5.77E-03	
			Manganese (food)	1.40E-01	3.78E-09	5.61E-08	2.70E-08	4.01E-07	
			Mercury	3.00E-04	4.74E-08	6.99E-07	1.58E-04	2.33E-03	
			Mirex	2.00E-04	8.90E-17	1.32E-15	4.45E-13	6.58E-12	
			Nickel	2.00E-02	8.33E-10	1.24E-08	4.16E-08	6.18E-07	
			OCDD	1.00E-06	1.07E-13	1.59E-12	1.07E-07	1.59E-06	
			OCDF	1.00E-06	5.18E-14	7.68E-13	5.18E-08	7.68E-07	
			PnCB	9.00E-07	2.22E-09	3.27E-08	2.46E-03	3.63E-02	
			Pyridine	1.00E-03	2.08E-13	3.08E-12	2.08E-10	3.08E-09	
			Selenium	5.00E-03	6.69E-08	9.91E-07	1.34E-05	1.98E-04	
			Silver	5.00E-03	4.12E-10	6.14E-09	8.25E-08	1.23E-06	
			TCB	3.00E-07	1.66E-10	2.45E-09	5.52E-04	8.16E-03	
			Thallium	8.00E-05	1.13E-08	1.67E-07	1.41E-04	2.09E-03	
			Vanadium	7.00E-03	2.39E-09	4.84E-08	3.42E-07	6.91E-06	

Table J-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)								
	Birding/Hunting Near the Lake							
		DermalContactWithWater: Surface water onsite						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			alpha-BHC	1.17E-03	5.56E-12	1.11E-11	4.76E-09	9.51E-09
			Dieldrin	6.52E-05	2.95E-10	5.90E-10	4.53E-06	9.06E-06
			Isodrin	3.00E-04	4.35E-12	8.70E-12	1.45E-08	2.90E-08
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	2.08E-09	9.01E-09	4.16E-06	1.80E-05
			4,4'-DDE	3.89E-03	4.91E-10	2.05E-09	1.26E-07	5.28E-07
			4,4'-DDT	1.12E-02	7.32E-10	3.64E-09	6.54E-08	3.25E-07
			Aldrin	7.54E-05	5.13E-11	1.14E-10	6.81E-07	1.52E-06
			alpha-BHC	1.17E-03	5.37E-11	1.15E-10	4.59E-08	9.82E-08
			alpha-Chlordane	1.48E-05	1.81E-10	8.65E-10	1.22E-05	5.84E-05
			beta-BHC	3.30E-04	7.05E-11	2.01E-10	2.14E-07	6.09E-07
			delta-BHC	2.00E-04	7.34E-09	2.64E-08	3.67E-05	1.32E-04
			gamma-BHC	3.00E-03	8.58E-11	2.48E-10	2.86E-08	8.27E-08
			gamma-Chlordane	6.00E-05	2.78E-10	1.30E-09	4.63E-06	2.17E-05
			Heptachlor epoxide	1.30E-05	4.48E-07	8.96E-07	3.44E-02	6.89E-02
			Mercury	3.00E-04	5.52E-10	1.86E-09	1.84E-06	6.21E-06
		IncidentalIngestionOfWater: Surface water onsite						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			alpha-BHC	4.16E-04	8.90E-12	1.78E-11	2.14E-08	4.28E-08
			Dieldrin	5.00E-05	1.26E-11	2.51E-11	2.51E-07	5.02E-07
			Isodrin	3.00E-04	6.96E-12	1.39E-11	2.32E-08	4.64E-08
		IngestionOfMeatEggsAndDairy: Duck						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			1,2,3,4,7,8-HxCDF	1.00E-08	4.94E-13	6.73E-11	4.94E-05	6.73E-03
			1,2,3,7,8,9-HxCDF	1.00E-08	1.56E-13	2.13E-12	1.56E-05	2.13E-04
			2,3,4,6,7,8-HxCDF	1.00E-08	1.95E-14	2.65E-13	1.95E-06	2.65E-05
			1,2,3,4,6,7,8-HpCDF	1.00E-08	7.21E-14	9.82E-13	7.21E-06	9.82E-05
			2,3,7,8-TCDD	1.00E-09	5.20E-13	7.09E-12	5.20E-04	7.09E-03
			2,3,7,8-TCDF	1.00E-08	5.57E-14	7.59E-13	5.57E-06	7.59E-05
			2,4'-DDD	2.26E-04	1.55E-09	2.12E-08	6.86E-06	9.38E-05
			2,4'-DDT	3.58E-05	1.40E-10	1.92E-09	3.91E-06	5.36E-05
			4,4'-DDD	5.00E-04	1.62E-08	2.22E-07	3.25E-05	4.45E-04
			4,4'-DDE	3.89E-03	1.31E-08	1.80E-07	3.38E-06	4.63E-05
			4,4'-DDT	5.00E-04	2.58E-10	3.53E-09	5.16E-07	7.05E-06
			Aldrin	3.00E-05	1.74E-11	2.38E-10	5.79E-07	7.94E-06
			alpha-BHC	4.16E-04	6.41E-13	9.30E-12	1.54E-09	2.24E-08
			Antimony	4.00E-04	1.36E-10	1.87E-09	3.41E-07	4.67E-06
			Arsenic	3.00E-04	3.24E-08	4.41E-07	1.08E-04	1.47E-03
			Barium	7.00E-02	1.04E-09	1.31E-08	1.48E-08	1.87E-07
			Benzyl alcohol	3.00E-01	5.88E-13	8.04E-12	1.96E-12	2.68E-11

Table J-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

			Beryllium	5.00E-03	2.32E-12	3.16E-11	4.64E-10	6.31E-09	
			beta-BHC	3.30E-04	2.05E-13	4.26E-12	6.20E-10	1.29E-08	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.13E-09	2.98E-08	1.07E-07	1.49E-06	
			Boron	9.00E-02	7.54E-11	1.45E-09	8.38E-10	1.61E-08	
			Cadmium (food)	1.00E-03	8.05E-11	1.09E-09	8.05E-08	1.09E-06	
			Chlordane	6.00E-05	2.65E-12	3.62E-11	4.42E-08	6.03E-07	
			Chromium	1	4.45E-09	7.03E-08	4.45E-09	7.03E-08	
			Chromium VI	5.00E-03	3.99E-14	1.45E-12	7.99E-12	2.90E-10	
			Cyanide	2.00E-02	8.51E-09	1.16E-07	4.25E-07	5.80E-06	
			delta-BHC	2.00E-04	2.12E-12	2.89E-11	1.06E-08	1.44E-07	
			Dieldrin	5.00E-05	7.91E-13	1.09E-11	1.58E-08	2.17E-07	
			Endosulfan sulfate	6.00E-03	9.95E-16	1.41E-14	1.66E-13	2.36E-12	
			Heptachlor	5.00E-04	1.85E-12	2.52E-11	3.70E-09	5.03E-08	
			Heptachlor epoxide	1.30E-05	7.16E-16	9.82E-15	5.50E-11	7.56E-10	
			Hexachlorobenzene	8.00E-04	2.82E-12	3.84E-11	3.52E-09	4.80E-08	
			HpCB	6.20E-05	1.02E-09	1.39E-08	1.64E-05	2.24E-04	
			HxCB	6.00E-07	2.06E-09	2.81E-08	3.43E-03	4.68E-02	
			Lead (organic)	1.00E-07	1.84E-10	1.61E-09	1.84E-03	1.61E-02	
			Manganese (food)	1.40E-01	1.15E-08	1.57E-07	8.21E-08	1.12E-06	
			Mercury	3.00E-04	1.44E-07	1.96E-06	4.80E-04	6.52E-03	
			Mirex	2.00E-04	2.70E-16	3.68E-15	1.35E-12	1.84E-11	
			Nickel	2.00E-02	2.53E-09	3.46E-08	1.26E-07	1.73E-06	
			OCDD	1.00E-06	3.26E-13	4.45E-12	3.26E-07	4.45E-06	
			OCDF	1.00E-06	1.58E-13	2.15E-12	1.58E-07	2.15E-06	
			PnCB	9.00E-07	6.73E-09	9.15E-08	7.48E-03	1.02E-01	
			Pyridine	1.00E-03	6.32E-13	8.63E-12	6.32E-10	8.63E-09	
			Selenium	5.00E-03	2.03E-07	2.78E-06	4.07E-05	5.55E-04	
			Silver	5.00E-03	1.25E-09	1.72E-08	2.51E-07	3.44E-06	
			TCB	3.00E-07	5.04E-10	6.85E-09	1.68E-03	2.28E-02	
			Thallium	8.00E-05	3.42E-08	4.67E-07	4.28E-04	5.84E-03	
			Vanadium	7.00E-03	7.27E-09	1.35E-07	1.04E-06	1.93E-05	

Table J-46
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Ditch

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Ditch		
Chronic Exposure		
Scenario	Average	Reas. Max.
Onsite Occupational - Current(Lagoons in Service)	6.43E-08	1.81E-07
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	3.04E-07	6.62E-06

Table J-47
Cancer Risk Summary
Holloman AFB, New Mexico
Ditch

Average Cancer Risk						
Onsite Occupational - Current(Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediment	Total	% Contrib		
4,4'-DDD	0.00E+00	7.84E-12	7.84E-12	1.22E-02		
4,4'-DDE	0.00E+00	2.62E-12	2.62E-12	4.07E-03		
4,4'-DDT	0.00E+00	3.90E-12	3.90E-12	6.07E-03		
Aldrin	0.00E+00	1.37E-11	1.37E-11	2.13E-02		
alpha-BHC	1.74E-13	5.31E-12	5.49E-12	8.53E-03		
alpha-Chlordane	0.00E+00	3.69E-12	3.69E-12	5.74E-03		
Benzo(b)fluoranthene	0.00E+00	2.13E-10	2.13E-10	3.32E-01		
Benzo(k)fluoranthene	0.00E+00	1.01E-10	1.01E-10	1.57E-01		
beta-BHC	0.00E+00	1.99E-12	1.99E-12	3.10E-03		
Dieldrin	2.35E-11	0.00E+00	2.35E-11	3.66E-02		
gamma-BHC	0.00E+00	1.75E-12	1.75E-12	2.72E-03		
gamma-Chlordane	0.00E+00	5.67E-12	5.67E-12	8.81E-03		
Heptachlor epoxide	0.00E+00	6.39E-08	6.39E-08	9.94E+01		
Total by pathway	2.37E-11	6.43E-08				
% Contribution by pathway	3.68E-02	1.00E+02				
Scenario Total			6.43E-08			
Reas. Max. Cancer Risk						
Onsite Occupational - Current(Lagoons in Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediment	Total	% Contrib		
4,4'-DDD	0.00E+00	4.71E-11	4.71E-11	2.61E-02		
4,4'-DDE	0.00E+00	1.52E-11	1.52E-11	8.42E-03		
4,4'-DDT	0.00E+00	2.69E-11	2.69E-11	1.49E-02		
Aldrin	0.00E+00	4.24E-11	4.24E-11	2.35E-02		
alpha-BHC	1.37E-11	1.58E-11	2.95E-11	1.63E-02		
alpha-Chlordane	0.00E+00	2.45E-11	2.45E-11	1.36E-02		
Benzo(b)fluoranthene	0.00E+00	7.29E-10	7.29E-10	4.03E-01		
Benzo(k)fluoranthene	0.00E+00	3.44E-10	3.44E-10	1.90E-01		
beta-BHC	0.00E+00	7.88E-12	7.88E-12	4.36E-03		
Dieldrin	1.85E-09	0.00E+00	1.85E-09	1.02		
gamma-BHC	0.00E+00	7.03E-12	7.03E-12	3.89E-03		
gamma-Chlordane	0.00E+00	3.68E-11	3.68E-11	2.04E-02		
Heptachlor epoxide	0.00E+00	1.78E-07	1.78E-07	9.83E+01		
Total by pathway	1.86E-09	1.79E-07				
% Contribution by pathway	1.03	9.90E+01				
Scenario Total			1.81E-07			

Table J-47
Cancer Risk Summary
Holloman AFB, New Mexico
Ditch

Average Cancer Risk						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedime	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	3.13E-10	3.13E-10	1.03E-01
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	9.92E-11	9.92E-11	3.26E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.24E-11	1.24E-11	4.07E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	4.57E-11	4.57E-11	1.50E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	3.30E-09	3.30E-09	1.09
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	3.53E-11	3.53E-11	1.16E-02
4,4'-DDD	0.00E+00	2.43E-11	0.00E+00	1.65E-10	1.89E-10	6.23E-02
4,4'-DDE	0.00E+00	8.10E-12	0.00E+00	1.89E-10	1.97E-10	6.49E-02
4,4'-DDT	0.00E+00	1.21E-11	0.00E+00	3.71E-12	1.58E-11	5.20E-03
Aldrin	0.00E+00	4.24E-11	0.00E+00	1.25E-11	5.49E-11	1.81E-02
alpha-BHC	2.01E-12	1.64E-11	1.55E-12	1.71E-13	2.02E-11	6.63E-03
alpha-Chlordane	0.00E+00	1.14E-11	0.00E+00	0.00E+00	1.14E-11	3.76E-03
Benzo(b)fluoranthene	0.00E+00	6.60E-10	0.00E+00	0.00E+00	6.60E-10	2.17E-01
Benzo(k)fluoranthene	0.00E+00	3.12E-10	0.00E+00	0.00E+00	3.12E-10	1.03E-01
Beryllium	0.00E+00	0.00E+00	0.00E+00	4.22E-13	4.22E-13	1.39E-04
beta-BHC	0.00E+00	6.16E-12	0.00E+00	1.56E-14	6.18E-12	2.03E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.26E-12	1.26E-12	4.16E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	1.46E-13	1.46E-13	4.80E-05
Dieldrin	2.71E-10	0.00E+00	5.54E-12	5.36E-13	2.78E-10	9.13E-02
gamma-BHC	0.00E+00	5.42E-12	0.00E+00	0.00E+00	5.42E-12	1.78E-03
gamma-Chlordane	0.00E+00	1.75E-11	0.00E+00	0.00E+00	1.75E-11	5.77E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	3.52E-13	3.52E-13	1.16E-04
Heptachlor epoxide	0.00E+00	1.98E-07	0.00E+00	2.76E-16	1.98E-07	6.51E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	1.91E-13	1.91E-13	6.27E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	3.41E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	2.09E-08	2.09E-08	6.88
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	7.41E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	2.60E-10	2.60E-10	8.55E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	2.07E-12	2.07E-12	6.81E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	1.00E-12	1.00E-12	3.29E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	6.84E-08	6.84E-08	2.25E+01
TCB	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	2.84
Total by pathway	2.73E-10	1.99E-07	7.08E-12	1.05E-07		
% Contribution by pathway	9.00E-02	6.55E+01	2.33E-03	3.45E+01		
Scenario Total					3.04E-07	

Table J-47
Cancer Risk Summary
Holloman AFB, New Mexico
Ditch

Reas. Max. Cancer Risk						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedime	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.55E-07	1.55E-07	2.33
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	4.89E-09	4.89E-09	7.38E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	6.08E-10	6.08E-10	9.18E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	2.26E-09	2.26E-09	3.41E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	1.63E-07	1.63E-07	2.46
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	1.74E-09	1.74E-09	2.63E-02
4,4'-DDD	0.00E+00	3.50E-10	0.00E+00	8.17E-09	8.52E-09	1.29E-01
4,4'-DDE	0.00E+00	1.13E-10	0.00E+00	9.37E-09	9.48E-09	1.43E-01
4,4'-DDT	0.00E+00	2.00E-10	0.00E+00	1.84E-10	3.84E-10	5.79E-03
Aldrin	0.00E+00	3.15E-10	0.00E+00	6.20E-10	9.34E-10	1.41E-02
alpha-BHC	1.34E-11	1.17E-10	1.03E-11	8.97E-12	1.50E-10	2.26E-03
alpha-Chlordane	0.00E+00	1.82E-10	0.00E+00	0.00E+00	1.82E-10	2.75E-03
Benzo(b)fluoranthene	0.00E+00	5.41E-09	0.00E+00	0.00E+00	5.41E-09	8.17E-02
Benzo(k)fluoranthene	0.00E+00	2.56E-09	0.00E+00	0.00E+00	2.56E-09	3.86E-02
Beryllium	0.00E+00	0.00E+00	0.00E+00	2.08E-11	2.08E-11	3.14E-04
beta-BHC	0.00E+00	5.85E-11	0.00E+00	1.17E-12	5.97E-11	9.01E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	6.38E-11	6.38E-11	9.63E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	7.20E-12	7.20E-12	1.09E-04
Dieldrin	1.81E-09	0.00E+00	3.69E-11	2.66E-11	1.87E-09	2.83E-02
gamma-BHC	0.00E+00	5.22E-11	0.00E+00	0.00E+00	5.22E-11	7.88E-04
gamma-Chlordane	0.00E+00	2.73E-10	0.00E+00	0.00E+00	2.73E-10	4.13E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.73E-11	1.73E-11	2.62E-04
Heptachlor epoxide	0.00E+00	1.32E-06	0.00E+00	1.37E-14	1.32E-06	1.99E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	9.40E-12	9.40E-12	1.42E-04
HpCB	0.00E+00	0.00E+00	0.00E+00	5.11E-09	5.11E-09	7.72E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	1.03E-06	1.03E-06	1.56E+01
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	1.11E-07	1.11E-07	1.67
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	1.28E-08	1.28E-08	1.94E-01
OCDD	0.00E+00	0.00E+00	0.00E+00	1.02E-10	1.02E-10	1.54E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	4.94E-11	4.94E-11	7.46E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	3.36E-06	3.36E-06	5.08E+01
TCB	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	6.41
Total by pathway	1.82E-09	1.33E-06	4.72E-11	5.29E-06		
% Contribution by pathway	2.75E-02	2.01E+01	7.13E-04	7.99E+01		
Scenario Total					6.62E-06	

Table J-47
Cancer Risk Summary
Holloman AFB, New Mexico
Ditch

Average Cancer Risk						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedim	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	9.52E-10	9.52E-10	1.42E-01
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	3.01E-10	3.01E-10	4.50E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	3.76E-11	3.76E-11	5.61E-03
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	1.39E-10	1.39E-10	2.07E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	1.00E-08	1.00E-08	1.5
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	1.07E-10	1.07E-10	1.60E-02
4,4'-DDD	0.00E+00	4.28E-11	0.00E+00	5.01E-10	5.44E-10	8.12E-02
4,4'-DDE	0.00E+00	1.43E-11	0.00E+00	5.75E-10	5.89E-10	8.79E-02
4,4'-DDT	0.00E+00	2.13E-11	0.00E+00	1.13E-11	3.26E-11	4.87E-03
Aldrin	0.00E+00	7.48E-11	0.00E+00	3.79E-11	1.13E-10	1.68E-02
alpha-BHC	3.00E-12	2.90E-11	4.81E-12	5.19E-13	3.73E-11	5.58E-03
alpha-Chlordane	0.00E+00	2.02E-11	0.00E+00	0.00E+00	2.02E-11	3.01E-03
Benzo(b)fluoranthene	0.00E+00	1.17E-09	0.00E+00	0.00E+00	1.17E-09	1.74E-01
Benzo(k)fluoranthene	0.00E+00	5.51E-10	0.00E+00	0.00E+00	5.51E-10	8.22E-02
Beryllium	0.00E+00	0.00E+00	0.00E+00	1.28E-12	1.28E-12	1.91E-04
beta-BHC	0.00E+00	1.09E-11	0.00E+00	4.74E-14	1.09E-11	1.63E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	3.84E-12	3.84E-12	5.73E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	4.44E-13	4.44E-13	6.62E-05
Dieldrin	4.05E-10	0.00E+00	1.72E-11	1.63E-12	4.24E-10	6.33E-02
gamma-BHC	0.00E+00	9.56E-12	0.00E+00	0.00E+00	9.56E-12	1.43E-03
gamma-Chlordane	0.00E+00	3.10E-11	0.00E+00	0.00E+00	3.10E-11	4.62E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.07E-12	1.07E-12	1.60E-04
Heptachlor epoxide	0.00E+00	3.49E-07	0.00E+00	8.37E-16	3.49E-07	5.21E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	5.79E-13	5.79E-13	8.65E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	3.15E-10	3.15E-10	4.70E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	6.35E-08	6.35E-08	9.48
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	6.84E-09	6.84E-09	1.02
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	7.90E-10	7.90E-10	1.18E-01
OCDD	0.00E+00	0.00E+00	0.00E+00	6.29E-12	6.29E-12	9.39E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	3.04E-12	3.04E-12	4.53E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	2.08E-07	2.08E-07	3.10E+01
TCB	0.00E+00	0.00E+00	0.00E+00	2.62E-08	2.62E-08	3.91
Total by pathway	4.08E-10	3.51E-07	2.20E-11	3.18E-07		
% Contribution by pathway	6.09E-02	5.24E+01	3.29E-03	4.75E+01		
Scenario Total					6.70E-07	

Table J-47
Cancer Risk Summary
Holloman AFB, New Mexico
Ditch

Reas. Max. Cancer Risk						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sedim	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	4.33E-07	4.33E-07	2.79
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.37E-08	1.37E-08	8.81E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.70E-09	1.70E-09	1.10E-02
1,2,3,4,6,7,8-HpCDF	0.00E+00	0.00E+00	0.00E+00	6.31E-09	6.31E-09	4.07E-02
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	4.56E-07	4.56E-07	2.94
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	4.88E-09	4.88E-09	3.14E-02
4,4'-DDD	0.00E+00	1.85E-10	0.00E+00	2.29E-08	2.31E-08	1.49E-01
4,4'-DDE	0.00E+00	5.98E-11	0.00E+00	2.62E-08	2.63E-08	1.69E-01
4,4'-DDT	0.00E+00	1.06E-10	0.00E+00	5.14E-10	6.20E-10	3.99E-03
Aldrin	0.00E+00	1.67E-10	0.00E+00	1.73E-09	1.90E-09	1.23E-02
alpha-BHC	6.01E-12	6.20E-11	9.62E-12	2.51E-11	1.03E-10	6.62E-04
alpha-Chlordane	0.00E+00	9.64E-11	0.00E+00	0.00E+00	9.64E-11	6.21E-04
Benzo(b)fluoranthene	0.00E+00	2.87E-09	0.00E+00	0.00E+00	2.87E-09	1.85E-02
Benzo(k)fluoranthene	0.00E+00	1.35E-09	0.00E+00	0.00E+00	1.35E-09	8.72E-03
Beryllium	0.00E+00	0.00E+00	0.00E+00	5.81E-11	5.81E-11	3.75E-04
beta-BHC	0.00E+00	3.10E-11	0.00E+00	3.28E-12	3.43E-11	2.21E-04
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.79E-10	1.79E-10	1.15E-03
Chlordane	0.00E+00	0.00E+00	0.00E+00	2.01E-11	2.01E-11	1.30E-04
Dieldrin	8.10E-10	0.00E+00	3.44E-11	7.45E-11	9.19E-10	5.92E-03
gamma-BHC	0.00E+00	2.76E-11	0.00E+00	0.00E+00	2.76E-11	1.78E-04
gamma-Chlordane	0.00E+00	1.45E-10	0.00E+00	0.00E+00	1.45E-10	9.33E-04
Heptachlor	0.00E+00	0.00E+00	0.00E+00	4.85E-11	4.85E-11	3.13E-04
Heptachlor epoxide	0.00E+00	6.98E-07	0.00E+00	3.83E-14	6.98E-07	4.5
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	2.63E-11	2.63E-11	1.70E-04
HpCB	0.00E+00	0.00E+00	0.00E+00	1.43E-08	1.43E-08	9.22E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	2.89E-06	2.89E-06	1.86E+01
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	3.10E-07	3.10E-07	2
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	3.59E-08	3.59E-08	2.32E-01
OCDD	0.00E+00	0.00E+00	0.00E+00	2.86E-10	2.86E-10	1.84E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	1.38E-10	1.38E-10	8.91E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	9.41E-06	9.41E-06	6.07E+01
TCB	0.00E+00	0.00E+00	0.00E+00	1.19E-06	1.19E-06	7.66
Total by pathway	8.16E-10	7.04E-07	4.41E-11	1.48E-05		
% Contribution by pathway	5.26E-03	4.53	2.84E-04	9.55E+01		
Scenario Total					1.55E-05	

Table J-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

Cancer Risk Estimates										
Holloman Risk Assessment - Ditch										
Scenario										
	Activity									
		Pathway								
Onsite Occupational - Current(Lagoons in Service)										
	Working around the lagoons									
		DermalContactWithWater: Surface water onsite								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			alpha-BHC	6.3	B2	2.77E-14	2.18E-12	1.74E-13	1.37E-11	
			Dieldrin	16	B2	1.47E-12	1.15E-10	2.35E-11	1.85E-09	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.27E-11	1.96E-10	7.84E-12	4.71E-11	
			4,4'-DDE	3.40E-01	B2	7.70E-12	4.47E-11	2.62E-12	1.52E-11	
			4,4'-DDT	3.40E-01	B2	1.15E-11	7.92E-11	3.90E-12	2.69E-11	
			Aldrin	17	B2	8.06E-13	2.49E-12	1.37E-11	4.24E-11	
			alpha-BHC	6.3	B2	8.43E-13	2.50E-12	5.31E-12	1.58E-11	
			alpha-Chlordane	1.3	B2	2.84E-12	1.88E-11	3.69E-12	2.45E-11	
			Benzo(b)fluoranthene	1.02	B2	2.09E-10	7.14E-10	2.13E-10	7.29E-10	
			Benzo(k)fluoranthene	4.82E-01	B2	2.09E-10	7.14E-10	1.01E-10	3.44E-10	
			beta-BHC	1.8	C	1.11E-12	4.38E-12	1.99E-12	7.88E-12	
			gamma-BHC	1.3	B2/C	1.35E-12	5.41E-12	1.75E-12	7.03E-12	
			gamma-Chlordane	1.3	B2	4.36E-12	2.83E-11	5.67E-12	3.68E-11	
			Heptachlor epoxide	9.1	B2	7.03E-09	1.95E-08	6.39E-08	1.78E-07	

Table J-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting around the Lake								
		DermalContactWithWater: Surface water onsite							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			alpha-BHC	6.3	B2	3.20E-13	2.13E-12	2.01E-12	1.34E-11
			Dieldrin	16	B2	1.70E-11	1.13E-10	2.71E-10	1.81E-09
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.01E-10	1.46E-09	2.43E-11	3.50E-10
			4,4'-DDE	3.40E-01	B2	2.38E-11	3.32E-10	8.10E-12	1.13E-10
			4,4'-DDT	3.40E-01	B2	3.55E-11	5.89E-10	1.21E-11	2.00E-10
			Aldrin	17	B2	2.49E-12	1.85E-11	4.24E-11	3.15E-10
			alpha-BHC	6.3	B2	2.61E-12	1.86E-11	1.64E-11	1.17E-10
			alpha-Chlordane	1.3	B2	8.79E-12	1.40E-10	1.14E-11	1.82E-10
			Benzo(b)fluoranthene	1.02	B2	6.47E-10	5.31E-09	6.60E-10	5.41E-09
			Benzo(k)fluoranthene	4.82E-01	B2	6.47E-10	5.31E-09	3.12E-10	2.56E-09
			beta-BHC	1.8	C	3.42E-12	3.25E-11	6.16E-12	5.85E-11
			gamma-BHC	1.3	B2/C	4.17E-12	4.02E-11	5.42E-12	5.22E-11
			gamma-Chlordane	1.3	B2	1.35E-11	2.10E-10	1.75E-11	2.73E-10
			Heptachlor epoxide	9.1	B2	2.17E-08	1.45E-07	1.98E-07	1.32E-06
		IncidentalIngestionOfWater: Surface water onsite							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			alpha-BHC	6.3	B2	2.45E-13	1.64E-12	1.55E-12	1.03E-11
			Dieldrin	16	B2	3.46E-13	2.31E-12	5.54E-12	3.69E-11

Table J-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Ditch

		IngestionOfMeatEggsAndDairy: Duck								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			1,2,3,4,7,8-HxCDF	15000		2.09E-14	1.03E-11	3.13E-10	1.55E-07	
			1,2,3,7,8,9-HxCDF	15000		6.61E-15	3.26E-13	9.92E-11	4.89E-09	
			2,3,4,6,7,8-HxCDF	15000		8.24E-16	4.05E-14	1.24E-11	6.08E-10	
			1,2,3,4,6,7,8-HpCDF	15000		3.05E-15	1.50E-13	4.57E-11	2.26E-09	
			2,3,7,8-TCDD	150000	B2	2.20E-14	1.09E-12	3.30E-09	1.63E-07	
			2,3,7,8-TCDF	15000		2.36E-15	1.16E-13	3.53E-11	1.74E-09	
			4,4'-DDD	2.40E-01	B2	6.88E-10	3.41E-08	1.65E-10	8.17E-09	
			4,4'-DDE	3.40E-01	B2	5.56E-10	2.76E-08	1.89E-10	9.37E-09	
			4,4'-DDT	3.40E-01	B2	1.09E-11	5.40E-10	3.71E-12	1.84E-10	
			Aldrin	17	B2	7.35E-13	3.64E-11	1.25E-11	6.20E-10	
			alpha-BHC	6.3	B2	2.71E-14	1.42E-12	1.71E-13	8.97E-12	
			Beryllium	4.3	B2	9.81E-14	4.83E-12	4.22E-13	2.08E-11	
			beta-BHC	1.8	C	8.66E-15	6.51E-13	1.56E-14	1.17E-12	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	9.03E-11	4.56E-09	1.26E-12	6.38E-11	
			Chlordane	1.3	B2	1.12E-13	5.54E-12	1.46E-13	7.20E-12	
			Dieldrin	16	B2	3.35E-14	1.66E-12	5.36E-13	2.66E-11	
			Heptachlor	4.5	B2	7.82E-14	3.85E-12	3.52E-13	1.73E-11	
			Heptachlor epoxide	9.1	B2	3.03E-17	1.50E-15	2.76E-16	1.37E-14	
			Hexachlorobenzene	1.6	B2	1.19E-13	5.88E-12	1.91E-13	9.40E-12	
			HpCB	2.4		4.31E-11	2.13E-09	1.04E-10	5.11E-09	
			HxCB	240		8.71E-11	4.29E-09	2.09E-08	1.03E-06	
			n-Nitroso-di-n-propylamine	7		3.22E-10	1.58E-08	2.25E-09	1.11E-07	
			n-Nitrosodimethylamine	51	B2	5.10E-12	2.52E-10	2.60E-10	1.28E-08	
			OCDD	150		1.38E-14	6.81E-13	2.07E-12	1.02E-10	
			OCDF	150		6.67E-15	3.29E-13	1.00E-12	4.94E-11	
			PnCB	240		2.85E-10	1.40E-08	6.84E-08	3.36E-06	
			TCB	405		2.13E-11	1.05E-09	8.63E-09	4.25E-07	

Table J-49
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Lake Holloman

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Lake Holloman		
Chronic Exposure		
Scenario	Average	Reas. Max.
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	2.38	7.2
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)	7.71	2.30E+01
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)	4.17E+01	2.62E+02
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)	9.74E+01	6.10E+02
Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Lake Holloman		
Subchronic Exposure		
Scenario	Average	Reas. Max.
Off-Site Recreational, Adult - (S) Current/Future (Lagoons In or Out of Service)	2.33	6.87
Off-Site Recreational, Child - (S) Current/Future (Lagoons In or Out of Service)	7.65	2.25E+01

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Average Non-Cancer Hazard Index Summary								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-04	1.62E-04	6.83E-03
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.14E-06	5.14E-06	2.16E-04
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.41E-07	6.41E-07	2.69E-05
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-07	2.37E-07	9.96E-06
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-04	1.71E-04	7.19E-03
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06	7.70E-05
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-06	2.26E-06	9.49E-05
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-06	1.29E-06	5.41E-05
4,4'-DDD	9.89E-06	5.09E-06	0.00E+00	0.00E+00	4.11E-09	1.07E-05	2.57E-05	1.08E-03
4,4'-DDE	0.00E+00	1.05E-07	2.25E-08	0.00E+00	0.00E+00	1.11E-06	1.24E-06	5.21E-05
4,4'-DDT	5.74E-06	2.36E-08	0.00E+00	0.00E+00	1.14E-08	1.70E-07	5.95E-06	2.50E-04
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-07	1.91E-07	8.00E-06
alpha-BHC	4.80E-09	1.27E-07	7.36E-08	0.00E+00	1.03E-08	5.07E-10	2.17E-07	9.10E-06
alpha-Chlordane	0.00E+00	2.48E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.48E-05	1.04E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-07	1.12E-07	4.72E-06
Arsenic	5.85E-06	0.00E+00	2.26E-06	0.00E+00	1.19E-05	3.55E-05	5.56E-05	2.33E-03
Barium	0.00E+00	0.00E+00	0.00E+00	5.26E-02	0.00E+00	4.88E-09	5.26E-02	2.21
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-13	6.45E-13	2.71E-11
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-10	1.53E-10	6.41E-09
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.04E-10	2.04E-10	8.58E-09
bis(2-Ethylhexyl)phthalate	4.64E-09	2.59E-05	0.00E+00	0.00E+00	5.19E-07	3.51E-08	2.65E-05	1.11E-03
Boron	2.34E-06	0.00E+00	0.00E+00	0.00E+00	1.79E-06	2.76E-10	4.13E-06	1.74E-04
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-08	2.65E-08	1.11E-06
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-08	1.46E-08	6.12E-07
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-09	1.47E-09	6.16E-08
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-12	2.63E-12	1.10E-10
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-07	1.40E-07	5.88E-06
delta-BHC	0.00E+00	1.54E-04	9.86E-05	0.00E+00	0.00E+00	3.49E-09	2.53E-04	1.06E-02
Dieldrin	2.50E-06	1.74E-05	0.00E+00	0.00E+00	6.65E-08	5.21E-09	2.00E-05	8.40E-04
Endosulfan sulfate	1.81E-11	0.00E+00	0.00E+00	0.00E+00	5.71E-11	5.46E-14	7.52E-11	3.16E-09
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-08	1.54E-08	6.46E-07
Endrin ketone	5.98E-07	0.00E+00	0.00E+00	0.00E+00	4.59E-07	0.00E+00	1.06E-06	4.44E-05
gamma-BHC	2.73E-08	6.10E-08	9.60E-08	0.00E+00	1.06E-08	3.57E-09	1.99E-07	8.34E-06
gamma-Chlordane	0.00E+00	7.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-06	3.19E-04
Heptachlor	0.00E+00	1.38E-07	9.12E-08	0.00E+00	0.00E+00	1.22E-09	2.30E-07	9.66E-06
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-11	1.81E-11	7.61E-10
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-09	1.16E-09	4.87E-08
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.41E-06	5.41E-06	2.27E-04
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E-03	1.13E-03	4.75E-02
Lead (organic)	1.31	0.00E+00	0.00E+00	0.00E+00	1.01	6.04E-04	2.32	9.76E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.70E-08	2.70E-08	1.14E-06
Manganese (water)	6.96E-06	0.00E+00	0.00E+00	0.00E+00	5.34E-06	0.00E+00	1.23E-05	5.17E-04
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-04	1.58E-04	6.63E-03
Methoxychlor	1.65E-07	0.00E+00	0.00E+00	0.00E+00	1.93E-06	0.00E+00	2.09E-06	8.79E-05
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E-13	4.45E-13	1.87E-11
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-08	4.16E-08	1.75E-06
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-07	1.07E-07	4.51E-06
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E-08	5.18E-08	2.18E-06
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.46E-03	2.46E-03	1.03E-01
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-10	2.08E-10	8.75E-09
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-05	1.34E-05	5.63E-04

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-08	8.25E-08	3.46E-06
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.52E-04	5.52E-04	2.32E-02
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-04	1.41E-04	5.92E-03
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-07	3.42E-07	1.44E-05
Total by pathway	1.31	2.35E-04	1.01E-04	5.26E-02	1.01	5.46E-03		
% Contribution by pathway	5.52E+01	9.88E-03	4.25E-03	2.21	4.23E+01	2.29E-01		
Scenario Total							2.38	
Reas. Max. Non-Cancer Hazard Index Summary								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-03	2.41E-03	3.34E-02
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-05	7.60E-05	1.06E-03
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.46E-06	9.46E-06	1.31E-04
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06	3.51E-06	4.87E-05
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-03	2.53E-03	3.52E-02
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-05	2.71E-05	3.76E-04
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.35E-05	3.35E-05	4.65E-04
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-05	1.92E-05	2.66E-04
4,4'-DDD	1.98E-05	2.88E-05	0.00E+00	0.00E+00	8.22E-09	1.59E-04	2.07E-04	2.88E-03
4,4'-DDE	0.00E+00	3.67E-07	8.84E-08	0.00E+00	0.00E+00	1.65E-05	1.70E-05	2.36E-04
4,4'-DDT	1.77E-05	6.73E-08	0.00E+00	0.00E+00	3.52E-08	2.52E-06	2.03E-05	2.82E-04
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-06	2.83E-06	3.94E-05
alpha-BHC	1.06E-08	3.46E-07	2.92E-07	0.00E+00	2.28E-08	7.99E-09	6.80E-07	9.44E-06
alpha-Chlordane	0.00E+00	1.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.07E-04	1.48E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-06	1.67E-06	2.32E-05
Arsenic	1.35E-05	0.00E+00	5.58E-06	0.00E+00	2.76E-05	5.25E-04	5.72E-04	7.94E-03
Barium	0.00E+00	0.00E+00	0.00E+00	2.94E-01	0.00E+00	6.68E-08	2.94E-01	4.08
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-12	9.57E-12	1.33E-10
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	3.13E-08
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.61E-09	4.61E-09	6.40E-08
bis(2-Ethylhexyl)phthalate	2.04E-08	1.17E-04	0.00E+00	0.00E+00	2.28E-06	5.32E-07	1.19E-04	1.66E-03
Boron	5.17E-06	0.00E+00	0.00E+00	0.00E+00	3.97E-06	5.76E-09	9.15E-06	1.27E-04
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.91E-07	3.91E-07	5.43E-06
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-07	2.15E-07	2.99E-06
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-08	2.51E-08	3.49E-07
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	1.44E-09
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-06	2.07E-06	2.88E-05
delta-BHC	0.00E+00	8.48E-04	4.31E-04	0.00E+00	0.00E+00	1.19E-04	1.40E-03	1.94E-02
Dieldrin	9.49E-06	5.84E-05	0.00E+00	0.00E+00	2.52E-07	7.76E-08	6.83E-05	9.48E-04
Endosulfan sulfate	3.62E-11	0.00E+00	0.00E+00	0.00E+00	1.14E-10	8.42E-13	1.51E-10	2.10E-09
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-07	2.27E-07	3.15E-06
Endrin ketone	1.20E-06	0.00E+00	0.00E+00	0.00E+00	9.17E-07	0.00E+00	2.11E-06	2.93E-05
gamma-BHC	9.66E-08	1.81E-07	2.86E-07	0.00E+00	3.75E-08	3.44E-08	6.35E-07	8.81E-06
gamma-Chlordane	0.00E+00	3.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-05	4.61E-04
Heptachlor	0.00E+00	3.83E-07	3.55E-07	0.00E+00	0.00E+00	2.74E-08	7.66E-07	1.06E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.70E-10	2.70E-10	3.75E-09
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-08	1.71E-08	2.38E-07
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.02E-05	8.02E-05	1.11E-03
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-02	1.67E-02	2.32E-01
Lead (organic)	3.86	0.00E+00	0.00E+00	0.00E+00	2.96	5.77E-03	6.83	9.49E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.01E-07	4.01E-07	5.56E-06
Manganese (water)	1.47E-05	0.00E+00	0.00E+00	0.00E+00	1.13E-05	0.00E+00	2.60E-05	3.61E-04
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-03	2.33E-03	3.24E-02

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Methoxychlor	6.13E-07	0.00E+00	0.00E+00	0.00E+00	7.15E-06	0.00E+00	7.76E-06	1.08E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.58E-12	6.58E-12	9.13E-11
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.18E-07	6.18E-07	8.58E-06
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-06	1.59E-06	2.21E-05
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.68E-07	7.68E-07	1.07E-05
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.63E-02	3.63E-02	5.04E-01
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.08E-09	3.08E-09	4.28E-08
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	1.98E-04	2.75E-03
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-06	1.23E-06	1.71E-05
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.16E-03	8.16E-03	1.13E-01
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-03	2.09E-03	2.90E-02
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.91E-06	6.91E-06	9.60E-05
Total by pathway	3.86	1.19E-03	4.38E-04	2.94E-01	2.96	7.76E-02		
% Contribution by pathway	5.37E+01	1.66E-02	6.08E-03	4.08	4.12E+01	1.08		
Scenario Total							7.2	
Average Non-Cancer Hazard Index Summary								
Off-Site Recreational, Adult - (S) Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
4,4'-DDT	1.29E-04	5.29E-07	0.00E+00	0.00E+00	1.14E-08	1.70E-07	1.29E-04	5.56E-03
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-07	1.91E-07	8.18E-06
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-09	5.07E-11	1.09E-09	4.66E-08
alpha-Chlordane	0.00E+00	6.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.11E-06	2.63E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-07	1.12E-07	4.82E-06
Arsenic	5.85E-06	0.00E+00	2.26E-06	0.00E+00	1.19E-05	3.55E-05	5.56E-05	2.39E-03
Barium	0.00E+00	0.00E+00	0.00E+00	5.26E-03	0.00E+00	4.88E-09	5.26E-03	2.26E-01
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-13	1.93E-13	8.31E-12
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-10	1.53E-10	6.56E-09
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-11	2.02E-11	8.69E-10
bis(2-Ethylhexyl)phthalate	4.64E-09	2.59E-05	0.00E+00	0.00E+00	5.19E-07	3.51E-08	2.65E-05	1.14E-03
Boron	2.34E-06	0.00E+00	0.00E+00	0.00E+00	1.79E-06	2.76E-10	4.13E-06	1.78E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-08	1.46E-08	6.25E-07
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-09	1.47E-09	6.30E-08
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-13	6.57E-13	2.82E-11
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-07	1.40E-07	6.01E-06
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.49E-10	3.49E-10	1.50E-08
Dieldrin	3.26E-06	2.27E-05	0.00E+00	0.00E+00	6.65E-08	5.21E-09	2.61E-05	1.12E-03
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.54E-08	1.54E-08	6.60E-07
gamma-BHC	2.73E-08	6.10E-08	9.60E-08	0.00E+00	1.06E-09	3.57E-10	1.86E-07	7.98E-06
gamma-Chlordane	0.00E+00	7.60E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.60E-06	3.26E-04
Heptachlor	0.00E+00	2.68E-07	1.78E-07	0.00E+00	0.00E+00	1.22E-09	4.47E-07	1.92E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-11	1.81E-11	7.78E-10
Lead (organic)	1.31	0.00E+00	0.00E+00	0.00E+00	1.01	6.04E-04	2.32	9.98E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-08	3.78E-08	1.63E-06
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-04	1.58E-04	6.78E-03
Methoxychlor	2.51E-06	0.00E+00	0.00E+00	0.00E+00	1.93E-06	0.00E+00	4.44E-06	1.91E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-08	4.16E-08	1.79E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-05	1.34E-05	5.75E-04
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.25E-08	8.25E-08	3.54E-06
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-05	1.41E-05	6.05E-04
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-07	3.42E-07	1.47E-05
Total by pathway	1.31	6.32E-05	2.54E-06	5.26E-03	1.01	8.26E-04		
% Contribution by pathway	5.64E+01	2.71E-03	1.09E-04	2.26E-01	4.33E+01	3.55E-02		
Scenario Total							2.33	

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Reas. Max. Non-Cancer Hazard Index Summary								
Off-Site Recreational, Adult - (S) Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
4,4'-DDT	3.96E-04	1.51E-06	0.00E+00	0.00E+00	3.52E-08	2.52E-06	4.00E-04	5.82E-03
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-06	2.83E-06	4.13E-05
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-09	7.99E-10	3.08E-09	4.49E-08
alpha-Chlordane	0.00E+00	2.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-05	3.83E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-06	1.67E-06	2.43E-05
Arsenic	1.35E-05	0.00E+00	5.58E-06	0.00E+00	2.76E-05	5.25E-04	5.72E-04	8.33E-03
Barium	0.00E+00	0.00E+00	0.00E+00	2.94E-02	0.00E+00	6.68E-08	2.94E-02	4.27E-01
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-12	2.87E-12	4.18E-11
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	3.28E-08
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.56E-10	4.56E-10	6.65E-09
bis(2-Ethylhexyl)phthalate	2.04E-08	1.17E-04	0.00E+00	0.00E+00	2.28E-06	5.32E-07	1.19E-04	1.74E-03
Boron	5.17E-06	0.00E+00	0.00E+00	0.00E+00	3.97E-06	5.76E-09	9.15E-06	1.33E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-07	2.15E-07	3.13E-06
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-08	2.51E-08	3.66E-07
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.59E-11	2.59E-11	3.77E-10
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-06	2.07E-06	3.02E-05
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-05	1.19E-05	1.73E-04
Dieldrin	1.24E-05	7.62E-05	0.00E+00	0.00E+00	2.52E-07	7.76E-08	8.89E-05	1.29E-03
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-07	2.27E-07	3.30E-06
gamma-BHC	9.66E-08	1.81E-07	2.86E-07	0.00E+00	3.75E-09	3.44E-09	5.70E-07	8.30E-06
gamma-Chlordane	0.00E+00	3.32E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-05	4.84E-04
Heptachlor	0.00E+00	7.48E-07	6.93E-07	0.00E+00	0.00E+00	2.74E-08	1.47E-06	2.14E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.70E-10	2.70E-10	3.93E-09
Lead (organic)	3.86	0.00E+00	0.00E+00	0.00E+00	2.96	5.77E-03	6.83	9.95E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-07	5.61E-07	8.17E-06
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.33E-03	2.33E-03	3.39E-02
Methoxychlor	9.32E-06	0.00E+00	0.00E+00	0.00E+00	7.15E-06	0.00E+00	1.65E-05	2.40E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.18E-07	6.18E-07	9.00E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-04	1.98E-04	2.89E-03
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-06	1.23E-06	1.79E-05
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-04	2.09E-04	3.04E-03
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.91E-06	6.91E-06	1.01E-04
Total by pathway	3.86	2.55E-04	6.56E-06	2.94E-02	2.96	9.06E-03		
% Contribution by pathway	5.63E+01	3.71E-03	9.55E-05	4.27E-01	4.32E+01	1.32E-01		
Scenario Total							6.87	

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Average Non-Cancer Hazard Index Summary								
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.94E-04	4.94E-04	6.40E-03
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-05	1.56E-05	2.03E-04
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-06	1.95E-06	2.52E-05
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.21E-07	7.21E-07	9.34E-06
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-04	5.20E-04	6.74E-03
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.57E-06	5.57E-06	7.22E-05
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.86E-06	6.86E-06	8.89E-05
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.91E-06	3.91E-06	5.08E-05
4,4'-DDD	2.21E-05	1.35E-05	0.00E+00	0.00E+00	1.92E-08	3.25E-05	6.81E-05	8.83E-04
4,4'-DDE	0.00E+00	2.77E-07	5.95E-08	0.00E+00	0.00E+00	3.38E-06	3.72E-06	4.82E-05
4,4'-DDT	1.28E-05	6.25E-08	0.00E+00	0.00E+00	5.34E-08	5.16E-07	1.35E-05	1.75E-04
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.79E-07	5.79E-07	7.50E-06
alpha-BHC	1.07E-08	3.37E-07	1.95E-07	0.00E+00	4.83E-08	1.54E-09	5.93E-07	7.68E-06
alpha-Chlordane	0.00E+00	6.56E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.56E-05	8.51E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-07	3.41E-07	4.42E-06
Arsenic	1.31E-05	0.00E+00	5.99E-06	0.00E+00	5.57E-05	1.08E-04	1.83E-04	2.37E-03
Barium	0.00E+00	0.00E+00	0.00E+00	5.26E-02	0.00E+00	1.48E-08	5.26E-02	6.82E-01
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-12	1.96E-12	2.54E-11
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-10	4.64E-10	6.01E-09
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.20E-10	6.20E-10	8.04E-09
bis(2-Ethylhexyl)phthalate	1.04E-08	6.86E-05	0.00E+00	0.00E+00	2.42E-06	1.07E-07	7.11E-05	9.22E-04
Boron	5.23E-06	0.00E+00	0.00E+00	0.00E+00	8.37E-06	8.38E-10	1.36E-05	1.76E-04
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.05E-08	8.05E-08	1.04E-06
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-08	4.42E-08	5.74E-07
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E-09	4.45E-09	5.77E-08
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.99E-12	7.99E-12	1.04E-10
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	5.52E-06
delta-BHC	0.00E+00	4.07E-04	2.61E-04	0.00E+00	0.00E+00	1.06E-08	6.69E-04	8.67E-03
Dieldrin	5.60E-06	4.61E-05	0.00E+00	0.00E+00	3.11E-07	1.58E-08	5.20E-05	6.75E-04
Endosulfan sulfate	4.04E-11	0.00E+00	0.00E+00	0.00E+00	2.66E-10	1.66E-13	3.07E-10	3.98E-09
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-08	4.67E-08	6.06E-07
Endrin ketone	1.34E-06	0.00E+00	0.00E+00	0.00E+00	2.14E-06	0.00E+00	3.48E-06	4.51E-05
gamma-BHC	6.11E-08	1.62E-07	2.54E-07	0.00E+00	4.95E-08	1.08E-08	5.37E-07	6.96E-06
gamma-Chlordane	0.00E+00	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-05	2.61E-04
Heptachlor	0.00E+00	3.64E-07	2.42E-07	0.00E+00	0.00E+00	3.70E-09	6.09E-07	7.90E-06
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.50E-11	5.50E-11	7.14E-10
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-09	3.52E-09	4.56E-08
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-05	1.64E-05	2.13E-04
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-03	3.43E-03	4.45E-02
Lead (organic)	2.94	0.00E+00	0.00E+00	0.00E+00	4.7	1.84E-03	7.64	9.91E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.21E-08	8.21E-08	1.06E-06
Manganese (water)	1.56E-05	0.00E+00	0.00E+00	0.00E+00	2.49E-05	0.00E+00	4.05E-05	5.25E-04
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-04	4.80E-04	6.22E-03
Methoxychlor	3.70E-07	0.00E+00	0.00E+00	0.00E+00	8.99E-06	0.00E+00	9.36E-06	1.21E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-12	1.35E-12	1.75E-11
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-07	1.26E-07	1.64E-06
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-07	3.26E-07	4.23E-06
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-07	1.58E-07	2.04E-06
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.48E-03	7.48E-03	9.70E-02
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.32E-10	6.32E-10	8.20E-09
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-05	4.07E-05	5.27E-04

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-07	2.51E-07	3.25E-06
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-03	1.68E-03	2.18E-02
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-04	4.28E-04	5.55E-03
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-06	1.04E-06	1.35E-05
Total by pathway	2.94	6.23E-04	2.68E-04	5.26E-02	4.7	1.66E-02		
% Contribution by pathway	3.81E+01	8.07E-03	3.47E-03	6.82E-01	6.10E+01	2.15E-01		
Scenario Total							7.71	
Reas. Max. Non-Cancer Hazard Index Summary								
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.73E-03	6.73E-03	2.93E-02
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.13E-04	2.13E-04	9.27E-04
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-05	2.65E-05	1.15E-04
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.82E-06	9.82E-06	4.28E-05
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-03	7.09E-03	3.09E-02
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.59E-05	7.59E-05	3.31E-04
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.38E-05	9.38E-05	4.09E-04
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.36E-05	5.36E-05	2.34E-04
4,4'-DDD	4.42E-05	7.62E-05	0.00E+00	0.00E+00	3.84E-08	4.45E-04	5.65E-04	2.46E-03
4,4'-DDE	0.00E+00	9.72E-07	2.34E-07	0.00E+00	0.00E+00	4.63E-05	4.75E-05	2.07E-04
4,4'-DDT	3.95E-05	1.78E-07	0.00E+00	0.00E+00	1.64E-07	7.05E-06	4.69E-05	2.04E-04
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-06	7.94E-06	3.46E-05
alpha-BHC	2.37E-08	9.16E-07	7.74E-07	0.00E+00	1.06E-07	2.24E-08	1.84E-06	8.03E-06
alpha-Chlordane	0.00E+00	2.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E-04	1.23E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-06	4.67E-06	2.03E-05
Arsenic	3.02E-05	0.00E+00	1.48E-05	0.00E+00	1.29E-04	1.47E-03	1.64E-03	7.16E-03
Barium	0.00E+00	0.00E+00	0.00E+00	2.57E-01	0.00E+00	1.87E-07	2.57E-01	1.12
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-11	2.68E-11	1.17E-10
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-09	6.31E-09	2.75E-08
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-08	1.29E-08	5.62E-08
bis(2-Ethylhexyl)phthalate	4.57E-08	3.09E-04	0.00E+00	0.00E+00	1.07E-05	1.49E-06	3.21E-04	1.40E-03
Boron	1.16E-05	0.00E+00	0.00E+00	0.00E+00	1.85E-05	1.61E-08	3.01E-05	1.31E-04
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06	4.77E-06
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-07	6.03E-07	2.63E-06
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-08	7.03E-08	3.06E-07
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-10	2.90E-10	1.26E-09
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06	2.53E-05
delta-BHC	0.00E+00	2.25E-03	1.14E-03	0.00E+00	0.00E+00	3.32E-04	3.72E-03	1.62E-02
Dieldrin	2.12E-05	1.55E-04	0.00E+00	0.00E+00	1.18E-06	2.17E-07	1.77E-04	7.73E-04
Endosulfan sulfate	8.09E-11	0.00E+00	0.00E+00	0.00E+00	5.33E-10	2.36E-12	6.16E-10	2.68E-09
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.35E-07	6.35E-07	2.77E-06
Endrin ketone	2.68E-06	0.00E+00	0.00E+00	0.00E+00	4.28E-06	0.00E+00	6.96E-06	3.03E-05
gamma-BHC	2.16E-07	4.78E-07	7.56E-07	0.00E+00	1.75E-07	9.62E-08	1.72E-06	7.50E-06
gamma-Chlordane	0.00E+00	8.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-05	3.83E-04
Heptachlor	0.00E+00	1.02E-06	9.41E-07	0.00E+00	0.00E+00	7.68E-08	2.03E-06	8.86E-06
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-10	7.56E-10	3.29E-09
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-08	4.80E-08	2.09E-07
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.24E-04	2.24E-04	9.78E-04
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.68E-02	4.68E-02	2.04E-01
Lead (organic)	8.64	0.00E+00	0.00E+00	0.00E+00	1.38E+01	1.61E-02	2.25E+01	9.80E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-06	1.12E-06	4.89E-06
Manganese (water)	3.29E-05	0.00E+00	0.00E+00	0.00E+00	5.27E-05	0.00E+00	8.56E-05	3.73E-04
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E-03	6.52E-03	2.84E-02

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Methoxychlor	1.37E-06	0.00E+00	0.00E+00	0.00E+00	3.34E-05	0.00E+00	3.47E-05	1.51E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-11	1.84E-11	8.02E-11
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06	7.54E-06
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E-06	4.45E-06	1.94E-05
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-06	2.15E-06	9.37E-06
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-01	1.02E-01	4.43E-01
Pyridine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	3.76E-08
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-04	5.55E-04	2.42E-03
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-06	3.44E-06	1.50E-05
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-02	2.28E-02	9.95E-02
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-03	5.84E-03	2.54E-02
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-05	1.93E-05	8.43E-05
Total by pathway	8.64	3.16E-03	1.16E-03	2.57E-01	1.38E+01	2.17E-01		
% Contribution by pathway	3.77E+01	1.38E-02	5.05E-03	1.12	6.03E+01	9.46E-01		
Scenario Total							2.30E+01	
Average Non-Cancer Hazard Index Summary								
Off-Site Recreational, Child - (S) Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
4,4'-DDT	2.88E-04	1.40E-06	0.00E+00	0.00E+00	5.34E-08	5.16E-07	2.90E-04	3.79E-03
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.79E-07	5.79E-07	7.56E-06
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.83E-09	1.54E-10	4.98E-09	6.51E-08
alpha-Chlordane	0.00E+00	1.62E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-05	2.12E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-07	3.41E-07	4.46E-06
Arsenic	1.31E-05	0.00E+00	5.99E-06	0.00E+00	5.57E-05	1.08E-04	1.83E-04	2.39E-03
Barium	0.00E+00	0.00E+00	0.00E+00	5.26E-03	0.00E+00	1.48E-08	5.26E-03	6.88E-02
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.88E-13	5.88E-13	7.68E-12
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-10	4.64E-10	6.06E-09
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.15E-11	6.15E-11	8.03E-10
bis(2-Ethylhexyl)phthalate	1.04E-08	6.86E-05	0.00E+00	0.00E+00	2.42E-06	1.07E-07	7.11E-05	9.30E-04
Boron	5.23E-06	0.00E+00	0.00E+00	0.00E+00	8.37E-06	8.38E-10	1.36E-05	1.78E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.42E-08	4.42E-08	5.78E-07
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.45E-09	4.45E-09	5.82E-08
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.00E-12	2.00E-12	2.61E-11
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	5.56E-06
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-09	1.06E-09	1.39E-08
Dieldrin	7.30E-06	6.01E-05	0.00E+00	0.00E+00	3.11E-07	1.58E-08	6.78E-05	8.86E-04
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-08	4.67E-08	6.11E-07
gamma-BHC	6.11E-08	1.62E-07	2.54E-07	0.00E+00	4.95E-09	1.08E-09	4.83E-07	6.31E-06
gamma-Chlordane	0.00E+00	2.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-05	2.63E-04
Heptachlor	0.00E+00	7.10E-07	4.71E-07	0.00E+00	0.00E+00	3.70E-09	1.18E-06	1.55E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.50E-11	5.50E-11	7.19E-10
Lead (organic)	2.94	0.00E+00	0.00E+00	0.00E+00	4.7	1.84E-03	7.64	9.99E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-07	1.15E-07	1.50E-06
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.80E-04	4.80E-04	6.27E-03
Methoxychlor	5.62E-06	0.00E+00	0.00E+00	0.00E+00	8.99E-06	0.00E+00	1.46E-05	1.91E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-07	1.26E-07	1.65E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-05	4.07E-05	5.32E-04
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.51E-07	2.51E-07	3.27E-06
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-05	4.28E-05	5.59E-04
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-06	1.04E-06	1.36E-05
Total by pathway	2.94	1.67E-04	6.72E-06	5.26E-03	4.7	2.51E-03		
% Contribution by pathway	3.84E+01	2.19E-03	8.78E-05	6.88E-02	6.15E+01	3.28E-02		
Scenario Total							7.65	

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Reas. Max. Non-Cancer Hazard Index Summary								
Off-Site Recreational, Child - (S) Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
4,4'-DDT	8.85E-04	3.99E-06	0.00E+00	0.00E+00	1.64E-07	7.05E-06	8.97E-04	3.98E-03
Aldrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-06	7.94E-06	3.52E-05
alpha-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-08	2.24E-09	1.29E-08	5.72E-08
alpha-Chlordane	0.00E+00	6.96E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.96E-05	3.09E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-06	4.67E-06	2.07E-05
Arsenic	3.02E-05	0.00E+00	1.48E-05	0.00E+00	1.29E-04	1.47E-03	1.64E-03	7.30E-03
Barium	0.00E+00	0.00E+00	0.00E+00	2.57E-02	0.00E+00	1.87E-07	2.57E-02	1.14E-01
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.04E-12	8.04E-12	3.57E-11
Beryllium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-09	6.31E-09	2.80E-08
beta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-09	1.28E-09	5.67E-09
bis(2-Ethylhexyl)phthalate	4.57E-08	3.09E-04	0.00E+00	0.00E+00	1.07E-05	1.49E-06	3.21E-04	1.42E-03
Boron	1.16E-05	0.00E+00	0.00E+00	0.00E+00	1.85E-05	1.61E-08	3.01E-05	1.34E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-07	6.03E-07	2.68E-06
Chromium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.03E-08	7.03E-08	3.12E-07
Chromium VI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.26E-11	7.26E-11	3.22E-10
Cyanide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06	2.58E-05
delta-BHC	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-05	3.32E-05	1.47E-04
Dieldrin	2.77E-05	2.02E-04	0.00E+00	0.00E+00	1.18E-06	2.17E-07	2.31E-04	1.02E-03
Endrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.35E-07	6.35E-07	2.82E-06
gamma-BHC	2.16E-07	4.78E-07	7.56E-07	0.00E+00	1.75E-08	9.62E-09	1.48E-06	6.56E-06
gamma-Chlordane	0.00E+00	8.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-05	3.90E-04
Heptachlor	0.00E+00	1.98E-06	1.83E-06	0.00E+00	0.00E+00	7.68E-08	3.89E-06	1.73E-05
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-10	7.56E-10	3.35E-09
Lead (organic)	8.64	0.00E+00	0.00E+00	0.00E+00	1.38E+01	1.61E-02	2.25E+01	9.98E+01
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.57E-06	1.57E-06	6.97E-06
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.52E-03	6.52E-03	2.90E-02
Methoxychlor	2.09E-05	0.00E+00	0.00E+00	0.00E+00	3.34E-05	0.00E+00	5.42E-05	2.41E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06	7.68E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.55E-04	5.55E-04	2.46E-03
Silver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.44E-06	3.44E-06	1.53E-05
Thallium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-04	5.84E-04	2.59E-03
Vanadium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-05	1.93E-05	8.59E-05
Total by pathway	8.64	6.74E-04	1.74E-05	2.57E-02	1.38E+01	2.54E-02		
% Contribution by pathway	3.84E+01	2.99E-03	7.71E-05	1.14E-01	6.14E+01	1.13E-01		
Scenario Total							2.25E+01	

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

Average Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	2.26E-05	2.26E-05	5.41E-05
4,4'-DDE	2.62E-09	2.62E-09	6.28E-09
4,4'-DDT	6.15E-05	6.15E-05	1.47E-04
Aldrin	7.04E-08	7.04E-08	1.69E-07
alpha-BHC	2.87E-07	2.87E-07	6.89E-07
alpha-Chlordane	1.18E-08	1.18E-08	2.83E-08
Arsenic	3.29E-03	3.29E-03	7.89E-03
beta-BHC	2.28E-09	2.28E-09	5.46E-09
bis(2-Ethylhexyl)phthalate	2.85E-05	2.85E-05	6.83E-05
Boron	1.98E-04	1.98E-04	4.74E-04
Cadmium (water)	8.99E-06	8.99E-06	2.15E-05
delta-BHC	8.35E-09	8.35E-09	2.00E-08
Dieldrin	7.41E-07	7.41E-07	1.78E-06
Endosulfan I	2.49E-11	2.49E-11	5.97E-11
Endosulfan II	7.76E-15	7.76E-15	1.86E-14
Endosulfan sulfate	1.42E-09	1.42E-09	3.40E-09
Endrin ketone	3.48E-04	3.48E-04	8.33E-04
gamma-BHC	2.94E-07	2.94E-07	7.04E-07
gamma-Chlordane	4.46E-09	4.46E-09	1.07E-08
Heptachlor	3.36E-09	3.36E-09	8.05E-09
Isodrin	8.70E-09	8.70E-09	2.08E-08
Kepone	2.86E-09	2.86E-09	6.86E-09
Lead (organic)	4.17E+01	4.17E+01	1.00E+02
Manganese (water)	2.95E-04	2.95E-04	7.07E-04
Methoxychlor	1.03E-02	1.03E-02	2.48E-02
Total by pathway	4.17E+01		
% Contribution by pathway	1.00E+02		
Scenario Total		4.17E+01	
Reas. Max. Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	9.63E-05	9.63E-05	3.68E-05
4,4'-DDE	2.08E-08	2.08E-08	7.97E-09
4,4'-DDT	4.03E-04	4.03E-04	1.54E-04
Aldrin	5.41E-07	5.41E-07	2.07E-07
alpha-BHC	1.37E-06	1.37E-06	5.25E-07
alpha-Chlordane	7.96E-08	7.96E-08	3.04E-08
Arsenic	1.62E-02	1.62E-02	6.19E-03
beta-BHC	2.72E-08	2.72E-08	1.04E-08
bis(2-Ethylhexyl)phthalate	2.67E-04	2.67E-04	1.02E-04
Boron	9.33E-04	9.33E-04	3.57E-04
Cadmium (water)	4.29E-05	4.29E-05	1.64E-05
delta-BHC	6.48E-08	6.48E-08	2.48E-08
Dieldrin	6.01E-06	6.01E-06	2.30E-06
Endosulfan I	3.03E-10	3.03E-10	1.16E-10
Endosulfan II	3.31E-14	3.31E-14	1.26E-14
Endosulfan sulfate	6.24E-09	6.24E-09	2.39E-09
Endrin ketone	1.48E-03	1.48E-03	5.67E-04

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

gamma-BHC	2.21E-06	2.21E-06	8.47E-07
gamma-Chlordane	4.22E-08	4.22E-08	1.61E-08
Heptachlor	2.55E-08	2.55E-08	9.75E-09
Isodrin	7.12E-08	7.12E-08	2.72E-08
Kepone	3.39E-08	3.39E-08	1.30E-08
Lead (organic)	2.61E+02	2.61E+02	1.00E+02
Manganese (water)	1.33E-03	1.33E-03	5.07E-04
Methoxychlor	8.18E-02	8.18E-02	3.13E-02
Total by pathway	2.62E+02		
% Contribution by pathway	1.00E+02		
Scenario Total		2.62E+02	
Average Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	5.27E-05	5.27E-05	5.41E-05
4,4'-DDE	6.11E-09	6.11E-09	6.28E-09
4,4'-DDT	1.43E-04	1.43E-04	1.47E-04
Aldrin	1.64E-07	1.64E-07	1.69E-07
alpha-BHC	6.71E-07	6.71E-07	6.89E-07
alpha-Chlordane	2.75E-08	2.75E-08	2.83E-08
Arsenic	7.69E-03	7.69E-03	7.89E-03
beta-BHC	5.31E-09	5.31E-09	5.46E-09
bis(2-Ethylhexyl)phthalate	6.65E-05	6.65E-05	6.83E-05
Boron	4.62E-04	4.62E-04	4.74E-04
Cadmium (water)	2.10E-05	2.10E-05	2.15E-05
delta-BHC	1.95E-08	1.95E-08	2.00E-08
Dieldrin	1.73E-06	1.73E-06	1.78E-06
Endosulfan I	5.82E-11	5.82E-11	5.97E-11
Endosulfan II	1.81E-14	1.81E-14	1.86E-14
Endosulfan sulfate	3.31E-09	3.31E-09	3.40E-09
Endrin ketone	8.12E-04	8.12E-04	8.33E-04
gamma-BHC	6.86E-07	6.86E-07	7.04E-07
gamma-Chlordane	1.04E-08	1.04E-08	1.07E-08
Heptachlor	7.83E-09	7.83E-09	8.05E-09
Isodrin	2.03E-08	2.03E-08	2.08E-08
Kepone	6.68E-09	6.68E-09	6.86E-09
Lead (organic)	9.73E+01	9.73E+01	1.00E+02
Manganese (water)	6.88E-04	6.88E-04	7.07E-04
Methoxychlor	2.41E-02	2.41E-02	2.48E-02
Total by pathway	9.74E+01		
% Contribution by pathway	1.00E+02		
Scenario Total		9.74E+01	
Reas. Max. Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	2.25E-04	2.25E-04	3.68E-05
4,4'-DDE	4.86E-08	4.86E-08	7.97E-09
4,4'-DDT	9.40E-04	9.40E-04	1.54E-04
Aldrin	1.26E-06	1.26E-06	2.07E-07
alpha-BHC	3.20E-06	3.20E-06	5.25E-07

Table J-50
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Holloman

alpha-Chlordane	1.86E-07	1.86E-07	3.04E-08					
Arsenic	3.78E-02	3.78E-02	6.19E-03					
beta-BHC	6.34E-08	6.34E-08	1.04E-08					
bis(2-Ethylhexyl)phthalate	6.24E-04	6.24E-04	1.02E-04					
Boron	2.18E-03	2.18E-03	3.57E-04					
Cadmium (water)	1.00E-04	1.00E-04	1.64E-05					
delta-BHC	1.51E-07	1.51E-07	2.48E-08					
Dieldrin	1.40E-05	1.40E-05	2.30E-06					
Endosulfan I	7.08E-10	7.08E-10	1.16E-10					
Endosulfan II	7.72E-14	7.72E-14	1.26E-14					
Endosulfan sulfate	1.46E-08	1.46E-08	2.39E-09					
Endrin ketone	3.46E-03	3.46E-03	5.67E-04					
gamma-BHC	5.17E-06	5.17E-06	8.47E-07					
gamma-Chlordane	9.84E-08	9.84E-08	1.61E-08					
Heptachlor	5.95E-08	5.95E-08	9.75E-09					
Isodrin	1.66E-07	1.66E-07	2.72E-08					
Kepone	7.92E-08	7.92E-08	1.30E-08					
Lead (organic)	6.10E+02	6.10E+02	1.00E+02					
Manganese (water)	3.10E-03	3.10E-03	5.07E-04					
Methoxychlor	1.91E-01	1.91E-01	3.13E-02					
Total by pathway	6.10E+02							
% Contribution by pathway	1.00E+02							
Scenario Total		6.10E+02						

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Lake Holloman									
Scenario									
	Activity								
		Pathway							
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting around the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	4.94E-09	9.89E-09	9.89E-06	1.98E-05	
			4,4'-DDT	1.12E-02	6.43E-08	1.98E-07	5.74E-06	1.77E-05	
			alpha-BHC	1.17E-03	5.61E-12	1.24E-11	4.80E-09	1.06E-08	
			Arsenic	3.00E-04	1.76E-09	4.05E-09	5.85E-06	1.35E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	9.27E-11	4.08E-10	4.64E-09	2.04E-08	
			Boron	9.00E-02	2.10E-07	4.66E-07	2.34E-06	5.17E-06	
			Dieldrin	6.52E-05	1.63E-10	6.19E-10	2.50E-06	9.49E-06	
			Endosulfan sulfate	2.47E-02	4.46E-13	8.93E-13	1.81E-11	3.62E-11	
			Endrin ketone	3.20E-05	1.91E-11	3.83E-11	5.98E-07	1.20E-06	
			gamma-BHC	3.00E-03	8.19E-11	2.90E-10	2.73E-08	9.66E-08	
			Lead (organic)	1.00E-07	1.31E-07	3.86E-07	1.31	3.86	
			Manganese (water)	5.00E-03	3.48E-08	7.36E-08	6.96E-06	1.47E-05	
			Methoxychlor	7.60E-02	1.26E-08	4.66E-08	1.65E-07	6.13E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.55E-09	1.44E-08	5.09E-06	2.88E-05	
			4,4'-DDE	3.89E-03	4.08E-10	1.43E-09	1.05E-07	3.67E-07	
			4,4'-DDT	1.12E-02	2.65E-10	7.54E-10	2.36E-08	6.73E-08	
			alpha-BHC	1.17E-03	1.49E-10	4.05E-10	1.27E-07	3.46E-07	
			alpha-Chlordane	1.48E-05	3.67E-10	1.58E-09	2.48E-05	1.07E-04	
			bis(2-Ethylhexyl)phthalate	2.00E-02	5.18E-07	2.33E-06	2.59E-05	1.17E-04	
			delta-BHC	2.00E-04	3.08E-08	1.70E-07	1.54E-04	8.48E-04	
			Dieldrin	6.52E-05	1.14E-09	3.81E-09	1.74E-05	5.84E-05	
			gamma-BHC	3.00E-03	1.83E-10	5.42E-10	6.10E-08	1.81E-07	
			gamma-Chlordane	6.00E-05	4.56E-10	1.99E-09	7.60E-06	3.32E-05	
			Heptachlor	9.75E-04	1.34E-10	3.74E-10	1.38E-07	3.83E-07	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	8.74E-11	3.44E-10	2.25E-08	8.84E-08	
			alpha-BHC	1.17E-03	8.61E-11	3.42E-10	7.36E-08	2.92E-07	
			Arsenic	3.00E-04	6.79E-10	1.67E-09	2.26E-06	5.58E-06	
			delta-BHC	2.00E-04	1.97E-08	8.62E-08	9.86E-05	4.31E-04	
			gamma-BHC	3.00E-03	2.88E-10	8.57E-10	9.60E-08	2.86E-07	
			Heptachlor	9.75E-04	8.89E-11	3.46E-10	9.12E-08	3.55E-07	
		InhalationOfVapor: Fugitive Dust							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Barium*	5.00E-04	2.63E-05	1.47E-04	5.26E-02	2.94E-01	
		IncidentalIngestionOfWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.05E-12	4.11E-12	4.11E-09	8.22E-09	
			4,4'-DDT	5.00E-04	5.72E-12	1.76E-11	1.14E-08	3.52E-08	
			alpha-BHC	4.16E-04	4.31E-12	9.49E-12	1.03E-08	2.28E-08	
			Arsenic	3.00E-04	3.58E-09	8.27E-09	1.19E-05	2.76E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.04E-08	4.57E-08	5.19E-07	2.28E-06	
			Boron	9.00E-02	1.61E-07	3.57E-07	1.79E-06	3.97E-06	
			Dieldrin	5.00E-05	3.33E-12	1.26E-11	6.65E-08	2.52E-07	
			Endosulfan sulfate	6.00E-03	3.42E-13	6.85E-13	5.71E-11	1.14E-10	
			Endrin ketone	3.20E-05	1.47E-11	2.94E-11	4.59E-07	9.17E-07	
			gamma-BHC	3.00E-04	3.18E-12	1.13E-11	1.06E-08	3.75E-08	
			Lead (organic)	1.00E-07	1.01E-07	2.96E-07	1.01	2.96	
			Manganese (water)	5.00E-03	2.67E-08	5.64E-08	5.34E-06	1.13E-05	
			Methoxychlor	5.00E-03	9.64E-09	3.58E-08	1.93E-06	7.15E-06	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			1,2,3,4,7,8-HxCDF	1.00E-08	1.62E-12	2.41E-11	1.62E-04	2.41E-03	
			1,2,3,7,8,9-HxCDF	1.00E-08	5.14E-14	7.60E-13	5.14E-06	7.60E-05	
			2,3,4,6,7,8-HxCDF	1.00E-08	6.41E-15	9.46E-14	6.41E-07	9.46E-06	
			1,2,3,4,6,7,8-HpCDD	1.00E-07	2.37E-14	3.51E-13	2.37E-07	3.51E-06	
			2,3,7,8-TCDD	1.00E-09	1.71E-13	2.53E-12	1.71E-04	2.53E-03	
			2,3,7,8-TCDF	1.00E-08	1.83E-14	2.71E-13	1.83E-06	2.71E-05	
			2,4'-DDD	2.26E-04	5.10E-10	7.57E-09	2.26E-06	3.35E-05	
			2,4'-DDT	3.58E-05	4.61E-11	6.86E-10	1.29E-06	1.92E-05	
			4,4'-DDD	5.00E-04	5.35E-09	7.95E-08	1.07E-05	1.59E-04	
			4,4'-DDE	3.89E-03	4.33E-09	6.43E-08	1.11E-06	1.65E-05	
			4,4'-DDT	5.00E-04	8.49E-11	1.26E-09	1.70E-07	2.52E-06	
			Aldrin	3.00E-05	5.72E-12	8.50E-11	1.91E-07	2.83E-06	
			alpha-BHC	4.16E-04	2.11E-13	3.32E-12	5.07E-10	7.99E-09	
			Antimony	4.00E-04	4.49E-11	6.67E-10	1.12E-07	1.67E-06	
			Arsenic	3.00E-04	1.07E-08	1.58E-07	3.55E-05	5.25E-04	
			Barium	7.00E-02	3.41E-10	4.68E-09	4.88E-09	6.68E-08	
			Benzyl alcohol	3.00E-01	1.93E-13	2.87E-12	6.45E-13	9.57E-12	
			Beryllium	5.00E-03	7.63E-13	1.13E-11	1.53E-10	2.25E-09	
			beta-BHC	3.30E-04	6.74E-14	1.52E-12	2.04E-10	4.61E-09	
			bis(2-Ethylhexyl)phthalate	2.00E-02	7.02E-10	1.06E-08	3.51E-08	5.32E-07	
			Boron	9.00E-02	2.48E-11	5.18E-10	2.76E-10	5.76E-09	
			Cadmium (food)	1.00E-03	2.65E-11	3.91E-10	2.65E-08	3.91E-07	
			Chlordane	6.00E-05	8.74E-13	1.29E-11	1.46E-08	2.15E-07	
			Chromium	1	1.47E-09	2.51E-08	1.47E-09	2.51E-08	
			Chromium VI	5.00E-03	1.31E-14	5.18E-13	2.63E-12	1.04E-10	
			Cyanide	2.00E-02	2.80E-09	4.15E-08	1.40E-07	2.07E-06	
			delta-BHC	2.00E-04	6.98E-13	2.37E-08	3.49E-09	1.19E-04	
			Dieldrin	5.00E-05	2.60E-13	3.88E-12	5.21E-09	7.76E-08	
			Endosulfan sulfate	6.00E-03	3.27E-16	5.05E-15	5.46E-14	8.42E-13	
			Endrin	3.00E-04	4.61E-12	6.80E-11	1.54E-08	2.27E-07	
			gamma-BHC	3.00E-04	1.07E-12	1.03E-11	3.57E-09	3.44E-08	
			Heptachlor	5.00E-04	6.08E-13	1.37E-11	1.22E-09	2.74E-08	
			Heptachlor epoxide	1.30E-05	2.36E-16	3.51E-15	1.81E-11	2.70E-10	
			Hexachlorobenzene	8.00E-04	9.27E-13	1.37E-11	1.16E-09	1.71E-08	
			HpCB	6.20E-05	3.36E-10	4.97E-09	5.41E-06	8.02E-05	
			HxCB	6.00E-07	6.78E-10	1.00E-08	1.13E-03	1.67E-02	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

			Lead (organic)	1.00E-07	6.04E-11	5.77E-10	6.04E-04	5.77E-03	
			Manganese (food)	1.40E-01	3.78E-09	5.61E-08	2.70E-08	4.01E-07	
			Mercury	3.00E-04	4.74E-08	6.99E-07	1.58E-04	2.33E-03	
			Mirex	2.00E-04	8.90E-17	1.32E-15	4.45E-13	6.58E-12	
			Nickel	2.00E-02	8.33E-10	1.24E-08	4.16E-08	6.18E-07	
			OCDD	1.00E-06	1.07E-13	1.59E-12	1.07E-07	1.59E-06	
			OCDF	1.00E-06	5.18E-14	7.68E-13	5.18E-08	7.68E-07	
			PnCB	9.00E-07	2.22E-09	3.27E-08	2.46E-03	3.63E-02	
			Pyridine	1.00E-03	2.08E-13	3.08E-12	2.08E-10	3.08E-09	
			Selenium	5.00E-03	6.69E-08	9.91E-07	1.34E-05	1.98E-04	
			Silver	5.00E-03	4.12E-10	6.14E-09	8.25E-08	1.23E-06	
			TCB	3.00E-07	1.66E-10	2.45E-09	5.52E-04	8.16E-03	
			Thallium	8.00E-05	1.13E-08	1.67E-07	1.41E-04	2.09E-03	
			Vanadium	7.00E-03	2.39E-09	4.84E-08	3.42E-07	6.91E-06	
Off-Site Recreational, Adult - (S) Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting Near the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	6.43E-08	1.98E-07	1.29E-04	3.96E-04	
			Arsenic	3.00E-04	1.76E-09	4.05E-09	5.85E-06	1.35E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	9.27E-11	4.08E-10	4.64E-09	2.04E-08	
			Boron	9.00E-02	2.10E-07	4.66E-07	2.34E-06	5.17E-06	
			Dieldrin	5.00E-05	1.63E-10	6.19E-10	3.26E-06	1.24E-05	
			gamma-BHC	3.00E-03	8.19E-11	2.90E-10	2.73E-08	9.66E-08	
			Lead (organic)	1.00E-07	1.31E-07	3.86E-07	1.31	3.86	
			Methoxychlor	5.00E-03	1.26E-08	4.66E-08	2.51E-06	9.32E-06	
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.65E-10	7.54E-10	5.29E-07	1.51E-06	
			alpha-Chlordane	6.00E-05	3.67E-10	1.58E-09	6.11E-06	2.63E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	5.18E-07	2.33E-06	2.59E-05	1.17E-04	
			Dieldrin	5.00E-05	1.14E-09	3.81E-09	2.27E-05	7.62E-05	
			gamma-BHC	3.00E-03	1.83E-10	5.42E-10	6.10E-08	1.81E-07	
			gamma-Chlordane	6.00E-05	4.56E-10	1.99E-09	7.60E-06	3.32E-05	
			Heptachlor	5.00E-04	1.34E-10	3.74E-10	2.68E-07	7.48E-07	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	6.79E-10	1.67E-09	2.26E-06	5.58E-06	
			gamma-BHC	3.00E-03	2.88E-10	8.57E-10	9.60E-08	2.86E-07	
			Heptachlor	5.00E-04	8.89E-11	3.46E-10	1.78E-07	6.93E-07	
		InhalationOfVapor: Fugitive Dust							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Barium*	5.00E-03	2.63E-05	1.47E-04	5.26E-03	2.94E-02	
		IncidentalIngestionOfWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	5.72E-12	1.76E-11	1.14E-08	3.52E-08	
			alpha-BHC	4.16E-03	4.31E-12	9.49E-12	1.03E-09	2.28E-09	
			Arsenic	3.00E-04	3.58E-09	8.27E-09	1.19E-05	2.76E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.04E-08	4.57E-08	5.19E-07	2.28E-06	
			Boron	9.00E-02	1.61E-07	3.57E-07	1.79E-06	3.97E-06	
			Dieldrin	5.00E-05	3.33E-12	1.26E-11	6.65E-08	2.52E-07	
			gamma-BHC	3.00E-03	3.18E-12	1.13E-11	1.06E-09	3.75E-09	
			Lead (organic)	1.00E-07	1.01E-07	2.96E-07	1.01	2.96	
			Methoxychlor	5.00E-03	9.64E-09	3.58E-08	1.93E-06	7.15E-06	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	8.49E-11	1.26E-09	1.70E-07	2.52E-06	
			Aldrin	3.00E-05	5.72E-12	8.50E-11	1.91E-07	2.83E-06	
			alpha-BHC	4.16E-03	2.11E-13	3.32E-12	5.07E-11	7.99E-10	
			Antimony	4.00E-04	4.49E-11	6.67E-10	1.12E-07	1.67E-06	
			Arsenic	3.00E-04	1.07E-08	1.58E-07	3.55E-05	5.25E-04	
			Barium	7.00E-02	3.41E-10	4.68E-09	4.88E-09	6.68E-08	
			Benzyl alcohol	1	1.93E-13	2.87E-12	1.93E-13	2.87E-12	
			Beryllium	5.00E-03	7.63E-13	1.13E-11	1.53E-10	2.25E-09	
			beta-BHC	3.33E-03	6.74E-14	1.52E-12	2.02E-11	4.56E-10	
			bis(2-Ethylhexyl)phthalate	2.00E-02	7.02E-10	1.06E-08	3.51E-08	5.32E-07	
			Boron	9.00E-02	2.48E-11	5.18E-10	2.76E-10	5.76E-09	
			Chlordane	6.00E-05	8.74E-13	1.29E-11	1.46E-08	2.15E-07	
			Chromium	1	1.47E-09	2.51E-08	1.47E-09	2.51E-08	
			Chromium VI	2.00E-02	1.31E-14	5.18E-13	6.57E-13	2.59E-11	
			Cyanide	2.00E-02	2.80E-09	4.15E-08	1.40E-07	2.07E-06	
			delta-BHC	2.00E-03	6.98E-13	2.37E-08	3.49E-10	1.19E-05	
			Dieldrin	5.00E-05	2.60E-13	3.88E-12	5.21E-09	7.76E-08	
			Endrin	3.00E-04	4.61E-12	6.80E-11	1.54E-08	2.27E-07	
			gamma-BHC	3.00E-03	1.07E-12	1.03E-11	3.57E-10	3.44E-09	
			Heptachlor	5.00E-04	6.08E-13	1.37E-11	1.22E-09	2.74E-08	
			Heptachlor epoxide	1.30E-05	2.36E-16	3.51E-15	1.81E-11	2.70E-10	
			Lead (organic)	1.00E-07	6.04E-11	5.77E-10	6.04E-04	5.77E-03	
			Manganese (food)	1.00E-01	3.78E-09	5.61E-08	3.78E-08	5.61E-07	
			Mercury	3.00E-04	4.74E-08	6.99E-07	1.58E-04	2.33E-03	
			Nickel	2.00E-02	8.33E-10	1.24E-08	4.16E-08	6.18E-07	
			Selenium	5.00E-03	6.69E-08	9.91E-07	1.34E-05	1.98E-04	
			Silver	5.00E-03	4.12E-10	6.14E-09	8.25E-08	1.23E-06	
			Thallium	8.00E-04	1.13E-08	1.67E-07	1.41E-05	2.09E-04	
			Vanadium	7.00E-03	2.39E-09	4.84E-08	3.42E-07	6.91E-06	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting Near the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.11E-08	2.21E-08	2.21E-05	4.42E-05	
			4,4'-DDT	1.12E-02	1.44E-07	4.43E-07	1.28E-05	3.95E-05	
			alpha-BHC	1.17E-03	1.26E-11	2.77E-11	1.07E-08	2.37E-08	
			Arsenic	3.00E-04	3.93E-09	9.07E-09	1.31E-05	3.02E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.07E-10	9.14E-10	1.04E-08	4.57E-08	
			Boron	9.00E-02	4.71E-07	1.04E-06	5.23E-06	1.16E-05	
			Dieldrin	6.52E-05	3.65E-10	1.38E-09	5.60E-06	2.12E-05	
			Endosulfan sulfate	2.47E-02	9.99E-13	2.00E-12	4.04E-11	8.09E-11	
			Endrin ketone	3.20E-05	4.28E-11	8.56E-11	1.34E-06	2.68E-06	
			gamma-BHC	3.00E-03	1.83E-10	6.49E-10	6.11E-08	2.16E-07	
			Lead (organic)	1.00E-07	2.94E-07	8.64E-07	2.94	8.64	
			Manganese (water)	5.00E-03	7.79E-08	1.65E-07	1.56E-05	3.29E-05	
			Methoxychlor	7.60E-02	2.81E-08	1.04E-07	3.70E-07	1.37E-06	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	6.74E-09	3.81E-08	1.35E-05	7.62E-05	
			4,4'-DDE	3.89E-03	1.08E-09	3.78E-09	2.77E-07	9.72E-07	
			4,4'-DDT	1.12E-02	7.00E-10	2.00E-09	6.25E-08	1.78E-07	
			alpha-BHC	1.17E-03	3.94E-10	1.07E-09	3.37E-07	9.16E-07	
			alpha-Chlordane	1.48E-05	9.71E-10	4.18E-09	6.56E-05	2.82E-04	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.37E-06	6.17E-06	6.86E-05	3.09E-04	
			delta-BHC	2.00E-04	8.15E-08	4.49E-07	4.07E-04	2.25E-03	
			Dieldrin	6.52E-05	3.01E-09	1.01E-08	4.61E-05	1.55E-04	
			gamma-BHC	3.00E-03	4.85E-10	1.43E-09	1.62E-07	4.78E-07	
			gamma-Chlordane	6.00E-05	1.21E-09	5.28E-09	2.01E-05	8.80E-05	
			Heptachlor	9.75E-04	3.55E-10	9.90E-10	3.64E-07	1.02E-06	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	2.31E-10	9.10E-10	5.95E-08	2.34E-07	
			alpha-BHC	1.17E-03	2.28E-10	9.05E-10	1.95E-07	7.74E-07	
			Arsenic	3.00E-04	1.80E-09	4.43E-09	5.99E-06	1.48E-05	
			delta-BHC	2.00E-04	5.22E-08	2.28E-07	2.61E-04	1.14E-03	
			gamma-BHC	3.00E-03	7.63E-10	2.27E-09	2.54E-07	7.56E-07	
			Heptachlor	9.75E-04	2.35E-10	9.17E-10	2.42E-07	9.41E-07	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		InhalationOfVapor: Fugitive Dust							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Barium*	5.00E-04	2.63E-05	1.28E-04	5.26E-02	2.57E-01	
		IncidentalIngestionOfWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	9.59E-12	1.92E-11	1.92E-08	3.84E-08	
			4,4'-DDT	5.00E-04	2.67E-11	8.22E-11	5.34E-08	1.64E-07	
			alpha-BHC	4.16E-04	2.01E-11	4.43E-11	4.83E-08	1.06E-07	
			Arsenic	3.00E-04	1.67E-08	3.86E-08	5.57E-05	1.29E-04	
			bis(2-Ethylhexyl)phthalate	2.00E-02	4.84E-08	2.13E-07	2.42E-06	1.07E-05	
			Boron	9.00E-02	7.53E-07	1.67E-06	8.37E-06	1.85E-05	
			Dieldrin	5.00E-05	1.55E-11	5.89E-11	3.11E-07	1.18E-06	
			Endosulfan sulfate	6.00E-03	1.60E-12	3.20E-12	2.66E-10	5.33E-10	
			Endrin ketone	3.20E-05	6.85E-11	1.37E-10	2.14E-06	4.28E-06	
			gamma-BHC	3.00E-04	1.48E-11	5.25E-11	4.95E-08	1.75E-07	
			Lead (organic)	1.00E-07	4.70E-07	1.38E-06	4.7	1.38E+01	
			Manganese (water)	5.00E-03	1.25E-07	2.63E-07	2.49E-05	5.27E-05	
			Methoxychlor	5.00E-03	4.50E-08	1.67E-07	8.99E-06	3.34E-05	
		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			1,2,3,4,7,8-HxCDF	1.00E-08	4.94E-12	6.73E-11	4.94E-04	6.73E-03	
			1,2,3,7,8,9-HxCDF	1.00E-08	1.56E-13	2.13E-12	1.56E-05	2.13E-04	
			2,3,4,6,7,8-HxCDF	1.00E-08	1.95E-14	2.65E-13	1.95E-06	2.65E-05	
			1,2,3,4,6,7,8-HpCDD	1.00E-07	7.21E-14	9.82E-13	7.21E-07	9.82E-06	
			2,3,7,8-TCDD	1.00E-09	5.20E-13	7.09E-12	5.20E-04	7.09E-03	
			2,3,7,8-TCDF	1.00E-08	5.57E-14	7.59E-13	5.57E-06	7.59E-05	
			2,4'-DDD	2.26E-04	1.55E-09	2.12E-08	6.86E-06	9.38E-05	
			2,4'-DDT	3.58E-05	1.40E-10	1.92E-09	3.91E-06	5.36E-05	
			4,4'-DDD	5.00E-04	1.62E-08	2.22E-07	3.25E-05	4.45E-04	
			4,4'-DDE	3.89E-03	1.31E-08	1.80E-07	3.38E-06	4.63E-05	
			4,4'-DDT	5.00E-04	2.58E-10	3.53E-09	5.16E-07	7.05E-06	
			Aldrin	3.00E-05	1.74E-11	2.38E-10	5.79E-07	7.94E-06	
			alpha-BHC	4.16E-04	6.41E-13	9.30E-12	1.54E-09	2.24E-08	
			Antimony	4.00E-04	1.36E-10	1.87E-09	3.41E-07	4.67E-06	
			Arsenic	3.00E-04	3.24E-08	4.41E-07	1.08E-04	1.47E-03	
			Barium	7.00E-02	1.04E-09	1.31E-08	1.48E-08	1.87E-07	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

			Benzyl alcohol	3.00E-01	5.88E-13	8.04E-12	1.96E-12	2.68E-11	
			Beryllium	5.00E-03	2.32E-12	3.16E-11	4.64E-10	6.31E-09	
			beta-BHC	3.30E-04	2.05E-13	4.26E-12	6.20E-10	1.29E-08	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.13E-09	2.98E-08	1.07E-07	1.49E-06	
			Boron	9.00E-02	7.54E-11	1.45E-09	8.38E-10	1.61E-08	
			Cadmium (food)	1.00E-03	8.05E-11	1.09E-09	8.05E-08	1.09E-06	
			Chlordane	6.00E-05	2.65E-12	3.62E-11	4.42E-08	6.03E-07	
			Chromium	1	4.45E-09	7.03E-08	4.45E-09	7.03E-08	
			Chromium VI	5.00E-03	3.99E-14	1.45E-12	7.99E-12	2.90E-10	
			Cyanide	2.00E-02	8.51E-09	1.16E-07	4.25E-07	5.80E-06	
			delta-BHC	2.00E-04	2.12E-12	6.64E-08	1.06E-08	3.32E-04	
			Dieldrin	5.00E-05	7.91E-13	1.09E-11	1.58E-08	2.17E-07	
			Endosulfan sulfate	6.00E-03	9.95E-16	1.41E-14	1.66E-13	2.36E-12	
			Endrin	3.00E-04	1.40E-11	1.90E-10	4.67E-08	6.35E-07	
			gamma-BHC	3.00E-04	3.25E-12	2.89E-11	1.08E-08	9.62E-08	
			Heptachlor	5.00E-04	1.85E-12	3.84E-11	3.70E-09	7.68E-08	
			Heptachlor epoxide	1.30E-05	7.16E-16	9.82E-15	5.50E-11	7.56E-10	
			Hexachlorobenzene	8.00E-04	2.82E-12	3.84E-11	3.52E-09	4.80E-08	
			HpCB	6.20E-05	1.02E-09	1.39E-08	1.64E-05	2.24E-04	
			HxCB	6.00E-07	2.06E-09	2.81E-08	3.43E-03	4.68E-02	
			Lead (organic)	1.00E-07	1.84E-10	1.61E-09	1.84E-03	1.61E-02	
			Manganese (food)	1.40E-01	1.15E-08	1.57E-07	8.21E-08	1.12E-06	
			Mercury	3.00E-04	1.44E-07	1.96E-06	4.80E-04	6.52E-03	
			Mirex	2.00E-04	2.70E-16	3.68E-15	1.35E-12	1.84E-11	
			Nickel	2.00E-02	2.53E-09	3.46E-08	1.26E-07	1.73E-06	
			OCDD	1.00E-06	3.26E-13	4.45E-12	3.26E-07	4.45E-06	
			OCDF	1.00E-06	1.58E-13	2.15E-12	1.58E-07	2.15E-06	
			PnCB	9.00E-07	6.73E-09	9.15E-08	7.48E-03	1.02E-01	
			Pyridine	1.00E-03	6.32E-13	8.63E-12	6.32E-10	8.63E-09	
			Selenium	5.00E-03	2.03E-07	2.78E-06	4.07E-05	5.55E-04	
			Silver	5.00E-03	1.25E-09	1.72E-08	2.51E-07	3.44E-06	
			TCB	3.00E-07	5.04E-10	6.85E-09	1.68E-03	2.28E-02	
			Thallium	8.00E-05	3.42E-08	4.67E-07	4.28E-04	5.84E-03	
			Vanadium	7.00E-03	7.27E-09	1.35E-07	1.04E-06	1.93E-05	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Off-Site Recreational, Child - (S) Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting Near the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	1.44E-07	4.43E-07	2.88E-04	8.85E-04	
			Arsenic	3.00E-04	3.93E-09	9.07E-09	1.31E-05	3.02E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.07E-10	9.14E-10	1.04E-08	4.57E-08	
			Boron	9.00E-02	4.71E-07	1.04E-06	5.23E-06	1.16E-05	
			Dieldrin	5.00E-05	3.65E-10	1.38E-09	7.30E-06	2.77E-05	
			gamma-BHC	3.00E-03	1.83E-10	6.49E-10	6.11E-08	2.16E-07	
			Lead (organic)	1.00E-07	2.94E-07	8.64E-07	2.94	8.64	
			Methoxychlor	5.00E-03	2.81E-08	1.04E-07	5.62E-06	2.09E-05	
		DermalContactWithSoil: Sludge							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	7.00E-10	2.00E-09	1.40E-06	3.99E-06	
			alpha-Chlordane	6.00E-05	9.71E-10	4.18E-09	1.62E-05	6.96E-05	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.37E-06	6.17E-06	6.86E-05	3.09E-04	
			Dieldrin	5.00E-05	3.01E-09	1.01E-08	6.01E-05	2.02E-04	
			gamma-BHC	3.00E-03	4.85E-10	1.43E-09	1.62E-07	4.78E-07	
			gamma-Chlordane	6.00E-05	1.21E-09	5.28E-09	2.01E-05	8.80E-05	
			Heptachlor	5.00E-04	3.55E-10	9.90E-10	7.10E-07	1.98E-06	
		DermalContactWithSoil: Soil							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.80E-09	4.43E-09	5.99E-06	1.48E-05	
			gamma-BHC	3.00E-03	7.63E-10	2.27E-09	2.54E-07	7.56E-07	
			Heptachlor	5.00E-04	2.35E-10	9.17E-10	4.71E-07	1.83E-06	
		InhalationOfVapor: Fugitive Dust							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Subchronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
			Barium*	5.00E-03	2.63E-05	1.28E-04	5.26E-03	2.57E-02	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		IncidentalIngestionOfWater: Surface water							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.67E-11	8.22E-11	5.34E-08	1.64E-07	
			alpha-BHC	4.16E-03	2.01E-11	4.43E-11	4.83E-09	1.06E-08	
			Arsenic	3.00E-04	1.67E-08	3.86E-08	5.57E-05	1.29E-04	
			bis(2-Ethylhexyl)phthalate	2.00E-02	4.84E-08	2.13E-07	2.42E-06	1.07E-05	
			Boron	9.00E-02	7.53E-07	1.67E-06	8.37E-06	1.85E-05	
			Dieldrin	5.00E-05	1.55E-11	5.89E-11	3.11E-07	1.18E-06	
			gamma-BHC	3.00E-03	1.48E-11	5.25E-11	4.95E-09	1.75E-08	
			Lead (organic)	1.00E-07	4.70E-07	1.38E-06	4.7	1.38E+01	
			Methoxychlor	5.00E-03	4.50E-08	1.67E-07	8.99E-06	3.34E-05	
		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Subchronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.58E-10	3.53E-09	5.16E-07	7.05E-06	
			Aldrin	3.00E-05	1.74E-11	2.38E-10	5.79E-07	7.94E-06	
			alpha-BHC	4.16E-03	6.41E-13	9.30E-12	1.54E-10	2.24E-09	
			Antimony	4.00E-04	1.36E-10	1.87E-09	3.41E-07	4.67E-06	
			Arsenic	3.00E-04	3.24E-08	4.41E-07	1.08E-04	1.47E-03	
			Barium	7.00E-02	1.04E-09	1.31E-08	1.48E-08	1.87E-07	
			Benzyl alcohol	1	5.88E-13	8.04E-12	5.88E-13	8.04E-12	
			Beryllium	5.00E-03	2.32E-12	3.16E-11	4.64E-10	6.31E-09	
			beta-BHC	3.33E-03	2.05E-13	4.26E-12	6.15E-11	1.28E-09	
			bis(2-Ethylhexyl)phthalate	2.00E-02	2.13E-09	2.98E-08	1.07E-07	1.49E-06	
			Boron	9.00E-02	7.54E-11	1.45E-09	8.38E-10	1.61E-08	
			Chlordane	6.00E-05	2.65E-12	3.62E-11	4.42E-08	6.03E-07	
			Chromium	1	4.45E-09	7.03E-08	4.45E-09	7.03E-08	
			Chromium VI	2.00E-02	3.99E-14	1.45E-12	2.00E-12	7.26E-11	
			Cyanide	2.00E-02	8.51E-09	1.16E-07	4.25E-07	5.80E-06	
			delta-BHC	2.00E-03	2.12E-12	6.64E-08	1.06E-09	3.32E-05	
			Dieldrin	5.00E-05	7.91E-13	1.09E-11	1.58E-08	2.17E-07	
			Endrin	3.00E-04	1.40E-11	1.90E-10	4.67E-08	6.35E-07	
			gamma-BHC	3.00E-03	3.25E-12	2.89E-11	1.08E-09	9.62E-09	
			Heptachlor	5.00E-04	1.85E-12	3.84E-11	3.70E-09	7.68E-08	
			Heptachlor epoxide	1.30E-05	7.16E-16	9.82E-15	5.50E-11	7.56E-10	
			Lead (organic)	1.00E-07	1.84E-10	1.61E-09	1.84E-03	1.61E-02	
			Manganese (food)	1.00E-01	1.15E-08	1.57E-07	1.15E-07	1.57E-06	
			Mercury	3.00E-04	1.44E-07	1.96E-06	4.80E-04	6.52E-03	
			Nickel	2.00E-02	2.53E-09	3.46E-08	1.26E-07	1.73E-06	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

			Selenium	5.00E-03	2.03E-07	2.78E-06	4.07E-05	5.55E-04	
			Silver	5.00E-03	1.25E-09	1.72E-08	2.51E-07	3.44E-06	
			Thallium	8.00E-04	3.42E-08	4.67E-07	4.28E-05	5.84E-04	
			Vanadium	7.00E-03	7.27E-09	1.35E-07	1.04E-06	1.93E-05	
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)									
	Grazing Cattle Near the Lake								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.13E-08	4.82E-08	2.26E-05	9.63E-05	
			4,4'-DDE	3.89E-03	1.02E-11	8.11E-11	2.62E-09	2.08E-08	
			4,4'-DDT	5.00E-04	3.07E-08	2.01E-07	6.15E-05	4.03E-04	
			Aldrin	3.00E-05	2.11E-12	1.62E-11	7.04E-08	5.41E-07	
			alpha-BHC	4.16E-04	1.20E-10	5.71E-10	2.87E-07	1.37E-06	
			alpha-Chlordane	1.48E-05	1.75E-13	1.18E-12	1.18E-08	7.96E-08	
			Arsenic	3.00E-04	9.88E-07	4.86E-06	3.29E-03	1.62E-02	
			beta-BHC	3.30E-04	7.51E-13	8.97E-12	2.28E-09	2.72E-08	
			bis(2-Ethylhexyl)phthalate	2.00E-02	5.70E-07	5.35E-06	2.85E-05	2.67E-04	
			Boron	9.00E-02	1.78E-05	8.40E-05	1.98E-04	9.33E-04	
			Cadmium (water)	5.00E-04	4.49E-09	2.14E-08	8.99E-06	4.29E-05	
			delta-BHC	2.00E-04	1.67E-12	1.30E-11	8.35E-09	6.48E-08	
			Dieldrin	5.00E-05	3.71E-11	3.00E-10	7.41E-07	6.01E-06	
			Endosulfan I	2.53E-02	6.31E-13	7.67E-12	2.49E-11	3.03E-10	
			Endosulfan II	80	6.21E-13	2.65E-12	7.76E-15	3.31E-14	
			Endosulfan sulfate	6.00E-03	8.52E-12	3.75E-11	1.42E-09	6.24E-09	
			Endrin ketone	3.20E-05	1.11E-08	4.74E-08	3.48E-04	1.48E-03	
			gamma-BHC	3.00E-04	8.82E-11	6.64E-10	2.94E-07	2.21E-06	
			gamma-Chlordane	6.00E-05	2.68E-13	2.53E-12	4.46E-09	4.22E-08	
			Heptachlor	5.00E-04	1.68E-12	1.28E-11	3.36E-09	2.55E-08	
			Isodrin	3.00E-04	2.61E-12	2.14E-11	8.70E-09	7.12E-08	
			Kepone	1.00E-03	2.86E-12	3.39E-11	2.86E-09	3.39E-08	
			Lead (organic)	1.00E-07	4.17E-06	2.61E-05	4.17E+01	2.61E+02	
			Manganese (water)	5.00E-03	1.47E-06	6.63E-06	2.95E-04	1.33E-03	
			Methoxychlor	5.00E-03	5.17E-05	4.09E-04	1.03E-02	8.18E-02	

Table J-51
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)									
	Grazing Cattle Near the Lake								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.64E-08	1.12E-07	5.27E-05	2.25E-04	
			4,4'-DDE	3.89E-03	2.38E-11	1.89E-10	6.11E-09	4.86E-08	
			4,4'-DDT	5.00E-04	7.17E-08	4.70E-07	1.43E-04	9.40E-04	
			Aldrin	3.00E-05	4.93E-12	3.78E-11	1.64E-07	1.26E-06	
			alpha-BHC	4.16E-04	2.79E-10	1.33E-09	6.71E-07	3.20E-06	
			alpha-Chlordane	1.48E-05	4.07E-13	2.75E-12	2.75E-08	1.86E-07	
			Arsenic	3.00E-04	2.31E-06	1.13E-05	7.69E-03	3.78E-02	
			beta-BHC	3.30E-04	1.75E-12	2.09E-11	5.31E-09	6.34E-08	
			bis(2-Ethylhexyl)phthalate	2.00E-02	1.33E-06	1.25E-05	6.65E-05	6.24E-04	
			Boron	9.00E-02	4.16E-05	1.96E-04	4.62E-04	2.18E-03	
			Cadmium (water)	5.00E-04	1.05E-08	5.00E-08	2.10E-05	1.00E-04	
			delta-BHC	2.00E-04	3.90E-12	3.03E-11	1.95E-08	1.51E-07	
			Dieldrin	5.00E-05	8.65E-11	7.01E-10	1.73E-06	1.40E-05	
			Endosulfan I	2.53E-02	1.47E-12	1.79E-11	5.82E-11	7.08E-10	
			Endosulfan II	80	1.45E-12	6.17E-12	1.81E-14	7.72E-14	
			Endosulfan sulfate	6.00E-03	1.99E-11	8.74E-11	3.31E-09	1.46E-08	
			Endrin ketone	3.20E-05	2.60E-08	1.11E-07	8.12E-04	3.46E-03	
			gamma-BHC	3.00E-04	2.06E-10	1.55E-09	6.86E-07	5.17E-06	
			gamma-Chlordane	6.00E-05	6.25E-13	5.90E-12	1.04E-08	9.84E-08	
			Heptachlor	5.00E-04	3.92E-12	2.98E-11	7.83E-09	5.95E-08	
			Isodrin	3.00E-04	6.09E-12	4.99E-11	2.03E-08	1.66E-07	
			Kepone	1.00E-03	6.68E-12	7.92E-11	6.68E-09	7.92E-08	
			Lead (organic)	1.00E-07	9.73E-06	6.10E-05	9.73E+01	6.10E+02	
			Manganese (water)	5.00E-03	3.44E-06	1.55E-05	6.88E-04	3.10E-03	
			Methoxychlor	5.00E-03	1.21E-04	9.54E-04	2.41E-02	1.91E-01	

Table J-52
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Lake Holloman

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Lake Holloman		
Chronic Exposure		
Scenario	Average	Reas. Max.
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	4.38E-07	1.29E-05
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)	2.91E-09	7.05E-08

Table J-53
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Holloman

Average Cancer Risk								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.13E-09	3.13E-09	7.16E-01
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.92E-11	9.92E-11	2.27E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-11	1.24E-11	2.82E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.57E-12	4.57E-12	1.05E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-09	3.30E-09	7.54E-01
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53E-11	3.53E-11	8.08E-03
4,4'-DDD	1.53E-10	7.85E-11	0.00E+00	0.00E+00	6.34E-14	1.65E-10	3.96E-10	9.05E-02
4,4'-DDE	0.00E+00	1.78E-11	3.82E-12	0.00E+00	0.00E+00	1.89E-10	2.11E-10	4.82E-02
4,4'-DDT	2.81E-09	1.16E-11	0.00E+00	0.00E+00	2.50E-13	3.71E-12	2.83E-09	6.46E-01
Aldrin	0.00E+00	0.00E+00	0.00E+00	9.35E-10	0.00E+00	1.25E-11	9.48E-10	2.17E-01
alpha-BHC	4.55E-12	1.21E-10	6.98E-11	2.52E-10	3.49E-12	1.71E-13	4.51E-10	1.03E-01
alpha-Chlordane	0.00E+00	6.13E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.13E-11	1.40E-02
Arsenic	0.00E+00	0.00E+00	0.00E+00	2.94E-07	0.00E+00	0.00E+00	2.94E-07	6.72E+01
Beryllium	0.00E+00	0.00E+00	0.00E+00	7.20E-11	0.00E+00	4.22E-13	7.25E-11	1.66E-02
beta-BHC	0.00E+00	0.00E+00	0.00E+00	8.41E-11	0.00E+00	1.56E-14	8.41E-11	1.92E-02
bis(2-Ethylhexyl)phthalate	1.67E-13	9.33E-10	0.00E+00	0.00E+00	1.87E-11	1.26E-12	9.53E-10	2.18E-01
Cadmium (dust)	0.00E+00	0.00E+00	0.00E+00	1.71E-10	0.00E+00	0.00E+00	1.71E-10	3.91E-02
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-13	1.46E-13	3.34E-05
Dieldrin	3.36E-10	2.34E-09	0.00E+00	0.00E+00	6.84E-12	5.36E-13	2.68E-09	6.12E-01
gamma-BHC	1.37E-11	3.06E-11	4.82E-11	0.00E+00	5.32E-13	1.79E-13	9.32E-11	2.13E-02
gamma-Chlordane	0.00E+00	7.62E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-11	1.74E-02
Heptachlor	0.00E+00	7.76E-11	5.15E-11	2.66E-08	0.00E+00	3.52E-13	2.67E-08	6.1
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-16	2.76E-16	6.30E-08
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-13	1.91E-13	4.36E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	2.37E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-08	2.09E-08	4.78
n-Nitroso-di-n-propylamin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	5.15E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-10	2.60E-10	5.94E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-12	2.07E-12	4.73E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-12	1.00E-12	2.28E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.84E-08	6.84E-08	1.56E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	1.97
Trichloroethene	0.00E+00	0.00E+00	0.00E+00	8.13E-10	0.00E+00	0.00E+00	8.13E-10	1.86E-01
Total by pathway	3.32E-09	3.74E-09	1.73E-10	3.23E-07	2.98E-11	1.08E-07		
% Contribution by pathwa	7.58E-01	8.55E-01	3.96E-02	7.38E+01	6.82E-03	2.46E+01		
Scenario Total							4.38E-07	

Table J-53
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Holloman

Reas. Max. Cancer Risk								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)								
	Dermal Contact with Surface Water	Dermal Contact with Sludge	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-07	1.55E-07	1.2
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.89E-09	4.89E-09	3.79E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.08E-10	6.08E-10	4.72E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-10	2.26E-10	1.75E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-07	1.63E-07	1.26
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-09	1.74E-09	1.35E-02
4,4'-DDD	1.02E-09	1.48E-09	0.00E+00	0.00E+00	4.23E-13	8.17E-09	1.07E-08	8.27E-02
4,4'-DDE	0.00E+00	2.08E-10	5.01E-11	0.00E+00	0.00E+00	9.37E-09	9.63E-09	7.47E-02
4,4'-DDT	2.88E-08	1.10E-10	0.00E+00	0.00E+00	2.57E-12	1.84E-10	2.91E-08	2.26E-01
Aldrin	0.00E+00	0.00E+00	0.00E+00	2.77E-08	0.00E+00	6.20E-10	2.83E-08	2.19E-01
alpha-BHC	3.34E-11	1.09E-09	9.23E-10	7.63E-09	2.56E-11	8.97E-12	9.72E-09	7.53E-02
alpha-Chlordane	0.00E+00	8.79E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.79E-10	6.81E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	6.18E-06	0.00E+00	0.00E+00	6.18E-06	4.79E+01
Beryllium	0.00E+00	0.00E+00	0.00E+00	1.33E-09	0.00E+00	2.08E-11	1.35E-09	1.05E-02
beta-BHC	0.00E+00	0.00E+00	0.00E+00	2.37E-09	0.00E+00	1.17E-12	2.37E-09	1.84E-02
bis(2-Ethylhexyl)phthalate	2.45E-12	1.40E-08	0.00E+00	0.00E+00	2.74E-10	6.38E-11	1.43E-08	1.11E-01
Cadmium (dust)	0.00E+00	0.00E+00	0.00E+00	3.62E-09	0.00E+00	0.00E+00	3.62E-09	2.81E-02
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.20E-12	7.20E-12	5.58E-05
Dieldrin	4.24E-09	2.61E-08	0.00E+00	0.00E+00	8.66E-11	2.66E-11	3.05E-08	2.36E-01
gamma-BHC	1.62E-10	3.02E-10	4.77E-10	0.00E+00	6.27E-12	5.74E-12	9.53E-10	7.39E-03
gamma-Chlordane	0.00E+00	1.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-09	8.61E-03
Heptachlor	0.00E+00	7.21E-10	6.68E-10	1.27E-06	0.00E+00	2.64E-11	1.27E-06	9.86
Heptachlor epoxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-14	1.37E-14	1.06E-07
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.40E-12	9.40E-12	7.29E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-09	5.11E-09	3.96E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-06	1.03E-06	7.99
n-Nitroso-di-n-propylamin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07	1.11E-07	8.59E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-08	1.28E-08	9.95E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-10	1.02E-10	7.92E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.94E-11	4.94E-11	3.83E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-06	3.36E-06	2.61E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	3.29
Trichloroethene	0.00E+00	0.00E+00	0.00E+00	2.84E-08	0.00E+00	0.00E+00	2.84E-08	2.21E-01
Total by pathway	3.43E-08	4.60E-08	2.12E-09	7.52E-06	3.96E-10	5.29E-06		
% Contribution by pathwa	2.66E-01	3.57E-01	1.64E-02	5.83E+01	3.07E-03	4.10E+01		
Scenario Total							1.29E-05	

Table J-53
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Holloman

Average Cancer Risk								
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)								
	Ingestion of Meat	Total	% Contrib					
4,4'-DDD	3.49E-10	3.49E-10	1.20E+01					
4,4'-DDE	4.45E-13	4.45E-13	1.53E-02					
4,4'-DDT	1.34E-09	1.34E-09	4.61E+01					
Aldrin	4.62E-12	4.62E-12	1.59E-01					
alpha-BHC	9.68E-11	9.68E-11	3.33					
alpha-Chlordane	2.92E-14	2.92E-14	1.00E-03					
beta-BHC	1.74E-13	1.74E-13	5.97E-03					
bis(2-Ethylhexyl)phthalate	1.03E-09	1.03E-09	3.52E+01					
Dieldrin	7.62E-11	7.62E-11	2.62					
gamma-BHC	1.47E-11	1.47E-11	5.06E-01					
gamma-Chlordane	4.47E-14	4.47E-14	1.54E-03					
Heptachlor	9.71E-13	9.71E-13	3.34E-02					
Kepone	6.63E-13	6.63E-13	2.28E-02					
Total by pathway	2.91E-09							
% Contribution by pathwa	1.00E+02							
Scenario Total		2.91E-09						
Reas. Max. Cancer Risk								
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)								
	Ingestion of Meat	Total	% Contrib					
4,4'-DDD	4.95E-09	4.95E-09	7.02					
4,4'-DDE	1.18E-11	1.18E-11	1.67E-02					
4,4'-DDT	2.94E-08	2.94E-08	4.16E+01					
Aldrin	1.18E-10	1.18E-10	1.68E-01					
alpha-BHC	1.54E-09	1.54E-09	2.19					
alpha-Chlordane	6.56E-13	6.56E-13	9.30E-04					
beta-BHC	6.92E-12	6.92E-12	9.81E-03					
bis(2-Ethylhexyl)phthalate	3.21E-08	3.21E-08	4.55E+01					
Dieldrin	2.06E-09	2.06E-09	2.92					
gamma-BHC	3.70E-10	3.70E-10	5.25E-01					
gamma-Chlordane	1.41E-12	1.41E-12	2.00E-03					
Heptachlor	2.46E-11	2.46E-11	3.49E-02					
Kepone	2.62E-11	2.62E-11	3.71E-02					
Total by pathway	7.05E-08							
% Contribution by pathwa	1.00E+02							
Scenario Total		7.05E-08						

Table J-54
Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Cancer Risk Estimates										
Holloman Risk Assessment - Lake Holloman										
Scenario										
	Activity									
		Pathway								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)										
	Birding/Hunting around the Lake									
		DermalContactWithWater: Surface water								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	6.36E-10	4.24E-09	1.53E-10	1.02E-09	
			4,4'-DDT	3.40E-01	B2	8.27E-09	8.48E-08	2.81E-09	2.88E-08	
			alpha-BHC	6.3	B2	7.22E-13	5.30E-12	4.55E-12	3.34E-11	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	1.19E-11	1.75E-10	1.67E-13	2.45E-12	
			Dieldrin	16	B2	2.10E-11	2.65E-10	3.36E-10	4.24E-09	
			gamma-BHC	1.3	B2/C	1.05E-11	1.24E-10	1.37E-11	1.62E-10	
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.27E-10	6.17E-09	7.85E-11	1.48E-09	
			4,4'-DDE	3.40E-01	B2	5.24E-11	6.12E-10	1.78E-11	2.08E-10	
			4,4'-DDT	3.40E-01	B2	3.40E-11	3.23E-10	1.16E-11	1.10E-10	
			alpha-BHC	6.3	B2	1.92E-11	1.74E-10	1.21E-10	1.09E-09	
			alpha-Chlordane	1.3	B2	4.72E-11	6.76E-10	6.13E-11	8.79E-10	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	6.66E-08	9.99E-07	9.33E-10	1.40E-08	
			Dieldrin	16	B2	1.46E-10	1.63E-09	2.34E-09	2.61E-08	
			gamma-BHC	1.3	B2/C	2.35E-11	2.32E-10	3.06E-11	3.02E-10	
			gamma-Chlordane	1.3	B2	5.86E-11	8.54E-10	7.62E-11	1.11E-09	
			Heptachlor	4.5	B2	1.72E-11	1.60E-10	7.76E-11	7.21E-10	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDE	3.40E-01	B2	1.12E-11	1.47E-10	3.82E-12	5.01E-11	
			alpha-BHC	6.3	B2	1.11E-11	1.47E-10	6.98E-11	9.23E-10	
			gamma-BHC	1.3	B2/C	3.70E-11	3.67E-10	4.82E-11	4.77E-10	
			Heptachlor	4.5	B2	1.14E-11	1.48E-10	5.15E-11	6.68E-10	

Table J-54
Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		InhalationOfVapor: Fugitive Dust								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EAC	Average Risk	Reas. Max. Risk	
			Aldrin*	4.90E-03	B2	1.91E-07	5.65E-06	9.35E-10	2.77E-08	
			alpha-BHC*	1.80E-03	B2	1.40E-07	4.24E-06	2.52E-10	7.63E-09	
			Arsenic*	4.29E-03	A	6.85E-05	1.44E-03	2.94E-07	6.18E-06	
			Beryllium*	2.40E-03	B2	3.00E-08	5.54E-07	7.20E-11	1.33E-09	
			beta-BHC*	5.30E-04	C	1.59E-07	4.48E-06	8.41E-11	2.37E-09	
			Cadmium (dust)*	1.80E-03	B1	9.51E-08	2.01E-06	1.71E-10	3.62E-09	
			Heptachlor*	1.30E-03	B2	2.04E-05	9.77E-04	2.66E-08	1.27E-06	
			Trichloroethene*	1.70E-06	B2/C	4.78E-04	1.67E-02	8.13E-10	2.84E-08	
		IncidentalIngestionOfWater: Surface water								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.64E-13	1.76E-12	6.34E-14	4.23E-13	
			4,4'-DDT	3.40E-01	B2	7.36E-13	7.55E-12	2.50E-13	2.57E-12	
			alpha-BHC	6.3	B2	5.54E-13	4.07E-12	3.49E-12	2.56E-11	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	1.33E-09	1.96E-08	1.87E-11	2.74E-10	
			Dieldrin	16	B2	4.28E-13	5.41E-12	6.84E-12	8.66E-11	
			gamma-BHC	1.3	B2/C	4.09E-13	4.82E-12	5.32E-13	6.27E-12	

Table J-54
Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

		IngestionOfMeatEggsAndDairy: Duck								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			1,2,3,4,7,8-HxCDF	15000		2.09E-13	1.03E-11	3.13E-09	1.55E-07	
			1,2,3,7,8,9-HxCDF	15000		6.61E-15	3.26E-13	9.92E-11	4.89E-09	
			2,3,4,6,7,8-HxCDF	15000		8.24E-16	4.05E-14	1.24E-11	6.08E-10	
			1,2,3,4,6,7,8-HpCDD	1500		3.05E-15	1.50E-13	4.57E-12	2.26E-10	
			2,3,7,8-TCDD	150000	B2	2.20E-14	1.09E-12	3.30E-09	1.63E-07	
			2,3,7,8-TCDF	15000		2.36E-15	1.16E-13	3.53E-11	1.74E-09	
			4,4'-DDD	2.40E-01	B2	6.88E-10	3.41E-08	1.65E-10	8.17E-09	
			4,4'-DDE	3.40E-01	B2	5.56E-10	2.76E-08	1.89E-10	9.37E-09	
			4,4'-DDT	3.40E-01	B2	1.09E-11	5.40E-10	3.71E-12	1.84E-10	
			Aldrin	17	B2	7.35E-13	3.64E-11	1.25E-11	6.20E-10	
			alpha-BHC	6.3	B2	2.71E-14	1.42E-12	1.71E-13	8.97E-12	
			Beryllium	4.3	B2	9.81E-14	4.83E-12	4.22E-13	2.08E-11	
			beta-BHC	1.8	C	8.66E-15	6.51E-13	1.56E-14	1.17E-12	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	9.03E-11	4.56E-09	1.26E-12	6.38E-11	
			Chlordane	1.3	B2	1.12E-13	5.54E-12	1.46E-13	7.20E-12	
			Dieldrin	16	B2	3.35E-14	1.66E-12	5.36E-13	2.66E-11	
			gamma-BHC	1.3	B2/C	1.38E-13	4.42E-12	1.79E-13	5.74E-12	
			Heptachlor	4.5	B2	7.82E-14	5.88E-12	3.52E-13	2.64E-11	
			Heptachlor epoxide	9.1	B2	3.03E-17	1.50E-15	2.76E-16	1.37E-14	
			Hexachlorobenzene	1.6	B2	1.19E-13	5.88E-12	1.91E-13	9.40E-12	
			HpCB	2.4		4.31E-11	2.13E-09	1.04E-10	5.11E-09	
			HxCB	240		8.71E-11	4.29E-09	2.09E-08	1.03E-06	
			n-Nitroso-di-n-propylamine	7		3.22E-10	1.58E-08	2.25E-09	1.11E-07	
			n-Nitrosodimethylamine	51	B2	5.10E-12	2.52E-10	2.60E-10	1.28E-08	
			OCDD	150		1.38E-14	6.81E-13	2.07E-12	1.02E-10	
			OCDF	150		6.67E-15	3.29E-13	1.00E-12	4.94E-11	
			PnCB	240		2.85E-10	1.40E-08	6.84E-08	3.36E-06	
			TCB	405		2.13E-11	1.05E-09	8.63E-09	4.25E-07	

Table J-54
Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Holloman

Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)										
	Grazing Cattle Near the Lake									
		IngestionOfMeatEggsAndDairy: Beef								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.45E-09	2.06E-08	3.49E-10	4.95E-09	
			4,4'-DDE	3.40E-01	B2	1.31E-12	3.47E-11	4.45E-13	1.18E-11	
			4,4'-DDT	3.40E-01	B2	3.95E-09	8.63E-08	1.34E-09	2.94E-08	
			Aldrin	17	B2	2.72E-13	6.95E-12	4.62E-12	1.18E-10	
			alpha-BHC	6.3	B2	1.54E-11	2.45E-10	9.68E-11	1.54E-09	
			alpha-Chlordane	1.3	B2	2.24E-14	5.05E-13	2.92E-14	6.56E-13	
			beta-BHC	1.8	C	9.66E-14	3.84E-12	1.74E-13	6.92E-12	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	7.33E-08	2.29E-06	1.03E-09	3.21E-08	
			Dieldrin	16	B2	4.77E-12	1.29E-10	7.62E-11	2.06E-09	
			gamma-BHC	1.3	B2/C	1.13E-11	2.85E-10	1.47E-11	3.70E-10	
			gamma-Chlordane	1.3	B2	3.44E-14	1.08E-12	4.47E-14	1.41E-12	
			Heptachlor	4.5	B2	2.16E-13	5.46E-12	9.71E-13	2.46E-11	
			Kepone	1.8		3.68E-13	1.45E-11	6.63E-13	2.62E-11	

Table J-55
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Lake Stinky

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Lake Stinky		
Chronic Exposure		
Scenario	Average	Reas. Max.
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	7.45E-03	8.84E-02
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)	2.18E-02	2.46E-01
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)	6.26E-04	4.40E-03
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)	1.46E-03	1.03E-02

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Average Non-Cancer Hazard Index Summary						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.62E-04	1.62E-04	2.18
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	5.14E-06	5.14E-06	6.91E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	6.41E-07	6.41E-07	8.60E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	2.37E-07	2.37E-07	3.18E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	1.71E-04	1.71E-04	2.3
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06	2.46E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	2.26E-06	2.26E-06	3.03E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	1.29E-06	1.29E-06	1.73E-02
2,4,5-T	0.00E+00	6.41E-08	0.00E+00	0.00E+00	6.41E-08	8.61E-04
4,4'-DDD	5.63E-05	0.00E+00	2.34E-08	1.07E-05	6.70E-05	8.99E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	1.11E-06	1.11E-06	1.49E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	1.70E-07	1.70E-07	2.28E-03
Aldrin	4.86E-07	2.81E-06	2.43E-07	1.91E-07	3.73E-06	5.01E-02
alpha-BHC	3.00E-08	1.33E-07	6.47E-08	5.07E-10	2.28E-07	3.06E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	1.12E-07	1.12E-07	1.51E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	3.55E-05	3.55E-05	4.77E-01
Barium	0.00E+00	0.00E+00	0.00E+00	4.88E-09	4.88E-09	6.55E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	6.45E-13	6.45E-13	8.66E-09
Beryllium	0.00E+00	3.62E-08	0.00E+00	1.53E-10	3.64E-08	4.88E-04
beta-BHC	0.00E+00	5.35E-07	0.00E+00	2.04E-10	5.35E-07	7.18E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	3.51E-08	3.51E-08	4.71E-04
Boron	0.00E+00	0.00E+00	0.00E+00	2.76E-10	2.76E-10	3.70E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	2.65E-08	2.65E-08	3.56E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	1.46E-08	1.46E-08	1.95E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	1.47E-09	1.47E-09	1.97E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	2.63E-12	2.63E-12	3.53E-08
Cyanide	0.00E+00	0.00E+00	0.00E+00	1.40E-07	1.40E-07	1.88E-03
Cyclohexanone	0.00E+00	5.64E-09	0.00E+00	0.00E+00	5.64E-09	7.57E-05
delta-BHC	0.00E+00	1.25E-04	0.00E+00	1.13E-05	1.36E-04	1.83
Dieldrin	4.05E-06	0.00E+00	1.08E-07	5.21E-09	4.16E-06	5.59E-02
Endosulfan I	8.67E-10	0.00E+00	6.65E-10	0.00E+00	1.53E-09	2.06E-05
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	5.46E-14	5.46E-14	7.33E-10
Endrin	0.00E+00	2.99E-07	0.00E+00	1.54E-08	3.15E-07	4.22E-03
gamma-BHC	4.12E-08	9.63E-08	1.60E-08	3.57E-09	1.57E-07	2.11E-03

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.22E-09	1.22E-09	1.63E-05
Heptachlor epoxide	3.92E-05	1.75E-03	4.29E-07	1.81E-11	1.79E-03	2.40E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	1.16E-09	1.16E-09	1.56E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	5.41E-06	5.41E-06	7.27E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	1.13E-03	1.13E-03	1.52E+01
Isodrin	6.25E-08	0.00E+00	4.79E-08	0.00E+00	1.10E-07	1.48E-03
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	6.04E-04	6.04E-04	8.11
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	2.70E-08	2.70E-08	3.63E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	4.45E-13	4.45E-13	5.97E-09
Mercury	0.00E+00	0.00E+00	0.00E+00	1.58E-04	1.58E-04	2.12
Nickel	0.00E+00	0.00E+00	0.00E+00	4.16E-08	4.16E-08	5.59E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	1.07E-07	1.07E-07	1.44E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	5.18E-08	5.18E-08	6.96E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	2.46E-03	2.46E-03	3.31E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	2.08E-10	2.08E-10	2.79E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	1.34E-05	1.34E-05	1.80E-01
Silver	0.00E+00	0.00E+00	0.00E+00	8.25E-08	8.25E-08	1.11E-03
TCB	0.00E+00	0.00E+00	0.00E+00	5.52E-04	5.52E-04	7.42
Thallium	0.00E+00	0.00E+00	0.00E+00	1.41E-04	1.41E-04	1.89
Vanadium	0.00E+00	0.00E+00	0.00E+00	3.42E-07	3.42E-07	4.59E-03
Total by pathway	1.00E-04	1.88E-03	9.32E-07	5.47E-03		
% Contribution by pathway	1.34	2.52E+01	1.25E-02	7.35E+01		
Scenario Total					7.45E-03	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Non-Cancer Hazard Index Summary						
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.41E-03	2.41E-03	2.72
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	7.60E-05	7.60E-05	8.60E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	9.46E-06	9.46E-06	1.07E-02
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	3.51E-06	3.51E-06	3.97E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	2.53E-03	2.53E-03	2.87
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	2.71E-05	2.71E-05	3.07E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	2.57E-05	2.57E-05	2.91E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	1.92E-05	1.92E-05	2.17E-02
2,4,5-T	0.00E+00	1.69E-07	0.00E+00	0.00E+00	1.69E-07	1.91E-04
4,4'-DDD	2.02E-04	0.00E+00	8.41E-08	1.59E-04	3.61E-04	4.09E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	1.65E-05	1.65E-05	1.87E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	2.52E-06	2.52E-06	2.85E-03
Aldrin	1.63E-06	9.90E-06	8.15E-07	2.83E-06	1.52E-05	1.72E-02
alpha-BHC	1.09E-07	4.80E-07	2.35E-07	7.99E-09	8.32E-07	9.41E-04
Antimony	0.00E+00	0.00E+00	0.00E+00	1.67E-06	1.67E-06	1.89E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	5.25E-04	5.25E-04	5.94E-01
Barium	0.00E+00	0.00E+00	0.00E+00	6.68E-08	6.68E-08	7.56E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	9.57E-12	9.57E-12	1.08E-08
Beryllium	0.00E+00	8.06E-08	0.00E+00	2.25E-09	8.28E-08	9.37E-05
beta-BHC	0.00E+00	1.80E-06	0.00E+00	4.61E-09	1.80E-06	2.04E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	5.32E-07	5.32E-07	6.01E-04
Boron	0.00E+00	0.00E+00	0.00E+00	5.76E-09	5.76E-09	6.51E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	3.91E-07	3.91E-07	4.42E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	2.15E-07	2.15E-07	2.44E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	2.51E-08	2.51E-08	2.84E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	1.17E-07
Cyanide	0.00E+00	0.00E+00	0.00E+00	2.07E-06	2.07E-06	2.35E-03
Cyclohexanone	0.00E+00	1.13E-08	0.00E+00	0.00E+00	1.13E-08	1.28E-05
delta-BHC	0.00E+00	5.19E-04	0.00E+00	1.19E-04	6.38E-04	7.21E-01
Dieldrin	8.10E-06	0.00E+00	2.15E-07	7.76E-08	8.39E-06	9.49E-03
Endosulfan I	3.23E-09	0.00E+00	2.48E-09	0.00E+00	5.70E-09	6.45E-06
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	8.42E-13	8.42E-13	9.52E-10
Endrin	0.00E+00	1.07E-06	0.00E+00	2.27E-07	1.30E-06	1.47E-03
gamma-BHC	8.23E-08	3.57E-07	3.20E-08	5.28E-08	5.24E-07	5.92E-04

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Heptachlor	0.00E+00	0.00E+00	0.00E+00	1.80E-08	1.80E-08	2.03E-05
Heptachlor epoxide	1.24E-04	9.94E-03	1.35E-06	2.70E-10	1.01E-02	1.14E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	1.71E-08	1.71E-08	1.94E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	8.02E-05	8.02E-05	9.07E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	1.67E-02	1.67E-02	1.89E+01
Isodrin	2.30E-07	0.00E+00	1.76E-07	0.00E+00	4.06E-07	4.59E-04
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	5.77E-03	5.77E-03	6.52
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	4.01E-07	4.01E-07	4.53E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	6.58E-12	6.58E-12	7.44E-09
Mercury	0.00E+00	0.00E+00	0.00E+00	2.33E-03	2.33E-03	2.64
Nickel	0.00E+00	0.00E+00	0.00E+00	6.18E-07	6.18E-07	6.99E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	1.59E-06	1.59E-06	1.80E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	7.68E-07	7.68E-07	8.69E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	3.63E-02	3.63E-02	4.11E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	3.08E-09	3.08E-09	3.49E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	1.98E-04	1.98E-04	2.24E-01
Silver	0.00E+00	0.00E+00	0.00E+00	1.23E-06	1.23E-06	1.39E-03
TCB	0.00E+00	0.00E+00	0.00E+00	8.16E-03	8.16E-03	9.23
Thallium	0.00E+00	0.00E+00	0.00E+00	2.09E-03	2.09E-03	2.36
Vanadium	0.00E+00	0.00E+00	0.00E+00	6.91E-06	6.91E-06	7.82E-03
Total by pathway	3.36E-04	1.05E-02	2.92E-06	7.76E-02		
% Contribution by pathway	3.81E-01	1.19E+01	3.30E-03	8.78E+01		
Scenario Total					8.84E-02	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Average Non-Cancer Hazard Index Summary						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	4.94E-04	4.94E-04	2.26
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.56E-05	1.56E-05	7.16E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	1.95E-06	1.95E-06	8.92E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	7.21E-07	7.21E-07	3.30E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	5.20E-04	5.20E-04	2.38
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	5.57E-06	5.57E-06	2.55E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	6.86E-06	6.86E-06	3.14E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	3.91E-06	3.91E-06	1.79E-02
2,4,5-T	0.00E+00	1.70E-07	0.00E+00	0.00E+00	1.70E-07	7.78E-04
4,4'-DDD	1.26E-04	0.00E+00	1.09E-07	3.25E-05	1.58E-04	7.26E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	3.38E-06	3.38E-06	1.55E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	5.16E-07	5.16E-07	2.36E-03
Aldrin	1.09E-06	7.44E-06	1.13E-06	5.79E-07	1.02E-05	4.69E-02
alpha-BHC	6.71E-08	3.51E-07	3.02E-07	1.54E-09	7.22E-07	3.31E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	3.41E-07	3.41E-07	1.56E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	1.08E-04	1.08E-04	4.95E-01
Barium	0.00E+00	0.00E+00	0.00E+00	1.48E-08	1.48E-08	6.79E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	1.96E-12	1.96E-12	8.98E-09
Beryllium	0.00E+00	9.58E-08	0.00E+00	4.64E-10	9.63E-08	4.41E-04
beta-BHC	0.00E+00	1.42E-06	0.00E+00	6.20E-10	1.42E-06	6.49E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.07E-07	1.07E-07	4.89E-04
Boron	0.00E+00	0.00E+00	0.00E+00	8.38E-10	8.38E-10	3.84E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	8.05E-08	8.05E-08	3.69E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	4.42E-08	4.42E-08	2.03E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	4.45E-09	4.45E-09	2.04E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	7.99E-12	7.99E-12	3.66E-08
Cyanide	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	1.95E-03
Cyclohexanone	0.00E+00	1.49E-08	0.00E+00	0.00E+00	1.49E-08	6.84E-05
delta-BHC	0.00E+00	3.30E-04	0.00E+00	3.45E-05	3.65E-04	1.67
Dieldrin	9.06E-06	0.00E+00	5.02E-07	1.58E-08	9.57E-06	4.39E-02
Endosulfan I	1.94E-09	0.00E+00	3.10E-09	0.00E+00	5.04E-09	2.31E-05
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	1.66E-13	1.66E-13	7.60E-10
Endrin	0.00E+00	7.92E-07	0.00E+00	4.67E-08	8.39E-07	3.85E-03
gamma-BHC	9.21E-08	2.55E-07	7.46E-08	1.08E-08	4.32E-07	1.98E-03

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Heptachlor	0.00E+00	0.00E+00	0.00E+00	3.70E-09	3.70E-09	1.69E-05
Heptachlor epoxide	8.77E-05	4.63E-03	2.00E-06	5.50E-11	4.72E-03	2.16E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	3.52E-09	3.52E-09	1.61E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	1.64E-05	1.64E-05	7.54E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	3.43E-03	3.43E-03	1.57E+01
Isodrin	1.40E-07	0.00E+00	2.24E-07	0.00E+00	3.64E-07	1.67E-03
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	1.84E-03	1.84E-03	8.41
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	8.21E-08	8.21E-08	3.76E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	1.35E-12	1.35E-12	6.20E-09
Mercury	0.00E+00	0.00E+00	0.00E+00	4.80E-04	4.80E-04	2.2
Nickel	0.00E+00	0.00E+00	0.00E+00	1.26E-07	1.26E-07	5.80E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	3.26E-07	3.26E-07	1.49E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	1.58E-07	1.58E-07	7.22E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	7.48E-03	7.48E-03	3.43E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	6.32E-10	6.32E-10	2.90E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	4.07E-05	4.07E-05	1.86E-01
Silver	0.00E+00	0.00E+00	0.00E+00	2.51E-07	2.51E-07	1.15E-03
TCB	0.00E+00	0.00E+00	0.00E+00	1.68E-03	1.68E-03	7.69
Thallium	0.00E+00	0.00E+00	0.00E+00	4.28E-04	4.28E-04	1.96
Vanadium	0.00E+00	0.00E+00	0.00E+00	1.04E-06	1.04E-06	4.76E-03
Total by pathway	2.24E-04	4.97E-03	4.35E-06	1.66E-02		
% Contribution by pathway	1.03	2.28E+01	1.99E-02	7.62E+01		
Scenario Total					2.18E-02	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Non-Cancer Hazard Index Summary						
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)						
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	6.73E-03	6.73E-03	2.74
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.13E-04	2.13E-04	8.66E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	2.65E-05	2.65E-05	1.08E-02
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	9.82E-06	9.82E-06	4.00E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	7.09E-03	7.09E-03	2.89
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	7.59E-05	7.59E-05	3.09E-02
2,4'-DDD	0.00E+00	0.00E+00	0.00E+00	7.19E-05	7.19E-05	2.93E-02
2,4'-DDT	0.00E+00	0.00E+00	0.00E+00	5.36E-05	5.36E-05	2.18E-02
2,4,5-T	0.00E+00	4.48E-07	0.00E+00	0.00E+00	4.48E-07	1.82E-04
4,4'-DDD	4.53E-04	0.00E+00	3.93E-07	4.45E-04	8.98E-04	3.66E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	4.63E-05	4.63E-05	1.88E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	7.05E-06	7.05E-06	2.87E-03
Aldrin	3.65E-06	2.62E-05	3.81E-06	7.94E-06	4.16E-05	1.69E-02
alpha-BHC	2.44E-07	1.27E-06	1.10E-06	2.24E-08	2.63E-06	1.07E-03
Antimony	0.00E+00	0.00E+00	0.00E+00	4.67E-06	4.67E-06	1.90E-03
Arsenic	0.00E+00	0.00E+00	0.00E+00	1.47E-03	1.47E-03	5.99E-01
Barium	0.00E+00	0.00E+00	0.00E+00	1.87E-07	1.87E-07	7.61E-05
Benzyl alcohol	0.00E+00	0.00E+00	0.00E+00	2.68E-11	2.68E-11	1.09E-08
Beryllium	0.00E+00	2.13E-07	0.00E+00	6.31E-09	2.20E-07	8.94E-05
beta-BHC	0.00E+00	4.76E-06	0.00E+00	1.29E-08	4.77E-06	1.94E-03
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	1.49E-06	1.49E-06	6.06E-04
Boron	0.00E+00	0.00E+00	0.00E+00	1.61E-08	1.61E-08	6.56E-06
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	1.09E-06	1.09E-06	4.45E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	6.03E-07	6.03E-07	2.45E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	7.03E-08	7.03E-08	2.86E-05
Chromium VI	0.00E+00	0.00E+00	0.00E+00	2.90E-10	2.90E-10	1.18E-07
Cyanide	0.00E+00	0.00E+00	0.00E+00	5.80E-06	5.80E-06	2.36E-03
Cyclohexanone	0.00E+00	2.99E-08	0.00E+00	0.00E+00	2.99E-08	1.21E-05
delta-BHC	0.00E+00	1.37E-03	0.00E+00	3.32E-04	1.71E-03	6.94E-01
Dieldrin	1.81E-05	0.00E+00	1.00E-06	2.17E-07	1.93E-05	7.87E-03
Endosulfan I	7.22E-09	0.00E+00	1.16E-08	0.00E+00	1.88E-08	7.64E-06
Endosulfan sulfate	0.00E+00	0.00E+00	0.00E+00	2.36E-12	2.36E-12	9.59E-10
Endrin	0.00E+00	2.84E-06	0.00E+00	6.35E-07	3.47E-06	1.41E-03
gamma-BHC	1.84E-07	9.44E-07	1.49E-07	1.48E-07	1.43E-06	5.80E-04

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Heptachlor	0.00E+00	0.00E+00	0.00E+00	5.03E-08	5.03E-08	2.05E-05
Heptachlor epoxide	2.77E-04	2.63E-02	6.32E-06	7.56E-10	2.66E-02	1.08E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	4.80E-08	4.80E-08	1.95E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	2.24E-04	2.24E-04	9.13E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	4.68E-02	4.68E-02	1.90E+01
Isodrin	5.14E-07	0.00E+00	8.22E-07	0.00E+00	1.34E-06	5.44E-04
Lead (organic)	0.00E+00	0.00E+00	0.00E+00	1.61E-02	1.61E-02	6.57
Manganese (food)	0.00E+00	0.00E+00	0.00E+00	1.12E-06	1.12E-06	4.56E-04
Mirex	0.00E+00	0.00E+00	0.00E+00	1.84E-11	1.84E-11	7.49E-09
Mercury	0.00E+00	0.00E+00	0.00E+00	6.52E-03	6.52E-03	2.65
Nickel	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06	7.04E-04
OCDD	0.00E+00	0.00E+00	0.00E+00	4.45E-06	4.45E-06	1.81E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	2.15E-06	2.15E-06	8.75E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	1.02E-01	1.02E-01	4.14E+01
Pyridine	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	3.51E-06
Selenium	0.00E+00	0.00E+00	0.00E+00	5.55E-04	5.55E-04	2.26E-01
Silver	0.00E+00	0.00E+00	0.00E+00	3.44E-06	3.44E-06	1.40E-03
TCB	0.00E+00	0.00E+00	0.00E+00	2.28E-02	2.28E-02	9.3
Thallium	0.00E+00	0.00E+00	0.00E+00	5.84E-03	5.84E-03	2.38
Vanadium	0.00E+00	0.00E+00	0.00E+00	1.93E-05	1.93E-05	7.87E-03
Total by pathway	7.53E-04	2.77E-02	1.36E-05	2.17E-01		
% Contribution by pathway	3.06E-01	1.13E+01	5.54E-03	8.84E+01		
Scenario Total					2.46E-01	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Average Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	1.28E-04	1.28E-04	2.05E+01
4,4'-DDE	2.65E-09	2.65E-09	4.22E-04
4,4'-DDT	8.99E-09	8.99E-09	1.44E-03
Aldrin	1.68E-04	1.68E-04	2.68E+01
alpha-BHC	1.78E-06	1.78E-06	2.85E-01
beta-BHC	1.58E-09	1.58E-09	2.52E-04
delta-BHC	1.63E-09	1.63E-09	2.60E-04
Dieldrin	2.53E-06	2.53E-06	4.04E-01
Endosulfan I	1.56E-08	1.56E-08	2.49E-03
Endrin	7.46E-09	7.46E-09	1.19E-03
gamma-BHC	1.16E-07	1.16E-07	1.85E-02
gamma-Chlordane	4.99E-08	4.99E-08	7.96E-03
Heptachlor epoxide	3.25E-04	3.25E-04	5.19E+01
Isodrin	3.00E-08	3.00E-08	4.79E-03
Total by pathway	6.26E-04		
% Contribution by pathway	1.00E+02		
Scenario Total		6.26E-04	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	9.85E-04	9.85E-04	2.24E+01
4,4'-DDE	1.71E-08	1.71E-08	3.88E-04
4,4'-DDT	3.87E-08	3.87E-08	8.80E-04
Aldrin	1.20E-03	1.20E-03	2.73E+01
alpha-BHC	1.38E-05	1.38E-05	3.14E-01
beta-BHC	9.62E-09	9.62E-09	2.19E-04
delta-BHC	1.03E-08	1.03E-08	2.35E-04
Dieldrin	1.08E-05	1.08E-05	2.45E-01
Endosulfan I	1.24E-07	1.24E-07	2.81E-03
Endrin	3.53E-08	3.53E-08	8.02E-04
gamma-BHC	4.95E-07	4.95E-07	1.12E-02
gamma-Chlordane	2.13E-07	2.13E-07	4.83E-03
Heptachlor epoxide	2.19E-03	2.19E-03	4.97E+01
Isodrin	2.44E-07	2.44E-07	5.53E-03
Total by pathway	4.40E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		4.40E-03	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Average Non-Cancer Hazard Index Summary			
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)			
	Ingestion of Meat	Total	% Contrib
4,4'-DDD	3.00E-04	3.00E-04	2.05E+01
4,4'-DDE	6.17E-09	6.17E-09	4.22E-04
4,4'-DDT	2.10E-08	2.10E-08	1.44E-03
Aldrin	3.92E-04	3.92E-04	2.68E+01
alpha-BHC	4.16E-06	4.16E-06	2.85E-01
beta-BHC	3.69E-09	3.69E-09	2.52E-04
delta-BHC	3.80E-09	3.80E-09	2.60E-04
Dieldrin	5.90E-06	5.90E-06	4.04E-01
Endosulfan I	3.64E-08	3.64E-08	2.49E-03
Endrin	1.74E-08	1.74E-08	1.19E-03
gamma-BHC	2.71E-07	2.71E-07	1.85E-02
gamma-Chlordane	1.16E-07	1.16E-07	7.96E-03
Heptachlor epoxide	7.59E-04	7.59E-04	5.19E+01
Isodrin	7.00E-08	7.00E-08	4.79E-03
Total by pathway	1.46E-03		
% Contribution by pathway	1.00E+02		
Scenario Total		1.46E-03	

Table J-56
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Non-Cancer Hazard Index Summary						
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)						
	Ingestion of Meat	Total	% Contrib			
4,4'-DDD	2.30E-03	2.30E-03	2.24E+01			
4,4'-DDE	3.99E-08	3.99E-08	3.88E-04			
4,4'-DDT	9.03E-08	9.03E-08	8.80E-04			
Aldrin	2.80E-03	2.80E-03	2.73E+01			
alpha-BHC	3.22E-05	3.22E-05	3.14E-01			
beta-BHC	2.25E-08	2.25E-08	2.19E-04			
delta-BHC	2.41E-08	2.41E-08	2.35E-04			
Dieldrin	2.52E-05	2.52E-05	2.45E-01			
Endosulfan I	2.88E-07	2.88E-07	2.81E-03			
Endrin	8.24E-08	8.24E-08	8.02E-04			
gamma-BHC	1.15E-06	1.15E-06	1.12E-02			
gamma-Chlordane	4.96E-07	4.96E-07	4.83E-03			
Heptachlor epoxide	5.11E-03	5.11E-03	4.97E+01			
Isodrin	5.68E-07	5.68E-07	5.53E-03			
Total by pathway	1.03E-02					
% Contribution by pathway	1.00E+02					
Scenario Total		1.03E-02				

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Lake Stinky									
Scenario									
	Activity								
		Pathway							
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting around the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.81E-08	1.01E-07	5.63E-05	2.02E-04	
			Aldrin	7.54E-05	3.67E-11	1.23E-10	4.86E-07	1.63E-06	
			alpha-BHC	1.17E-03	3.51E-11	1.28E-10	3.00E-08	1.09E-07	
			Dieldrin	6.52E-05	2.64E-10	5.28E-10	4.05E-06	8.10E-06	
			Endosulfan I	2.53E-02	2.19E-11	8.16E-11	8.67E-10	3.23E-09	
			gamma-BHC	3.00E-03	1.24E-10	2.47E-10	4.12E-08	8.23E-08	
			Heptachlor epoxide	1.30E-05	5.10E-10	1.61E-09	3.92E-05	1.24E-04	
			Isodrin	3.00E-04	1.88E-11	6.89E-11	6.25E-08	2.30E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	6.41E-10	1.69E-09	6.41E-08	1.69E-07	
			Aldrin	7.54E-05	2.12E-10	7.46E-10	2.81E-06	9.90E-06	
			alpha-BHC	1.17E-03	1.55E-10	5.61E-10	1.33E-07	4.80E-07	
			Beryllium	5.00E-03	1.81E-10	4.03E-10	3.62E-08	8.06E-08	
			beta-BHC	3.30E-04	1.77E-10	5.93E-10	5.35E-07	1.80E-06	
			Cyclohexanone	5	2.82E-08	5.64E-08	5.64E-09	1.13E-08	
			delta-BHC	2.00E-04	2.49E-08	1.04E-07	1.25E-04	5.19E-04	
			Endrin	6.00E-04	1.80E-10	6.43E-10	2.99E-07	1.07E-06	
			gamma-BHC	3.00E-03	2.89E-10	1.07E-09	9.63E-08	3.57E-07	
			Heptachlor epoxide	1.30E-05	2.27E-08	1.29E-07	1.75E-03	9.94E-03	
		InhalationOfVapor: Fugitive Dust							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

		IncidentalIngestionOfWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.17E-11	4.21E-11	2.34E-08	8.41E-08	
			Aldrin	3.00E-05	7.29E-12	2.45E-11	2.43E-07	8.15E-07	
			alpha-BHC	4.16E-04	2.69E-11	9.78E-11	6.47E-08	2.35E-07	
			Dieldrin	5.00E-05	5.38E-12	1.08E-11	1.08E-07	2.15E-07	
			Endosulfan I	2.53E-02	1.68E-11	6.26E-11	6.65E-10	2.48E-09	
			gamma-BHC	3.00E-04	4.79E-12	9.59E-12	1.60E-08	3.20E-08	
			Heptachlor epoxide	1.30E-05	5.58E-12	1.76E-11	4.29E-07	1.35E-06	
			Isodrin	3.00E-04	1.44E-11	5.28E-11	4.79E-08	1.76E-07	
		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			1,2,3,4,7,8-HxCDF	1.00E-08	1.62E-12	2.41E-11	1.62E-04	2.41E-03	
			1,2,3,7,8,9-HxCDF	1.00E-08	5.14E-14	7.60E-13	5.14E-06	7.60E-05	
			2,3,4,6,7,8-HxCDF	1.00E-08	6.41E-15	9.46E-14	6.41E-07	9.46E-06	
			1,2,3,4,6,7,8-HpCDD	1.00E-07	2.37E-14	3.51E-13	2.37E-07	3.51E-06	
			2,3,7,8-TCDD	1.00E-09	1.71E-13	2.53E-12	1.71E-04	2.53E-03	
			2,3,7,8-TCDF	1.00E-08	1.83E-14	2.71E-13	1.83E-06	2.71E-05	
			2,4'-DDD	2.26E-04	5.10E-10	5.81E-09	2.26E-06	2.57E-05	
			2,4'-DDT	3.58E-05	4.61E-11	6.86E-10	1.29E-06	1.92E-05	
			4,4'-DDD	5.00E-04	5.35E-09	7.95E-08	1.07E-05	1.59E-04	
			4,4'-DDE	3.89E-03	4.33E-09	6.43E-08	1.11E-06	1.65E-05	
			4,4'-DDT	5.00E-04	8.49E-11	1.26E-09	1.70E-07	2.52E-06	
			Aldrin	3.00E-05	5.72E-12	8.50E-11	1.91E-07	2.83E-06	
			alpha-BHC	4.16E-04	2.11E-13	3.32E-12	5.07E-10	7.99E-09	
			Antimony	4.00E-04	4.49E-11	6.67E-10	1.12E-07	1.67E-06	
			Arsenic	3.00E-04	1.07E-08	1.58E-07	3.55E-05	5.25E-04	
			Barium	7.00E-02	3.41E-10	4.68E-09	4.88E-09	6.68E-08	
			Benzyl alcohol	3.00E-01	1.93E-13	2.87E-12	6.45E-13	9.57E-12	
			Beryllium	5.00E-03	7.63E-13	1.13E-11	1.53E-10	2.25E-09	
			beta-BHC	3.30E-04	6.74E-14	1.52E-12	2.04E-10	4.61E-09	
			bis(2-Ethylhexyl)phth	2.00E-02	7.02E-10	1.06E-08	3.51E-08	5.32E-07	
			Boron	9.00E-02	2.48E-11	5.18E-10	2.76E-10	5.76E-09	
			Cadmium (food)	1.00E-03	2.65E-11	3.91E-10	2.65E-08	3.91E-07	
			Chlordane	6.00E-05	8.74E-13	1.29E-11	1.46E-08	2.15E-07	
			Chromium	1	1.47E-09	2.51E-08	1.47E-09	2.51E-08	
			Chromium VI	5.00E-03	1.31E-14	5.18E-13	2.63E-12	1.04E-10	
			Cyanide	2.00E-02	2.80E-09	4.15E-08	1.40E-07	2.07E-06	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

			delta-BHC	2.00E-04	2.27E-09	2.37E-08	1.13E-05	1.19E-04	
			Dieldrin	5.00E-05	2.60E-13	3.88E-12	5.21E-09	7.76E-08	
			Endosulfan sulfate	6.00E-03	3.27E-16	5.05E-15	5.46E-14	8.42E-13	
			Endrin	3.00E-04	4.61E-12	6.80E-11	1.54E-08	2.27E-07	
			gamma-BHC	3.00E-04	1.07E-12	1.58E-11	3.57E-09	5.28E-08	
			Heptachlor	5.00E-04	6.08E-13	8.98E-12	1.22E-09	1.80E-08	
			Heptachlor epoxide	1.30E-05	2.36E-16	3.51E-15	1.81E-11	2.70E-10	
			Hexachlorobenzene	8.00E-04	9.27E-13	1.37E-11	1.16E-09	1.71E-08	
			HpCB	6.20E-05	3.36E-10	4.97E-09	5.41E-06	8.02E-05	
			HxCB	6.00E-07	6.78E-10	1.00E-08	1.13E-03	1.67E-02	
			Lead (organic)	1.00E-07	6.04E-11	5.77E-10	6.04E-04	5.77E-03	
			Manganese (food)	1.40E-01	3.78E-09	5.61E-08	2.70E-08	4.01E-07	
			Mirex	2.00E-04	8.90E-17	1.32E-15	4.45E-13	6.58E-12	
			Mercury	3.00E-04	4.74E-08	6.99E-07	1.58E-04	2.33E-03	
			Nickel	2.00E-02	8.33E-10	1.24E-08	4.16E-08	6.18E-07	
			OCDD	1.00E-06	1.07E-13	1.59E-12	1.07E-07	1.59E-06	
			OCDF	1.00E-06	5.18E-14	7.68E-13	5.18E-08	7.68E-07	
			PnCB	9.00E-07	2.22E-09	3.27E-08	2.46E-03	3.63E-02	
			Pyridine	1.00E-03	2.08E-13	3.08E-12	2.08E-10	3.08E-09	
			Selenium	5.00E-03	6.69E-08	9.91E-07	1.34E-05	1.98E-04	
			Silver	5.00E-03	4.12E-10	6.14E-09	8.25E-08	1.23E-06	
			TCB	3.00E-07	1.66E-10	2.45E-09	5.52E-04	8.16E-03	
			Thallium	8.00E-05	1.13E-08	1.67E-07	1.41E-04	2.09E-03	
			Vanadium	7.00E-03	2.39E-09	4.84E-08	3.42E-07	6.91E-06	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)									
	Birding/Hunting Near the Lake								
		DermalContactWithWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	6.29E-08	2.26E-07	1.26E-04	4.53E-04	
			Aldrin	7.54E-05	8.20E-11	2.75E-10	1.09E-06	3.65E-06	
			alpha-BHC	1.17E-03	7.85E-11	2.85E-10	6.71E-08	2.44E-07	
			Dieldrin	6.52E-05	5.90E-10	1.18E-09	9.06E-06	1.81E-05	
			Endosulfan I	2.53E-02	4.91E-11	1.83E-10	1.94E-09	7.22E-09	
			gamma-BHC	3.00E-03	2.76E-10	5.53E-10	9.21E-08	1.84E-07	
			Heptachlor epoxide	1.30E-05	1.14E-09	3.60E-09	8.77E-05	2.77E-04	
			Isodrin	3.00E-04	4.19E-11	1.54E-10	1.40E-07	5.14E-07	
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	1.70E-09	4.48E-09	1.70E-07	4.48E-07	
			Aldrin	7.54E-05	5.61E-10	1.98E-09	7.44E-06	2.62E-05	
			alpha-BHC	1.17E-03	4.11E-10	1.49E-09	3.51E-07	1.27E-06	
			Beryllium	5.00E-03	4.79E-10	1.07E-09	9.58E-08	2.13E-07	
			beta-BHC	3.30E-04	4.67E-10	1.57E-09	1.42E-06	4.76E-06	
			Cyclohexanone	5	7.46E-08	1.49E-07	1.49E-08	2.99E-08	
			delta-BHC	2.00E-04	6.60E-08	2.75E-07	3.30E-04	1.37E-03	
			Endrin	6.00E-04	4.75E-10	1.70E-09	7.92E-07	2.84E-06	
			gamma-BHC	3.00E-03	7.65E-10	2.83E-09	2.55E-07	9.44E-07	
			Heptachlor epoxide	1.30E-05	6.01E-08	3.42E-07	4.63E-03	2.63E-02	
		InhalationOfVapor: Fugitive Dust							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

		IncidentalIngestionOfWater: Surface water							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	5.46E-11	1.96E-10	1.09E-07	3.93E-07	
			Aldrin	3.00E-05	3.40E-11	1.14E-10	1.13E-06	3.81E-06	
			alpha-BHC	4.16E-04	1.26E-10	4.57E-10	3.02E-07	1.10E-06	
			Dieldrin	5.00E-05	2.51E-11	5.02E-11	5.02E-07	1.00E-06	
			Endosulfan I	2.53E-02	7.85E-11	2.92E-10	3.10E-09	1.16E-08	
			gamma-BHC	3.00E-04	2.24E-11	4.47E-11	7.46E-08	1.49E-07	
			Heptachlor epoxide	1.30E-05	2.60E-11	8.22E-11	2.00E-06	6.32E-06	
			Isodrin	3.00E-04	6.71E-11	2.47E-10	2.24E-07	8.22E-07	
		IngestionOfMeatEggsAndDairy: Duck							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			1,2,3,4,7,8-HxCDF	1.00E-08	4.94E-12	6.73E-11	4.94E-04	6.73E-03	
			1,2,3,7,8,9-HxCDF	1.00E-08	1.56E-13	2.13E-12	1.56E-05	2.13E-04	
			2,3,4,6,7,8-HxCDF	1.00E-08	1.95E-14	2.65E-13	1.95E-06	2.65E-05	
			1,2,3,4,6,7,8-HpCDD	1.00E-07	7.21E-14	9.82E-13	7.21E-07	9.82E-06	
			2,3,7,8-TCDD	1.00E-09	5.20E-13	7.09E-12	5.20E-04	7.09E-03	
			2,3,7,8-TCDF	1.00E-08	5.57E-14	7.59E-13	5.57E-06	7.59E-05	
			2,4'-DDD	2.26E-04	1.55E-09	1.63E-08	6.86E-06	7.19E-05	
			2,4'-DDT	3.58E-05	1.40E-10	1.92E-09	3.91E-06	5.36E-05	
			4,4'-DDD	5.00E-04	1.62E-08	2.22E-07	3.25E-05	4.45E-04	
			4,4'-DDE	3.89E-03	1.31E-08	1.80E-07	3.38E-06	4.63E-05	
			4,4'-DDT	5.00E-04	2.58E-10	3.53E-09	5.16E-07	7.05E-06	
			Aldrin	3.00E-05	1.74E-11	2.38E-10	5.79E-07	7.94E-06	
			alpha-BHC	4.16E-04	6.41E-13	9.30E-12	1.54E-09	2.24E-08	
			Antimony	4.00E-04	1.36E-10	1.87E-09	3.41E-07	4.67E-06	
			Arsenic	3.00E-04	3.24E-08	4.41E-07	1.08E-04	1.47E-03	
			Barium	7.00E-02	1.04E-09	1.31E-08	1.48E-08	1.87E-07	
			Benzyl alcohol	3.00E-01	5.88E-13	8.04E-12	1.96E-12	2.68E-11	
			Beryllium	5.00E-03	2.32E-12	3.16E-11	4.64E-10	6.31E-09	
			beta-BHC	3.30E-04	2.05E-13	4.26E-12	6.20E-10	1.29E-08	
			bis(2-Ethylhexyl)phth	2.00E-02	2.13E-09	2.98E-08	1.07E-07	1.49E-06	
			Boron	9.00E-02	7.54E-11	1.45E-09	8.38E-10	1.61E-08	
			Cadmium (food)	1.00E-03	8.05E-11	1.09E-09	8.05E-08	1.09E-06	
			Chlordane	6.00E-05	2.65E-12	3.62E-11	4.42E-08	6.03E-07	
			Chromium	1	4.45E-09	7.03E-08	4.45E-09	7.03E-08	
			Chromium VI	5.00E-03	3.99E-14	1.45E-12	7.99E-12	2.90E-10	
			Cyanide	2.00E-02	8.50E-09	1.16E-07	4.25E-07	5.80E-06	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

			delta-BHC	2.00E-04	6.90E-09	6.64E-08	3.45E-05	3.32E-04	
			Dieldrin	5.00E-05	7.91E-13	1.09E-11	1.58E-08	2.17E-07	
			Endosulfan sulfate	6.00E-03	9.95E-16	1.41E-14	1.66E-13	2.36E-12	
			Endrin	3.00E-04	1.40E-11	1.90E-10	4.67E-08	6.35E-07	
			gamma-BHC	3.00E-04	3.25E-12	4.43E-11	1.08E-08	1.48E-07	
			Heptachlor	5.00E-04	1.85E-12	2.52E-11	3.70E-09	5.03E-08	
			Heptachlor epoxide	1.30E-05	7.16E-16	9.82E-15	5.50E-11	7.56E-10	
			Hexachlorobenzene	8.00E-04	2.82E-12	3.84E-11	3.52E-09	4.80E-08	
			HpCB	6.20E-05	1.02E-09	1.39E-08	1.64E-05	2.24E-04	
			HxCB	6.00E-07	2.06E-09	2.81E-08	3.43E-03	4.68E-02	
			Lead (organic)	1.00E-07	1.84E-10	1.61E-09	1.84E-03	1.61E-02	
			Manganese (food)	1.40E-01	1.15E-08	1.57E-07	8.21E-08	1.12E-06	
			Mirex	2.00E-04	2.70E-16	3.68E-15	1.35E-12	1.84E-11	
			Mercury	3.00E-04	1.44E-07	1.96E-06	4.80E-04	6.52E-03	
			Nickel	2.00E-02	2.53E-09	3.46E-08	1.26E-07	1.73E-06	
			OCDD	1.00E-06	3.26E-13	4.45E-12	3.26E-07	4.45E-06	
			OCDF	1.00E-06	1.58E-13	2.15E-12	1.58E-07	2.15E-06	
			PnCB	9.00E-07	6.73E-09	9.15E-08	7.48E-03	1.02E-01	
			Pyridine	1.00E-03	6.32E-13	8.63E-12	6.32E-10	8.63E-09	
			Selenium	5.00E-03	2.03E-07	2.78E-06	4.07E-05	5.55E-04	
			Silver	5.00E-03	1.25E-09	1.72E-08	2.51E-07	3.44E-06	
			TCB	3.00E-07	5.04E-10	6.85E-09	1.68E-03	2.28E-02	
			Thallium	8.00E-05	3.42E-08	4.67E-07	4.28E-04	5.84E-03	
			Vanadium	7.00E-03	7.27E-09	1.35E-07	1.04E-06	1.93E-05	

Table J-57
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Lake Stinky

Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)									
	Grazing Cattle Near the Lake								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	6.42E-08	4.92E-07	1.28E-04	9.85E-04	
			4,4'-DDE	3.89E-03	1.03E-11	6.65E-11	2.65E-09	1.71E-08	
			4,4'-DDT	5.00E-04	4.50E-12	1.94E-11	8.99E-09	3.87E-08	
			Aldrin	3.00E-05	5.04E-09	3.60E-08	1.68E-04	1.20E-03	
			alpha-BHC	4.16E-04	7.42E-10	5.74E-09	1.78E-06	1.38E-05	
			beta-BHC	3.30E-04	5.22E-13	3.18E-12	1.58E-09	9.62E-09	
			delta-BHC	2.00E-04	3.26E-13	2.07E-12	1.63E-09	1.03E-08	
			Dieldrin	5.00E-05	1.26E-10	5.39E-10	2.53E-06	1.08E-05	
			Endosulfan I	2.53E-02	3.94E-10	3.13E-09	1.56E-08	1.24E-07	
			Endrin	3.00E-04	2.24E-12	1.06E-11	7.46E-09	3.53E-08	
			gamma-BHC	3.00E-04	3.48E-11	1.48E-10	1.16E-07	4.95E-07	
			gamma-Chlordane	6.00E-05	2.99E-12	1.28E-11	4.99E-08	2.13E-07	
			Heptachlor epoxide	1.30E-05	4.23E-09	2.85E-08	3.25E-04	2.19E-03	
			Isodrin	3.00E-04	9.00E-12	7.31E-11	3.00E-08	2.44E-07	
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)									
	Grazing Cattle Near the Lake								
		IngestionOfMeatEggsAndDairy: Beef							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.50E-07	1.15E-06	3.00E-04	2.30E-03	
			4,4'-DDE	3.89E-03	2.40E-11	1.55E-10	6.17E-09	3.99E-08	
			4,4'-DDT	5.00E-04	1.05E-11	4.52E-11	2.10E-08	9.03E-08	
			Aldrin	3.00E-05	1.18E-08	8.41E-08	3.92E-04	2.80E-03	
			alpha-BHC	4.16E-04	1.73E-09	1.34E-08	4.16E-06	3.22E-05	
			beta-BHC	3.30E-04	1.22E-12	7.41E-12	3.69E-09	2.25E-08	
			delta-BHC	2.00E-04	7.60E-13	4.83E-12	3.80E-09	2.41E-08	
			Dieldrin	5.00E-05	2.95E-10	1.26E-09	5.90E-06	2.52E-05	
			Endosulfan I	2.53E-02	9.20E-10	7.30E-09	3.64E-08	2.88E-07	
			Endrin	3.00E-04	5.22E-12	2.47E-11	1.74E-08	8.24E-08	
			gamma-BHC	3.00E-04	8.13E-11	3.46E-10	2.71E-07	1.15E-06	
			gamma-Chlordane	6.00E-05	6.98E-12	2.98E-11	1.16E-07	4.96E-07	
			Heptachlor epoxide	1.30E-05	9.87E-09	6.64E-08	7.59E-04	5.11E-03	
			Isodrin	3.00E-04	2.10E-11	1.70E-10	7.00E-08	5.68E-07	

Table J-58
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Lake Stinky

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Lake Stinky		
Chronic Exposure		
Scenario	Average	Reas. Max.
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)	5.25E-07	1.46E-05
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)	1.88E-08	4.44E-07

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Average Cancer Risk							
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.13E-09	3.13E-09	5.96E-01
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.92E-11	9.92E-11	1.89E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.24E-11	1.24E-11	2.35E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.57E-12	4.57E-12	8.71E-04
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-09	3.30E-09	6.28E-01
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.53E-11	3.53E-11	6.73E-03
4,4'-DDD	8.68E-10	0.00E+00	0.00E+00	3.61E-13	1.65E-10	1.03E-09	1.97E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-10	1.89E-10	3.60E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.71E-12	3.71E-12	7.07E-04
Aldrin	8.01E-11	4.63E-10	9.35E-10	1.59E-11	1.25E-11	1.51E-09	2.87E-01
alpha-BHC	2.84E-11	1.26E-10	2.52E-10	2.18E-11	1.71E-13	4.28E-10	8.15E-02
Arsenic	0.00E+00	0.00E+00	2.94E-07	0.00E+00	0.00E+00	2.94E-07	5.60E+01
Beryllium	0.00E+00	1.00E-10	3.91E-08	0.00E+00	4.22E-13	3.92E-08	7.46
beta-BHC	0.00E+00	4.09E-11	8.41E-11	0.00E+00	1.56E-14	1.25E-10	2.38E-02
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-12	1.26E-12	2.41E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-13	1.46E-13	2.78E-05
Dieldrin	5.43E-10	0.00E+00	0.00E+00	1.11E-11	5.36E-13	5.55E-10	1.06E-01
gamma-BHC	2.06E-11	4.83E-11	0.00E+00	8.01E-13	1.79E-13	6.99E-11	1.33E-02
Heptachlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.52E-13	3.52E-13	6.70E-05
Heptachlor epoxide	5.97E-10	2.66E-08	5.31E-08	6.53E-12	2.76E-16	8.03E-08	1.53E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-13	1.91E-13	3.63E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.04E-10	1.04E-10	1.97E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-08	2.09E-08	3.98
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.25E-09	2.25E-09	4.29E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-10	2.60E-10	4.95E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-12	2.07E-12	3.94E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-12	1.00E-12	1.90E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.84E-08	6.84E-08	1.30E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.63E-09	8.63E-09	1.64
Trichloroethene	0.00E+00	1.82E-12	8.13E-10	0.00E+00	0.00E+00	8.15E-10	1.55E-01
Total by pathway	2.14E-09	2.74E-08	3.88E-07	5.65E-11	1.08E-07		
% Contribution by pathway	4.07E-01	5.21	7.39E+01	1.08E-02	2.05E+01		
Scenario Total						5.25E-07	

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Cancer Risk							
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Incidental Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-07	1.55E-07	1.06
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.89E-09	4.89E-09	3.34E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.08E-10	6.08E-10	4.16E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-10	2.26E-10	1.54E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-07	1.63E-07	1.11
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-09	1.74E-09	1.19E-02
4,4'-DDD	1.04E-08	0.00E+00	0.00E+00	4.33E-12	8.17E-09	1.86E-08	1.27E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.37E-09	9.37E-09	6.41E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-10	1.84E-10	1.26E-03
Aldrin	8.96E-10	5.44E-09	2.77E-08	1.78E-10	6.20E-10	3.48E-08	2.38E-01
alpha-BHC	3.44E-10	1.52E-09	7.63E-09	2.64E-10	8.97E-12	9.76E-09	6.68E-02
Arsenic	0.00E+00	0.00E+00	6.18E-06	0.00E+00	0.00E+00	6.18E-06	4.23E+01
Beryllium	0.00E+00	7.42E-10	1.62E-10	0.00E+00	2.08E-11	9.25E-10	6.33E-03
beta-BHC	0.00E+00	4.57E-10	2.37E-09	0.00E+00	1.17E-12	2.83E-09	1.94E-02
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.38E-11	6.38E-11	4.36E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.20E-12	7.20E-12	4.92E-05
Dieldrin	3.62E-09	0.00E+00	0.00E+00	7.38E-11	2.66E-11	3.72E-09	2.55E-02
gamma-BHC	1.38E-10	5.96E-10	0.00E+00	5.34E-12	8.82E-12	7.48E-10	5.12E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-11	1.73E-11	1.19E-04
Heptachlor epoxide	6.28E-09	5.04E-07	2.54E-06	6.87E-11	1.37E-14	3.05E-06	2.09E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.40E-12	9.40E-12	6.43E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-09	5.11E-09	3.50E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-06	1.03E-06	7.05
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07	1.11E-07	7.58E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-08	1.28E-08	8.78E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-10	1.02E-10	6.99E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.94E-11	4.94E-11	3.38E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-06	3.36E-06	2.30E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.25E-07	4.25E-07	2.91
Trichloroethene	0.00E+00	2.53E-11	2.84E-08	0.00E+00	0.00E+00	2.85E-08	1.95E-01
Total by pathway	2.17E-08	5.13E-07	8.79E-06	5.95E-10	5.29E-06		
% Contribution by pathway	1.48E-01	3.51	6.01E+01	4.07E-03	3.62E+01		
Scenario Total						1.46E-05	

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Average Cancer Risk							
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.35E-09	6.35E-09	1.2
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-10	2.01E-10	3.80E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.50E-11	2.50E-11	4.74E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.26E-12	9.26E-12	1.75E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.68E-09	6.68E-09	1.26
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-11	7.16E-11	1.36E-02
4,4'-DDD	1.29E-09	0.00E+00	0.00E+00	1.12E-12	3.34E-10	1.63E-09	3.09E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.83E-10	3.83E-10	7.25E-02
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.52E-12	7.52E-12	1.42E-03
Aldrin	1.19E-10	8.17E-10	6.24E-10	4.96E-11	2.53E-11	1.63E-09	3.09E-01
alpha-BHC	4.24E-11	2.22E-10	1.68E-10	6.78E-11	3.46E-13	5.00E-10	9.47E-02
Arsenic	0.00E+00	0.00E+00	1.96E-07	0.00E+00	0.00E+00	1.96E-07	3.71E+01
Beryllium	0.00E+00	1.77E-10	2.61E-08	0.00E+00	8.55E-13	2.63E-08	4.97
beta-BHC	0.00E+00	7.21E-11	5.61E-11	0.00E+00	3.16E-14	1.28E-10	2.43E-02
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-12	2.56E-12	4.85E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.96E-13	2.96E-13	5.60E-05
Dieldrin	8.10E-10	0.00E+00	0.00E+00	3.44E-11	1.09E-12	8.45E-10	1.60E-01
gamma-BHC	3.08E-11	8.52E-11	0.00E+00	2.49E-12	3.62E-13	1.19E-10	2.25E-02
Heptachlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-13	7.13E-13	1.35E-04
Heptachlor epoxide	8.90E-10	4.69E-08	3.54E-08	2.03E-11	5.58E-16	8.32E-08	1.58E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-13	3.86E-13	7.31E-05
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.10E-10	2.10E-10	3.97E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-08	4.24E-08	8.02
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.56E-09	4.56E-09	8.63E-01
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.26E-10	5.26E-10	9.97E-02
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.19E-12	4.19E-12	7.94E-04
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-12	2.03E-12	3.83E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-07	1.39E-07	2.62E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-08	1.75E-08	3.31
Trichloroethene	0.00E+00	3.21E-12	5.42E-10	0.00E+00	0.00E+00	5.45E-10	1.03E-01
Total by pathway	3.19E-09	4.83E-08	2.59E-07	1.76E-10	2.18E-07		
% Contribution by pathway	6.03E-01	9.14	4.90E+01	3.33E-02	4.12E+01		
Scenario Total						5.28E-07	

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Reas. Max. Cancer Risk							
Off-Site Recreational, Child - Current/Future (Lagoons In or Out of Service)							
	Dermal Contact with Surface Water	Dermal Contact with Sediments	Inhalation of Fugitive Dust/Volatiles	Ingestion of Surface Water	Ingestion of Waterfowl	Total	% Contrib
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.66E-08	8.66E-08	1.81
1,2,3,7,8,9-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-09	2.74E-09	5.72E-02
2,3,4,6,7,8-HxCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-10	3.41E-10	7.12E-03
1,2,3,4,6,7,8-HpCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E-10	1.26E-10	2.64E-03
2,3,7,8-TCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.12E-08	9.12E-08	1.91
2,3,7,8-TCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.76E-10	9.76E-10	2.04E-02
4,4'-DDD	4.66E-09	0.00E+00	0.00E+00	4.04E-12	4.58E-09	9.24E-09	1.93E-01
4,4'-DDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.25E-09	5.25E-09	1.10E-01
4,4'-DDT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-10	1.03E-10	2.15E-03
Aldrin	4.01E-10	2.88E-09	4.84E-09	1.66E-10	3.47E-10	8.63E-09	1.81E-01
alpha-BHC	1.54E-10	8.02E-10	1.33E-09	2.47E-10	5.02E-12	2.54E-09	5.32E-02
Arsenic	0.00E+00	0.00E+00	1.08E-06	0.00E+00	0.00E+00	1.08E-06	2.26E+01
Beryllium	0.00E+00	3.93E-10	2.84E-11	0.00E+00	1.16E-11	4.33E-10	9.06E-03
beta-BHC	0.00E+00	2.42E-10	4.15E-10	0.00E+00	6.57E-13	6.58E-10	1.38E-02
bis(2-Ethylhexyl)phthalate	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-11	3.57E-11	7.47E-04
Chlordane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-12	4.03E-12	8.43E-05
Dieldrin	1.62E-09	0.00E+00	0.00E+00	6.89E-11	1.49E-11	1.70E-09	3.56E-02
gamma-BHC	6.16E-11	3.16E-10	0.00E+00	4.99E-12	4.94E-12	3.87E-10	8.10E-03
Heptachlor	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.70E-12	9.70E-12	2.03E-04
Heptachlor epoxide	2.81E-09	2.67E-07	4.44E-07	6.41E-11	7.66E-15	7.14E-07	1.49E+01
Hexachlorobenzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.27E-12	5.27E-12	1.10E-04
HpCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.86E-09	2.86E-09	5.99E-02
HxCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.77E-07	5.77E-07	1.21E+01
n-Nitroso-di-n-propylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.21E-08	6.21E-08	1.3
n-Nitrosodimethylamine	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.19E-09	7.19E-09	1.50E-01
OCDD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.72E-11	5.72E-11	1.20E-03
OCDF	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-11	2.76E-11	5.78E-04
PnCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-06	1.88E-06	3.94E+01
TCB	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.38E-07	2.38E-07	4.98
Trichloroethene	0.00E+00	1.34E-11	4.97E-09	0.00E+00	0.00E+00	4.99E-09	1.04E-01
Total by pathway	9.70E-09	2.72E-07	1.54E-06	5.55E-10	2.96E-06		
% Contribution by pathway	2.03E-01	5.68	3.21E+01	1.16E-02	6.20E+01		
Scenario Total						4.78E-06	

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Average Cancer Risk							
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)							
	Ingestion of Meat	Total	% Contrib				
4,4'-DDD	1.98E-09	1.98E-09	1.05E+01				
4,4'-DDE	4.50E-13	4.50E-13	2.39E-03				
4,4'-DDT	1.97E-13	1.97E-13	1.04E-03				
Aldrin	1.10E-08	1.10E-08	5.86E+01				
alpha-BHC	6.01E-10	6.01E-10	3.19				
beta-BHC	1.21E-13	1.21E-13	6.41E-04				
Dieldrin	2.60E-10	2.60E-10	1.38				
gamma-BHC	5.82E-12	5.82E-12	3.09E-02				
gamma-Chlordane	5.00E-13	5.00E-13	2.66E-03				
Heptachlor epoxide	4.95E-09	4.95E-09	2.63E+01				
Total by pathway	1.88E-08						
% Contribution by pathway	1.00E+02						
Scenario Total		1.88E-08					
Reas. Max. Cancer Risk							
Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)							
	Ingestion of Meat	Total	% Contrib				
4,4'-DDD	5.07E-08	5.07E-08	1.14E+01				
4,4'-DDE	9.68E-12	9.68E-12	2.18E-03				
4,4'-DDT	2.82E-12	2.82E-12	6.36E-04				
Aldrin	2.63E-07	2.63E-07	5.92E+01				
alpha-BHC	1.55E-08	1.55E-08	3.5				
beta-BHC	2.45E-12	2.45E-12	5.52E-04				
Dieldrin	3.70E-09	3.70E-09	8.33E-01				
gamma-BHC	8.27E-11	8.27E-11	1.86E-02				
gamma-Chlordane	7.10E-12	7.10E-12	1.60E-03				
Heptachlor epoxide	1.11E-07	1.11E-07	2.50E+01				
Total by pathway	4.44E-07						
% Contribution by pathway	1.00E+02						
Scenario Total		4.44E-07					

Table J-59
Cancer Risk Summary
Holloman AFB, New Mexico
Lake Stinky

Average Cancer Risk							
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)							
	Ingestion of Meat	Total	% Contrib				
4,4'-DDD	3.08E-09	3.08E-09	1.05E+01				
4,4'-DDE	7.00E-13	7.00E-13	2.39E-03				
4,4'-DDT	3.06E-13	3.06E-13	1.04E-03				
Aldrin	1.71E-08	1.71E-08	5.86E+01				
alpha-BHC	9.34E-10	9.34E-10	3.19				
beta-BHC	1.88E-13	1.88E-13	6.41E-04				
Dieldrin	4.05E-10	4.05E-10	1.38				
gamma-BHC	9.06E-12	9.06E-12	3.09E-02				
gamma-Chlordane	7.78E-13	7.78E-13	2.66E-03				
Heptachlor epoxide	7.70E-09	7.70E-09	2.63E+01				
Total by pathway	2.93E-08						
% Contribution by pathway	1.00E+02						
Scenario Total		2.93E-08					
Reas. Max. Cancer Risk							
Off-Site Agricultural, Child - Current/Future (Lagoons In or Out of Service)							
	Ingestion of Meat	Total	% Contrib				
4,4'-DDD	2.36E-08	2.36E-08	1.14E+01				
4,4'-DDE	4.52E-12	4.52E-12	2.18E-03				
4,4'-DDT	1.32E-12	1.32E-12	6.36E-04				
Aldrin	1.23E-07	1.23E-07	5.92E+01				
alpha-BHC	7.24E-09	7.24E-09	3.5				
beta-BHC	1.14E-12	1.14E-12	5.52E-04				
Dieldrin	1.72E-09	1.72E-09	8.33E-01				
gamma-BHC	3.86E-11	3.86E-11	1.86E-02				
gamma-Chlordane	3.32E-12	3.32E-12	1.60E-03				
Heptachlor epoxide	5.18E-08	5.18E-08	2.50E+01				
Total by pathway	2.07E-07						
% Contribution by pathway	1.00E+02						
Scenario Total		2.07E-07					

Table J-60
Cancer RiskEstimates
Holloman AFB, New Mexico
Lake Stinky

Cancer Risk Estimates										
Holloman Risk Assessment - Lake Stinky										
Scenario										
	Activity									
		Pathway								
Off-Site Recreational, Adult - Current/Future (Lagoons In or Out of Service)										
	Birding/Hunting around the Lake									
		DermalContactWithWater: Surface water								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.62E-09	4.34E-08	8.68E-10	1.04E-08	
			Aldrin	17	B2	4.71E-12	5.27E-11	8.01E-11	8.96E-10	
			alpha-BHC	6.3	B2	4.51E-12	5.47E-11	2.84E-11	3.44E-10	
			Dieldrin	16	B2	3.39E-11	2.26E-10	5.43E-10	3.62E-09	
			gamma-BHC	1.3	B2/C	1.59E-11	1.06E-10	2.06E-11	1.38E-10	
			Heptachlor epoxide	9.1	B2	6.56E-11	6.90E-10	5.97E-10	6.28E-09	
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			Aldrin	17	B2	2.72E-11	3.20E-10	4.63E-10	5.44E-09	
			alpha-BHC	6.3	B2	2.00E-11	2.40E-10	1.26E-10	1.52E-09	
			Beryllium	4.3	B2	2.33E-11	1.73E-10	1.00E-10	7.42E-10	
			beta-BHC	1.8	C	2.27E-11	2.54E-10	4.09E-11	4.57E-10	
			gamma-BHC	1.3	B2/C	3.71E-11	4.58E-10	4.83E-11	5.96E-10	
			Heptachlor epoxide	9.1	B2	2.92E-09	5.54E-08	2.66E-08	5.04E-07	
			Trichloroethene	1.10E-02	B2/C	1.65E-10	2.30E-09	1.82E-12	2.53E-11	
		InhalationOfVapor: Fugitive Dust								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EAC	Average Risk	Reas. Max. Risk	
			Aldrin*	4.90E-03	B2	1.91E-07	5.65E-06	9.35E-10	2.77E-08	
			alpha-BHC*	1.80E-03	B2	1.40E-07	4.24E-06	2.52E-10	7.63E-09	
			Arsenic*	4.29E-03	A	6.85E-05	1.44E-03	2.94E-07	6.18E-06	
			Beryllium*	2.40E-03	B2	1.63E-05	6.76E-08	3.91E-08	1.62E-10	
			beta-BHC*	5.30E-04	C	1.59E-07	4.48E-06	8.41E-11	2.37E-09	
			Heptachlor epoxide*	2.60E-03	B2	2.04E-05	9.77E-04	5.31E-08	2.54E-06	
			Trichloroethene*	1.70E-06	B2/C	4.78E-04	1.67E-02	8.13E-10	2.84E-08	

Table J-60
Cancer RiskEstimates
Holloman AFB, New Mexico
Lake Stinky

		IncidentalIngestionOfWater: Surface water								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.50E-12	1.80E-11	3.61E-13	4.33E-12	
			Aldrin	17	B2	9.37E-13	1.05E-11	1.59E-11	1.78E-10	
			alpha-BHC	6.3	B2	3.46E-12	4.19E-11	2.18E-11	2.64E-10	
			Dieldrin	16	B2	6.92E-13	4.61E-12	1.11E-11	7.38E-11	
			gamma-BHC	1.3	B2/C	6.16E-13	4.11E-12	8.01E-13	5.34E-12	
			Heptachlor epoxide	9.1	B2	7.17E-13	7.55E-12	6.53E-12	6.87E-11	
		IngestionOfMeatEggsAndDairy: Duck								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			1,2,3,4,7,8-HxCDF	15000		2.09E-13	1.03E-11	3.13E-09	1.55E-07	
			1,2,3,7,8,9-HxCDF	15000		6.61E-15	3.26E-13	9.92E-11	4.89E-09	
			2,3,4,6,7,8-HxCDF	15000		8.24E-16	4.05E-14	1.24E-11	6.08E-10	
			1,2,3,4,6,7,8-HpCDD	1500		3.05E-15	1.50E-13	4.57E-12	2.26E-10	
			2,3,7,8-TCDD	150000	B2	2.20E-14	1.09E-12	3.30E-09	1.63E-07	
			2,3,7,8-TCDF	15000		2.36E-15	1.16E-13	3.53E-11	1.74E-09	
			4,4'-DDD	2.40E-01	B2	6.88E-10	3.41E-08	1.65E-10	8.17E-09	
			4,4'-DDE	3.40E-01	B2	5.56E-10	2.76E-08	1.89E-10	9.37E-09	
			4,4'-DDT	3.40E-01	B2	1.09E-11	5.40E-10	3.71E-12	1.84E-10	
			Aldrin	17	B2	7.35E-13	3.64E-11	1.25E-11	6.20E-10	
			alpha-BHC	6.3	B2	2.71E-14	1.42E-12	1.71E-13	8.97E-12	
			Beryllium	4.3	B2	9.81E-14	4.83E-12	4.22E-13	2.08E-11	
			beta-BHC	1.8	C	8.66E-15	6.51E-13	1.56E-14	1.17E-12	
			bis(2-Ethylhexyl)phthalate	1.40E-02	B2	9.03E-11	4.56E-09	1.26E-12	6.38E-11	
			Chlordane	1.3	B2	1.12E-13	5.54E-12	1.46E-13	7.20E-12	
			Dieldrin	16	B2	3.35E-14	1.66E-12	5.36E-13	2.66E-11	
			gamma-BHC	1.3	B2/C	1.38E-13	6.79E-12	1.79E-13	8.82E-12	
			Heptachlor	4.5	B2	7.82E-14	3.85E-12	3.52E-13	1.73E-11	
			Heptachlor epoxide	9.1	B2	3.03E-17	1.50E-15	2.76E-16	1.37E-14	
			Hexachlorobenzene	1.6	B2	1.19E-13	5.88E-12	1.91E-13	9.40E-12	
			HpCB	2.4		4.31E-11	2.13E-09	1.04E-10	5.11E-09	
			HxCB	240		8.71E-11	4.29E-09	2.09E-08	1.03E-06	
			n-Nitroso-di-n-propylamine	7		3.22E-10	1.58E-08	2.25E-09	1.11E-07	
			n-Nitrosodimethylamine	51	B2	5.10E-12	2.52E-10	2.60E-10	1.28E-08	
			OCDD	150		1.38E-14	6.81E-13	2.07E-12	1.02E-10	
			OCDF	150		6.67E-15	3.29E-13	1.00E-12	4.94E-11	
			PnCB	240		2.85E-10	1.40E-08	6.84E-08	3.36E-06	
			TCB	405		2.13E-11	1.05E-09	8.63E-09	4.25E-07	

Table J-60
Cancer RiskEstimates
Holloman AFB, New Mexico
Lake Stinky

Off-Site Agricultural, Adult - Current/Future (Lagoons In or Out of Service)										
	Grazing Cattle Near the Lake									
		IngestionOfMeatEggsAndDairy: Beef								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	8.26E-09	2.11E-07	1.98E-09	5.07E-08	
			4,4'-DDE	3.40E-01	B2	1.32E-12	2.85E-11	4.50E-13	9.68E-12	
			4,4'-DDT	3.40E-01	B2	5.78E-13	8.30E-12	1.97E-13	2.82E-12	
			Aldrin	17	B2	6.48E-10	1.54E-08	1.10E-08	2.63E-07	
			alpha-BHC	6.3	B2	9.53E-11	2.46E-09	6.01E-10	1.55E-08	
			beta-BHC	1.8	C	6.71E-14	1.36E-12	1.21E-13	2.45E-12	
			Dieldrin	16	B2	1.63E-11	2.31E-10	2.60E-10	3.70E-09	
			gamma-BHC	1.3	B2/C	4.48E-12	6.36E-11	5.82E-12	8.27E-11	
			gamma-Chlordane	1.3	B2	3.85E-13	5.46E-12	5.00E-13	7.10E-12	
			Heptachlor epoxide	9.1	B2	5.44E-10	1.22E-08	4.95E-09	1.11E-07	

APPENDIX K

ENVIRONMENTAL EVALUATION

1.0 INTRODUCTION

The objectives of this effort are to perform extensive field investigations of the entire Holloman Air Force Base (HAFB) wastewater system, and to use the total information gathered during this sampling exercise and previous sampling exercises to measure potential risk to the environment that might be attributed to each impoundment. The field investigations included biota sampling, surface and groundwater sampling, and soil sampling. In total, ten environmental evaluations were conducted, one each for Ponds A through G, Lake Holloman, Lake Stinky, and the ditch connecting Pond G and Lake Holloman.

Domestic and industrial wastewater enters the system through a headworks where the flow is screened through a bar rack or ground in comminutors and degritted in a horizontal-flow frit chamber. Next, influent enters a Parshall flume and wet well where it is pumped to a splitter box. The splitter box discharges in parallel to Ponds A and B. These are aerated facultative lagoons. The wastewater then flows through four lagoons, which are operated in series. The first of these, Pond C, has one aerator located at the influent point; the following three, Ponds D, E, and G, are non-aerated. An additional impoundment, Pond F, is used to recirculate water from Pond E back to the headworks of the system. Discharge from the last lagoon in the series (Pond G) flows via an open ditch to Lake Holloman.

The treatment system receives approximately 1.5 million gallons per day of domestic and industrial wastewater. Domestic wastewater is generated from offices, shopping and eating facilities, and family housing. Industrial wastewater is generated from aircraft washing facilities, corrosion control facilities, machine and maintenance shops, and medical research and analytical laboratories.

Lake Holloman was formed by constructing a nonengineered dam to collect surface water drainage and wastewater discharge. The 166-acre lake was intended to be the final impoundment for evaporation; however, due to seasonal low evaporation and increased

wastewater generation from Base activities, water from Lake Holloman is diverted during winter months into Lake Stinky, a small salina. Any overflow into Lakes Holloman and Stinky is eventually dissipated through evaporation. Lakes Holloman and Stinky have capacities of approximately 379 million and 227 million gallons, respectively.

Prior to 1984, industrial wastes introduced into the lagoons included limited quantities of solvents, herbicides, pesticides, fuels, processing chemicals, and degreasers. Sampling activities at the lagoons have detected hazardous constituents in the sludges including semi-volatile organic compounds, heavy metals, and to a more limited extent, volatile organic compounds (VOCs). Contamination has also been detected in the surface water of the sewage lagoons.

2.0 ENVIRONMENTAL OVERVIEW

The lagoons and lakes are located in the Tularosa Basin, and the biological diversity is characteristic of this desert region. Surface water resources are limited in the Tularosa Basin because of high evaporation rates and low annual rainfall. Consequently, the manmade surface water impoundments at HAFB are significant resources in the area. Groundwater in the area comes from one of the largest saline water aquifers in the United States. The water in the seven lagoons, the lakes, and the ditch are also saline.

2.1 Physical Description of the Impoundments

Physical descriptions for each pond, lake, and the ditch are discussed in the site-by-site overviews in the main text; therefore, they will not be repeated here.

2.2 Indigenous Species

Plant and animal life in the area has been well documented in previous studies (Environmental Assessment for the Proposed Wastewater Treatment Plant, Holloman AFB, New Mexico, 1993; Risk Assessment for the Sewage Lagoon System, Holloman Air Force Base, NM, Feb. 1991). This section draws from these sources to provide a brief summary of the plants and animals in the area.

2.2.1 Vegetation

The lagoons and lakes are located in an area dominated by salt flats and gypsum grassland vegetation types. Vegetation typical of a gypsum grassland include: alkali sacaton (*Sporobolus airoides*), four-wing saltbrush (*Atriplex canescens*), tarbush (*Flourensia cernua*), and an occasional soaptree yucca (*Yucca elata*). Associated grasses include plains bristlegrass (*Setaria macrostachya*), little bluestem (*Andropogon scoparius*), blue grama (*Boutelova gracilis*), and ring muhly (*Muhlenbergia repens*). Scattered cacti include walking stick cholla (*Opuntia imbricata*) and plains prickly pear (*O. polyacantha*).

In salt flats, vegetation is sparse with bare patches over 50% of the area, especially in the high saline soils between the lagoons and Lake Holloman. The frequently inundated salt flats are devoid of vegetation. Alkali sacaton is the dominant grass; associated vegetation includes: iodinebush (*Allenrolfea occidentalis*), saltbush, broom snakeweed (*Gutierrezia sarothrae*), and sandsage (*Artemisia filifolia*). Also present is an endangered species of cactus, the grama grass cactus (*Toumeya papyracantha*), which is found interspersed in clumps of grama grass at a relatively high frequency and appears to be thriving in the area.

Thickets of tamarisk (*Tamarix pentandra*) are found along the ditch, interspersed with patches of salt grass (*Distichlis stricta*). Salt grass and tamarisk thickets dominate the shoreline vegetation of Pond G and Lake Holloman. Salt grass grows along the north and west edges of Lake Stinky, other shores are nearly barren due to the elevated salinity caused by repeated flooding and drying cycles. Tamarisk are almost non-existent along the Lake Stinky shoreline. Ponds A through F are free of shoreline vegetation, mainly because the shore is lined with plastic to prevent erosion.

2.2.2 Invertebrates

Invertebrates were present in all surface water bodies at HAFB. The class Crustacea was represented by ostracods and copepods in a few locations. The class Insecta was represented in all locations, with chironomid larvae the predominant benthic organisms and corixids the predominant free-swimming insects. Odonata larvae and adult Coleoptera were also present in Lake Holloman, the ditch, and Pond G in the same type of habitat preferred by gambusia (overhanging salt grass). Table K-1 presents a summary of different invertebrates collected in identification samples at the lakes and lagoons.

2.2.3 Amphibians

Amphibians are not widely represented in the lagoon and lake area, but some species are relatively abundant. Western and Couch's spadefoot toads (*Scaphiopus*

Table K-1

Invertebrates Identified at the Ponds, Lakes, and the Ditch

CRUSTACEA

- Ostracoda
  - *Cyprois sp.*

INSECTA

- Odonata
  - *Anax sp.*
  - Coenagrionidae
  - *Hesperagrion sp.*
  - Libellulidae
  - *Pseudoleon sp.*
- Coleoptera
  - Dytiscidae
  - *Hydaticus sp.*
  - *Laccophilus sp.*
  - Hydrophilidae
  - *Berosus sp.*
  - *Enochrus sp.*
  - *Tropisternus sp.*

INSECTA (continued)

- Hemiptera
  - Corixidae
  - *Hesperocorixa sp.*
- Diptera
  - Ceratopogonidae
  - Chironomini
  - Macropelopiini
  - *Tanypus sp.*
  - Tanytarsini
  - Culicidae
  - Ephidrydae
  - Tabanidae

hammondi and *S. couchi*), and the Great Plains toad (*Bufo cognatus*), are abundant in the area. Tiger salamanders (*Ambystoma tigrinum*) are common in Lake Holloman and Pond G. Other amphibians in the area are listed in Table K-2.

2.2.4 Reptiles

Reptiles are the most abundant and diverse group of vertebrate animals in the Chihuahuan Desert. Characteristic lizards include whiptails (*Cnemidophorus* spp.), side-blotched lizard (*Uta stansburiana*), and spiny lizards (*Sceloporus* spp.). Common snakes of the area include whipsnakes (*Masticophis taeniatus* and *M. flagellum testaceus*), rat snakes (*Elaphe* spp.), plains blackheaded snakes (*Tantilla nigriceps*), glossy snakes (*Arizona elegans*), and rattlesnakes (*Crotalus atrox*, *C. molossus*, and *C. viridis*). Other reptiles in the area are listed in Table K-2.

2.2.5 Fish

The only fish found at Lake Holloman during the site visit and during the limnological survey (Cole, et al., 1984) were mosquito fish (*Gambusia affinis*). These fish were found near the shore in protected embayments in Lake Holloman and Pond G, as well as in the ditch connecting Pond G to Lake Holloman. The limnological survey (Cole, et al., 1984) estimated that there were 10 kg/ha fish (wet weight) in suitable habitat within 10 m of the shore in Lake Holloman. During the March, 1993 site visit, suitable habitat was under overhanging salt grass along the edges of the lake, pond, and ditch.

2.2.6 Birds

Waterfowl and shorebirds utilize the lagoons and lakes. During the March, 1993, site visit, mallards (*Anus platyrhynchos*), common mergansers (*Mergus merganser*), and northern shovelers (*Anus clypeata*) were the most common ducks sighted. Blue-winged teal (*Anus discolors*), scaup (*Aythya affinis*), ring-necked ducks (*Aythya collaris*), and ruddy ducks (*Oxyura jamaicensis*) are also reported to be common at the site.

TABLE K-2

AMPHIBIANS AND REPTILES AT HOLLOMAN AIR FORCE BASE OTERO COUNTY, NEW MEXICO
(COMMON NAMES ONLY)

Amphibians

Great Plains Toad **A**
Red-Spotted Toad **A**
Couchs Spadefoot **A**
Western Spadefoot **A**
Tiger Salamander **C**
Green Toad **A**
Woodhouses Toad **C**
Plains Spadefoot **C**
Western Box Turtle **C**

Reptiles

Prairie Rattlesnake **A**
Texas Banded Gecko **C**
Longnosed Leopard Lizard **U**
Texas Horned Lizard **C**
Crevice Spiny Lizard **A**
Side Blotched Lizard **A**
Spiny Desert Lizard **C**
Chihuahua Spotted Whiptail **A**
New Mexico Whiptail **C**
Western Whiptail **A**
Glossy Snake **A**
Western Hognosed Snake **C**
Sonora King Snake
New Mexico Milk Snake **R**
Western Blind Snake **U**
Striped Whip Snake **C**
Western Ground Snake **C**
Trans-Pecos Rat Snake **C**
Eastern Long-Nosed Snake **C**
Mexican Blackheaded Snake **U**
Blacknecked Garter Snake **A**
Desert Massasauga **R**
Western Diamond Back Rattlesnake **A**
Greater Earless Lizard **C**
Lesser Earless Lizard **C**
Red-Tailed Horned Lizard **C**
Short-horned Lizard **C**
Eastern Fence Lizard **C**
Great Plains Skunk **U**
Little Striped Whiptail **A**
Checkered Whiptail **C**
Collared Lizard **W**
Western Hooknosed Snake **U**
Desert Massasauga **R**
Gray-Banded King Snake **R**
Texas Blind Snake **U**
Coachwhip Snake **A**
Gopher Snake **A**
Lyre Snake **R**
Chihuahua Lyre Snake **R**
Big Bend Patch-Nosed Snake **C**
Plains Blackheaded Snake **C**
Rock Rattlesnake **R**
Black-Tailed Rattlesnake **C**
Moja Rattlesnake **C**

A = abundant
C = common
U = uncommon
R = rare

According to the limnological survey (Cole, et al., 1984) completed for Lake Holloman, the most consistently abundant birds were coots, phalaropes, ruddy ducks, and northern shovelers. Western grebes (*Aechmophorus occidentalis*), pied-billed grebes (*Podilymbus podiceps*), least sandpipers (*Calidris minutilla*), killdeer (*Charadrius vociferous*), avocets (*Recurvirostra americana*), and yellowlegs (*Totanus* spp.) were also consistently present, though less abundant. Analysis of stomach contents of birds that were common residents of Lake Holloman revealed that the birds were selective in what they consumed. Killdeer selected for hydrophilids, which are invertebrates that are present in very shallow water. Only a small portion of Lake Holloman is suitable for benthos-eating shorebirds, with only 5% of the lake having water less than 15 cm deep. Lake Stinky probably provides a greater area of shallow water for birds to wade, and more birds were observed wading on Lake Stinky than Lake Holloman. One of the few piscivorous birds, egrets, were observed on the south shore of Lake Holloman, on Lake Stinky, and along the connecting waters where mosquito fish were most common. During the March, 1993 site visit, mergansers were common on Lake Holloman and at Pond G. Great blue herons and black-crowned night herons were observed as well. Additional species that may be present in the area are listed in Table K-3.

2.2.7 Mammals

Over 140 species of native mammals have been reported in New Mexico (Hall, 1981). More than 100 of these possibly occur within the lagoon and lakes area. Common rodents include spotted ground squirrels (*Spermophilus spilosoma*), plains and desert pocket mice (*Perognathus flavescens* and *P. penicillatus*), kangaroo rats (*Dipodomys* spp.), and several species of mice (*Peromyscus* spp.). Black-tailed jackrabbits (*Lepus californicus*) are abundant in the area. Insectivorous bats were observed feeding over the lagoons and lakes in early April, 1993. Common bats include the California myotis (*Myotis californicus*), pallid bat (*Antrozous pallidus*), and the western pipistrelle (*Pipistrellus hesperus*). Predators found in the area include coyotes (*Canis latrans*), badgers (*Taxidea taxus*), and the striped skunk (*Mephitis mephitis*). Other common species are listed in Table K-4.

TABLE K-3

COMMON BIRDS
AT HOLLOMAN AIR FORCE BASE AREA
OTERO COUNTY, NEW MEXICO
(COMMON NAME ONLY)

Common Birds

Wood Duck	Pintail Common Duck
American Greenwing Teal	Cinnamon Teal
Mexican Duck	Blue-Winged Teal
Mallard Duck	Gadwall Duck
White-Fronted Goose	Greater Snow Goose
Lesser Scaup	Redhead Duck
Ring-Necked Duck	Canvasback Duck
Canada Goose	Bufflehead Duck
Common Goldeneye Duck	Ross Goose
American Widgeon Duck	White-Winged Scoter
Surf Scoter	Hooded Merganser
Common Merganser	Red-Breasted Merganser
Whistling Swan	Ruddy Duck
Northern Shoveler Duck	White-Throated Swift
Blackchinned Hummingbird	Broadtailed Hummingbird
Rufous Hummingbird	Calliope Hummingbird
Lesser Nighthawk	Common Nighthawk
Common Poor-Will	Semipalmated Plover
American Golden Plover	Black-Bellied Plover
Killdeer	Noody Tern
Black Tern	Herring Gull
California Gull	Ring-Billed Gull
Bonapartes Gull	Franklins Gull
Forsters Tern	Common Tern
Sabines Gull	Northern Phalarope
Wilsons Phalarope	Black-Necked Stilt
American Avocet	Spotted Sandpiper
Ruddy Turnstone	Upland Sandpiper
Sanderling	Red knot
Semipalmated Sandpiper	Common Snipe
Willet	Bairds Sandpiper
Pectoral Sandpiper	Least Sandpiper
Long-Billed Dowitcher	Marbled Godwit
Stilt Sandpiper	Whimbrel
Lesser Yellowlegs	Greater Yellowlegs
Solitary Sandpiper	Western Sandpiper

TABLE K-3

(Continued)

American Bittern	Great Blue Heron
Green Heron	Cattle Egret
Snowy Egret	Common Egret
Band-Tailed Pigeon	Blackcrowned Night Heron
White-Winged Dove	Rock Dove
Belted Kingfisher	Mourning Dove
Greater Roadrunner	Yellow-Billed cuckoo
Goshawk	Coopers Hawk
Golden Eagle	Sharp-Shinned Hawk
Rough-Legged Hawk	Red-Tailed Hawk
Marsh Hawk	Swainsons Hawk
Harris' Hawk	White-Tailed Kite
Merlin	Turkey Vulture
Prairie Falcon	American Kestrel
Osprey	Turkey
Scaled Quail	Mearns Quail
Gambels Quail	Common Loon
Sandhill Crane	American Coot
Common Gallinule	Horned Lark
Cedar Waxwing	Brown Creeper
American Dipper	Scrub Jay
Gray-Breasted Jay	Common Raven
White-Necked Raven	Stellars Jay
Pinon Jay	Harris Sparrow
Cassins Sparrow	Rufous Crowned Sparrow
Grasshopper Sparrow	Sage Sparrow
Black-Throated Sparrow	Chestnutcollar Longspur
House Finch	Lark Bunting
Lark Sparrow	Green Tailed Towhee
Gray-Headed Junco	Blue Grosbeak
Dark-eyed Junco	Oregon Junco
Swamp Sparrow	Lincolns Sparrow
Song Sparrow	Savannah Sparrow
Fox Sparrow	Lazuli Bunting
Indigo Bunting	Black-headed Grosbeak
Rufous Sided Towhee	Rose-Breasted Grosbeak
Western Tanager	Brown Towhee
Vesper Sparrow	Summer Tanager
McCowns Longspur	Pyrrhuloxia
	Pine Siskin

TABLE K-3

(Continued)

Lesser Goldfinch	American Goldfinch
Dickcissel	Black-Chinned Sparrow
Brewers Sparrow	Claycolored Sparrow
Chipping Sparrow	White Throated Sparrow
Tree Swallow	Gambels White-Chinned Sparrow
Violet-Green Swallow	Cliff Swallow
Barn Swallow	Bank Swallow
Purple Martin	Redwing Blackbird
Rough-Winged Swallow	Northern Bullocks Oriole
Brewers Blackbird	Scotts Oriole
Hooded Oriole	Eastern Meadowlark
Brownheaded Cowbird	Yellowheaded Blackbird
Great-Tailed Grackle	Gray Catbird
Western Meadowlark	Sage Thrasher
Loggerhead Shrike	Crissal Thrasher
Northern Mockingbird	Spragues Pipit
Curve-Billed Thrasher	Mountain Chickadee
Water Pipit	Verdin
Plain Titmouse	Bushtit
Audubons Warbler	Myrtle Warbler
Graces Warbler	Blackthroated Gray Warbler
Yellow Warbler	Townsends Warbler
Common Yellowthroat	Worm-Eating Warbler
Yellow-Breasted Chat	Black and White Warbler
MacGillivrays Warbler	Northern Parula Warbler
Northern Waterthrush	American Redstart
Orange-Crowned Warbler	Lucys Warbler
Tennessee Warbler	(Nashville Warbler
Virginia's Warbler	Wilsons Warbler
Phainopepla	White-Breasted Nuthatch
Starling	Blue Gray Gnatcatcher
Black-Tailed Gnatcatcher	Ruby Crowned Kinglet
Golden-Crowned Kinglet	Cactus Wren
Canyon Wren	Rock Wren
House Wren	Bewicks Wren
Hermit Thrush	Swainsons Thrush
Mountain Bluebird	Western Bluebird
Eastern Bluebird	American Robin
Western Wood Pewee	Western Flycatcher
Hammonds Flycatcher	Dusky Flycatcher

TABLE K-3

(Continued)

Gray Flycatcher	Ashthroated Flycatcher
Olivesided Flycatcher	Black Phoebe
Says Phoebe	Eastern Kingbird
Western Kingbird	Cassins Kingbird
Warbling Vireo	Solitary Vireo
Townsends Solitaire	Double Crested Cormorant
Lewis Woodpecker	Red-Shafted Flicker
Ladder-Backed Woodpecker	Hairy Woodpecker
Yellow-Bellied Sapsucker	Horned Grebe
Eared Grebe	Western Grebe
Pied-Billed Grebe	Saw-Whet Owl
Short-Eared Owl	Long-Eared Owl
Great Horned Owl	Northern Pygmy Owl
Common Screech Owl	Flammulated Screech Owl
Burrowing Owl	Barn Owl
Ovenbird	Cyassins Finch
Red Phalarope	Black Turnstone
Marsh Wren	

TABLE K-4

MAMMALS
AT HOLLOMAN AIR FORCE BASE
OTERO COUNTY, NEW MEXICO
(COMMON NAME ONLY)

Mule Deer	**C**
Mountain Lion	**U**
Spotted Skunk	**U**
Raccoon	**C**
Coyote	**A**
Badger	**C**
Black-Tailed Jackrabbit	**A**
Desert Cottontail	**A**
Northern Grasshopper Mouse	**C**
Cactus Mouse	**A**
Western Harvest Mouse	**U**
Desert Pocket Gopher	**C**
Southern Plains Woodrat	**U**
Desert Shrew	**U**
Yellow-Faced Pocket Gopher	**U**
Bannertail Kangaroo Rat	**C**
Plains Pocket Mouse	**U**
Pronghorn	**U**
Desert Pocket Mouse	**C**
Texas Antelope Ground Squirrel	**U**
Rock Pocket Mouse	**A**
Spotted Ground Squirrel	**C**
Free-Tailed Big Bat	**R**
Pallid Bat	**C**
Myotis Fringe-Tailed Bat	**C**
Kit Fox	**C**
Gray Fox	**C**
Hog-Nosed Skunk	**R**
Striped Skunk	**C**
Barbary Sheep	**U**
White-Tailed Deer	**U**
Ringtail	**C**
Eastern Grasshopper Mouse	**C**
Brush Mouse	**A**
Deer Mouse	**A**
Hispid Cotton Rat	**C**
White-Throated Woodrat	**A**
White-Footed Mouse	**A**
Porcupine	**U**
Bottas Pocket Gopher	**C**
Meriams Kangaroo Rat	**A**
Ords Kangaroo Rat	**A**
Hispid Pocket Mouse	**U**
Oryx	**C**
Silky Pocket Mouse	**A**
Blacktailed Prairie Dog	**U**
Brazilian Free-Tailed Bat	**U**
Myotis California Bat	**C**
Western Pipistrelle Bat	**C**

A = abundant
C = common
U = uncommon
R = rare

2.2.8 Threatened or Endangered Species

Species eligible for federal protection are identified by the U.S. Fish and Wildlife Service (USFWS 1993). An endangered species is a species that is in danger of becoming extinct in part of or all of its range. A threatened species is a species that is likely to become endangered in the near future. The USFWS also identifies species that are candidates for listing. There are three categories of candidate species. Candidate Category 1 includes those species for which the USFWS has sufficient information on hand to support their being listed as threatened or endangered. These species are likely to be proposed for listing in the near future. Candidate Category 2 species are those for which the USFWS does not have sufficient information to support them being listed at this time. Candidate Category 3 contains species that are no longer considered for listing as threatened or endangered because the species is extinct, the species is not regarded as taxonomically valid, or the species is more widespread or not subject to an identifiable threat. The state of New Mexico (NM,1990) lists endangered species as Group 1 or Group 2, that correspond to federal classifications Category 1 and Category 2, respectively. Threatened or endangered species are listed in Table K-5.

Table K-5

State and Federal Threatened, Endangered and Sensitive Species Known from HAFB or Adjacent Areas

Species (Common Name)	State List/Status	Federal List/Status*	Documented on HAFB
Fish			
White Sands Pupfish	Group 2	C2 candidate	X
Reptiles			
Texas Horned Lizard		C2 candidate	
Birds			
Aplomado Falcon	Group 1	Endangered	X
Bald Eagle	Group 2	Endangered	X
American Peregrine Falcon	Group 1	Endangered	X
Whooping Crane		Endangered	X
Southwestern Willow Flycatcher		C2 candidate	
Ferruginous Hawk		C2 candidate	X
Western Snowy Plover		C2 candidate	X
White-faced Ibis		C2 candidate	X
Loggerhead Shrike		C2 candidate	X
Baird's Sparrow	Group 2	C2 candidate	X
Northern Goshawk		C2 candidate	X
Bell's Vireo	Group 2	C2 candidate	X
Gray Vireo	Group 2		
Swainson's Hawk		C2 candidate	X
Long-billed Curlew		C2 candidate	X
Olivaceous Cormorant			
Common Ground Dove			
Mammals			
Black-footed Ferret	Group 1	Endangered	

Table K-5

(Continued)

Species (Common Name)	State List/Status	Federal List/Status*	Documented on HAFB
Arizona Black-tailed Prarie Dog	Group 2		
Swift Fox		C2 candidate	
White Sands Woodrat		C2 candidate	
Meadow Jumping Mouse	Group 2		
Plants			
Alamo Beardtongue (*Penstemon alamosenis*)	Group 1	C2	
Candelilla (*Candelilla antisyphilitica*)	Group 1		
Common Button Cactus (*Epithelantha micromeris*)	Group 1		
Grama Grass Cactus (*Toumeya papyracantha*)	Group 1		X
Gray Sibara (*Sibara grisea*)	Group 1	C3	
Guadalupe Mountain Mescal Bean (*Sophora gypsophilla*)	Group 1	C2	
Gypsum Scalebroom (*Lepidospartum burgessi*)	Group 1	C2	
Kuenzler's Hedgehog Cactus (*Echincerus fendleri*)		Endangered	
Night-blooming Cereus (*Cereus greggii*)	Group 1	C2	

Table K-5

(Continued)

Species (Common Name)	State List/Status	Federal List/Status*	Documented on HAFB
Sacramento Prickle-poppy (*Argemone pleiacantha*)	Group 1	Endangered	
Sand Prickly Pear (*Opuntia arenaria*)	Group 1	C2	
Scheer's Pincushion Cactus (*Coryphantha scheeri*)	Group 1		
Sneed's Pincushion Cactus (*Coryphantha sneedii*)	Group 1	Endangered	
Todsen's Pennyroyal (*Hedeoma todsenii*)	Group 1	Endangered	
Villard's Pincushion Cactus (*Escobaria villardii*)	Group 1		
Visnagita Cactus (*Neoloydia intertexta* var. *dasyacantha*)	Group 1		
Wright's Pincushion Cactus (*Mammillaria wrightii*)	Group 1		

* Department of Interior Classifications:

Category 1 indicates that additional data are being gathered to support the proposed listing.

Category 2 designates species for whom endangered listing may be appropriate but substantiating data are not yet available.

3.0 SAMPLING AND ANALYSIS

A series of field activities were conducted to achieve the objectives of this report. The activities were developed according to the USACE Scope of Services dated August 17, 1992. Sampling and analysis activities, as well as the quality control and quality assurance, are discussed in Appendix M.

Soil, sediment, and sludge samples were collected as part of the human health risk assessment. Sampling and analysis, quality control and quality assurance, and selection of chemicals of concern for these media are discussed in Appendix A. As a point of clarity, near surface sediments, before the sludge layer started in each location, are defined as sediments; sludge refers to the sludge layer, which was a thick layer of bacterial "ooze" and sewage sludge was present in most locations; soil refers to the layer of sediments underneath the sludge.

4.0 SELECTION OF CONTAMINANTS OF CONCERN

Biological sampling was conducted at the lagoons and lakes. Algae, invertebrates, insects, fish, and grass were collected and analyzed for contamination, as discussed in Appendix M. Table K-6 is a checklist of samples collected at each impoundment.

The objective of this ecological assessment is to determine if detrimental effects are occurring due to the contaminants in the lagoons and lakes. This is the first part of the biological assessment that is on-going at the lagoons and lakes. Following this assessment, additional biological data, mainly bird tissue samples, will be added to the assessment. The main focus of this assessment was on aquatic and avian health. Since it is not possible to quantify risk at every trophic level, fish were selected as the aquatic indicator species and mallards, killdeer, and mergansers were selected as the avian indicator species.

The biological samples indicated which contaminants were being taken up in the food chain, and those were selected as the contaminants of concern. If other contaminants were present in water, sediments, sludge, or soil, but not in biological samples, it is assumed that those contaminants are not being bioaccumulated and are not a risk to aquatic and avian health. Tissue samples collected from different trophic levels indicated that volatiles and semivolatiles, with the exception of acetophenone and bis(2-ethylhexyl) phthalate, are not accumulating in the food chain. Although a variety of polycyclic aromatic hydrocarbons were detected in soil and water, none were detected in the food chain (benthic organisms, plankton, or fish). Examination of the data indicated that the metals in the sludge seem to be tightly bound and not very bioavailable. Analytical results for fish tissues were used to estimate the potential risk to fish-eating birds. Results for plankton samples were used to estimate the potential risk to herbivorous birds and contaminants in benthic invertebrates were used to estimate the potential risk to benthos-eating shore birds.

Table K-6

Checklist of Samples Collected in Each Location

Location	Plankton	Invertebrates	Insects	Fish	Widgeon Grass	Near Surface Sediment	Sludge	Surface Water
Pond A	✓	✓				✓	✓	✓
Pond B							✓	✓
Pond C	✓						✓	✓
Pond D	✓						a	✓
Pond E	✓	✓				✓	✓	✓
Pond F	✓						✓	✓
Pond G	✓			✓			✓	✓
Ditch	✓	✓	✓	✓		✓	✓	✓
Lake Holloman	✓			✓			✓	✓
Lake Stinky	✓				✓		✓	✓

[a] Pond D was dry when sludge samples were collected.

All contaminants positively detected in the biological samples were considered contaminants of concern. In cases where duplicate samples were taken, the results were averaged. If one of the samples in a duplicate sample did not have a hit for a particular chemical, while the other sample did, the concentration was not averaged, and the single hit was used. Because of the small number of samples, upper confidence levels could not be calculated on the data; therefore, only average concentrations were used for biological data.

Categories for "totals" (e.g., total BHCs, total DDTs, etc.) were not analyzed since individual congeners were measured within these groups (e.g., alpha-, beta-, delta- and gamma-BHC, 2, 4'-DDT, 4,4'-DDT, etc.). The only "total" category that was included was that for total chlordanes, since toxicity values are available for total chlordanes, but not for the individual congeners comprising this category.

4.1 Contaminants of Concern for Fish and Mergansers

To estimate the magnitude of potential risk to fish, contaminant concentrations in water had to be used, as is discussed in the exposure assessment (Section 6.0 of this appendix). However, if contaminants in surface water were not found in fish tissues, it was assumed that these contaminants were not moving through the food chain, and they were not used in the assessment. The contaminants detected in fish tissues were used to select the contaminants of potential concern in water for fish. In addition, potential risk to birds from the ingestion of fish was based on contaminant concentrations detected in fish tissues. Table K-7 presents a cumulative list of contaminants that were detected in fish tissues and used in calculating the potential risks. Contaminant concentrations can be found in Attachment A of this appendix.

4.2 Contaminants of Concern for Mallards

Contaminant concentrations in plankton were used to estimate the potential risk to mallards. Plankton in Pond B consists of blue-green algae, which was too small to collect. Therefore, contaminant concentrations in plankton were modeled using uptake

Table K-7

Contaminants of Concern in Fish Tissues

Pesticides	Metals	Dioxins/PCBs/Volatiles
2,4'-DDD	Antimony	1,2,3,7,8,9-HxCDD
2,4'-DDT	Arsenic	2,3,7,8-TCDD
4,4'-DDD	Barium	2,3,7,8,-TCDF
4,4'DDE	Cadmium	OCDD
4,4'-DDT	Chromium	Tetrachlorobiphenyls
Aldrin	Lead	Pentachlorobiphenyls
Dieldrin	Magnesium	Hexachlorobiphenyls
Hexachlorobenzene	Manganese	Heptachlorobiphenyls
Heptachlor	Mercury	Acetophenone
Heptachlor Epoxide	Nickel	Bis(2-ethylhexyl)phthalate
alpha-BHC	Selenium	
beta-BHC	Silver	
delta-BHC		
gamma-BHC		
Chlordane		

factors derived from the other ponds, lakes, and the ditch (see Section 6.0 for details). Table K-8 lists the contaminants detected in plankton.

4.3 Contaminants of Concern for Killdeer

Contaminant concentrations in benthic organisms were used to estimate the risk to benthos-eating shore birds. Benthic organisms could only be collected from Ponds A and E, and the ditch. Although benthic organisms were present in small populations in the other ponds, they could not be sampled due to substrate interference. Table K-9 presents a cumulative list of contaminants detected in the benthic organisms at these three locations. Contaminant concentrations can be found in Attachment A of this appendix.

Table K-8

Contaminants of Concern in Algae

Pesticides	Metals	Dioxins/PCBs/Semivolatiles
2,4'-DDD	Antimony	1,2,3,4,6,7,8,-HpCDD
2,4'-DDE	Arsenic	1,2,3,4,7,8-HxCDF
2,4'-DDT	Barium	1,2,3,7,8,9-HxCDF
4,4'-DDD	Cadmium	2,3,4,6,7,8-HxCDF
4,4'-DDE	Chromium	2,3,7,8,-TCDF
4,4'-DDT	Lead	Dibenzofuran
Aldrin	Magnesium	OCDD
alpha-BHC	Manganese	OCDF
beta-BHC	Mercury	Tetrachlorobiphenyls
Chlordanes	Nickel	Pentachlorobiphenyls
delta-BHC	Selenium	Hexachlorobiphenyls
Dieldrin	Silver	Heptachlorobiphenyls
Endrin	Thallium	Benzyl alcohol
gamma-BHC		Bis(2-ethylhexyl)phthalate
Heptachlor		Dibutylphthalate
Heptachlor epoxide		Diethylphthalate
HCB		Pyridine
Mirex		

Table K-9

Contaminants of Concern in Benthic Invertebrates

Pesticides	Metals	Dioxins/PCBs/Semivolatiles
2,4'-DDD	Antimony	1,2,3,4,7,8-HxCDF
2,4'-DDE	Arsenic	1,2,3,7,8,9-HxCDF
2,4'-DDT	Barium	1,2,3,4,6,7,8-HpCDD
4,4'-DDD	Chromium	OCDD
4,4'-DDE	Lead	Tetrachlorobiphenyls
4,4'-DDT	Magnesium	Pentachlorobiphenyls
gamma-BHC	Mercury	Hexachlorobiphenyls
HCB	Nickel	Heptachlorobiphenyls
Heptachlor	Selemium	Bis(2-ethylhexyl)phthalate
Chlordanes	Silver	2-Naphthylamine

5.0 TOXICITY ASSESSMENT

A literature search was conducted in an attempt to locate species-specific toxicity information for fish and mallards. Since mallards feed primarily on plankton, contaminants found in plankton samples were modeled to mallards. Shore birds prey on benthic invertebrates; therefore, contaminants found in these organisms were modeled to shore birds.

Although toxicity values were available for a number of the contaminants, toxic effects were generally not described. This section summarizes the information that was found for each contaminant of concern.

5.1 Deriving Toxicity Reference Values for Terrestrial Species

Toxicological benchmarks are often used as "safe doses" in risk assessment quotient (EQ) methods (described in Section 7.0 of this appendix) to determine if the estimated environmental concentration of a contaminant is of concern for an indicator or sensitive species. Commonly used benchmarks include:

- EPA Ambient Water Quality Criteria, acute and chronic;
- LC_{50}: Median lethal concentration in a toxicity bioassay;
- LOAEL: Lowest Observed Adverse Effect Level in a toxicity bioassay;
- NOAEL: No Observed Adverse Effect Level in a toxicity bioassay; and
- MATC: Maximum Acceptable Toxicant Concentration, which lies in a range between the NOAEL and the LOAEL. The GMATC is the point estimate of the MATC, being the geometric mean of the NOAEL and the LOAEL.

It is not always possible to find species-specific chronic NOAELs for each contaminant of concern. In cases where other benchmarks were used (LD_{50}s or LOAELs), the benchmark

was extrapolated to Toxicity Reference Values (TRVs) by applying uncertainty factors. The following uncertainty factors in Table K-10 were suggested by Watkin and Stelljes (1993).

Table K-10

Uncertainty Factors

Ext	Factor
From a test species to a the same genus	
From a test species to a the same family	
From a test species wit different family, to a sp	
From a LOAEL to a N	
An adjustment to the c sensitive members of t endangered, or otherw	
From subchronic studi	
From a LD_{50} or LC_{50} to a NOAEL	10

TRVs for ecorisk

These uncertainty factors are expected to represent conservative values based on a wide range of toxicological data. Using the TRV methodology in combination with the quotient method provides a tool with which to estimate potential risk to the environment.

5.2 Deriving Maximum Acceptable Toxicant Concentrations for Fish

Since the criteria and toxicity values found in the literature for fish are based on water concentrations as opposed to whole body concentrations, potential risks were assessed through the use of water data. This may not be conservative because many of the contaminants detected in the fish tissues were not detected in the water, but were derived from other sources (e.g., feed) that were not quantified.

The aquatic assessment was conducted using the methodology outlined by Calabrese and Baldwin (1993) as described here. Using this procedure, available toxicity values are extrapolated to maximum acceptable toxicant concentrations (MATCs) for chronic exposure. Two types of extrapolations were made: 1) an acute-to-chronic extrapolation; and 2) an interspecies extrapolation. The taxonomic extrapolation equation (Table K-11) allows for the use of data from a test species in estimating a response in the different species of interest. Because data on chronic concentration responses are available for only a small number of species, acute taxonomic extrapolation is recommended. Moreover, the relative sensitivities of fish taxa are generally assumed to be the same in acute and chronic tests because the acute-to-chronic sensitivities are estimated, the addition of the slope value defines the extrapolation equation, as described below. Acute to chronic extrapolations were conducted when only acute data were available (LC_{50}s or AWQCs). In some cases Chronic Ambient Water Quality Criteria (AWQCs) were available. AWQCs are considered to be safe levels for all aquatic species, and as such, were used directly as MATCs. Acute AWQCs were extrapolated using the acute-to-chronic equation (Table K-11), but were considered species-specific. Types of endpoints or responses commonly used in calculating a MATC are effects on the eggs, effects on hatching, and mortality of adult fish. Because *Gambusia*, the species of interest, are live-bearers, the most appropriate response is mortality of adult fish.

Both types of extrapolations (taxonomic and acute-to-chronic) were conducted using the following equation:

$$Y = Mx + b$$

where M is the slope, x is the concentration expressed as $\log_{10} \mu g/L$, and b is the intercept. This results in the best estimate of the concentration (Y), or the MATC, that would result in mortality of parental fish. The next step is to solve for the estimate at the lower 95% confidence interval (CI). The following equation is used:

$$\text{MATC estimate at lower 95\% CI} = \text{inverse log } [Y - (CI)].$$

Estimating the MATC at the lower 95% CI essentially means that there is a 95% probability that the MATC is protective of the species of interest. Therefore, there is only a 5% probability that members of the population would require a lower MATC. If more than one study was found containing relevant toxicity information, the most appropriate studies were used in selecting the MATC. Criteria used to select the most appropriate study were: 1) species used in the study (mosquito fish, and fathead minnow studies were preferred); 2) length of the study; 3) type of toxicity value (acute or chronic); and 4) miscellaneous variables such as pH and fish strain resistance (which was often a variable in mosquito fish studies). Table K-12 presents the MATCs derived using this methodology. Once MATCs (Appendix K, Attachment D).

Table K-11

Extrapolation Variables[a]

X-Variable	Y-Variable (Response)	Slope (M)	Intercept (b)	Confidence Interval[b] (CI)
Acute-to-Chronic Extrapolations				
LC_{50} to NOAEL	Adult Mortality	0.87	-0.87	1.5
Taxonomic Extrapolations				
Cyprinidae to Poecillidae[c]	Adult Mortality	0.75	0.19	0.53
Perciformes to Cypriniformes[d]	Adult Mortality	0.99	-0.39	1.51

[a] Extrapolation equations presented here were developed by Barnthouse, et al., 1990, as cited in Calabrese and Baldwin, 1993.
[b] The 95% prediction interval at the mean in log Y+/- in this column.
[c] Fathead minnows to mosquito fish, family to family extrapolation.
[d] Bluegill and tilapia to mosquito fish, order to order extrapolation.

5.3 Toxicity Profiles

Available literature was reviewed to identify the toxic effects of the chemicals of concern to fish and wildlife. In cases where cumulative reviews were already completed, the data in these reports were utilized to a large degree. Not all of the contaminants have

Table K-12

Maximum Acceptable Toxicant Concentrations derived from Acute and Chronic Values

Chimical	Toxicity Value	Criteria	Source	MATC [a] (ug/L)
Antimony	4	LC_{50}	3	0.14
Arsenic	700	LC_{50}	6	70.02
Barium	ND	ND	ND	ND
Beta-BHC	100	Acute[b]	IRIS	12.88
Gamma-BHC	0.08	Chronic[c]	IRIS	0.08
BEHP	360	Chronic[c]	IRIS	360.00
Chlordane	115 56	LC_{50} LC_{50}	1 6	1.23 0.77 Average: 1.0
Chromium 6+	2475	MATC	3	226.56
Chromium 3+	120	Chronic[c]	IRIS	120.00
4,4'-DDD	4400	LC_{50}	1	13.21
4,4'-DDE	240	LC_{50}	1	0.58
4,4'-DDT	313	LC_{50}	2	2.35
Dieldrin	4 16	LC_{50} LC_{50}	1 6	0.13 0.34 Average: 0.24
Heptachlor	23 56 **	LC_{50} Chronic[c] Acute[b]	1 IRIS IRIS	0.43 0.13 3.80E-03 Average: 0.19
Heptachlor epoxide	0.00?	Chronic[c]	IRIS	3.80E-03
Lead	30	LC_{50}	6	4.52

Table K-12

(Continued)

Chimical	Toxicity Value	Criteria	Source	MATC [a] (ug/L)
Antimony	4	LC_{50}	3	0.14
Magnesium	ND	ND	ND	ND
Manganese	3150	LC_{50}	6	259.14
Mercury	1 2.4 0.01	LC_{50} Acute[b] Chronic[c]	6 IRIS IRIS	0.13 0.50 1.20E-02 Average: 0.21
Selenium	82000	LC_{50}	5	89.10
Silver	0.12	Chronic[c]	IRIS	0.12

a Calabrese, Edward J. and Linda A. Baldwin. 1993. Performing Ecological Risk Assessments. Lewis Publishers. Chelsea. MI.
b Acute refers to Acute Aquatic Critria (WQCAQ) provided in the IRIS database.
c Chronic refers to Chronic Aquatic Criteria (WQCAQ) provided in the IRIS database.
IRIS EPA Integrated Risk Information System, 1993.
1 Johnson, Waynon W., Mack T. Finley. 1980. Handbook of Acute Toxicity of Chemicals to Fish and Aquatic Invertebrates. US Department of the Interior Fish and Wildlife Service. Resource Publication 137. Washington, D.C. 1980
2 Dziuk, L.J., and F.W. Plapp. 1973. Insecticide Resistance in Mosquito Fish from Texas. Bull. Environ. Contam. & Toxicol. 9(1)15-19.
3 LeBlanc, Gerald A. and Jerry W. Dean. 1984. Antimony and Thallium Toxicity to Embryos and Larvae of Fathead Minnows (Pimephales promelas). Bull. Environ. Contam. Toxicol. 32:565-569.
4 Pickering, Q.H. 1980. Chronic Toxicity of Hexavalent Chromium to the Fathead Minnow (Pimephales promelas). Arch. Environm. Contam. Toxicol. 9,405-413.
5 Pyron, Mark and Thomas L. Beitinger. 1989. Effect of Selenium on Reproduction and Fry of Fathead Minnows. Bull. Environ. Contam. Toxicol. 42:609-613.1
6 Post. George. 1983. Textbook of Fish Health. TFH Publications, Inc, Ltd. Neptune City, NJ.

been researched to the same extent. An effort was made to find toxicity information for fish and wildlife, particularly for the indicator species. Primary sources of information were the RTECs and AQUIRE databases, and Contaminant Hazard Reviews Reports published by the US Fish and Wildlife Service.

Additional toxicity information for many of these chemicals is contained in the toxicity assessment for the human health risk assessment. Most of the toxicity information used in a human assessment is derived from animal studies, and the toxic effects have generally been observed in animals. When species-specific data were not available for the ecological assessment, data from these animal studies were used instead.

5.3.1 Organochlorine Insecticides

There are three distinct classes of organochlorine pesticides. These are dichlorodiphenylethane-, chlorinated cyclodiene-, and chlorinated benzene- and cyclohexane-related structures. These compounds have been used extensively in the control of insects in agriculture, forest, and recreational settings, as well as for structural protection (termites). They have a low volatility, are lipid soluble, and degrade slowly. Because of these factors, they also bioaccumulate and biomagnify in the food chain. The following sections briefly discuss the species-specific information found in the literature search for the insecticides detected on-site.

5.3.1.1 Chlordane and Associated Metabolites: cis-Chlordane, trans-Chlordane, Heptachlor, cis- and trans-Nonachlor

Technical grade chlordane consists of about 45 components, primarily *cis*-chlordane (19%), *trans*-chlordane (24%), heptachlor (10%), *cis*- and *trans*-nonachlor (7%), and various chlordane isomers (22%). Past chlordane use, coupled with atmospheric transport, has produced global contamination of fish and wildlife resources and human populations. The half-life of chlordane in water is comparatively short. *Cis*-chlordane, for example, usually persists less than 18 hours in solution. In soils, however, some isomers persist for 3 to 14 years because of low water solubility, high solubility in lipids, and

relatively low vapor pressure. Food chain biomagnification is low, except in some marine mammals. Many species of aquatic organisms are adversely affected at concentrations in water between 0.2 and 3.0 μg/L technical grade chlordane. Sensitive bird species had reduced survival on diets containing 1.5 mg chlordane/kg diet, or after a single dose as low as 14.1 mg chlordane/kg body weight. The proposed criteria for the protection of fresh water life (0.0043 μg/L, 24-h mean, not to exceed 2.4 μg/L) may be too high since levels of 0.2 to 3.0 μg/L have been shown to cause adverse effects to certain fish and invertebrates.

Effects on fish and aquatic invertebrates exposed to concentrations of 0.2 to 2.0 μg/L chlordane included reduced survival, immobilization, impaired reproduction, and histopathology. Signs of chlordane poisoning included hyperexcitability, increased respiration rate, erratic swimming, loss of equilibrium, and convulsions; death frequently occurred within 12 hours of exposure. In sensitive algae, growth was inhibited at water concentrations as low as 10 μg/L. *Cis*-chlordane, when compared to *trans*-chlordane, was more toxic, preferentially stored, and concentrated to a greater degree. Oxychlordane was not a major metabolite in aquatic fauna. In general, organisms at early developmental stages and organisms with reduced lipid content were most sensitive, and adverse effects were most pronounced under conditions of elevated water temperatures, reduced salinities, decreased sediment loadings, and increased duration of exposure. Resistance or adaptation to chlordane has been reported in mosquito fish collected from ditches near treated cotton fields; these fish were up to 20 times more resistant than newly exposed fish.

Sensitive bird species had reduced survival after consumption of diets as low as 1.5 mg chlordane/kg ration, or after a single dose of 14.1 mg/kg body weight. Accumulation occurred after consumption of diets containing 0.1 to 0.3 mg chlordane/kg of feed. Oxychlordane was the most persistent metabolite in avian brain tissue. Signs of chlordane intoxication in birds include sluggishness, drooping eyelids, fluffed feathers, low crouching on perch, reduced food intake, and weight loss. Later, afflicted animals rested on their breasts, wings spread, quivering and panting rapidly, back arched, neck arched over the back, and sometimes convulsing. The LD_{50} in mallards has been reported as 1,200

mg/kg BW after a single dose to 4-5 month old birds; 858 mg/kg diet for 5 days to ducklings age 10 days; and 709 mg/kg in diet. The LD_{50} of 709 mg/kg has been extrapolated to a NOAEL and is used as the criteria for protection of birds.

Reproductive impairment was reported in several species of waterfowl from a marsh treated with 1.12 kg technical grade chlordane per hectare. The lethal effect in birds is attributable primarily to chlordane metabolites, especially oxychlordane and, to a lesser extent, heptachlor epoxide. Oxychlordane residues in brain tissues approaching 5 mg/kg fresh weight were considered within the lethal hazard zone to birds.

5.3.1.2 4,4'-DDD and 2,4'-DDD

A study by the Fish and Wildlife Service indicated that the uptake potential of DDD could be influenced by salinity. Salinity at 15 ppt increased the amount of total DDD,DDE, and DDT uptake in mosquito fish (Fish and Wildlife Service, 1980). The Fish and Wildlife Service lists a LC_{50} for DDD in fathead minnows of 4,400 μg/L (3,470-5,580).

Davison (1974) noted that hatchability of eggs from ducks fed 10-40 ppm DDD did not decrease. A study by Stickel and Stickel on mallards (as cited in Hyde, et al., 1973) indicates that the lower critical limit (the level at which pesticide poisoning may be suspected) for combined residues of DDD-DDT is set at 30 ppm in brain tissue. Toxicological information for 2,4'-DDD was not located, however, a lethal low dose (LDL) of 500 mg/kg was listed in Sax and Lewis (1989).

5.3.1.3 4,4'-DDE and 2,4'-DDE

DDE is one of the primary metabolites of DDT in invertebrates and tends to produce similar biological effects. A study by the Fish and Wildlife Service indicated that the uptake potential of DDE could be influenced by salinity. The study showed that salinity at 15 ppt increased the amount of total DDD,DDE, and DDT uptake in mosquito fish (Fish

and Wildlife Service, 1980). IRIS lists the Acute lowest effective concentration (LEC) as 1.05E+03 μg/L.

Davison (1974) found that mallards fed concentrations of DDE ranging from 10 to 40 ppm suffered decreased hatchability, and that black ducks fed the same concentrations experienced increased embryonic mortality during incubation. The lowest level causing adverse effects that was located in the literature was 10 μg/kg, this level was, therefore, used as the LOAEL. Toxicological data for 2,2'-DDE was not located. The LDL for 2,4'-DDD was used as a surrogate toxicity value.

5.3.1.4 4,4'-DDT and 2,2'-DDT

The AQUIRE database lists several LC_{50} values for DDT exposure to mosquito fish. These values ranged from 20-1400 μg/L. The average of these values is 260 μg/L. IRIS lists the Acute WQCAQ as 1.1E+00 and the chronic WQCAQ as 1.0E-03 μg/L. The LC_{50} for DDT in fathead minnows was found to be 12.2 μg/L (100-15.4) by the Fish and Wildlife Service (1980). A similar study found the same statistic to be 19 μg/L in fathead minnows (Post, 1983).

A Fish and Wildlife Service (1980) study indicated that the uptake potential of DDT could be influenced by salinity. Salinity at 15 ppt increased the amount of total DDD and DDE uptake in mosquito fish, while the uptake of DDT was decreased. Toxicity also seems to vary with temperature and water hardness (WHO, 1989). Signs of toxicity include hyperactivity, changes in feeding behavior in young fish, agitation, slight photophobia, ulceration of the nasal area, and kidney lesions in the convoluted tubule (hypothesized to be the main cause of death).

Physiological effects include changes in plasma cortisol and glucose levels, liver glycogen level, and plasma and brain acetylcholinesterase activity. In all cases the response was biphasic. Initially there was stimulation and then inhibition (WHO, 1989).

Fish exposed to DDT have also been shown to develop an increased tolerance. This has been shown with other organochlorine pesticides as well. In the case of DDT, it has been suggested that resistance is related to the membrane effects. The effect on membrane-bound enzymes in mosquito fish was reduced in resistant fish (WHO, 1989).

In birds, signs of intoxication include ataxia, wing-drop, jerkiness in gait, continuous whole-body tremors, falling, and convulsions. Mortalities usually occurred from 1 to 2 days after single oral administration (Fish and Wildlife Service, 1984). In a study with 8 three-month old female mallards, the LD_{50} was determined to be >2,240 mg/kg DDT (Fish and Wildlife Service, 1984). A LDLo (lowest toxic dose) of 300 mg/kg was reported for chickens in the RTECs database.

In birds, a study by Davison (1974) found that mallards fed 10 to 40 ppm DDT did not suffer decreased hatchability and fertility was not affected. A similar study cited in the Davison study reports that a concentration of 500 ppm is required in whole eggs to reduce hatchability. Although hatchability in this group was not significantly decreased, it was sufficiently below control levels to warrant further study. Additionally, Davison finds that survival of newly hatched young was reduced.

The lower critical limit (the level at which pesticide poisoning may be suspected) for combined residues of DDD-DDT in the brain is set at 30 ppm for mallards (Hyde, et al., 1973).

Toxicological data for 2,4'-DDT was not located; however, a LDL of 2000 mg/kg was listed in Sax and Lewis (1989).

5.3.1.5 Endrin

The LC_{50} for endrin in fathead minnows has been estimated at 1.0 μg/L (Post, 1983). According to Jarvinen and Tyo (1978), higher endrin tissue residues in fathead minnows were accumulated from the water rather than from food. Residues contributed by

endrin in food were additive to those contributed from water at all life stages. Body residues attributable solely to the diet comprised only 10-15% of the total endrin. The mean concentration factors were 0.3 for dietary endrin and 7,000 for endrin from the water. The lowest concentration in water (0.14 ppb) reduced progeny survival (Jarvinen and Tyo, 1978). In another study (Jarvinen, et al., 1988), the LC_{50} for fathead minnows was estimated at 0.7 ppb and the continuous exposure chronic effect concentration was estimated at 0.38 ppb (reduction in growth). In a study on mosquito fish by Scales and Yarbrough (1975), the 48-h LC_{50} for susceptible fish is 0.6 ppb and for resistant fish is 314.1 ppb. Symptoms of exposure included disorientation, increased opercular activity, and hypersensitivity. This study indicated that vertebrate insecticide resistance is due in part to a membrane barrier that reduces the uptake of the insecticide in both the whole body and organs of resistant fish and, in part, to a decrease in sensitivity of the target site to the insecticide. IRIS lists an Acute WQCAQ of 1.8E-01 μg/L and a Chronic WQCAQ of 2.3E-03 μg/L.

Endrin is known to be very toxic to birds, with a LC_{50} of 22 ppm in mallards (Heinz and Johnson, 1979). This study concluded that endrin is eliminated fairly quickly in mallard drakes, but low levels were much more persistent. This indicates that for endrin to accumulate to levels that are high enough to be fatal, there must be high levels of endrin in the diet, rather than prolonged exposure at low levels. Also, if female mallards lose endrin at the same rate as male mallards, endrin may persist long enough to show up in eggs.

5.3.1.6 Heptachlor and Heptachlor Epoxide

Heptachlor is converted to heptachlor epoxide and other degradation products in the environment. Little has been reported about the toxic effects of heptachlor and heptachlor epoxide to fish and birds. Heptachlor can persist in aquatic systems once it sorbs onto sediment. Heptachlor in the water column can undergo hydrolysis and photolysis and can be oxidized to heptachlor epoxide. It can also be biotransformed to heptachlor epoxide or chlordane at a slow rate. The bioconcentration factor has been reported as 1.1E-03, 2.1E-04, and 11,200 (EPA, 1992). Because heptachlor is readily metabolized to heptachlor

epoxide by higher trophic levels, biomagnification of heptachlor is not significant. Heptachlor epoxide, however, is persistent, lipophilic and does biomagnify (EPA, 1992). The EPA Ambient Water Quality Criteria lists an acute value of 5.2E-01 μg/L and a chronic value of 3.8E-03 μg/L (IRIS, 1993). An LC_{50} for mosquito fish was listed in the AQUIRE database as 54,200 μg/L. Loss of equilibrium in 50% of the test animals was seen at a level of 9,000 μg/L in another study. Three studies used mortality as an endpoint, and the levels causing death were 0.1, 0.6, and 1.1 kg/hectare. The RTECs database held a reference for heptachlor exposure to ducks with a LD_{50} of 1200 mg/kg.

5.3.1.7 Dieldrin

In fathead minnows and goldfish, the LD50s have been reported at 3.8 μg/L and 1.8 μg/L, respectively (Fish and Wildlife Service, 1980). The LD_{50} for ducks has been reported to be 381 mg/kg in ducks (Tucker and Hargele, 1971). Sublethal effects of dieldrin include an increase in hepatic drug metabolizing enzymes, and similar alterations were seen in liver protein, DNA and RNA; there were also measurable changes in aggressive behavior at low levels (Sharma, et al., 1972). Other signs of intoxication include spread tail feathers pointed up or down, hyperexcitability, jerkiness in gait, ataxia, dyspnea, myasthenia, fluffed feathers, immobility, terminal wing-beat convulsions or opisthotonos (Fish and Wildlife Service, 1984). One study reported a decrease in hatchability at 4 mg/kg dieldrin and thinning of egg shells at 10 mg/kg. At the 10 mg/kg dose, tremors were noted in hatchlings (Davison and Sell, 1974). This same study reported that dieldrin alters metabolism of steroid hormones in mallards by stimulation of hepatic microsomal enzyme systems. The LD_{50} in 10 day old mallards is 179 mg/kg when fed dieldrin for 5 days. The number of generations did not make a difference in this concentration (Hill, et al., 1977).

5.3.1.8 Mirex

Mirex has a low water solubility (1.0 ppm in freshwater and 0.2 ppm in seawater) and it is readily adsorbed onto organic particles, then eventually removed to the sediments. The MATC for fathead minnows has been calculated at 2 to 3 ppb, as judged

by disruption of swim bladder hydroxyproline content, vitamin C metabolism, and bone collagen or 34 ppm based on impaired reproduction (Eisler, 1985b). The LD_{50} for mirex in fathead minnows was reported at 115 μg/L (Fish and Wildlife Service, 1980). Toxic effects specific to mirex were not located in the literature.

In one study (Waters, et al., 1977), survival in channel catfish was reduced 33% following treatment of ponds with mirex bait (1.25 lb/acre); residues in the edible portions of the fish averaged 0.018 ppm.

In redwings and starlings, mirex was not toxic at 100 mg/kg (Schafer, 1972). In mallard ducklings, the LD_{50} has been reported at >2,400 mg/kg, with signs of intoxication including mild ataxia and withdrawal as soon as 40 minutes after treatment (Fish and Wildlife Service, 1984). These signs were not seen at doses of 1,200 mg/kg (Fish and Wildlife Service, 1985). One study showed that mirex accumulates in egg yolks, indicating that laying hens may lose large quantities of mirex through the eggs. In addition, levels of up to 200 ppm of mirex in eggs appear to be tolerated without adverse effects on various reproductive parameters such as egg hatching and chick growth and survival (Waters, et al., 1977). The same paper reported that the highest levels of mirex were found in the fat, with other organs including the kidney, liver, and breast. At 100 ppm, egg shell thinning was seen in mallards. The only adverse effect was reduced survival of the ducklings (Waters, et al., 1977). In another study, egg production, eggshell thickness, and eggshell weight in mallards were not significantly affected by exposure to 1 and 100 ppm mirex. However, contamination of eggs, brain, breast muscle, liver, wings, and fat resulted after feeding mallards the 1 and 100 ppm doses for 25 weeks. The amount in the eggs approached 2.8 times the amount in the diet. Ducklings from the 100 ppm treatment group that died during a two-week post-hatch period contained 386 ppm mirex. The concentration factor in the fat approached 30 fold when mirex was administered at levels of 1 or 100 ppm. Symptoms associated with organochlorine poisoning were not evident, however (Hyde, et al., 1973).

5.3.2 Dioxins

Polychlorinated dibenzo-dioxins (PCDDs) are present as trace impurities in some commercial herbicides and chlorophenols. The chemical and environmental stability of PCDDs, coupled with their potential to accumulate in fat, has resulted in their detection throughout the global ecosystem. The number of chlorine atoms in PCDDs can vary between one and eight to produce up to 75 positional isomers (Eisler, 1986b). The most toxic PCDD isomer is 2,3,7,8-TCDD; this isomer is, in fact, the most toxic synthetic isomer ever tested under laboratory conditions. Other sources of 2,3,7,8-TCDD are polychlorinated biphenyls and pentachlorophenols (Eisler, 1986b).

Information on the bioavailability of PCDDs is scarce; however, uptake from soils by vegetation is considered negligible. 2,3,7,8-TCDD poisoning in guppies (*Poecilia reticulatus*) and coho salmon (*Oncorhynchus kisutch*) resulted in declined interest in feeding, skin discoloration and fin necrosis, reduced resistance to fungal infestations, reduced swimming, and finally, death. In general, smaller and younger fish succumb first (Eisler, 1986b). Histopathologic and teratogenic effects were noted in fry of rainbow trout (*Salmo gairdneri*) exposed to 10 ppt for 96 hours as eggs or yolk-sac fry. These included extensive degeneration and necrosis of the liver, opercular defects, and foreshortened maxillas (Eisler, 1986b). In mosquito fish, a dose of 2.4-4.2 ppt in the ambient medium resulted in death in 15 days, preceded by nasal bleeding and listless swimming. The BCF at day 1 was 676 and at day 7 was 1,482 (Eisler, 1986b).

Mallards were intermediate in sensitivity to 2,3,7,8-TCDD, with a LD50 of more than 108 μg/kg (Eisler, 1986b). Effects in several bird species included enlarged livers, severe emaciation, high accumulations of uric acid salts in connective tissues, fluid accumulations in the pericardial and abdominal cavities, and regurgitation. Other signs were excessive drinking, loss of appetite, hypoactivity, emaciation, weakness, debility, muscular incoordination, increased reaction to stimuli, fluffed feathers, huddled position, unkept appearance, falling, tremors, spasms, convulsions, and immobility (Eisler, 1986b). The

highest 2,3,7,8-TCDD concentration tested with no measurable adverse effects on freshwater fish is 0.01 ppt (Eisler, 1986b).

Although there is no evidence of biomagnification of PCDDs in birds, piscivorous birds may have a greater potential to accumulate PCDDs than the fish they eat. Diets containing up to 10 or 12 ppt of 2,3,7,8-TCDD may prove to be nonhazardous to birds and other wildlife (Eisler, 1986b).

Acute toxicities for selected PCDD isomers to guinea pigs and mice were listed in Eisler (1986b) and are listed in the following table.

Table K-13

Acute Toxicities for Selected PCDD Isomers

PCDD isomer	Oral LD-50 (μg/kg bw)*	
	Guinea Pig	Mouse
1,2,3,6,7,8- hexa CDD	70-100	1,250
1,2,3,7,8,9-hexa CDD	60-100	>1,440
1,2,3,4,6,7,8-hepta CDD	>600	--

* The most conservative values were used in the toxicity assessment.

5.3.3 Metals

Many metals (for example, arsenic, mercury, barium, cyanide, thallium, copper, and selenium) are components of pesticides and herbicides. The toxicity of metals is partially related to the hardness and pH of the water. Generally, the harder the water, the less toxic the metal compounds. Lake Holloman is extremely hard; therefore the concentrations of metals detected are not expected to adversely affect the aquatic organisms (Cole, et al., 1981).

5.3.3.1 Antimony

Little is known about the fate and transport of antimony in water, sediments, or soil (ATSDR *Toxicological Profile for Antimony, 1991*). The LC_{50} for antimony potassium tartrate is 12 to 20 mg/L in fathead minnows (Post, 1983). No fathead minnows died after exposure for 96 hours to 4 μg/L antimony. Hatchability, survival, and growth of larvae was normal after exposure to concentrations as high as 7.5 μg/L. These data indicate that solutions saturated with antimony trioxide are not toxic to fathead minnows (EPA, 1976). According to Carson et al. (1987), the absorption efficiency for antimony is approximately 10%. IRIS lists the Acute WQCAQ as 8.8E+01 μg/L and a Chronic WQCAQ as 3.0E+01 μg/L.

5.3.3.2 Arsenic

Arsenic is a common ingredient in rodenticides, insecticides, herbicides, paints, and other products (Gosselin, et al., 1976). Transport and partitioning of arsenic in water depends on the chemical form of the arsenic and on other interactions with other materials present. Arsenic may be adsorbed from water onto sediments or soils, especially clays, iron oxides, aluminum hydroxides, manganese compounds, and organic material. Sediment-bound arsenic may be released back into the water by chemical or biological interconversions of arsenic species (ATSDR *Toxicological Profile for Arsenic*, 1992). The insoluble forms are much less toxic than the soluble arsenic acids and sodium salts; and the organic alkane arsenate compounds used as herbicides have a lower order of toxicity (Gosselin, et al., 1976).

Arsenic metabolism and toxicity vary greatly between species, and effects are significantly altered by numerous physical, chemical, and biological modifiers. Inorganic arsenicals are more toxic that organic arsenicals, and trivalent forms are more toxic that pentavalent forms. Arsenic poisoning is generally either acute or subacute and rarely chronic in nature, and early developmental stages are most sensitive. It is bioconcentrated

in the food chain but not biomagnified. The absorption efficiency is high, about 95-100% (ATSDR *Toxicological Profile for Arsenic*, 1992).

Adverse effects of arsenicals on aquatic organisms have been reported at water concentrations of 19 to 48 μg As/L, or 120 mg As/kg in the diet, or tissue residues of 1.3 to 5 mg As/kg fresh weight. The LD_{50} for fathead minnows was reported as 14.1 mg/L for AS+3 and 25.6 mg/L for As+5 (Eisler, 1988a). IRIS lists the Acute WQCAQ for arsenic III (inorganic) as 3.6E+02 μg/L and the Chronic WQCAQ as 1.9E+02 μg/L.

Sensitive species of birds died following single oral doses of 17.4 to 47.6 mg As/kg body weight. Signs of inorganic trivalent arsenite poisoning in birds included muscular incoordination, debility, slowness, jerkiness, falling hyperactivity, fluffed feathers, drooped eyelid, huddled position, loss of righting reflex, immobility, and seizures. Death seemed to be due to the destruction of blood vessels lining the gut, which resulted in decreased blood pressure and subsequent shock. The LD_{50} for mallards fed sodium arsenite was 323 mg/kg (Eisler, 1988a).

5.3.3.3 Barium

Upon release to the environment, barium is most likely to partition to soils and sediments. In surface waters and soils, barium may ionize and form various salts depending on the pH and the availability of anions. Gastrointestinal absorption in dogs has been calculated at about 7%, while adult rats absorb about 20%. In rat studies it has been shown that younger animals absorb about 10 times more (63-84%) than older animals (ATSDR *Toxicological Profile for Barium*, 1991).

The toxicity of barium depends on its solubility. Acid-soluble barium salts (carbonate, chloride, hydroxide, nitrate, acetate, and sulfide) are highly toxic, while insoluble barium sulfate is quite benign (Gosselin, et al., 1976). Ingestion of soluble barium salts has resulted in gastroenteritis, muscular paralysis, decreased pulse rate, and ventricular fibrillation and extrasystoles (Amdur, et al., 1991). A value of 0.7 mg/kg/day is representa-

tive of the NOAELs reported in the ATSDR *Toxicological Profile for Barium* (1991). An aquatic LC50 could not be located.

5.3.3.4 Cadmium

Cadmium is more mobile in aquatic environments than most other heavy metals, and in natural waters the most common form is the hydrated ion. Sediment bacteria assist in the partitioning of cadmium from water to sediments. Concentrations in sediments are generally at least one order of magnitude higher than in the overlying water. The absorption efficiency of cadmium is low, approximately 7.6% (ATSDR *Toxicological Profile for Cadmium*, 1992).

Ambient cadmium water concentrations exceeding 10 ppb are associated with high mortality, reduced growth, inhibited reproduction, and other adverse effects. Several species of freshwater aquatic insects, crustaceans, and teleosts exhibited significant mortality at cadmium concentrations of 0.8 to 9.9 ppb during exposures of 4 to 33 days; mortality generally increase as exposure time increases, water hardness decreased, and organism age decrease (Eisler, 1985a). Birds are comparatively resistant to the biocidal properties of cadmium. Adult drake mallards fed up to 200 ppm cadmium in the diet for 90 days all survived with no loss of body weight (Eisler, 1985a). IRIS lists the Acute WQCAQ as 3.9E+00 μg/L and the Chronic WQCAQ as 1.1E+00 μg/L.

Sublethal effects in fish resulting from cadmium concentrations of 0.47 to 5.0 ppb include decreases in standing crop, decreases in growth, inhibition of reproduction, immobilization, and population alterations. The target organ appears to be the gills. In aquatic food chains, biomagnification seems to occur in lower trophic levels only. In a study with algae, daphnia, and fish in water containing 10 ppb cadmium, algae contained 30 ppm dry weight (up from 4.5 ppm at the start), daphnia contained 32 ppm dry weight (up from 1.4 ppm at the start), but fish showed no change in total body burdens. Bioconcentration factors in mosquito fish have been calculated at 4100 and 7440 in two studies (Eisler,

1985a). The LC_{50} for fathead minnows in hard water is 67.4 ppm, while in soft water it is 5.07 ppm (Dhar, 1973).

Marine and terrestrial animals, including ducks, have been shown to be particularly abundant in a wildlife community associated with a marine sewer outfall; these animals were contaminated with high levels of cadmium, as well as zinc and copper, but were apparently protected from the deleterious effects of high metal body burdens by metallothioneins. Amounts of these metal-binding proteinaceous metallothioneins and heavy metal loading appear to depend primarily on the degree of pollution and secondarily on the species of animal and its position in the food web. Ducks contained the highest levels of metallothioneins of all groups examined (Eisler, 1985a).

Sublethal effects in birds include growth retardation, anemia, and testicular damage. However, harmful damage effects were observed at higher concentrations when compared to aquatic biota. Altered avoidance behavior in the form of hyperresponsiveness was observed in young American black ducks produced from parents fed 4 ppm dietary cadmium for about 4 months before egg laying; this behavioral effect was observed only at comparatively low dietary cadmium levels and is considered harmful to wild birds (Eisler, 1985a).

5.3.3.5 Chromium

Trivalent and hexavalent forms of chromium are the forms of biological significance. Trivalent chromium is the most common form and is the form usually found in biologic materials. Hexavalent chromium is preferentially taken up by cells, where it may cause mutagenesis upon reduction to the trivalent form (Amdur, et al., 1991). Chromium is an inhalation carcinogen, and the major acute effect from ingestion is acute renal tubular necrosis (Amdur et al., 1991). The absorption efficiency is estimated at approximately 15% (ATSDR *Toxicological Profile for Chromium*, 1992).

Hexavalent chromium is more toxic to aquatic species and is more toxic in soft and acidic waters, and younger life stages are more sensitive. The two ionic species of hexavalent chromium which seem to be toxic to aquatic life are hydrochromate and chromate (Eisler, 1986a). As pH decreases from 7.8 to 6.5, the hydrochromate ion increases by a factor of 3. The MATC for hexavalent chromium in fathead minnows ranged from 1000-3,950 ppb, while that for trivalent chromium ranges from 750-1,400 ppb (Eisler, 1986a). The acutely toxic concentration increases with increasing pH and water hardness, indicating that these MATC may be low for use in the lagoons and lakes (LD_{50} in a 0.2 g fish at a pH of 7.8 = 12,200 ppb; LD_{50} for 3 species of fish in hard water = >133,000 ppb (Eisler, 1986b). The LD_{50} for chromium is 5.0 to 118 mg/L (118,000 μg/L) for fish in general and the probable safe concentration is 0.05 mg/L (Post, 1983).

The only toxicity information located for chromium in birds was for domestic chickens (Fish and Wildlife Service, 1986). Domestic chickens appeared to be more tolerant than mammals. Adverse effects were not seen in chickens exposed to 100 ppm dietary Cr^{+6} in a 32-day study. Embryolethal and teratogenic effects have been observed, however, at concentrations ranging from 0.2 to 22.9 mg/kg, in two different reports. In a study by Jamal, et al., (1991), the highest concentrations of chromium were found in the kidneys and liver, smaller amounts in the pancreas, spleen, and blood, followed by muscle, heart and lung, and only very small amounts in the brain.

5.3.3.6 Lead

The amount of lead that remains in solution in surface water depends upon the pH of the water and the dissolved salt content. At a pH higher than 5.4, the lead carbonates, $PbCO_3$ and $Pb_2(OH)_2CO_3$, limit the concentration. Most lead is retained strongly in soil, and very little is transported into surface water or groundwater. The bioavailability of lead is low; however, it increases as pH and organic content in soil decreases. The absorption efficiency is approximately 50% for lead (ATSDR *Toxicological Profile for Lead*, 1992).

Lead adversely affects survival, growth, reproduction, development, and metabolism of most species under controlled conditions, but its effects are substantially modified by numerous physical, chemical, and biological variables. In general, organolead compounds are more toxic than inorganic lead compounds, food chain biomagnification is negligible and the early developmental stages are most susceptible (Eisler, 1988b).

Lead is toxic to all phyla of aquatic biota. The effects of lead were enhanced at elevated water temperatures and reduced pH, as well as in comparatively soft waters, in younger life stages, and after long exposures. High bioconcentration was seen in algae, and reduced reproduction was seen in daphnids at concentrations of 1.0 μg Pb^{2+}/L. Lethal solutions of lead, as well as many other heavy metals, cause increased mucus formation in fish. This interferes with respiratory function and results in death by anoxia. Fish that are continuously exposed to toxic concentrations of waterborne lead show signs such as spinal curvature, usually as lordosis; anemia; darkening of the dorsal tail region, producing a black-tail effect due to selective destruction of chromatophores but not melanophores; degeneration of the caudal fin; destruction of spinal neurons; delta amino levulinic acid dehydratase (ALAD) inhibition in erythrocytes, spleen, liver, and renal tissues; reduced ability to swim against current; destruction of the respiratory epithelium; basophilic striping of erythrocytes; elevated lead concentrations in blood, bone, gill, liver, and kidney; muscular atrophy; paralysis; renal pathology; growth inhibition; retardation of sexual maturity; altered blood chemistry; testicular and ovarian histopathology; and death (Eisler, 1988b).

Although lead is concentrated by biota from water, there is no convincing evidence that it is transferred through the food chains. Lead concentrations tend to decrease markedly with increasing trophic level in aquatic food chains. In fathead minnows, the LD_{50} was 6,500 μg Pb/L (20 mg $CaCO_3$/L) when exposed for 96 hours. The LD_{50} was 460,000 μg Pb/L (360 mg $CaCO_3$/L) when exposed for 96 hours. These values are in agreement with those listed in Post (1983) and Dhar (1973): 1.0 to 7.0 in soft water and 400+ in hard water; and 5.58 ppm in soft water and 482 ppm in hard water, respectively (Eisler, 1988b). IRIS lists an Acute WQCAQ of 8.2E+01 and a Chronic WQCAQ of 3.2E+00.

Lead poisoning in birds due to ingestion of lead shot has been recognized as a cause of waterfowl deaths, especially in mallards. Absorbed lead causes a variety of effects leading to death, including damage to the nervous system, muscular paralysis, inhibition of heme synthesis, and damage to kidneys and liver. Lead poisoning in waterfowl can cause death in an average of 2 to 3 weeks following exposure. Affected birds tend to lose mobility, avoid other birds, and become increasingly susceptible to predation and other causes of mortality (Eisler, 1988b).

Outwardly, poisoned birds show signs such as loss of appetite, lethargy, weakness, emaciation, tremors, drooped wings, green liquid feces, and impaired locomotion, balance, and depth perception. Trialkyllead salts are 10 to 100 times more toxic to birds than are inorganic lead salts; they tend to accumulate in lipophilic soft tissues in the yolk and developing embryo, and have high potential as neurotoxicants. Hatchlings of precocial species, including mallards, are relatively tolerant to moderate levels of lead exposure, i.e, no effects were seen on growth following exposure to 500 mg/kg in the diet, or survival at 2,000 mg/kg in the diet. In mallards, a single oral dose of one No. 4 shot (1.4 g) resulted in some deaths, while in black ducks, a dose of 254 to 635 mg resulted in weight loss, emaciation, elevated lead concentrations in bone, and some deaths. The black duck is believed to be more sensitive than mallards (Eisler, 1988b).

5.3.3.7 Magnesium

Magnesium is an essential nutrient and a cofactor of many enzymes. Its deficiency causes neuromuscular irritability, calcification, and cardiac and renal damage. Most toxic effects are associated with inhalation of magnesium compounds. Intoxication by ingestion of magnesium salts is uncommon, but may occur with renal impairment (Amdur, et al., 1991). The absorption efficiency is about 30% for magnesium (Carson, et al., 1987). Species-specific toxicity data was not located, however, a LD_{50} of 2800 mg/kg was reported for rats (Sax and Lewis, 1989).

5.3.3.8 Manganese

The transport and partitioning of manganese in waste is controlled by the solubility of the specific chemical form present, which in turn is determined by pH, Eh, and the characteristics of available anions. Divalent manganese predominates in most waters (pH 4 – 7), but may become oxidized at greater pHs (8 or 9). The amount of manganese absorbed across the intestinal tract is variable; in humans, it averages about 3-5%, while in rats it ranges from 2.5-5.5% (ATSDR *Toxicological Profile for Manganese*, 1991).

Manganese, which is present in all living organisms, is an essential dietary element and is a cofactor for a number of enzymatic reactions, particularly those involved in phosphorylation, cholesterol, and fatty acids synthesis (Amdur, et al., 1991). Manganese is eliminated in the bile and is reabsorbed in the intestine, but the principal means of excretion is in the feces. The body's regulatory mechanism for manganese accounts for its low systemic toxicity following oral administration or dermal contact (Amdur, et al., 1991). In humans, there is no tendency for either a decrease or an increase in manganese accumulation throughout most of the life cycle (NRC, 1989).

The LC_{50} for manganese is 2.2 to 4.1 mg/L in fish in general (Post, 1983). Permanganates are much more toxic than other manganese species, and manganese compounds are unstable and precipitate as manganese oxides or hydroxides at a pH above 7.5 (Post, 1983). In animals, the toxicity of ingested manganese is low, and signs of a toxic response generally appear only after concentrations higher than 1000 μg/g diet are fed. Adverse effects on the central nervous system occurred at lower levels when manganese dust was inhaled (NRC, 1989). IRIS does not list Acute or Chronic WQCAQs for manganese at this time.

Species-specific information was not located for mallards, or birds in general. IRIS lists the NOAEL for manganese in food as 0.007 mg/kg/day in rats.

5.3.3.9 Mercury

Early developmental stages were most sensitive to the effects of mercury (Hg), and organomercury compounds, especially methylmercury, were more toxic than inorganic forms. Lethal concentrations of total mercury to sensitive, representative organisms varied from 0.1 to 2.0 μg/L of medium for aquatic fauna; and from 2.2 to 31.0 mg/kg body weight (acute oral) and 4.0 to 40.0 mg/kg (dietary) for birds. Among metals tested in aquatic organisms, mercury was the most toxic, and organomercury compounds showed the greatest biocidal potential. In general, toxicity was higher at elevated temperatures, at reduced salinities in marine organisms, and in the presence of other metals such as zinc and lead (Eisler, 1987). Post (1983) lists the LC_{50} at 1.0 mg/L and the probable safe concentration at 0.0005 mg/L.

Signs of acute mercury poisoning in fish included flaring of gill covers, increased frequency of respiratory movements, loss of equilibrium, and sluggishness. Signs of chronic poisoning included emaciation (due to appetite loss), brain lesions, cataracts, diminished response to change in light intensity, inability to capture food, abnormal motor coordination, and various erratic behaviors. Mercury residues in severely poisoned fish that died soon thereafter ranged (in mg/kg fresh weight) from 26 to 68 in liver, 16 to 20 in brain, and 5 to 7 in whole body (Eisler, 1987). IRIS lists the Acute WQCAQ for mercury as 2.4E+00 μg/L and the Chronic WQCAQ as 1.2E-02 μg/L.

Sublethal effects may occur as a result of exposure to mercury. At comparatively low concentrations, it adversely affects reproduction, growth, development, behavior, blood and serum chemistry, motor coordination, vision, hearing, histology, and metabolism. It has a high potential to bioaccumulate and biomagnify. For sensitive aquatic species, adverse effects were observed at water concentrations of 0.03 to 0.1 μg Hg/L. For sensitive species of birds, harmful levels were 640 μg Hg/kg body weight daily, or 50 to 500 μg Hg/kg in the diet (Eisler, 1987).

Fathead minnows exposed to 0.12 μg methylmercury/L for 3 months failed to reproduce. Growth inhibition was seen in algae after exposure for 24 hours to 10 days to 0.3 to 0.6 μg organomercury/L. Adverse effects of mercury to aquatic organisms have been documented at water concentrations of 0.88 to 5.0 μg/L. At lower trophic levels, the efficiency of mercury transfer was low through natural aquatic food chains; however, in animals of higher trophic levels, such as predatory teleosts and fish-eating birds and mammals, the transfer was markedly amplified (Eisler, 1987).

In birds, signs of mercury poisoning included muscular incoordination, falling, slowness, fluffed feathers, calmness, withdrawal, hyporeactivity, hypoactivity, and eyelid drooping. In acute oral exposures, signs appeared as soon as 20 minutes postadministration in mallards. Deaths occurred between 4 and 48 hours in mallards. Mercury toxicity to birds varies with the form of the element, dose, route of administration, species, sex, age, and physiological condition. Organomercury compounds interact with elevated temperatures and pesticides, such as DDE and parathion, to produce additive or more-than-additive toxicity, and with selenium to produce less-than-additive toxicity. Residues of mercury in experimentally poisoned fish-eating birds usually exceeded 20 mg/kg fresh weight, and were similar to concentrations reported in wild birds that died of mercury poisoning (Eisler, 1987).

In birds, sublethal effects include adverse effects on growth, development, reproduction, blood and tissue chemistry, metabolism, and behavior. Effects on histopathology and bioaccumulation have also been noted. In mallards, the dietary concentration of 0.5 mg Hg/kg dry weight (0.1 mg/kg fresh weight) in the form of methylmercury was fed to three generations. Females laid a greater percentage of their eggs outside of nest boxes than did controls, and also laid fewer eggs and produced fewer ducklings. Ducklings were less responsive to taped maternal calls, and were hyperresponsive to a fright stimulus in avoidance tests (Eisler, 1987).

Interaction effects of mercury with other contaminants, such as herbicides and pesticides, could intensify hazards to avian populations. For example, a striking parallel

exists between levels of mercury and of DDT and its metabolites in birds of prey, suggesting the existence of common ecotoxicological mechanisms (Eisler, 1987).

5.3.3.10 Nickel

Nickel strongly adsorbs to soils and sediments; however, it may also remain dissolved in water. In natural waters (pH<9), nickel primarily exists as the hexahydrate. Studies in rats indicate that up to 10% of the administered nickel is absorbed by the gastrointestinal tract. The absorption efficiency in laboratory animals approaches 42% in rats (ATSDR *Toxicological Profile for Nickel*, 1992).

Nickel deficiency results in decreased growth in rats, sheep, cows, goats, and minipigs, and depressed hematopoiesis has been observed in rats, sheep, cows, and goats (NRC,1989). Toxic effects include biochemical lesions, such as altered concentrations of triglycerides and cholesterol; decreases in hematocrit; and enlargement of or histological damage to livers and kidneys (Eastin and O'Shea, 1981). Nickel is a respiratory tract carcinogen, but is poorly absorbed in the intestinal tract (Amdur et al., 1991). Little is known about its effects on aquatic life or waterfowl.

Studies on nickel exposure in fish were not found. The probable safe concentration is 0.03 mg/L (Post, 1983). IRIS lists the acute WQCAQ for nickel at 1.4E+03 μg/L, while the chronic WQCAQ is 1.6E+02 μg/L. High levels of nickel may accumulate in waterfowl food plants and, therefore, it seems likely that waterfowl could be exposed to high levels of nickel in their diet. The only overt treatment-related effect in 20-month old mallards was black, tarry feces. Birds exposed to 200 and 800 ppm nickel ate 13-15% more food than average for the control group – a difference of 178 g/d per bird. The cause of this was uncertain. Overt effects on reproduction were not detected and exposed ducklings did not weigh less than the control group. Newly grown feathers had the highest nickel concentration of all samples analyzed. Kidneys, livers, and blood also had elevated concentrations compared to the control group. This study concluded that feeding adult mallards 800 ppm nickel as sulfate for 90 days produced no overt deleterious effects. The

authors did warn, however, that other chemical forms of nickel and other developmental stages need to be examined further (Eastin and O'Shea, 1981). Based on this study, 800 mg/kg nickel is a NOAEL, although it may not be the highest NOAEL.

5.3.3.11 Selenium

The toxic potential of selenium is related to its chemical form and solubility. It occurs as selenate (Se^{+6}), selenite (Se^{+4}), elemental selenium (Se^{0}), and selenide (Se^{2-}) (Amdur, et al., 1991). Selenium is an essential nutrient, but can be toxic when taken in excess. Selenium may prevent toxic effects of cadmium in rats, and reduce the toxic effects of methyl mercury. It also forms insoluble complexes with copper, silver, cadmium, and mercury (Amdur, et al., 1991). A level of 70 μg Se/day for men and 55 μg/day for women is recommended as the maximum safe intake (NRC, 1989). The absorption efficiency is approximately 100% for selenium (ATSDR *Toxicological Profile for Selenium*, 1989).

Signs of selenium poisoning in teleosts include: loss of equilibrium, lethargy, contraction of dermal chromatophores, loss of coordination, muscle spasms, protruding eyes, swollen abdomen, liver degeneration, reduction in blood hemoglobin and erythrocyte number, and increase in white blood cells (Eisler 1985c). The 96-hour LC_{50} value for selenium for mosquito fish is 12,600 ppb. Bluegills exposed to 30 ppm dietary selenium had larvae that were edematous and had excess skeletal anomalies and subsequent mortality. The organic selenium was much more toxic than the inorganic selenium, producing 100% mortality and 100% terata versus 25 and 15% for inorganic selenium. Bluegills from selenium-contaminated waters exhibited similar defects. Fathead minnows did not show reproductive effects at concentrations (20 and 30 ppm Se as selenite) in the diet that caused decreased growth of juveniles of that species (Newman and McIntosh, 1991). Fathead minnows appear to be much more sensitive to selenium exposure than mosquito fish. IRIS lists an Acute WQCAQ of 2.0E+00 μg/L and a Chronic WQCAQ of 5.0E+00 μg/L.

Contamination of wetlands has been linked with reproductive effects in waterfowl and other aquatic birds and the organic form, selenomethionine, is especially

harmful to reproduction and causes teratogenic and embryotoxic effects (Heinz and Fitzgerald, 1993). In a study by Heinz and Fitzgerald (1993), 15 ppm selenium for 21 weeks represented a severe, prolonged exposure, as evidenced by the death of four adults, reduced weight of female at pairing, and delay in the onset of laying. Mallards fed 16 ppm selenium as selenomethionine through egg-laying, had eggs with selenium concentrations averaging 18 ppm, and none of the young survived. The same results are expected for the 15 ppm dose; however, treatment was stopped prior to egg-laying. A dietary concentration of 4 ppm selenium produced no reproductive impairment in mallards and resulted in a mean of 3.4 ppm selenium in the eggs. Reproductive success was reduced by doses of 7, 8, and 10 μg/g selenomethionine. Normal background concentrations in birds in general have been reported at 3-10 μg/g in the liver, 5-12 μg/g in the kidney, and 1-3 μg/g in eggs; toxic background levels have been reported at >10-30 in the liver, >10-30 in the kidney, and >8 in the egg (Ohlendorf, 1993). These studies seem to agree with what was reported by the Fish and Wildlife Service that ducks and their progeny appeared normal after three months of exposure to 5 ppm and less of dietary selenite (Eisler, 1985c).

5.3.3.12 Silver

The transport of silver in surface waters is influenced by the particulate form of the compound. The major forms of silver in water are as the monovalent ion in the form of sulfate, bicarbonate, or sulfate salts; as part of more complex ions with chlorides and sulfates; and as an integral part of, or adsorbed onto, particulate matter. In soils, silver tends to form complexes with inorganic chemicals and humic substances. After oral administration of silver acetate to dogs, the dose retention was about 10% at 1 week; in human it was about 21% (ATSDR *Toxicological Profile for Silver*, 1990).

Silver does not occur regularly in human or animal tissue. The major effect is argyria, or a discoloration of the skin. Excessive doses may also cause gastrointestinal irritation owing to its caustic actions (Amdur, et al., 1991).

The LC_{50} for silver is 0.004 to 0.2 mg/L and the probable safe concentration is 0.0001 to 0.0005 mg/L (Post, 1983). IRIS lists an Acute WQCAQ of 9.2E-01 μg/L and a Chronic WQCAQ of 1.3E-01 μg/L. Species-specific toxicity data for mallards was not located, however, a NOAEL of 18.1 mg/kg/day is listed in the toxicity profile for Silver (ATSDR *Toxicological Profile for Silver*, 1990).

5.3.3.13 Thallium

Thallium is one of the more toxic metals. It can cause neural, hepatic, and renal injury, along with deafness and loss of vision (Amdur, et al., 1991). It is absorbed through the skin and gastrointestinal tract and there have been numerous reports of poisoning in humans (Amdur, et al., 1991). The LD_{50} in rats 30 mg/kg, while the lethal dose in humans in 8 to 12 mg/kg (Amdur, et al., 1991).

The MATC for thallium as thallium sulfate has been estimated to be less than 40 μg/L. At this concentration, larvae survival was significantly reduced (EPA, 1976). The 96-hour LC_{50} for fathead minnows is 860 μg/L (EPA, 1976). IRIS lists the Acute LEC for thallium as 1.4E+03 μg/L and the Chronic LEC as 4.0E+01 μg/L. Species-specific toxicity data was not located; however, a NOAEL of 0.2 mg/kg/day was listed in the toxicity profile for rats (ATSDR *Toxicological Profile for Thallium*, 1991).

5.3.4 Semivolatiles

5.3.4.1 Acetophenone

Acetophenone (a ketone), like other common industrial alcohols, ketones, alkyl halides, ethers, and benzenes, has been observed to cause lethality by the predominant mechanism of narcosis. Narcosis is a reversible state of arrested activity of various protoplasmic structures under the influence of chemicals and can be expected to be directly related to the water solubility and resulting concentration of the chemical. A 96-hour LC_{50}

of acetophenone for fathead minnows was reported at 161 mg/L (Veith, et al., 1983). A LD_{50} of 815 mg/kg was reported for rats in Sax and Lewis (1989).

5.3.4.2 Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate (BEHP) is reported to cause increased liver and kidney weight, changes in liver structure and enzyme activity, and reproductive system effects in test mammals (ATSDR, 1992). Although little is known about the biological significance of BEHP residues in aquatic organisms, it has been shown to cause a significant increase in rainbow trout sac fry mortality (Mehrle and Mayer, 1976) and reproductive impairment of *Daphnia magna* (Mayer, 1976). A NOAEL of 200 mg/kg was reported for rats (ATSDR, 1992).

5.3.5 Polychlorinatedbiphenyls (PCBs)

Several structural classes of PCB congeners are approximate isostereomers of 2,3,7,8-TCDD and elicit a spectrum of biochemical and toxic responses similar to those reported for TCDD. A rank order-correlation exists between the structure-activity relationships of these PCB congeners and induction of enzymatic activity of the enzymes aryl hydrocarbon hydroxylase (AHH) and ethoxyresorufin O-deethylase (EROD). This induction of enzyme activity has been used to determine TCDD-based toxic equivalency factors (TEF) for PCB mixtures (Harris, et al., 1993). A recent study (Smith, et al., 1990) on the 18 PCB congeners that are inducers of AHH and EROD activity in animals concluded that these 18 congeners included the most toxic PCBs, and that the apparent toxic potency of PCB residues in biological samples is dominated by two congeners 3,3'4,4',5- and 2,3,3',4,4'-pentachlorobiphenyl (IUPAC No. 126 and 105, respectively). The three most toxic congeners, IUPAC No. 77 (3,3',4,4'-TCB), 126, and 169 (3,3'4,4',5,5'-HxCB), are usually present in such low concentrations that determination of their concentrations is severely compromised by the presence of the other congeners, which are present in much greater concentrations. It is estimated that analytical methods at the parts-per-trillion level may be required for accurate measurement of these congeners. Such analytical method sensitivities

are attainable but are dependant on instrument selectivity/sensitivity and require relatively large sample size and appropriate final sample volume to obtain results at these levels. Large samples were not feasible for many of the biota samples collected. Therefore, data was not obtained for the most toxic congeners. Instead, the most potent AHH or EROD inducing congener in the "numerical class" (e.g., tetra-, penta-, etc.) of PCB was used as a proxy for the entire class.

Because all of the AHH and EROD inducers were confined to tetra-, penta-, hexa-, and heptachlorinated congeners, these four classes were assumed to represent total PCB toxicity. The other "numerical classes" were assumed to be non-toxic by comparison, and were not included in the estimation of risk caused by PCBs.

An attempt was made to locate species-specific toxicity values for tetra-, penta-, hexa-, and heptachlorinated biphenyls. In a study on the effects of PCB structure on hepatic microsomal enzymes in quail, 4,4'-dichlorobiphenyl was rapidly eliminated from the body, even at 500 ppm in the diet. Residues and effects observed generally increased with the degree of chlorination. Dichloro- and tetrachlorobiphenyl were less persistent, causing minimal changes in enzyme activity, while most of the higher chlorinated isomers gave rise to large residues and generally elevated enzyme activities. 3,3',4,4',5,5'-hexachlorobiphenyl appeared to be particularly toxic (Clayton and Clayton, 1981). According to the authors of this study, the effect of individual isomers appears to be related to the degree of chlorination and to the ease of metabolism, up to the hexachlorinated level. Closely related isomers, however, can result in markedly different effects. The hexachlorobiphenyls are generally the most biologically active of the range.

For 3,3,4,4-tetrachlorobiphenyl (3,3',4,4'-TCB), an oral LD_{50} of 1 mg/kg in guinea pigs was determined; for 3,3',4,4',5,5',-hexachlorobiphenyl, an oral LD_{50} of 0.5 mg/kg in guinea pigs was determined (Sax and Lewis, 1989). In male Wister rats, 64% of a single oral dose of 25 mg 3,3',4,4'-TCB was excreted unchanged in the feces during the first 14 days after dosing (Clayton and Clayton, 1981). For PCBs in general, in mink, a NOAEL of 0.1

mg/kg/day in the diet was reported, and in piscivorous wildlife, a NOEL of 0.13 was reported (EPA, 1992).

Since hexachlorobiphenyls appear to be persistent and particularly toxic to birds, the LD_{50} for this congener was used as a surrogate for penta- and heptachlorobiphenyls for which no toxicity information was found. This is expected to be conservative but protective. Once the uncertainty factor of 10 is applied to the LD_{50} of 0.5, the NOAEL is estimated at 0.05 for hexachlorobiphenyl, and 0.1 for tetrachlorobiphenyl, which are in agreement with the NOAEL reported above for mink and piscivorous wildlife.

PCBs were not detected in surface water, and therefore, were not included in the quantification of risk to fish. In addition, species-specific toxicity information could not be located.

6.0 EXPOSURE ASSESSMENT

The exposure assessment quantifies the magnitude and type of actual and/or potential exposures of ecological receptors to chemicals of concern at the site. This assessment focuses on aquatic and bird species that inhabit the lagoons, lakes, and the ditch. Biological samples were taken of the plankton, invertebrates, insects, and fish in these locations in an attempt to quantify the movement of contaminants through the food chain. Potential risk was assessed quantitatively for birds (mallards, killdeer and mergansers) and mosquito fish. Contaminant concentrations in benthic invertebrates, plankton and fish were used to model concentrations in bird tissues. Bird tissue samples were not available; for this assessment, however, some samples have been collected and will be compared to the ecological risk assessment results at a later date.

6.1 Indicator Species

Since it is impossible to quantitate risk for an entire ecosystem, indicator species are selected to represent other species in the area. For this assessment, the indicator species are mallards, killdeer, mergansers, and mosquito fish. The potential risk to fish was quantitated based on the contaminant concentrations in the water. Since criteria for fish are usually in the form of a LC_{50}, which is in mg/L of water, measured tissue concentrations, in mg/kg of fish, could not be used to assess health. Water concentration can be used to estimate an EQ based on the contaminants in water, however, a large number of contaminants in fish tissues were not detected in the water. Therefore, the risk to fish may be underestimated. Potential risk to birds was quantified for mallards, mergansers, and killdeer based on contaminant concentrations in plankton, fish, and benthic organisms, respectively, and concentrations in surface water.

6.1.1 Killdeer (*Charadrius vociferus*)

Killdeer, a common plover, constitutes the second largest family, the Charadriidae, in the suborder Charadrii. Plovers are distributed throughout the world,

except Antartica (Perrins, 1979). In summer, they frequent sparse bare upland regions, ploughed fields, pastureland, and occasionally short turfed lawns in close proximity to busy roads and buildings. For the rest of the year, they are found along marshy borders of lakes and pools, or the seashore (Soothill, 1982). Most northern hemisphere plovers migrate southward during the northern winter, some reaching as far south as Tierra del Fuego, South Africa and Australia. Nearly all the plovers feed entirely on animal food. They are largely insectivorous, eating grasshoppers, beetles, locusts, crane-fly larvae, and caterpillars. They will also eat earthworms, snails, spiders, small crabs, and a little vegetable matter (Soothill, 1982). Most of them pick up food at the waterside, either from the surface of the water or mud, or by probing in the mud and sand. All species feed by running in short bursts and darting at the prey (Perrins, 1979).

Plovers breed during the spring and early summer. Most nest in the open on beaches, grasslands, tundra, gravelly shorelines, or stony deserts. The clutch is four eggs in nearly all northern hemisphere species. Plovers feed their chicks (Perrins, 1979).
Killdeer are about robin-size and weigh 0.105 to 0.11 kg (Oberholser, 1974).

6.1.2 Mallards (Anas platyrhynchos)

Mallards are distributed from Alaska and Greenland south to Virginia, Texas, and northern Mexico. They winter in Central America and the West Indies. They also breed in Eurasia. They are generally found in ponds, lakes, and marshes, although semi-domestic birds can be found on almost any body of water (Audubon Society, 1977). Adult mallards feed predominantly on vegetative materials. For this assessment, it is assumed that they feed 100% on plankton. Mallards weigh approximately 0.96-1.36 kg (Heinz and Johnson, 1979).

6.1.3 Mergansers (Mergus merganser)

The common merganser (*Mergus merganser)* can be found more often than other members of their genus in North America and Eurasia. They are widespread over the

Northern Hemisphere, inhabiting Canada and the northern portions of the U.S., central California, Arizona, and New Mexico. The common mergansers are the largest of all inland ducks in North America and are usually seen on fresh water, but occasionally locate themselves on the brackish waters of bays and inlets. Mergansers often nest in open cavities of trees near the water, on the ground in bulky masses of weeds, and under low bushes. The nests are lined with weeds, grasses, rootlets, and down from the female's breast. It is in these cavities that usually 9-12 eggs are laid every year during the months of May and June (Terres, 1980). Species-specific body weights and ingestion rates were not found; therefore, the assumptions that were made for the mallards were used as surrogates for the mergansers.

6.1.4 Mosquito Fish (Gambusia affinis)

The mosquito fish is a member of the Poecidliidae family, Order Cyprinidontiformes. This family contains livebearing toothed carps (guppies, mollies, platys, swordtails, and others). They are found primarily in the warmer parts of North and South America. *Gambusia affinis* are referred to as mosquito fish because of their habit of feeding close to the water's surface on insect larvae. Mosquito fish from the southern U.S. have been introduced in many areas to aid in insect control. Many fish in this order can withstand salt water and are found in estuarine or even marine environments (Bond, 1979). Mosquito fish have been shown to be resistant to chlorinated hydrocarbons (Robinson and Bolen, 1984). They have also been shown to increase resistance to pesticides in contaminated areas (Dziuk and Plapp, 1973).

6.2 Potential Exposure Pathways

The exposure pathways identified for this assessment for each indicator species are:

Killdeer

- Ingestion of benthic organisms;

- Ingestion of surface water;
- Dermal contact with surface water;
- Dermal contact with sediments; and
- Inhalation of volatiles.

Mallards

- Ingestion of plankton;
- Ingestion of surface water;
- Dermal contact with surface water;
- Dermal contact with sediments; and
- Inhalation of volatiles.

Mergansers

- Ingestion of fish;
- Ingestion of surface water;
- Dermal contact with surface water;
- Dermal contact with sediments; and
- Inhalation of volatiles.

Mosquito Fish

- Ingestion of plankton and benthic organisms; and
- Ingestion and dermal contact with surface water.

The main pathways of concern are ingestion of food and water. Although dermal contact with water, and potentially with the sediments, probably occurs, the extent is difficult to quantify and the risk is most likely insignificant compared to the ingestion pathway. Most of the volatiles at this site are expected to have volatilized by now and, therefore, inhalation by birds is not expected to present significant risk. In addition, physiological data on inhalation rates are difficult to find, and it is probable that extrapolations from other species (chickens or turkeys) would have to be done to estimate inhalation rates in the indicator species. This adds to the uncertainty in the assessment and

is highly conservative. Because risk assessment is inherently conservative, assessment of the main pathways (ingestion of food and water) is expected to be protective of all of the pathways.

6.3 Calculation of Intake Rates

Intake rates were calculated for each contaminant of concern. The following equation is used to calculate intake in mg/kg/day:

$$\text{Intake (mg/kg/day)} = [(B)(FIf)(IRf)(Cf)/(BW)] + [(B)(FIw)(IRw)(Cw)/(BW)]$$

where:

B is bioavailability;
FI is fraction ingested of food (f) or water (w) from contaminated source;
IR is ingestion rate of food (f) in kg/day, or water (w) in L/day;
C is contaminant concentration in food (f) in mg/kg, or water (w) in mg/L; and
BW is body weight in kg.

For mallards, an ingestion rate of 0.132 to 0.15 kg/day was estimated for food by Welty and Baptista (1988). However, an ingestion rate for water could not be located and was calculated using an allometric equation developed for chickens based on body weight. The equation is:

$$L = 0.01W^{0.9},$$

where:

L is the ingestion rate in L/day; and
W in the body weight in kg (EPA, 1988).

Using this equation, a water ingestion rate of 0.13 L/day to 0.16 L/day was estimated. Because mallards and mergansers are approximately the same size, mallard weights and intake rates were used as surrogates for the mergansers. For killdeer, ingestion rates were not found for food or water. The equation above was used for water ingestion. For food ingestion, the allometric equation was also developed for chickens based on body weight and is as follows:

$$F = 0.056W^{0.6611},$$

where:

F is the ingestion rate in kg/day; and
W in the body weight in kg (EPA, 1988).

The food and water ingestion rates for killdeer were estimated at 0.011 to 0.012 kg/day and 0.024 to 0.025 L/day, respectively.

The ingestion fraction (FI) variable is adjusted in accordance with the fraction of food ingested from the contaminated areas. Ducks were seen feeding at all of the lagoons and lakes as well as in the ditch; therefore, it is unlikely that they feed exclusively at any one location. In addition, they are migratory, spending, at most, six months out of the year in the area. It was not possible to study the movement of ducks from one pond or lake to another and develop FIs for each location. Instead, the total area of the sewage lagoon system was summed and the ratio of pond or lake size to total size was used to estimate the reasonable maximum fraction of time spent at any one location. The reasonable maximum FI was divided by two (to account for the fact that the ducks are only in the area for half the year). This method basically divides the time that a duck feeds proportionately over the whole system. This is not necessarily accurate, since some of the ducks may spend a disproportionate amount of time in one location. However, the FIs developed using this method are reasonable since, in this case, the ducks spend a greater amount of time in the larger bodies of water, and very little time in the upper ponds. The FIs are presented in Table K-14.

Table K-14

Ingestion Fractions (FIs) for Ducks for Each Lagoon, Lake, and the Ditch

Location	Size (Acres)	Percent of Total System (%)	Ingestion Fraction at Each Location	
			Average (%)	Reasonable Maximum (%)
Pond A	10.1	3	1.5	3
Pond B	11.2	3	1.5	3
Pond C	12.5	4	2	4
Pond D	18.7	6	3	6
Pond E	7.8	2	1	2
Pond F	0.5	0.15	0.075	0.15
Pond G	39.8	12	6	12
Ditch	0.7	0.2	0.1	0.2
Lake Holloman	166	49	24.5	49
Lake Stinky	72.65	21	10.5	21

The ingestion fraction for mergansers was calculated based on the fact that fish were only present in three locations: Pond G, Lake Holloman, and the ditch. These locations make up approximately 61.2% of the total sewage lagoon system. Because these locations are close to each other and comprise a large part of the available habitat, the ingestion fraction was divided evenly between these three locations. Therefore, the average ingestion fraction was set at 33%, divided by two to reflect that mergansers are only in the area, at the most, six months out of the year. This makes the average FI equal to 16.5% for each of these locations. The reasonable maximum was assumed to be 33%, since some fish-eating birds may not be migratory and may spend the entire year in the area.

For killdeer, which feed on benthic invertebrates, the FI was calculated in a similar fashion as for the mergansers. Benthic organisms were only collected at Ponds A and E, and the ditch. It was assumed that the shore birds feed primarily at these three locations because of to the active abundance of benthic organisms in these ponds compared to the other ponds. The other locations may have had benthic organisms in low numbers, but they were not collectable. In some cases, they were in deep sediments that were out of reach of the birds. These ponds are assumed to be representative of the other locations and, therefore, they were used to represent potential risk from the whole system. The average FI was assumed to be 33%, based on an equal ingestion fraction at each location. The reasonable maximum FI was assumed to be 1.0 to determine the worst-case scenario for birds that inhabit the area year round, and potentially feed exclusively at one location. Also, since these three locations are spread out (i.e., the first and fifth ponds and the ditch) and benthic samples could not be collected in every location, it was assumed that the worst-case risk estimate at any one location would not surpass the worst-case estimates obtained through the use of a FI of 1.0 at the three locations where benthic samples were collected.

6.4 Calculation of Uptake Factors for Algae for Pond B

Plankton samples could not be collected in Pond B; therefore, contaminant concentrations in plankton were estimated for each contaminant detected in sludge or water in Pond B. To do this, uptake factors were calculated by taking the ratio of the concentra-

tions in plankton to the concentrations in water or sludge for the other ponds, lakes, and the ditch. In cases where the contaminant was in both media, the data were searched for a location where it was in only one medium so that the uptake from each medium could be determined. For example, if a contaminant was found in both water and sludge in Pond E, but only in the sludge in Pond G, Pond G data were used to calculate the uptake factor from water. This water uptake factor was then used with Pond E data to determine what concentration remained to be contributed by sludge; thereby determining a sludge uptake factor.

In some cases, the contaminant of concern was always present in more than one medium. In this case, it had to be assumed that 100% of the contaminant concentration in the plankton was from each medium. This is conservative, but it gave some indication of the worst-case concentrations in plankton at Pond B for use in the mallard assessment. When a contaminant was only detected in Pond B, no uptake factor could be calculated. Table K-15 lists the uptake factors that were calculated for plankton in Pond B. Hand calculations for each uptake factor can be found in Attachment B of this appendix.

Table K-15

Uptake Factors and Plankton Concentrations Calculated for Pond B

Chemical	UF from Sludge	UF from Water	Modeled Concentration in Plankton in Pond B (mg/kg)
4,4'-DDD	0.001	1099.2	0.047
4,4'-DDE	0.002	18.1	0.004
4,4'-DDT	0.004	32.2	0.0006
Antimony	ND	NC	NC
Arsenic	0.13	438	3.19
Barium	ND	Negligible	0.0
Cadmium	0.03	ND	NC
Chlordane	ND	NC	NC
Chromium	0.0027	NC	0.61
Dieldrin	ND	210.3	0.005
Heptachlor Epoxide	ND	NC	NC
Lead	NC	48.7	0.19
Magnesium	ND	17	2748
Manganese	ND	918	54.5
Mercury	0.05	231	0.33
Nickel	Negligible	ND	0.0
Selenium	1.3	1434	4.13
Silver	0.002	NC	0.75
alpha-BHC	ND	NC	NC
Bis(2-ethylhexyl)phthalate	NC	NC	NC
delta-BHC	ND	NC	NC
gamma-BHC	ND	NC	NC

ND Not Detected
NC Not Calculated

7.0 RISK CHARACTERIZATION

Risk characterization is the final step in the ecological assessment. It is the process of quantifying the potential risk to the indicator species and characterizing the potential for adverse effects. This process relies on the toxicity information collected on the contaminants of potential concern and the exposure assumptions contained in the exposure assessment.

The ecological quotient (EQ) method is used to quantify potential risk to the indicator species. The quotient method is used to derive a ratio of the estimated chemical dose in the environmental receptor to the "safe dose" for a given chemical, and is calculated as follows:

$$EQ = \text{Estimated Chemical Dose/safe dose.}$$

Toxic Reference Values (TRVs) for terrestrial species and Maximum Acceptable Toxicant Concentrations (MATCs) for fish were used as safe doses and were derived as discussed in the toxicity assessment in Section 5.0 of this appendix. Spreadsheets used to calculate the EQs are contained in Attachment D of this appendix.

In a human health risk assessment, hazard quotients are derived as opposed to EQs. A hazard quotient of 1.0 or less is considered acceptable, while a value greater than 1.0 is unacceptable. This strict interpretation is not necessarily transferrable to an ecological assessment. According to the EPA, the quotient method provides information on the likelihood and severity of impacts to the environment (EPA, 1989, as cited in Watkins and Stelljes (1993). If the EQ is between 1.0 and 10.0, it indicates that there is a possibility for adverse effects. If the EQ exceeds a value if 10.0, it indicates that adverse effects are probable. Site-specific results are discussed in the main text for each pond or lake, and the ditch. An ecological quotient of 1.0 or less is generally considered acceptable.

8.0 UNCERTAINTIES

Uncertainty is an inherent part of any risk assessment. Uncertainty stems from areas such as data collection and laboratory analysis, toxicity assessment, and exposure assumptions.

8.1 Sampling and Analysis Uncertainties

In sampling biota, it is often difficult to get a "representative" sample. However, the contaminants detected in the different trophic levels in the lagoons, lakes, and the ditch are roughly the same, as would be expected. It was not always possible to sample benthic organisms due to the composition of the substrate and the fact that it could not be sieved in many locations. Therefore, although benthic organisms were present in all locations, they were only assessed in Ponds A and E, and the ditch. These locations are assumed to be representative of the sewage lagoon system, however, and a worst-case scenario was developed that should indicate worst-case risk levels.

The QA/QC analysis identified located the following data limitations:

Pesticides and PCBs

- Low level pesticide and PCB contamination was present in the analytical systems. However, this should not affect the overall assessment since sample results showed much higher concentrations.

- Field sample results for beta-BHC and HCB may be biased low by approximately 75 percent. These results were adjusted accordingly.

- 4,4'-DDD and 4,4'-DDE results may be biased high. These results were not adjusted and may, therefore, cause risks to be overestimated.

Semivolatile Organics

- Field sample results for di-n-butylphthalate and bis(2-ethylhexyl)phthalate (BEHP) may be biased high. Di-n-butylphthalate was not detected in plankton, benthic organisms, or fish, and therefore, did not affect the estimated risks. Results for BEHP, which was present in some

biota, were not adjusted; therefore, results for this contaminant may be conservative.

Dioxins and Furans

- Due to some laboratory contamination, results may be biased high, and therefore may cause risks to be overestimated.

8.2 Toxicity Assessment Uncertainties

A literature search was conducted to locate as many species-specific toxicity values as possible. The best type of value for a terrestrial assessment is a chronic NOAEL. However, more often than not, this value was not available for the indicator species, or even for surrogate species. When other species-specific values were located, such as LOAELs or LD_{50}s, they were extrapolated to chronic NOAELs. The more relevant the toxicity data are to the desired endpoint (NOAEL) and to the species of concern, the lower the uncertainty in the extrapolation. Extrapolating toxicity data from mammalian species to avian species can lead to a high level of uncertainty. Susceptibility and response to chemical exposures may be quite different from one species to another (Watkin and Stelljes, 1993). The uncertainty factor used to extrapolate from a LAOEL to NOAEL in this assessment was derived by analyzing the ratios between LOAELs and NOAELs in several chronic laboratory studies (Watkin and Stelljes, 1993). It was concluded that 95% of all exposed individuals would be protected by an uncertainty factor of 5. All of the uncertainty factors recommended in the Watkins and Stelljes report were calculated using this method. Therefore, these uncertainty factors are expected to result in conservative toxicity values. Extrapolations conducted in the fish assessment also add uncertainty to the assessment. Acute Toxicity Values (LC_{50}s) were extrapolated to Chronic Values (NOAELs) using methodology described in Calabrese and Baldwin (1993). In addition, taxonomic extrapolations were conducted when species-specific data were not available. The MATCS calculated using these extrapolations are expected to be conservative and were calculated using a 95% confidence interval.

8.3 Exposure Assessment Uncertainties

Another source of uncertainty stems from the assumptions used to determine intake rates and ingestion fractions in the exposure assessment. When specific physiological data such as body weights and intake rates are not available for the indicator species, other values must be substituted as surrogates. Usually physiological data for a similar species or allometric equations are used to determine these values for the indicator species. In this case, a body weight and food ingestion rate were found for mallards. However, a water intake rate had to be calculated using an EPA approved allometric equation. Past experience has shown that these equations generally yield conservative intake rates (EPA, 1988). Species-specific data were not located for mergansers, but since these ducks are similar in size to mallards, the mallard weights, ingestion rates, and toxicity values were used for the mergansers. For killdeer, both food and water ingestion rates were calculated based on a body weight for killdeer found in the literature.

Exposure durations incorporated into the ingestion fraction in this study were also estimated values. Population studies have not been conducted at the lagoons and lakes to determine the percentage of time spent feeding at any one location. Therefore, this percentage was based on an equal distribution of time at all locations, and contaminant concentrations in the ducks were based on the assumption that the ducks receive some amount of exposure at all of the ponds, lakes, and the ditch. The percentage of time spent at each of the ponds, lakes, and the ditch that was estimated using this method agreed fairly closely with the estimates that field personnel gave based on their time out in the field observing the birds. This assumption may not be conservative if some of the birds spend disproportionately large amounts of time at any one location, however.

8.4 Risk Characterization

The risk to fish may be slightly underestimated since risk was quantified based on contaminant concentrations in water only. Exposure from other media could not be quantitated. Therefore, the potential for adverse effects was discussed qualitatively based

on water contamination and whether fish and other aquatic species were present in the particular location. In some cases it was difficult to ascertain whether the absence of fish in some locations was due to contamination, lack of adequate cover, or water quality parameters (primarily low oxygen levels at night). Most of the risk to fish from contamination is from magnesium, but the magnesium level in these ponds does not appear to be high enough to be responsible for the eradication of fish. Therefore, the MATC for magnesium may be too low.

The estimated risk to birds is expected to be conservative. In this assessment, it was assumed that a particular bird eats just one food type (plankton, benthic organisms, or fish). This assumption was made because it is impossible to determine the exact diet or combination of foods ingested by the birds. Since the birds probably rely on a variety of food sources, some not related to the lagoons, lakes, or the ditch, this approach probably represents the worst-case scenario.

9.0 CONCLUSIONS

This environmental assessment estimated the potential risk to the indicator species resulting from exposure to each lagoon, lakes, and the ditch, both separately and collectively. The results for each of the ten assessments are presented in the site-by-site analysis in the main text, and the collective results are present in the conclusions section of the main text. This assessment can be used as an indication of the potential magnitude of risk contributed by each location or by the system as a whole. This is the first part of an on-going effort to determine if detrimental effects are occurring because of exposure to the sewage lagoon system. Additional biological samples have been collected and are currently being analyzed. Analysis of bird tissues will provide more insight as to which contaminants, if any, are being transferred through the food chain. Depending on the actual contaminants detected in bird tissues, some of the contaminants modeled for birds in this assessment may prove to have been overly conservative.

A future biological assessment will discuss the potential impacts on the ecosystem resulting from removal of all or part of the sewage lagoon system.

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ATTACHMENT A

Contaminant Concentrations Used in the Ecological Assessment

Table A-1
Pond A Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Sediment (mg/kg)		Surface Water (mg/L)		Benthos	Algae
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
1,2,3,4,6,7,8-HpCDD	.	.	.	.	.	.	.	.	1.50E-06	.
1,2,3,6,7,8-HxCDD	.	.	.	.	.	.	.	.	2.50E-07	.
1,2,3,7,8,9-HxCDF	.	.	.	.	.	.	.	.	2.70E-07	.
2,3,7,8-TCDF	.	.	.	.	.	.	.	.	.	4.30E-07
2,4'-DDD	.	.	.	.	.	.	.	.	1.34E-03	3.07E-03
2,4'-DDT	.	.	.	.	.	.	.	.	9.78E-04	1.63E-03
4,4'-DDD	.	.	.	.	.	.	2.80E-05	2.80E-05	2.44E-02	3.08E-02
4,4'-DDE	.	.	.	.	0.63	0.63	.	.	1.40E-02	7.28E-03
4,4'-DDT	.	.	.	.	.	.	2.00E-05	2.00E-05	3.43E-03	6.44E-04
Aldrin	.	.	.	.	.	.	.	.	.	2.64E-04
alpha-BHC	.	.	.	.	.	.	.	.	.	5.63E-04
alpha-Chlordane	.	.	.	.	.	.	.	.	.	1.26E-03
Arsenic	4.34	4.85	11.37	13.37	4.50	4.50	.	.	.	1.48
Barium	97.43	108.66	.	.	64.00	64.00	.	.	.	1.91
Benzyl alcohol	.	.	.	.	.	.	.	.	.	0.69
bis(2-Ethylhexyl)phthalate	0.22	0.30	31.32	40.06	6.50	6.50	.	.	53.31	.
Cadmium	.	.	7.36	9.08	0.68	0.68	.	.	.	0.23
Chromium	7.79	9.74	87.11	101.38	24.00	24.00	.	.	.	0.11
cis-Nonachlor	.	.	.	.	.	.	.	.	2.13E-03	9.94E-04
Dieldrin	.	.	.	.	.	.	1.50E-05	1.50E-05	.	3.15E-03
gamma-BHC	.	.	.	.	.	.	.	.	.	1.58E-03
gamma-Chlordane	.	.	.	.	0.49	0.49	.	.	.	1.82E-03
HCB	.	.	.	.	.	.	.	.	1.86E-03	.
Heptachlor	.	.	.	.	0.23	0.23	1.20E-05	1.20E-05	.	8.60E-05
Lead	21.14	30.68	102.33	130.02	12.00	12.00	.	.	.	0.34
Magnesium	43000.00	49217.60	.	.	.	.	.	.	.	5477.05
Manganese	200.43	233.61	.	.	.	.	.	.	.	142.09
Mercury	.	.	2.41	3.22	0.38	0.38	.	.	.	8.12E-02
Nickel	5.38	7.25	17.61	19.92	4.40	4.40	.	.	.	8.09E-02
OCDD	.	.	.	.	0.00	0.00	.	.	1.33E-05	.
Oxychlordane	.	.	.	.	.	.	.	.	1.09E-03	1.72E-04
Selenium	0.89	1.15	0.87	1.19	0.73	0.73	.	.	.	1.55E+00
Silver	.	.	158.44	190.63	14.00	14.00	.	.	.	6.30E-01

Table A-1
Pond A Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Sediment (mg/kg)		Surface Water (mg/L)		Benthos	Algae
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
Total BHCs	.	.	.	.	.	.	.	.	1.06E-03	.
Total Chlordanes	.	.	.	.	.	.	.	.	4.39E-03	4.84E-03
Total DDTs	.	.	.	.	.	.	.	.	4.41E-02	4.24E-02
Total Decachlorobiphenyls	.	.	.	.	.	.	.	.	.	3.92E-04
Total Dichlorobiphenyls	.	.	.	.	.	.	.	.	.	4.55E-03
Total Heptachlorobiphenyls	.	.	.	.	.	.	.	.	5.43E-02	2.73E-02
Total Hexachlorobiphenyls	.	.	.	.	.	.	.	.	1.22E-01	6.75E-02
Total Octachlorobiphenyls	.	.	.	.	.	.	.	.	4.00E-04	2.04E-03
Total PCBs	.	.	.	.	.	.	.	.	2.90E-01	2.83E-01
Total Pentachlorobiphenyls	.	.	.	.	.	.	.	.	1.21E-01	1.28E-01
Total Tetrachlorobiphenyls	.	.	.	.	.	.	.	.	2.77E-02	4.80E-02
Total Trichlorobiphenyls	.	.	.	.	.	.	.	.	2.33E-03	5.31E-03
trans-Nonachlor	.	.	.	.	.	.	.	.	1.17E-03	4.72E-04

Table A-2
Pond B Contaminants

	Soil (mg/kg)		Surface Water (mg/L)	
Analyte	Mean	UCL	Mean	UCL
4,4'-DDD	.	.	4.30E-05	4.30E-05
4,4'-DDE	.	.	2.38E-04	5.75E-04
4,4'-DDT	.	.	1.80E-05	1.80E-05
4-Chloroaniline	2.10	2.72	.	.
Acetone	2.78	3.13	.	.
alpha-BHC	.	.	2.24E-05	4.00E-05
alpha-Chlordane	.	.	3.40E-06	3.40E-06
Aluminum	.	.	3.86E-02	6.48E-02
Antimony	.	.	2.20E-02	3.72E-02
Arsenic	13.83	14.80	3.19E-03	3.42E-03
Barium	.	.	3.09E-02	3.66E-02
Benzo(a)anthracene	1.33	1.72	.	.
Benzo(a)pyrene	1.05	1.23	.	.
Benzo(b)fluoranthene	1.85	2.18	.	.
Benzo(k)fluoranthene	0.98	1.10	.	.
Benzoic acid	.	.	5.00E-03	5.00E-03
Beryllium	0.94	1.20	.	.
bis(2-Ethylhexyl)phthalat	30.54	40.29	8.50E-03	1.14E-02
Boron	.	.	0.39	0.51
Cadmium	13.97	17.78	.	.
Calcium	.	.	322.13	404.91
Chlordane	.	.	8.75E-05	1.76E-04
Chromium	225.83	264.80	2.33E-03	2.94E-03
Chromium VI	.	.	2.00E-04	4.92E-04
Chrysene	1.05	1.22	.	.
Copper	723.33	948.90	3.46E-03	4.73E-03
Cyanide	3.47	5.34	.	.
delta-BHC	.	.	1.70E-05	1.70E-05
Di-n-octylphthalate	1.15	1.48	.	.
Dibutylphthalate	5.25	9.01	.	.
Dieldrin	.	.	2.20E-05	2.20E-05
Endosulfan sulfate	.	.	1.20E-05	1.20E-05
Fluoranthene	1.17	1.62	.	.
gamma-BHC	.	.	1.00E-05	1.00E-05
Hardness, as CaC03	.	.	1600.00	1600.00
Heptachlor epoxide	.	.	1.00E-05	1.00E-05
Iron	.	.	0.11	0.13
Isophorone	1.29	1.85	.	.
Lead	222.50	279.12	3.89E-03	0.01
Lead (organic)	.	.	0.08	0.11
Magnesium	.	.	161.63	203.06
Manganese	.	.	0.06	0.08
Mercury	4.91	5.82	3.58E-04	5.10E-04
Methylnaphthalene	3.89	4.91	0.00E+00	.
Nickel	26.42	30.01	.	.
PCB-1254	5.97	7.34	.	.
PCB-1260	1.60	1.86	.	.
Phenanthrene	2.00	2.32	.	.

Table A-2
Pond B Contaminants

	Soil (mg/kg)		Surface Water (mg/L)	
Analyte	Mean	UCL	Mean	UCL
Potassium	.	.	11.16	12.27
Pyrene	0.93	1.18	.	.
Selenium	0.79	1.29	2.16E-03	2.89E-03
Silicon	.	.	14.01	15.96
Silver	369.17	435.82	0.02	0.03
Sodium	.	.	462.50	583.53
Total dissolved solids	.	.	3800.00	3800.00
Vanadium	.	.	8.68E-03	9.76E-03
Zinc	1046.67	1186.43	1.60E-02	2.25E-02

Table A-3
Pond C Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae (mg/kg)
Analyte	Mean	UCl	Mean	UCL	Mean	UCl	Average
1,2,3,4,7,8-HxCDF	.	.	.	.	.	.	.
2,3,7,8-TCDD	.	.	.	.	.	.	.
2,4'-DDD	.	.	.	.	.	.	.
2,4'-DDT	.	.	.	.	.	.	.
4,4'-DDD	0.06	0.09	2.32	4.72	.	.	.
4,4'-DDE	0.03	0.06	0.99	2.17	.	.	.
4,4'-DDT	0.01	0.02	0.17	0.26	.	.	.
Aldrin	0.00	0.01	.	.	.	.	.
alpha-BHC	.	.	.	.	.	.	.
alpha-Chlordane	.	.	0.07	0.10	.	.	.
Arsenic	1.39	1.74	1.65	2.15	2.42E-03	3.64E-03	1.36
Barium	89.07	106.34	90.50	100.23	0.03	0.04	2.19
beta-BHC	0.01	0.02	.	.	.	.	.
bis(2-Ethylhexyl)phthalate	0.96	1.93	9.64	15.68	.	.	14.51
Cadmium	.	.	3.89	5.09	.	.	0.13
Chromium	7.51	9.10	50.27	69.15	.	.	0.14
cis-Nonachlor	.	.	.	.	.	.	.
delta-BHC	.	0.01	1.51	3.03	.	.	.
Dibenzofuran	.	.	0.14	0.23	.	.	0.07
Dieldrin	.	.	.	.	.	.	.
gamma-BHC	.	.	.	.	.	.	.
gamma-Chlordane	.	.	0.11	0.17	.	.	.
Heptachlor	.	.	.	.	.	.	3.82E-04
Heptachlor epoxide	.	0.01	.	.	.	.	4.80E-05
Lead	3.20	4.01	22.31	31.92	0.01	0.01	0.30
Magnesium	11016.67	16880.52	10400.00	12385.27	144.00	167.93	3804.90
Manganese	105.00	131.31	147.00	185.07	0.07	0.08	23.83
Mercury	.	.	0.96	1.25	.	.	0.05
Nickel	5.02	5.61	9.61	11.47	.	.	0.18
Oxychlordane	.	.	.	.	.	.	4.37E-04
Selenium	.	.	2.27	3.43	.	.	1.80
Silver	.	.	95.44	152.39	.	.	0.22
Thallium	.	.	.	.	.	.	0.32
Total Chlordanes	.	.	.	.	.	.	.
Total DDTs	.	.	.	.	.	.	.
Total Decachlorobiphenyls	.	.	.	.	.	.	.
Total Dichlorobiphenyls	.	.	.	.	.	.	0.01
Total Heptachlorobiphenyls	.	.	.	.	.	.	0.02
Total Hexachlorobiphenyls	.	.	.	.	.	.	0.03
Total Nonachlorobiphenyls	.	.	.	.	.	.	.
Total Octachlorobiphenyls	.	.	.	.	.	.	.
Total PCBs	.	.	.	.	.	.	0.14
Total Pentachlorobiphenyls	.	.	.	.	.	.	0.06
Total Tetrachlorobiphenyls	.	.	.	.	.	.	0.03
Total Trichlorobiphenyls	.	.	.	.	.	.	.
trans-Nonachlor	.	.	.	.	.	.	.

Table A-4
Pond D Contaminants

	Soil (mg/kg)		Surface Water (mg/L)		Algae (mg/kg)
Analyte	Mean	UCL	Mean	UCl	Average
2,3,7,8-TCDF	.	.	.	.	3.70E-07
2,4'-DDD	.	.	.	.	4.47E-04
2,4'-DDT	.	.	.	.	1.23E-03
4,4'-DDD	0.03	0.08	3.00E-05	3.00E-05	6.00E-03
4,4'-DDE	0.01	0.01	.	.	2.23E-03
4,4'-DDT	0.01	0.02	.	.	7.56E-04
Aldrin	.	.	.	.	1.75E-04
alpha-BHC	.	.	.	.	2.64E-04
alpha-Chlordane	2.68E-03	0.01	.	.	4.64E-04
Arsenic	1.23	1.68	4.12E-03	0.01	1.34
Barium	43.65	56.42	0.04	0.04	1.76
Cadmium	.	.	.	.	0.26
Chromium	4.90	6.51	.	.	0.24
cis-Nonachlor	.	.	.	.	2.80E-04
delta-BHC	4.41E-03	0.01	2.10E-05	2.10E-05	1.05E-03
Dieldrin	.	.	1.50E-05	1.50E-05	2.36E-03
Endrin	.	.	.	.	9.33E-04
gamma-BHC	3.76E-03	0.01	1.00E-05	1.00E-05	1.30E-03
gamma-Chlordane	.	.	5.80E-06	5.80E-06	3.65E-04
Heptachlor	2.77E-03	0.01	.	.	1.31E-04
Lead	2.05	2.83	4.18E-03	4.93E-03	0.35
Magnesium	.	.	171.67	175.03	3252.86
Manganese	.	.	0.06	0.07	111.40
Mercury	.	.	3.62E-04	6.05E-04	0.07
Nickel	7.27	8.61	.	.	0.45
Oxychlordane	.	.	.	.	1.53E-04
Selenium	0.44	0.47	1.58E-03	2.34E-03	2.84
Silver	.	.	.	.	0.38
Total Chlordanes	.	.	.	.	1.72E-03
Total DDTs	.	.	.	.	0.01
Total Decachlorobiphenyls	.	.	.	.	3.34E-04
Total Dichlorobiphenyls	.	.	.	.	2.69E-03
Total Heptachlorobiphenyls	.	.	.	.	0.02
Total Hexachlorobiphenyls	.	.	.	.	0.03
Total Nonachlorobiphenyls	.	.	.	.	6.91E-05
Total Octachlorobiphenyls	.	.	.	.	8.14E-04
Total PCBs	.	.	.	.	0.17
Total Pentachlorobiphenyls	.	.	.	.	0.07
Total Tetrachlorobiphenyls	.	.	.	.	0.04
Total Trichlorobiphenyls	.	.	.	.	4.37E-03
trans-Nonachlor	.	.	.	.	2.16E-04

Table A-5
Pond E Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Sediment (mg/kg)		Surface Water (mg/L)		Benthos	Algae
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
1,2,3,4,6,7,8-HpCDD	.	.	.	.	.	.	.	.	.	6.80E-07
1,2,3,4,7,8-HxCDF	.	.	.	.	.	.	.	.	6.00E-08	.
2,3,7,8-TCDF	.	.	.	.	.	.	.	.	.	4.60E-07
2,4'-DDD	.	.	.	.	.	.	.	.	3.25E-04	1.99E-03
2,4'-DDT	.	.	.	.	.	.	.	.	.	2.61E-03
2-Naphthylamine	.	.	.	.	.	.	.	.	0.38	.
4,4'-DDD	0.01	0.03	1.00	2.65	.	.	2.60E-05	2.60E-05	0.02	0.03
4,4'-DDE	2.44E-03	3.78E-03	0.37	0.82	.	.	2.51E-04	4.52E-04	2.96E-03	0.01
4,4'-DDT	2.91E-03	3.19E-03	0.10	0.13	.	.	.	.	.	1.36E-03
Aldrin	1.47E-03	1.69E-03	.	.	.	.	.	.	.	4.60E-04
alpha-BHC	1.47E-03	1.60E-03	.	.	.	.	.	.	.	5.28E-04
alpha-Chlordane	1.26E-03	1.44E-03	.	.	.	.	.	.	.	1.27E-03
Antimony	.	.	.	.	6.60	6.60	.	.	0.11	.
Arsenic	1.64	2.12	1.61	2.08	2.70	2.70	.	.	0.28	1.09
Barium	70.67	89.29	80.20	98.46	36.00	36.00	0.03	0.04	8.33	2.27
Benzyl alcohol	.	.	.	.	.	.	.	.	.	0.85
bis(2-Ethylhexyl)phthalate	1.58	2.50	7.49	10.51	0.66	0.66	0.01	0.01	20.85	.
Cadmium	.	.	1.82	2.41	0.08	0.08	.	.	0.06	0.20
Chromium	4.25	5.30	22.80	27.24	2.90	2.90	.	.	0.67	0.11
cis-Nonachlor	.	.	.	.	.	.	.	.	.	3.37E-04
delta-BHC	2.87E-03	4.94E-03	.	.	.	.	.	.	.	5.28E-04
Dieldrin	.	.	.	.	.	.	1.45E-05	1.45E-05	.	2.25E-03
Endrin	.	.	.	.	.	.	.	.	.	1.70E-03
gamma-BHC	.	.	0.07	0.10	.	.	1.45E-05	1.45E-05	.	1.67E-03
gamma-Chlordane	1.85E-03	2.73E-03	0.08	0.12	0.54	0.54	5.20E-06	5.20E-06	.	8.01E-04
HCB	.	.	.	.	.	.	.	.	5.39E-04	1.41E-04
Heptachlor	1.40E-03	1.60E-03	.	.	0.59	0.59	.	.	4.15E-05	1.96E-04
Lead	1.74	2.48	10.48	12.14	21.00	21.00	2.25E-03	3.52E-03	0.45	0.15
Magnesium	.	.	.	.	.	.	160.00	172.74	2537.03	8497.10
Manganese	.	.	.	.	.	.	0.03	0.04	34.30	74.87
Mercury	.	.	0.27	0.39	.	.	4.92E-04	5.60E-04	0.04	0.05
n-Nitroso-di-n-propylamine	.	.	.	.	.	.	.	.	.	7.74
n-Nitrosodimethylamine	.	.	.	.	.	.	.	.	.	0.12
Nickel	.	.	7.66	10.02	3.10	3.10	.	.	0.52	0.25

Table A-5
Pond E Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Sediment (mg/kg)		Surface Water (mg/L)		Benthos	Algae
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
OCDD	.	.	.	.	.	.	.	.	0.00	0.00
Oxychlordane	.	.	.	.	.	.	.	.	.	0.00
Selenium	0.49	0.62	1.64	2.25	0.67	0.67	3.18E-03	4.48E-03	1.25	1.90
Silver	.	.	26.50	36.37	0.80	0.80	.	.	3.17	0.28
Total BHCs	.	.	.	.	.	.	.	.	3.08E-04	1.80E-03
Total Chlordanes	.	.	.	.	.	.	.	.	1.52E-04	3.05E-03
Total DDTs	.	.	.	.	.	.	.	.	0.02	0.04
Total Decachlorobiphenyls	.	.	.	.	.	.	.	.	.	6.53E-05
Total Dichlorobiphenyls	.	.	.	.	.	.	.	.	.	0.01
Total Heptachlorobiphenyls	.	.	.	.	.	.	.	.	3.02E-03	0.03
Total Hexachlorobiphenyls	.	.	.	.	.	.	.	.	0.01	0.05
Total Nonachlorobiphenyls	.	.	.	.	.	.	.	.	.	8.07E-05
Total Octachlorobiphenyls	.	.	.	.	.	.	.	.	.	8.69E-04
Total PCBs	.	.	.	.	.	.	.	.	0.00	0.23
Total Pentachlorobiphenyls	.	.	.	.	.	.	.	.	.	0.09
Total Tetrachlorobiphenyls	.	.	.	.	.	.	.	.	0.01	0.04
Total Trichlorobiphenyls	.	.	.	.	.	.	.	.	3.70E-04	0.01
trans-Nonachlor	.	.	.	.	.	.	.	.	1.10E-04	5.38E-04

Table A-6
Pond F Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae (mg/kg)
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Average
2,4'-DDD	.	.	.	.	.	.	0.04
2,4'-DDE	.	.	.	.	.	.	0.01
2,4'-DDT	.	.	.	.	.	.	1.09E-03
4,4'-DDD	0.04	0.04	6.20	11.00	3.50E-05	3.50E-05	0.45
4,4'-DDE	0.02	0.02	1.39	1.90	1.20E-04	1.20E-04	0.05
4,4'-DDT	0.01	0.01	0.14	0.16	.	.	0.01
Aldrin	.	.	.	.	.	.	2.89E-04
alpha-BHC	.	.	.	.	.	.	2.09E-04
alpha-Chlordane	.	.	0.15	0.25	3.00E-05	3.00E-05	0.02
Arsenic	0.96	0.96	3.15	4.00	.	.	2.58
Barium	28.00	28.00	49.00	59.00	.	.	1.70
Cadmium	.	.	.	.	.	.	0.20
Chromium	.	.	29.50	33.00	.	.	0.15
cis-Nonachlor	.	.	.	.	.	.	1.88E-03
delta-BHC	2.70E-03	2.70E-03	3.60	5.00	.	.	1.19E-03
Dieldrin	.	.	.	.	.	.	1.58E-03
Endrin	.	.	.	.	.	.	1.59E-03
gamma-BHC	.	.	0.07	0.08	1.20E-05	1.20E-05	9.85E-04
gamma-Chlordane	4.50E-04	4.50E-04	0.06	0.06	1.00E-05	1.00E-05	0.02
HCB	.	.	.	.	.	.	9.66E-05
Heptachlor	.	.	0.05	0.05	.	.	1.89E-04
Heptachlor epoxide	.	.	.	.	.	.	4.51E-05
Lead	0.50	0.50	13.30	17.00	.	.	0.15
Magnesium	.	.	.	.	.	.	3638.53
Manganese	.	.	.	.	.	.	83.70
Mirex	.	.	.	.	.	.	1.32E-04
Nickel	.	.	9.61	13.00	.	.	0.14
Oxychlordane	.	.	.	.	.	.	1.02E-03
Selenium	.	.	2.30	2.50	.	.	2.43
Silver	.	.	48.50	59.00	.	.	0.52
Total BHCs	.	.	.	.	.	.	1.30E-03
Total Chlordanes	.	.	.	.	.	.	0.05
Total DDTs	.	.	.	.	.	.	0.55

Table A-6
Pond F Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae (mg/kg)
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Average
Total Decachlorobiphenyls	.	.	.	.	.	.	1.14E-05
Total Dichlorobiphenyls	.	.	.	.	.	.	0.01
Total Heptachlorobiphenyls	.	.	.	.	.	.	0.01
Total Hexachlorobiphenyls	.	.	.	.	.	.	0.02
Total Octachlorobiphenyls	.	.	.	.	.	.	1.94E-04
Total PCBs	.	.	.	.	.	.	0.14
Total Pentachlorobiphenyls	.	.	.	.	.	.	0.05
Total Tetrachlorobiphenyls	.	.	.	.	.	.	0.04
Total Trichlorobiphenyls	.	.	.	.	.	.	0.01
trans-Nonachlor	.	.	.	.	.	.	0.01

Table A-7
Pond G Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae	Fish
Analyte	Mean	UCL	Mean	UCL	Mean	UCl	Average (mg/kg)	
1,2,3,4,6,7,8-HpCDD	.	.	.	.	.	.	1.30E-07	.
1,2,3,4,7,8-HxCDF	.	.	.	.	.	.	9.00E-08	.
1,2,3,7,8,9-HxCDF	.	.	.	.	.	.	1.90E-07	.
2,3,4,6,7,8-HxCDF	.	.	.	.	.	.	1.50E-07	.
2,3,7,8-TCDF	.	.	.	.	.	.	6.00E-08	.
2,4'-DDD	.	.	.	.	.	.	2.97E-04	5.91E-04
2,4'-DDT	.	.	.	.	.	.	2.04E-05	7.23E-04
4,4'-DDD	3.60E-03	0.01	0.83	1.78	.	.	5.76E-03	2.30E-02
4,4'-DDE	1.83E-03	2.25E-03	0.18	0.31	.	.	1.02E-03	1.16E-02
4,4'-DDT	.	.	0.08	0.12	.	.	4.08E-04	1.73E-03
Aldrin	.	.	.	.	.	.	9.24E-05	1.05E-04
alpha-BHC	2.00E-03	2.48E-03	0.05	0.07	1.04E-04	2.00E-04	4.65E-04	3.15E-04
alpha-Chlordane	.	.	0.05	0.08	.	.	3.55E-04	7.43E-04
Arsenic	1.81	2.18	2.08	2.70	4.48E-03	0.01	1.48	0.13
Barium	135.00	155.88	87.67	102.62	0.04	0.04	0.91	7.89
beta-BHC	3.09E-03	5.35E-03	.	.	3.02E-04	6.00E-04	.	2.36E-04
Cadmium	.	.	.	.	.	.	0.17	0.05
Chromium	11.73	13.50	13.83	16.75	.	.	0.06	0.05
cis-Nonachlor	.	.	.	.	.	.	.	6.64E-04
delta-BHC	.	.	.	.	.	.	6.00E-04	.
Dibutylphthalate	.	.	.	.	.	.	0.17	.
Dieldrin	.	.	.	.	.	.	8.39E-04	1.54E-03
Endrin	.	.	.	.	.	.	5.07E-04	.
gamma-BHC	2.01E-03	2.53E-03	.	.	9.90E-06	9.90E-06	1.54E-03	9.13E-04
gamma-Chlordane	.	.	0.09	0.18	.	.	3.55E-05	1.90E-04
HCB	.	.	.	.	.	.	.	6.10E-04
Heptachlor	1.70E-03	2.14E-03	.	.	.	.	1.87E-04	3.84E-05
Heptachlor epoxide	.	.	.	.	.	.	.	5.71E-05
Lead	18.86	46.24	64.88	152.24	2.88E-03	3.11E-03	0.12	.
Magnesium	.	.	.	.	218.00	232.14	3705.91	2008.98
Manganese	.	.	.	.	0.07	0.07	60.97	19.08
Mercury	.	.	0.14	0.20	2.20E-04	2.20E-04	0.06	.
Nickel	7.84	8.78	8.44	10.37	.	.	0.14	.
Oxychlordane	.	.	.	.	.	.	.	6.72E-04

Table A-7
Pond G Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae	Fish
Analyte	Mean	UCL	Mean	UCL	Mean	UCl	Average (mg/kg)	
Selenium	.	.	1.07	1.49	.	.	2.05	2.19
Silver	.	.	.	.	.	.	0.44	0.23
Total BHCs	.	.	.	.	.	.	2.57E-03	1.36E-03
Total Chlordanes	.	.	.	.	.	.	.	3.99E-03
Total DDTs	.	.	.	.	.	.	6.65E-03	3.76E-02
Total Dichlorobiphenyls	.	.	.	.	.	.	4.14E-03	.
Total Heptachlorobiphenyls	.	.	.	.	.	.	3.15E-03	2.68E-02
Total Hexachlorobiphenyls	.	.	.	.	.	.	9.58E-03	4.05E-02
Total Octachlorobiphenyls	.	.	.	.	.	.	.	1.90E-04
Total PCBs	.	.	.	.	.	.	0.05	0.17
Total Pentachlorobiphenyls	.	.	.	.	.	.	1.85E-02	7.46E-02
Total Tetrachlorobiphenyls	.	.	.	.	.	.	1.12E-02	2.84E-02
Total Trichlorobiphenyls	.	.	.	.	.	.	4.62E-03	3.21E-03
trans-Nonachlor	.	.	.	.	.	.	2.41E-04	1.62E-03

Table A-8
Ditch Contaminants

	Soil (mg/kg)		Surface Water (mg/L)		Benthos	Algae	Insects	Grass	Fish
Analyte	Mean	UCL	Mean	UCL	Average (mg/kg)				
1,2,3,4,6,7,8-HpCDD	.	.	.	.	.	1.59E-06	.	.	.
1,2,3,4,7,8-HxCDF	.	.	.	.	2.40E-07	.	.	.	.
1,2,3,7,8,9-HxCDD	.	.	.	.	.	.	.	.	2.00E-08
2,4'-DDD	.	.	.	.	4.87E-04	1.15E-03	1.45E-04	.	.
2,4'-DDE	.	.	.	.	8.41E-05	.	.	.	.
2,4'-DDT	.	.	.	.	.	2.93E-05	.	.	.
4,4'-DDD	0.06	0.12	.	.	3.30E-02	1.59E-02	3.54E-03	.	.
4,4'-DDE	1.32E-02	2.75E-02	.	.	1.39E-02	2.75E-03	6.82E-03	.	.
4,4'-DDT	1.96E-02	4.87E-02	.	.	2.51E-04	5.15E-04	7.20E-04	.	.
Aldrin	1.38E-03	1.53E-03	.	.	.	6.41E-04	.	.	.
Antimony	.	.	.	.	.	.	.	.	0.10
Arsenic	2.98	5.05	.	.	.	1.73	0.47	.	0.16
Barium	63.18	80.84	.	.	.	28.81	0.87	.	7.71
Cadmium	0.88	0.88	.	.	.	0.60	0.10	.	0.02
Chromium	8.71	11.92	.	.	.	5.22	0.16	.	0.06
Dieldrin	.	.	1.10E-05	1.10E-05	5.95E-03	1.02E-03	3.55E-04	.	.
Diethylphthalate	.	.	.	.	.	0.86	.	.	.
Endrin	.	.	.	.	.	.	.	.	4.76E-04
HCB	.	.	.	.	5.49E-04	.	3.66E-04	.	.
Heptachlor	.	.	.	.	1.47E-04	1.71E-05	1.50E-04	.	.
Heptachlor epoxide	12.00	12.00	.	.	.	.	.	.	5.04E-04
Lead	19.77	40.20	.	.	.	6.13	0.07	.	0.05
Magnesium	.	.	.	.	.	15370.58	1539.24	.	2080.02
Manganese	.	.	.	.	.	111.97	25.79	.	18.63
Mercury	0.15	0.25	.	.	.	0.09	0.07	.	0.10
Nickel	8.15	10.18	.	.	.	3.57	0.18	.	.
OCDD	.	.	.	.	3.53E-06	1.03E-05	.	.	.
OCDF	.	.	.	.	.	7.60E-07	.	.	.
Oxychlordane	.	.	.	.	4.21E-03	5.30E-04	8.30E-04	.	.
Selenium	7.10	7.10	.	.	.	1.95	1.84	.	2.63
Silver	0.59	0.59	.	.	.	0.70	0.89	.	0.26
Thallium	0.22	0.22	.	.	.	.	.	.	0.14
Total BHCs	.	.	.	.	1.15E-03	1.09E-03	7.64E-04	.	.

Table A-8
Ditch Contaminants

	Soil (mg/kg)		Surface Water (mg/L)		Benthos	Algae	Insects	Grass	Fish
Analyte	Mean	UCL	Mean	UCL	Average (mg/kg)				
Total BHCs	.	.	.	.		.	.	.	.
Total Chlordanes	.	.	.	.	1.15E-02	6.97E-03	6.42E-03	.	.
Total DDTs	.	.	.	.	4.74E-02	2.01E-02	1.12E-02	.	.
Total Dichlorobiphenyls	.	.	.	.	4.40E-04	1.90E-02	.	.	.
Total Heptachlorobiphenyls	.	.	.	.	1.43E-03	4.90E-03	5.72E-03	.	.
Total Hexachlorobiphenyls	.	.	.	.	1.18E-02	8.35E-03	6.49E-03	.	.
Total Nonachlorobiphenyls	.	.	.	.	7.20E-04	.	.	.	.
Total Octachlorobiphenyls	.	.	.	.	.	9.08E-05	.	.	.
Total PCBs	.	.	.	.	3.77E-02	8.17E-02	3.34E-02	.	.
Total PCBs	.	.	.	.		.	.	.	.
Total Pentachlorobiphenyls	.	.	.	.	4.73E-03	1.15E-02	1.48E-02	.	.
Total Tetrachlorobiphenyls	.	.	.	.	5.28E-03	8.88E-03	4.89E-03	.	.
Total Trichlorobiphenyls	.	.	.	.	3.50E-03	2.89E-02	3.80E-04	.	.
alpha-BHC	1.44E-03	1.54E-03	7.80E-06	7.80E-06	.	.	3.25E-04	.	.
alpha-Chlordane	4.85E-03	1.16E-02	.	.	2.06E-03	1.87E-03	2.46E-03	.	.
beta-BHC	1.89E-03	2.69E-03	.	.	2.01E-03	.	.	.	.
cis-Nonachlor	.	.	.	.	2.04E-03	5.45E-04	8.08E-04	.	.
delta-BHC	0.20	0.35	.	.	.	2.48E-04	8.50E-05	.	.
gamma-BHC	2.30E-03	3.32E-03	.	.	.	8.37E-04	3.73E-04	.	.
gamma-Chlordane	7.45E-03	1.74E-02	.	.	.	2.49E-03	.	.	.
trans-Nonachlor	.	.	.	.	3.14E-03	1.47E-03	2.17E-03	.	.

Table A-9
Lake Holloman Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae	Fish
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
1,2,3,4,6,7,8-HpCDD	.	.	.	.	.	.	7.00E-08	.
1,2,3,7,8,9-HxCDD	.	.	.	.	.	.	.	4.00E-08
2,3,7,8-TCDD	.	.	.	.	.	.	.	1.00E-08
2,3,7,8-TCDF	.	.	.	.	.	.	.	1.00E-08
2,4'-DDD	.	.	.	.	.	.	2.19E-04	3.29E-04
2,4'-DDE	.	.	.	.	.	.	.	4.55E-04
2,4'-DDT	.	.	.	.	.	.	1.84E-04	.
4,4'-DDD	.	.	0.09	0.26	4.20E-06	4.20E-06	2.12E-03	1.43E-02
4,4'-DDE	3.10E-03	6.10E-03	1.45E-02	2.53E-02	.	.	1.24E-03	7.97E-03
4,4'-DDT	.	.	9.39E-03	1.34E-02	1.17E-05	1.80E-05	2.29E-04	1.07E-03
Acetophenone	.	.	.	.	.	.	.	0.77
Aldrin	.	.	.	.	.	.	0.00	.
alpha-BHC	3.06E-03	6.07E-03	5.29E-03	7.18E-03	8.80E-06	9.68E-06	.	5.60E-04
alpha-Chlordane	.	.	1.30E-02	2.80E-02	.	.	2.96E-04	1.06E-03
Antimony	.	.	.	.	.	.	0.22	.
Arsenic	2.41	2.97	2.96	4.25	7.32E-03	8.45E-03	1.59	0.17
Barium	74.44	88.85	95.71	144.41	0.04	0.04	5.48	5.54
beta-BHC	.	.	.	.	.	.	.	1.68E-03
bis(2-Ethylhexyl)phthalate	0.74	1.01	18.38	41.36	2.12E-02	4.67E-02	.	2.39E+01
Cadmium	.	.	.	.	.	.	0.22	1.27E-02
Chromium	5.34	6.66	10.62	16.71	.	.	0.21	0.08
cis-Nonachlor	.	.	.	.	.	.	1.33E-04	1.15E-03
delta-BHC	0.70	1.53	1.09	3.01	.	.	6.62E-04	8.77E-05
Dieldrin	.	.	0.04	0.07	6.83E-06	1.29E-05	6.84E-04	8.99E-04
gamma-BHC	0.01	0.02	0.01	9.61E-03	6.47E-06	1.15E-05	1.41E-03	6.45E-04
gamma-Chlordane	.	.	0.02	0.04	.	.	4.19E-04	4.78E-04
HCB	.	.	.	.	.	.	1.13E-04	3.56E-04
Heptachlor	3.16E-03	6.15E-03	4.76E-03	6.63E-03	.	.	3.34E-04	1.78E-04
Lead	2.52	3.03	13.06	21.77	3.22E-03	4.02E-03	0.17	0.08
Magnesium	.	.	.	.	544.00	561.32	18164.21	1991.22
Manganese	.	.	.	.	0.05	0.06	38.97	19.02
Mercury	0.12	0.21	.	.	2.64E-04	3.21E-04	6.71E-02	6.95E-02

Table A-9
Lake Holloman Contaminants

	Soil (mg/kg)		Sludge (mg/kg)		Surface Water (mg/L)		Algae	Fish
Analyte	Mean	UCL	Mean	UCL	Mean	UCL	Average (mg/kg)	
Nickel	.	.	12.32	18.61	.	.	0.51	0.15
OCDD	.	.	.	.	.	.	1.87E-06	1.56E-06
OCDF	.	.	.	.	.	.	1.12E-06	.
Oxychlordane	.	.	.	.	.	.	9.65E-04	8.50E-04
Pyridine	.	.	.	.	.	.	1.37	.
Selenium	0.59	0.77	1.40	1.92	.	.	1.26	1.74
Silver	.	.	.	.	.	.	0.10	0.12
Thallium	.	.	.	.	.	.	0.12	.
Total BHCs	.	.	.	.	.	.	1.56E-03	9.28E-04
Total Chlordanes	.	.	.	.	.	.	1.62E-03	6.71E-03
Total DDTs	.	.	.	.	.	.	8.71E-04	2.56E-02
Total Dichlorobiphenyls	.	.	.	.	.	.	1.70E-02	8.24E-04
Total Heptachlorobiphenyls	.	.	.	.	.	.	1.16E-03	5.65E-03
Total Hexachlorobiphenyls	.	.	.	.	.	.	3.22E-03	1.24E-02
Total Octachlorobiphenyls	.	.	.	.	.	.	3.17E-04	2.74E-04
Total PCBs	.	.	.	.	.	.	3.83E-02	3.53E-02
Total Pentachlorobiphenyls	.	.	.	.	.	.	2.36E-03	2.35E-02
Total Tetrachlorobiphenyls	.	.	.	.	.	.	5.75E-03	6.82E-03
Total Trichlorobiphenyls	.	.	.	.	.	.	9.65E-03	1.88E-03
trans-Nonachlor	.	.	.	.	.	.	3.14E-04	3.18E-03

Table A-10
Lake Stinky Concentrations

	Soil (mg/kg)		Surface Water (mg/L)		Algae	Ostracods	Grass
Analyte	Mean	UCL	Mean	UCL	Average (mg/kg)		
1,2,3,4,7,8-HxCDF	.	.	.	.	1.39E-06	.	4.00E-08
1,2,3,7,8,9-HxCDF	.	.	.	.	5.80E-07	.	.
1,2,4-Trichlorobenzene	.	.	.	.	.	2.10	.
2,4'-DDD	.	.	.	.	9.54E-05	3.04E-04	8.08E-06
2,4'-DDE	.	.	.	.	.	2.61E-04	.
2,4'-DDT	.	.	.	.	2.01E-04	3.51E-04	.
4,4'-DDD	.	.	2.39E-05	4.30E-05	1.50E-03	8.14E-04	.
4,4'-DDE	.	.	.	.	5.00E-04	1.72E-03	4.97E-03
4,4'-DDT	.	.	.	.	.	1.54E-03	3.74E-05
Aldrin	7.51E-03	1.32E-02	1.49E-05	2.50E-05	5.12E-04	.	.
alpha-BHC	5.51E-03	9.95E-03	5.50E-05	1.00E-04	1.09E-03	6.79E-04	.
alpha-Chlordane	.	.	.	.	4.40E-04	.	.
Antimony	.	.	.	.	0.26	0.20	0.79
Arsenic	2.70	3.38	.	.	2.17	4.04	3.14
Barium	72.25	79.96	.	.	4.17	3.82	3.87
beta-BHC	6.26E-03	1.05E-02	.	.	.	.	4.20E-03
bis(2-Ethylhexyl)phthalate	0.85	1.72	.	.	.	12.85	.
Cadmium	2.02	2.57	.	.	0.21	0.35	0.10
Chromium	7.03	9.03	.	.	2.29	0.23	0.43
cis-Nonachlor	.	.	.	.	1.20E-04	1.31E-04	.
delta-BHC	0.88	1.84	.	.	6.67E-04	5.76E-04	.
Dibutylphthalate	.	.	.	.	1.94	.	1.67
Dieldrin	.	.	1.10E-05	1.10E-05	4.00E-04	.	0.00
Diethylphthalate	.	.	.	.	1.57	.	.
Endrin	6.37E-03	1.14E-02	.	.	.	.	1.63E-03
gamma-BHC	1.03E-02	1.90E-02	9.80E-06	9.80E-06	3.52E-03	1.72E-04	9.92E-04
gamma-Chlordane	.	.	.	.	1.13E-03	.	.
HCB	.	.	.	.	8.52E-05	2.78E-04	1.32E-03
Heptachlor	.	.	.	.	5.83E-04	6.59E-05	1.17E-03
Lead	3.20	4.03	.	.	0.57	0.22	0.45
Magnesium	.	.	.	.	29559.52	10724.73	20034.61

Table A-10
Lake Stinky Concentrations

	Soil (mg/kg)		Surface Water (mg/L)		Algae	Ostracods	Grass
Analyte	Mean	UCL	Mean	UCL	Average (mg/kg)		
Manganese	.	.	.	.	70.83	118.92	145.29
Mercury	.	.	.	.	0.05	0.06	.
Mirex	.	.	.	.	.	.	1.34E-05
Nickel	6.94	7.24	.	.	0.88	0.41	0.59
Oxychlordane	.	.	.	.	6.04E-04	1.31E-04	.
Selenium	0.45	0.51	.	.	0.47	2.11	.
Silver	.	.	.	.	0.04	0.13	0.05
Thallium	.	.	.	.	0.15	.	0.26
Total BHCs	.	.	.	.	2.94E-03	8.72E-04	2.07E-03
Total Chlordanes	.	.	.	.	2.37E-03	8.00E-04	1.17E-03
Total DDTs	.	.	.	.	1.78E-03	3.27E-03	2.51E-03
Total Dichlorobiphenyls	.	.	.	.	3.07E-02	4.90E-04	3.38E-03
Total Heptachlorobiphenyls	.	.	.	.	5.86E-04	3.44E-03	1.10E-04
Total Hexachlorobiphenyls	.	.	.	.	.	3.81E-03	.
Total PCBs	.	.	.	.	3.88E-02	9.38E-03	2.26E-02
Total Pentachlorobiphenyls	.	.	.	.	1.85E-03	1.13E-03	8.00E-05
Total Tetrachlorobiphenyls	.	.	.	.	2.59E-03	1.43E-03	8.95E-03
Total Trichlorobiphenyls	.	.	.	.	1.16E-02	4.45E-04	1.45E-02
trans-Nonachlor	.	.	.	.	3.73E-04	5.70E-04	.

ATTACHMENT B

CALCULATION SHEET

CALC. NO. _____

SIGNATURE Cathy Thompson DATE 10/1/93 CHECKED ✓ DATE 10/16/93

PROJECT Hollsman JOB NO. —

SUBJECT Uptake Fractions for Algae SHEET #1 OF 6 SHEETS

Solution: UF from Sludge

Pond B $\frac{2.046628}{1.070972}$ = 1.911002474

Pond C $\frac{1.803492E}{2.20[illegible]}$ = 0.7[illegible]

Pond F $\frac{2.926681}{2.3}$ = 1.055942261

Avg: $\boxed{1.3}$

UF from Water

Pond D

(Conc in Sludge)(UF Sludge) = Conc. in Algae from Sludge

0.4[illegible](1.3) = 0.5678178

(Dissolved Cu in Algae) − (Conc. in Algae from Sludge) =

2.8[illegible] − 0.5678178 = 2.[illegible] conc. from Water

(Conc. in Water)(X) = Conc. in Algae from UF Water

0.001523 (X) = 2.[illegible]

X = UF Water = $\boxed{1431.08}$

CALCULATION SHEET

CALC. NO. _____

SIGNATURE Kathy Thompson DATE 10/[illegible]/93 CHECKED ✓ DATE 10/[illegible]

PROJECT Hollyman JOB NO. _____

SUBJECT Uptake factors for Algae SHEET #2 OF 6 SHEETS

Silver

SOURCE UF from Sludge

Pond C $\frac{0.210511}{95.[illegible]}$ = 0.002279

UF from water:
Silver was not detected in water at any other location.

Chromium

SOURCE UF from Sludge

Pond C $\frac{0.137482}{50.2[illegible]}$ = 0.002734

UF from water:
Chromium was not detected in water at any other location

Lead

SOURCE UF from Soil

Pond F $\frac{0.1503}{0.5 + 13.3}$ = 0.01[illegible]

Ditch $\frac{0.125312}{[illegible]}$ = 0.30465

Lake Stinky $\frac{0.572012}{3.0}$ = 0.[illegible]875

Lead

SOURCE UF from Water

Pond C 0.201001 = 0.03201
.29[illegible] - .[illegible]
.005[illegible](A) = 0.2[illegible] UF = [illegible]

10-88-30702

CALCULATION SHEET

CALC. NO. _____

SIGNATURE Cathy Champion DATE 10/[illegible] CHECKED ✓ DATE 10/1/93

PROJECT Bitterman JOB NO. —

SUBJECT Uptake Factors for Algae SHEET #3 OF 6 SHEETS

Lead: Check

Pond A

Calc. conc. = (conc. in soil)(UF soil) + (conc. in water)(UF water)

= (18.5625)(0.01) + (.00283)(48[illegible]) = [illegible]

measured conc. = 0.12

Magnesium

Pond G

Uptake factor from water

$\frac{3705.938}{215}$ = 17

Pond A

Uptake factor from soil

$\frac{5[illegible]}{45000}$ = 0.127[illegible]7

Manganese

Pond G

UF from water

$\frac{60[illegible]}{0.06[illegible]}$ = 918.[illegible]

Pond A

UF from soil

$\frac{142.[illegible]}{[illegible]}$ = [illegible] 95

CALCULATION SHEET

CALC. NO. _____

SIGNATURE Carolyn Simpson DATE 10/01/93 CHECKED ✓ DATE 10/15/93

PROJECT Hollman JOB NO. —

SUBJECT Uptake factors for algae SHEET #4 OF 6 SHEETS

Gamma-BHC Source	UF from water		
Pond D	0.001298 / 0.00001	=	= 129.324
Pond E	0.001672 / 1.45E-05		= 115.3083
			AVE: 122.5[illegible]15
Gamma-BHC Ditch	UF from sed		
	0.000837 / 0.0033		= .253778
Pond D	0.001298 / 0.003756		= .345685
			AVE: 0.354799
Delta-BHC Source	UF from sed		
Pond E	0.000528 / 0.002872		= .183795
Ditch	0.000048 / 0.1[illegible]18		= .03126
Lake Shirley	0.000667 / 0.8849163		= .000754
			AVE: 0.062
Delta-BHC Pond D	UF from water		
	0.001045 / 0.000021	=	49.78928
Gamma-BHC Pond E	UF from sludge		
	0.001672 / 0.0674	=	0.024[illegible]

10-88-30702

CALCULATION SHEET

CALC. NO.

SIGNATURE Carty Simpson DATE 10/01/93 CHECKED ✓ DATE 10/18/93

PROJECT Hollman JOB NO. —

SUBJECT UPTAKE FACTORS FOR ALGAE SHEET #5 OF 6 SHEETS

4,4'-DDD Pond A	UF from water 0.030777 / 0.000028	= 1100
Pond C	UF from Sludge 0.00234 / 2.822276	= 0.00
4,4'-DDE Pond E	UF from water 0.005295 / 0.000251	= 21.0956
Pond C	UF from Sludge 0.00213 / 0.942958	= 0.002
4,4'-DDT Pond A	UF from water	= 1099.2
Pond C	UF from Sludge .000703 / 0.168822	= 0.004

10-88-30702

CALCULATION SHEET

CALC. NO. _____

SIGNATURE Cathy Thrington DATE [illegible] CHECKED ✓ DATE [illegible]

PROJECT Holloman JOB NO. _____

SUBJECT Uptake Factors for Algae SHEET 6 OF 6 SHEETS

Mercury

Pond C — UF from Sludge = 0.049294

Pond G — 0.4375 (0.049294) = 0.0070028 (UF Sludge)

conc. in Algae − conc. in Algae from Sludge

0.0578886 − 0.0070028 = 0.0508172

.00028 (X) = 0.0508172

∴ X = 231 = UF from Water

Nickel

Pond D — $\frac{.45E-07}{7.27E-02}$ = .06229 (UF from soil)

Pond C — (Est. conc)(Soil UF) = Algae Conc.

(5.01785)(.06229461) = 0.312533212

∴ Nickel does not appear to be coming from Sludge.

10-88-30702

ATTACHMENT C

Calculation of Maximum Acceptable Toxicant Concentrations

ATTACHMENT C

CALCULATION OF MAXIMUM ACCEPTABLE TOXICANT CONCENTRATIONS

Section 5.2, Maximum Acceptable Toxicant Concentrations (MATCs) were calculated for use in the ecological assessment for fish. MATC methodology is discussed in Section 5.2 of this appendix. This method allows for the extrapolation of acute and/or nonspecies-specific values to chronic species-specific values. Table C-1 contains the aquatic toxicity information located for each chemical and lists the species used and the extrapolations that were made to arrive at the MATC. The most appropriate MATC was selected for use in the ecological assessment. In the case where two or more MATCs were appropriate, the values were averaged for use in the assessment.

Table C-1
Extrapolation of Toxicity Values to Species-Specific MATCs*

Chemical	Order	Family	Genus & Species	Common Name	LC50 (LD50)	notes(Units)	Source	Extrapolations for MATC: Family to Family	Extrapolations for MATC: Order to Order	Prediction Interval	Acute to Chronic Extrap. MORT1 EC25	Prediction Interval (-1.5)	Species Specific Chronic MATC (inv log)(ug/L)
Antimony Trioxide	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	4.00	ug/L	d	0.26	--	-0.27	0.636444144	-0.8635559	**0.14**
Arsenic	--	Fish in general	--	--	1,650.00	ug/L	k	--	--	--	3.669211031	2.16921103	147.64
Arsenic	--	Fish in general	--	--	700.00	ug/L	k	--	--	--	3.345235295	1.84523529	**70.02**
Barium	--	--	--	Rat	800.00	NOEL(ug/kg/d)	H	--	--	--	--	--	--
Barium	--	--	--	Human	210.00	NOAEL(ug/kg/d)	H	--	--	--	--	--	--
Beta-BHC	--	Fish in general	--	--	100.00	Ac LEC (ug/L)	IRIS	--	--	--	2.61	1.11	**12.88**
BEHP	--	Fish in general	--	--	400.00	Ac (ug/L)	IRIS	--	--	--	3.133792192	1.63379219	43.03
BEHP	--	Fish in general	--	--	360.00	Chr (ug/L)	IRIS	--	--	--	--	--	**360.00**
Chlordane	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	115.00	ug/L	a	1.36	--	0.83	1.588205341	0.08820534	**1.23**
Chlordane	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	56.00	ug/L	k	1.12	--	0.59	1.384292688	-0.1157073	**0.77**
Chromium 6+	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	2,475.00	MATC (ug/L)	e	2.36	--	1.83	--	--	**226.56**
Chromium	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	179,000.00	pH 6 (ug/L)	f	--	5.59	4.08	4.419882316	2.91988232	831.54
Chromium	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	170,000.00	pH 7 (ug/L)	f	--	5.57	4.06	4.400585656	2.90058566	795.40
Chromium	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	217,500.00	pH 8 (ug/L)	f	--	5.67	4.16	4.492753662	2.99275366	983.45
Chromium 6+	--	Fish in general	--	--	16.00	Ac (ug/L)	IRIS	--	--	--	1.917584385	0.41758438	2.62
Chromium 6+	--	Fish in general	--	--	11.00	Chr (ug/L)	IRIS	--	--	--	--	--	11.00
Chromium 3+	--	Fish in general	--	--	980.00	Ac (ug/L)	IRIS	--	--	--	3.472366686	1.97236669	93.84
Chromium 3+	--	Fish in general	--	--	120.00	Chr (ug/L)	IRIS	--	--	--	--	--	**120.00**
4,4'-DDD	Salmoniformes	Salmonidae	Salmo gairdneri	Rainbow trout	70.00	ug/L	a	--	0.71	-0.60	0.343854706	-1.1561453	0.07
4,4'-DDD	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	4,400.00	ug/L	a	2.54		2.01	2.620952871	1.12095287	**13.21**
4,4'-DDE	Salmoniformes	Salmonidae	Salmo gairdneri	Rainbow trout	32.00	ug/L	a	--	0.41	-0.90	0.086548019	-1.413452	0.04
4,4'-DDE	Salmoniformes	Salmonidae	Salmon salar	Atlantic trout	96.00	ug/L	a	--	0.82	-0.49	0.447681096	-1.0523189	0.09
4,4'-DDE	Percopsiformes	Centrarchidae	Lepomis macrochirus	Blue gill	240.00	ug/L	a	--	1.97	0.46	1.267075942	-0.2329241	**0.58**
4,4'-DDT	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	12.20	ug/L	a	0.62	--	0.09	0.95244979	-0.5475502	0.28
4,4'-DDT	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	43.00	ug/L	c	1.04	--	0.51	1.309438167	-0.1905618	0.64
4,4'-DDT	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	313.00	ug/L	c	1.68	--	1.15	1.87194268	0.37194268	**2.35**
4,4'-DDT	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	528.00	ug/L	c	1.85	--	1.32	2.020118634	0.52011863	3.31
4,4'-DDT	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	19.00	ug/L	k	0.77	--	0.24	1.077986725	-0.4220133	0.38
Dieldrin	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	3.80	ug/L	a	0.24	--	-0.29	0.621908797	-0.8780912	**0.13**
Dieldrin	Cypriniformes	Cyprinidae	Carassius auratus	Goldfish	1.80	ug/L	a	0.00	--	-0.53	0.41016531	-1.0898347	0.08
Dieldrin	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	16.00	ug/L	k	0.71	--	0.18	1.029288289	-0.4707117	**0.34**
Dieldrin	--	Fish in general	--	--	1.00	Ac (ug/L)	IRIS	--	--	--	0.87	-0.63	0.23
Dieldrin	--	Fish in general	--	--	0.0019	Chr (ug/L)	IRIS	--	--	--	--	--	1.90E-03
Heptachlor	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	23.00	ug/L	a	0.83	--	0.30	1.132127413	-0.3678726	**0.43**
Heptachlor	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	56.00	ug/L	k	1.12	--	0.59	1.384292688	-0.1157073	**0.77**
Heptachlor	--	Fish in general	--	--	0.52	Ac (ug/L)	IRIS	--	--	--	0.622922909	-0.8770771	0.13
Heptachlor	--	Fish in general	--	--	0.0038	Chr (ug/L)	IRIS	--	--	--	--	--	3.80E-03
Heptachlor Epoxide	--	Fish in general	--	--	0.52	Ac (ug/L)	IRIS	--	--	--	0.622922909	-0.8770771	0.13
Heptachlor Epoxide	--	Fish in general	--	--	0.0038	Chr (ug/L)	IRIS	--	--	--	--	--	**3.80E-03**
Lead	--	Fish in general	--	--	400,000.00	ug/L	k	--	--	--	5.743792192	4.24379219	17530.41
Lead	--	Fish in general	--	--	30.00	ug/L	k	--	--	--	2.155095492	0.65509549	**4.52**
Gamma-BHC	--	Fish in general	--	--	2.00	Ac (ug/L)	IRIS	--	--	--	1.131896096	-0.3681039	0.43
Gamma-BHC	--	Fish in general	--	--	0.08	Chr (ug/L)	IRIS	--	--	--	--	--	**0.08**
Gamma-BHC	Cypriniformes	Cyprinidae	Carassius auratus	Goldfish	131.00	ug/L	a	1.40	--	0.87	1.62511952	0.12511952	1.33
Gamma-BHC	Cypriniformes	Cyprinidae	Cyprinus carpio	Carp	90.00	ug/L	a	1.28	--	0.75	1.518743237	0.01874324	1.04
Gamma-BHC	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	87.00	ug/L	a	1.26	--	0.73	1.509136312	0.00913631	1.02
Gamma-BHC	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	67.00	ug/L	k	1.18	--	0.65	1.435113809	-0.0648862	0.86
Magnesium	--	--	--	--	--	--	--	--	--	--	--	--	--
Manganese	--	Fish in general	--	--	3,150.00	ug/L	k	--	--	--	3.913530182	2.41353018	**259.14**
Mercury	--	Fish in general	--	--	1,000.00	ug/L	k	--	--	--	3.48	1.98	95.50
Mercury	--	Fish in general	--	--	0.50	ug/L	k	--	--	--	0.608103904	-0.8918961	**0.13**
Mercury	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	330.00	pH 6 (ug/L)	f	--	0.09	-1.42	-0.363677135	-1.8636771	0.01
Mercury	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	400.00	pH 7 (ug/L)	f	--	2.88	1.37	2.064796056	0.56479606	3.67
Mercury	Percopsiformes	Cichlidae	Tilapia mossambica	Tilapia	395.00	pH 8 (ug/L)	f	--	2.97	1.46	2.136754271	0.63675427	**4.33**

Table C-1
Extrapolation of Toxicity Values to Species-Specific MATCs*

Chemical	Order	Family	Genus & Species	Common Name	LC50 (LD50)	notes(Units)	Source	Extrapolations for MATC Family to Family	Order to Order	Prediction Interval	Acute to Chronic Extrap. MORTI EC25	Prediction Interval (-1.5)	Species Specific Chronic MATC (inv log)(ug/L)
Mercury	--	Fish in general	--	--	2.40	Ac (ug/L)	IRIS	--	--	--	1.20078378	-0.2992162	**0.50**
Mercury	--	Fish in general	--	--	0.01	Chr (ug/L)	IRIS	--	--	--	--	--	1.20E-02
Selenium	--	Fish in general	--	--	2.00	Ac (ug/L)	IRIS	--	--	--	1.131896096	-0.3681039	0.43
Selenium	--	Fish in general	--	--	5.00	Chr (ug/L)	IRIS	--	--	--		--	5.00
Selenium	Cypriniformes	Cyprinidae	Pimephales promelas	Fathead minnow	82,000.00	ug/L	g	3.50		2.97	3.449863539	1.94986354	**89.10**
Silver	--	Fish in general	--	--	0.92	Ac (ug/L)	IRIS	--	--	--	0.83849541	-0.6615046	0.22
Silver	--	Fish in general	--	--	0.12	Chr (ug/L)	IRIS	--	--	--	--	--	**0.12**

REFERENCES

Bold numbers in final column indicate the MATCs that were selected for use in the fish assessment; Chemicals that do not have a MATC selected, were not present in water or had no toxicological data.

* = Watkin, Gayle E. and Stelljes, Mark E. 1993. A Proposed Approach to Quantitatively Assess Potential Ecological Impacts to Terrestrial Receptors from Chemical Exposure. Environmental Toxicology and Risk Assessment: 2nd Volume, ASTM STP 1173.

IRIS = WQCAQ values from IRIS

H = HEAST

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ATTACHMENT D

Intake and Ecological Quotient Spreadsheets for the Ecological Assessment

TABLE D-1
Lagoon A

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon A

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	eas. Max.	
B =	1	1	Worst-case assumption
FI =	0.015	0.03	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
2,3,7,8-TCDF	8.87E-10	1.42E-09	0.0108	c	8.21E-08	1.32E-07
2,4'-DDD	6.33E-06	1.02E-05	50	LDL, d	1.27E-07	2.03E-07
2,4'-DDT	3.35E-06	5.38E-06	200	LDL, d	1.68E-08	2.69E-08
4,4'-DDD	6.35E-05	1.02E-04	6	LOAEL	1.06E-05	1.70E-05
4,4'-DDE	1.50E-05	2.41E-05	2	LOAEL	7.51E-06	1.21E-05
4,4'-DDT	1.37E-06	2.20E-06	224	LD50	6.11E-09	9.83E-09
Aldrin	5.45E-07	8.75E-07	1	LC50	5.45E-07	8.75E-07
alpha-BHC	1.16E-06	1.86E-06	0.0165	e	7.03E-05	1.13E-04
Arsenic *	3.06E-03	4.91E-03	32.3	LD50	9.47E-05	1.52E-04
Barium *	7.87E-04	1.26E-03	0.7	NOAEL, f	1.12E-03	1.80E-03
Benzyl alcohol	1.43E-03	2.30E-03	7.15	NOAEL, g	2.00E-04	3.21E-04
Cadmium (food) *	3.53E-05	5.67E-05	0.8	LOAEL	4.42E-05	7.08E-05
Chlordanes	9.98E-06	1.60E-05	70.9	LD50	1.41E-07	2.26E-07
Chromium *	3.32E-05	5.32E-05	0.04	LOAEL	8.29E-04	1.33E-03
Dieldrin	6.54E-06	1.05E-05	17.9	LD50	3.65E-07	5.86E-07
gamma-BHC (lindane)	3.26E-06	5.23E-06	0.0165	NOAEL, h	1.97E-04	3.17E-04
Heptachlor	2.02E-07	3.27E-07	120	LD50	1.68E-09	2.72E-09
Lead *	3.55E-04	5.69E-04	500	NOEL	7.09E-07	1.14E-06
Magnesium *	3.39E+00	5.44E+00	280	LD50, d	1.21E-02	1.94E-02
Manganese (food) *	1.47E-02	2.35E-02	0.9	LD50, f	1.63E-02	2.61E-02
Mercury *	1.67E-04	2.69E-04	0.1	LOAEL	1.67E-03	2.69E-03
Nickel *	1.67E-05	2.68E-05	800	NOAEL	2.09E-08	3.35E-08
Tetrachlorobiphenyls	9.90E-05	1.59E-04	0.1	LD50, d, i	9.90E-04	1.59E-03
Pentachlorobiphenyls	2.64E-04	4.24E-04	0.05	LD50, d, i	5.29E-03	8.48E-03
Hexachlorobiphenyls	1.39E-04	2.23E-04	0.05	LD50, d, i	2.78E-03	4.46E-03
Heptachlorobiphenyls	5.62E-05	9.02E-05	0.05	LD50, d, i	1.12E-03	1.80E-03
Selenium *	3.20E-03	5.14E-03	4	NOAEL	8.01E-04	1.28E-03
Silver *	2.73E-04	4.38E-04	18.1	NOEL, f	1.51E-05	2.42E-05
				Total EQ	0.04	0.07

TABLE D-1
Lagoon A

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Magnesium, .30; Mercury, 1; Nickel, 1; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Toxicity value for 2,3,7,8-TCDD used as a surrogate

d Value from Sax and Lewis, 1989

e Toxicity value for gamma-BHC used as a surrogate

f Value from ATSDR Toxicity Profile for that chemical

g HEAST, 1992

h IRIS, 1993

i The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

References

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TABLE D-2
Lagoon B

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon B

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	eas. Max.	
B =	1	1	Worst-case assumption
FI =	0.015	0.03	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
4,4'-DDD	9.76E-05	1.57E-04	6	LOAEL	1.63E-05	2.61E-05
4,4'-DDE	9.38E-06	1.63E-05	2	LOAEL	4.69E-06	8.15E-06
4,4'-DDT	1.23E-06	1.98E-06	224	LD50	5.50E-09	8.85E-09
Antimony *	9.01E-06	2.04E-05	0.07	LOAEL, c	1.29E-04	2.91E-04
Arsenic *	6.60E-03	1.06E-02	32.3	LD50	2.04E-04	3.28E-04
Barium *	1.25E-05	2.59E-05	0.7	NOAEL, d	1.79E-05	3.69E-05
Cadmium *	6.57E-05	1.05E-04	0.8	LOAEL	8.21E-05	1.32E-04
Chlordane	3.58E-07	9.10E-07	70.9	LD50	5.05E-09	1.28E-08
Chromium *	1.90E-04	2.04E-03	0.04	LOAEL	4.75E-03	5.09E-02
Chromium VI *	6.09E-08	2.60E-07	0.48	NOAEL, c	1.27E-07	5.43E-07
Dieldrin	9.59E-06	1.54E-05	17.9	LD50	5.36E-07	8.60E-07
Heptachlor epoxide	2.03E-08	3.53E-08	0.0025	LOAEL, c	8.13E-06	1.41E-05
Lead *	1.99E-04	3.23E-04	500	NOEL	3.98E-07	6.45E-07
Lead (organic) *	4.23E-03	2.87E-03	10.7	LD50 ,e	3.95E-04	2.68E-04
Magnesium *	1.80E+00	2.06E+00	280	LD50	6.42E-03	7.36E-03
Manganese *	2.36E-02	3.79E-02	0.9	LD50, d	2.63E-02	4.21E-02
Mercury *	6.77E-04	1.09E-03	0.1	LOAEL	6.77E-03	1.09E-02
Nickel *	0.00E+00	0.00E+00	800	NOAEL	0.00E+00	0.00E+00
Tetrachlorobiphenyls	7.24E-05	1.16E-04	0.1	LD50, g, h	7.24E-04	1.16E-03
Pentachlorobiphenyls	1.48E-04	2.37E-04	0.05	LD50, g, h	2.96E-03	4.74E-03
Hexachlorobiphenyls	1.39E-04	2.23E-04	0.05	LD50, g, h	2.78E-03	4.46E-03
Heptachlorobiphenyls	5.62E-05	9.02E-05	0.05	LD50, g, h	1.12E-03	1.80E-03
Selenium *	8.53E-03	1.37E-02	4	NOAEL	2.13E-03	3.42E-03
Silver *	3.34E-04	5.44E-04	18.1	NOAEL, d	1.85E-05	3.01E-05
alpha-BHC	4.55E-08	1.41E-07	0.0165	f	2.76E-06	8.56E-06
BEHP	4.20E-03	6.75E-03	200	NOAEL, d	2.10E-05	3.38E-05
delta-BHC	1.78E-06	2.86E-06	0.0165	f	1.08E-04	1.73E-04
gamma-BHC	2.55E-06	4.09E-06	0.0165	NOAEL, c	1.54E-04	2.48E-04
				Total EQ	0.06	0.13

TABLE D-2
Lagoon B

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet Absorption efficiency for Barium is 0.2, Manganese, 0.05; Silver, 0.21. Antimony, .1; Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .30; Selenium, 1.
a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).
b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text.
c IRIS, 1993
d Value from ATSDR Toxicity Profile for that chemical
e Value from Eisler, 1988
f Toxicity values for gamma-BHC used as surrogate
g The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls (Sax and Lewis, 1989).
h PCB could not be modeled to algae in Pond A, since these congeners were not analyzed in water. Therefore, worst-case concentrations were used as surrogates. For Tetra- and Pentachlorobiphenyl, concentrations from Pond D were used. For Hexa- and Heptachlorobiphenyl, concentrations from Pond A were used.

References

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Table D-3
Lagoon C

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon C

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.02	0.04	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max
1,2,3,4,7,8-HxCDF	2.12E-09	3.40E-09	0.0072	LD50, c	2.94E-07	4.72E-07
2,3,7,8-TCDD	3.58E-10	5.74E-10	0.0108	LD50	3.31E-08	5.31E-08
2,4'-DDD	6.73E-07	1.08E-06	50	LDL, c	1.35E-08	2.16E-08
2,4'-DDT	1.54E-06	2.46E-06	200	LDL, c	7.68E-09	1.23E-08
4,4'-DDD	6.44E-06	1.03E-05	6	LOAEL	1.07E-06	1.72E-06
4,4'-DDE	5.86E-06	9.39E-06	2	LOAEL	2.93E-06	4.70E-06
4,4'-DDT	1.93E-06	3.10E-06	224	LD50	8.63E-09	1.39E-08
Aldrin	1.41E-07	2.26E-07	1	LD50	1.41E-07	2.26E-07
Arsenic *	3.74E-03	6.01E-03	32.3	LD50	1.16E-04	1.86E-04
Barium *	1.22E-03	1.97E-03	0.7	NOAEL, d	1.75E-03	2.82E-03
Cadmium *	2.75E-05	4.40E-05	0.8	LOAEL	3.43E-05	5.51E-05
Chromium *	5.67E-05	9.09E-05	0.04	LOAEL	1.42E-03	2.27E-03
Dibenzofuran	1.98E-04	3.17E-04	NA	--		
Dieldrin	8.00E-06	1.28E-05	17.9	LD50	4.47E-07	7.17E-07
Heptachlor	1.05E-06	1.68E-06	120	LD50	8.74E-09	1.40E-08
Heptachlor epoxide	1.32E-07	2.12E-07	0.0025	LOAEL, d	5.28E-05	8.47E-05
Lead *	4.16E-04	6.70E-04	500	NOEL	8.31E-07	1.34E-06
Magnesium *	3.26E+00	5.27E+00	280	LD50, c	1.16E-02	1.88E-02
Manganese *	3.29E-03	5.27E-03	0.9	LD50, d	3.65E-03	5.86E-03
Mercury *	1.30E-04	2.08E-04	0.1	LOAEL	1.30E-03	2.08E-03
Nickel *	4.92E-05	7.89E-05	800	NOAEL	6.14E-08	9.86E-08
Selenium *	4.96E-03	7.96E-03	4	NOAEL	1.24E-03	1.99E-03
Silver *	1.26E-04	2.02E-04	18.1	NOEL, d	6.94E-06	1.11E-05
Thallium *	8.89E-04	1.43E-03	0.2	NOAEL, d	4.45E-03	7.13E-03
Chlordanes	7.63E-06	1.22E-05	70.9	LD50	1.08E-07	1.73E-07
Tetrachlorbiphenyls	7.94E-05	1.27E-04	0.1	LD50, c, e	7.94E-04	1.27E-03
Pentachlorobiphenyls	1.55E-04	2.49E-04	0.05	LD50, c, e	3.11E-03	4.99E-03
Hexachlorobiphenyls	7.00E-05	1.12E-04	0.05	LD50, c, e	1.40E-03	2.25E-03
Heptachlorobiphenyls	4.49E-05	7.21E-05	0.05	LD50, c, e	8.99E-04	1.44E-03
alpha-BHC	9.64E-07	1.55E-06	0.0165	f	5.84E-05	9.38E-05
beta-BHC	2.91E-06	4.68E-06	0.0165	f	1.76E-04	2.84E-04
bis(2-Ethylhexyl)phthalate	3.99E-02	6.41E-02	200	NOAEL, d	2.00E-04	3.20E-04
delta-BHC	3.61E-06	5.80E-06	0.0165	f	2.19E-04	3.51E-04
gamma-BHC	4.35E-06	6.97E-06	0.0165	NOAEL, g	2.63E-04	4.23E-04
				Total EQ	0.03	0.05

Table D-3
Lagoon C

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1; Thallium, 1..

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text.

c Value from Sax and Lewis, 1989.

d Value from Toxicity Profile for that chemical

e The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

f Toxicity value for gamma-BHC used as surrogate

g IRIS, 1993

References

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

Heinz, Gary H. and Richard W. Johnson. 1979. Elimination of Endrin by Mallard Ducks. Toxicology, 12:189-196.

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Welty, Joel Carl and Luis Baptista. 1988. The Life of Birds, 4th ed. Saunders College Publishing. New York, New York, p. 103.

TABLE D-4
Lagoon D

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon D

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.03	0.06	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
2,3,7,8-TCDF	1.53E-09	2.45E-09	0.0108	c	1.41E-07	2.27E-07
2,4'-DDD	1.84E-06	2.96E-06	50	LDL, d	3.69E-08	5.92E-08
2,4'-DDT	5.08E-06	8.15E-06	200	LDL, d	2.54E-08	4.08E-08
4,4'-DDD	2.49E-05	3.99E-05	6	LOAEL	4.15E-06	6.65E-06
4,4'-DDE	9.19E-06	1.47E-05	2	LOAEL	4.60E-06	7.37E-06
4,4'-DDT	3.12E-06	5.00E-06	224	LD50	1.39E-08	2.23E-08
Aldrin	7.20E-07	1.16E-06	1	LC50	7.20E-07	1.16E-06
Arsenic *	5.56E-03	8.93E-03	32.3	LD50	1.72E-04	2.76E-04
Barium *	1.48E-03	2.38E-03	0.7	NOAEL, e	2.12E-03	3.40E-03
Cadmium *	8.24E-05	1.32E-04	0.8	LOAEL	1.03E-04	1.65E-04
Chromium *	1.48E-04	2.37E-04	0.04	LOAEL	3.70E-03	5.94E-03
Dieldrin	9.79E-06	1.57E-05	17.9	LD50	5.47E-07	8.78E-07
Endrin	3.85E-06	6.18E-06	2.2	LC50	1.75E-06	2.81E-06
Heptachlor	5.41E-07	8.68E-07	120	LD50	4.51E-09	7.23E-09
Lead *	7.31E-04	1.18E-03	500	NOEL	1.46E-06	2.35E-06
Lead (organic) *	1.46E-04	3.51E-04	10.7	LD50, h	1.36E-05	3.28E-05
Magnesium *	4.23E+00	6.83E+00	280	LD50, d	1.51E-02	2.44E-02
Manganese *	2.30E-02	3.69E-02	0.9	LD50, e	2.55E-02	4.10E-02
Mercury *	2.71E-04	4.36E-04	0.1	LOAEL	2.71E-03	4.36E-03
Nickel *	1.87E-04	3.00E-04	800	NOAEL	2.34E-07	3.75E-07
Selenium *	1.17E-02	1.88E-02	4	NOAEL	2.93E-03	4.70E-03
Silver *	3.32E-04	5.33E-04	18.1	NOEL, e	1.83E-05	2.94E-05
Chlordanes	7.08E-06	1.14E-05	70.9	LD50	9.99E-08	1.60E-07
Tetrachlorobiphenyls	1.45E-04	2.32E-04	0.1	LD50, d, f	1.45E-03	2.32E-03
Pentachlorobiphenyls	2.96E-04	4.74E-04	0.05	LD50, d, f	5.91E-03	9.49E-03
Hexachlorobiphenyls	1.38E-04	2.22E-04	0.05	LD50, d, f	2.77E-03	4.44E-03
Heptachlorobiphenyls	8.96E-05	1.44E-04	0.05	LD50, d, f	1.79E-03	2.87E-03
alpha-BHC	1.09E-06	1.75E-06	0.0165	g	6.61E-05	1.06E-04
delta-BHC	4.40E-06	7.07E-06	0.0165	g	2.67E-04	4.28E-04
gamma-BHC	5.40E-06	8.66E-06	0.0165	NOAEL, e	3.27E-04	5.25E-04
				Total EQ	0.07	0.10

TABLE D-4
Lagoon D

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the die Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Toxicity value for 2,3,7,8-TCDD used as a surrogate

d Value from Sax and Lewis, 1989.

e Value from Toxicity Profile for that chemical

f The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

g Toxicity value for gamma-BHC used as a surrogate

h Toxicity Value from Eisler, 1988

References

Eisler, R. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Regvi U.S. Fish and Wildl. Serv. Biol. Rep. 85(1.14). 134 pp.

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Heinz, Gary H. and Richard W. Johnson. 1979. Elimination of Endrin by Mallard Ducks. Toxicology, 12:189-196.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Materia Van Nostrand Reinhold International Company Limited. London, England.

Welty, Joel Carl and Luis Baptista. 1988. The Life of Birds, 4th ed. Saunders College Publishing. New York, New York, p. 103.

TABLE D-5
Lagoon E

Estimated Intake by Mallards and Ecological Risk Characterization
Lagoon E

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =			
FI =	1	1	Worst-case assumption
IRa =	0.01	0.02	Site-specific assumption
IRw =	0.132	0.15	Welty and Baptista, 1988
BW =	0.13	0.16	EPA, 1988
	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max
1,2,3,4,6,7,8-HpCDD	9.35E-10	1.50E-09	0.06	LD50, c	1.56E-08	2.50E-08
2,3,7,8-TCDF	6.33E-10	1.01E-09	0.0108	d	5.86E-08	9.40E-08
2,4'-DDD	2.73E-06	4.38E-06	50	LDL, e	5.46E-08	8.76E-08
2,4'-DDT	3.60E-06	5.77E-06	200	LDL, e	1.80E-08	2.88E-08
4,4'-DDD	4.08E-05	6.55E-05	6	LOAEL	6.80E-06	1.09E-05
4,4'-DDE	7.62E-06	1.27E-05	2	LOAEL	3.81E-06	6.37E-06
4,4'-DDT	1.87E-06	3.00E-06	224	LD50	8.35E-09	1.34E-08
Aldrin	6.32E-07	1.01E-06	1	LC50	6.32E-07	1.01E-06
Arsenic *	1.50E-03	2.41E-03	32.3	LD50	4.64E-05	7.45E-05
Barium *	6.34E-04	1.02E-03	0.7	NOAEL, f	9.06E-04	1.46E-03
Benzyl alcohol	1.17E-03	1.87E-03	7.15	NOAEL, g	1.63E-04	2.62E-04
Cadmium *	2.08E-05	3.34E-05	0.8	LOAEL	2.60E-05	4.18E-05
Chromium *	2.19E-05	3.51E-05	0.04	LOAEL	5.48E-04	8.78E-04
Dieldrin	3.11E-06	4.99E-06	17.9	LD50	1.74E-07	2.79E-07
Endrin	2.34E-06	3.76E-06	2.2	LC50	1.06E-06	1.71E-06
HCB	1.94E-07	3.11E-07	0.54	NOAEL, f	3.59E-07	5.76E-07
Heptachlor	2.69E-07	4.32E-07	24	LD50	1.12E-08	1.80E-08
Lead *	1.05E-04	1.71E-04	500	NOEL	2.11E-07	3.42E-07
Lead (Organic) *	3.95E-05	8.84E-05	10.7	LD50, k	3.69E-06	8.26E-06
Magnesium *	3.57E+00	5.75E+00	280	LD50, e	1.28E-02	2.05E-02
Manganese *	5.15E-03	8.26E-03	0.9	NOEL, f	5.72E-03	9.18E-03
Mercury *	7.21E-05	1.16E-04	0.1	LOAEL	7.21E-04	1.16E-03
Nickel *	3.41E-05	5.47E-05	800	NOAEL	4.26E-08	6.83E-08
OCDD	1.39E-08	2.24E-08	0.1	LD50, e	1.39E-07	2.24E-07
Selenium *	2.61E-03	4.20E-03	4	NOAEL	6.53E-04	1.05E-03
Silver *	7.97E-05	1.28E-04	18.1	NOEL, f	4.40E-06	7.06E-06
Chlordanes	4.20E-06	6.73E-06	70.9	LD50	5.92E-08	9.49E-08
Tetrachlorobiphenyls	4.95E-05	7.94E-05	0.1	LD50, e, h	4.95E-04	7.94E-04
Pentachlorobiphenyls	1.28E-04	2.06E-04	0.05	LD50, e, h	2.56E-03	4.11E-03
Hexachlorobiphenyls	6.72E-05	1.08E-04	0.05	LD50, e, h	1.34E-03	2.15E-03
Heptachlorobiphenyls	4.20E-05	6.73E-05	0.05	LD50, e, h	8.39E-04	1.35E-03
alpha-BHC	7.26E-07	1.16E-06	0.0165	i	4.40E-05	7.06E-05
BEHP	1.04E-05	2.68E-05	200	NOAEL, f	5.19E-08	1.34E-07
delta-BHC	7.26E-07	1.16E-06	0.0165	i	4.40E-05	7.06E-05
gamma-BHC	2.32E-06	3.72E-06	0.0165	NOAEL, j	1.41E-04	2.26E-04
n-Nitrosodi-n-propylamine	1.06E-02	1.71E-02	48	LD50, e	2.22E-04	3.56E-04
n-Nitrosodimethylamine	1.69E-04	2.70E-04	2.8	LD50,e	6.02E-05	9.65E-05
				Total EQ	0.03	0.04

TABLE D-5
Lagoon E

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metal which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the d Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).
-- = These compounds were included in Total PCB or Total Chlordane analysis.

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from FWS, 1986.

d Toxicity values for 2,3,7,8-TCDD used as surrogate

e Value from Sax and Lewis, 1989.

f Value from Toxicity Profile for that chemical

g HEAST, 1992

h The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

i Toxicity values for gamma-BHC used as surrogate

j IRIS, 1993

k Toxicity value from Eisler, 1988.

References

Eisler, R. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates. A Synoptic Rev U.S. Fish Wildl. Serv. Biol. Rep. 85(1.14). 134 pp.

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TABLE D-6
Lagoon F

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon F

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.05	0.1	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
2,4'-DDD	3.05E-04	4.90E-04	50	LDL, c	6.11E-06	9.80E-06
2,4'-DDE	3.55E-05	5.69E-05	50	d	7.10E-07	1.14E-06
2,4'-DDT	7.52E-06	1.21E-05	200	LDL, c	3.76E-08	6.03E-08
4,4'-DDD	3.06E-03	4.91E-03	6	LOAEL	5.10E-04	8.19E-04
4,4'-DDE	3.36E-04	5.40E-04	2	LOAEL	1.68E-04	2.70E-04
4,4'-DDT	3.45E-05	5.54E-05	224	LD50	1.54E-07	2.47E-07
Aldrin	1.99E-06	3.19E-06	1	LC50	1.99E-06	3.19E-06
Arsenic *	1.77E-02	2.85E-02	32.3	LD50	5.49E-04	8.81E-04
Barium *	2.34E-03	3.75E-03	0.7	NOAEL, e	3.34E-03	5.36E-03
Cadmium *	1.05E-04	1.68E-04	0.8	LOAEL	1.31E-04	2.10E-04
Chromium *	1.58E-04	2.53E-04	0.04	LOAEL	3.94E-03	6.32E-03
Dieldrin	1.09E-05	1.75E-05	17.9	LD50	6.08E-07	9.76E-07
Endrin	1.10E-05	1.76E-05	2.2	LC50	4.98E-06	7.99E-06
HCB	6.64E-07	1.07E-06	0.54	NOAEL, e	1.23E-06	1.97E-06
Heptachlor	1.30E-06	2.08E-06	120	LD50	1.08E-08	1.74E-08
Heptachlor epoxide	3.10E-07	4.97E-07	0.0025	LOAEL, e	1.24E-04	1.99E-04
Lead *	5.17E-04	8.29E-04	500	NOEL	1.03E-06	1.66E-06
Magnesium *	7.50E+00	1.20E+01	280	LD50, c	2.68E-02	4.30E-02
Manganese *	2.88E-02	4.62E-02	0.9	LD50, e	3.20E-02	5.13E-02
Mirex	9.07E-07	1.46E-06	20	LOAEL	4.54E-08	7.28E-08
Nickel *	9.41E-05	1.51E-04	800	NOAEL	1.18E-07	1.89E-07
Selenium *	1.67E-02	2.68E-02	4	NOAEL	4.17E-03	6.70E-03
Silver *	7.52E-04	1.21E-03	18.1	NOEL, e	4.15E-05	6.66E-05
Chlordanes	3.44E-04	5.52E-04	70.9	LD50	4.85E-06	7.78E-06
Tetrachlorobiphenyls	2.87E-04	4.60E-04	0.1	LD50, c, f	2.87E-03	4.60E-03
Pentachlorobiphenyls	3.65E-04	5.86E-04	0.05	LD50, c, f	7.30E-03	1.17E-02
Hexachlorobiphenyls	1.21E-04	1.94E-04	0.05	LD50, c, f	2.42E-03	3.88E-03
Heptachlorobiphenyls	6.51E-05	1.04E-04	0.05	LD50, c, f	1.30E-03	2.09E-03
alpha-BHC	1.44E-06	2.31E-06	0.0165	g	8.71E-05	1.40E-04
delta-BHC	8.18E-06	1.31E-05	0.0165	g	4.96E-04	7.96E-04
gamma-BHC	6.85E-06	1.10E-05	0.0165	NOAEL, h	4.15E-04	6.67E-04
				Total EQ	0.09	0.14

TABLE D-6
Lagoon F

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the die Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from Sax and Lewis, 1989.

d Toxicity value for 2,4-DDD used as a surrogate

e Value from Toxicity Profile for that chemical

f The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

g Toxicity values for gamma-BHC used as surrogate

h IRIS, 1993

References

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TABLE D-7
Lagoon G

Estimated Intake by Mallards and Ecological Risk Characterization
Sewage Lagoon G

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.06	0.12	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
1,2,3,4,6,7,8-HpCDD	1.07E-09	1.72E-09	0.06	LD50, c	1.79E-08	2.87E-08
1,2,3,4,7,8-HxCDF	7.43E-10	1.19E-09	0.0072	LD50, d	1.03E-07	1.65E-07
1,2,3,7,8,9-HxCDF	1.57E-09	2.51E-09	0.08	LD50, d	1.96E-08	3.14E-08
2,3,4,6,7,8-HxCDF	1.24E-09	1.99E-09	0.0072	LD50, e	1.72E-07	2.76E-07
2,3,7,8-TCDF	4.95E-10	7.94E-10	0.0108	f	4.58E-08	7.35E-08
2,4'-DDD	2.45E-06	3.93E-06	50	LDL, d	4.90E-08	7.85E-08
2,4'-DDT	1.68E-07	2.70E-07	200	LDL, d	8.41E-10	1.35E-09
4,4'-DDD	4.76E-05	7.63E-05	6	LOAEL	7.93E-06	1.27E-05
4,4'-DDE	8.44E-06	1.35E-05	2	LOAEL	4.22E-06	6.77E-06
4,4'-DDT	3.37E-06	5.40E-06	224	LD50	1.50E-08	2.41E-08
Aldrin	7.63E-07	1.22E-06	1	LC50	7.63E-07	1.22E-06
alpha-BHC	4.68E-06	8.98E-06	0.0165	g	2.84E-04	5.44E-04
Arsenic *	1.22E-02	1.96E-02	32.3	LD50	3.78E-04	6.07E-04
Barium *	1.56E-03	2.51E-03	0.7	NOAEL, h	2.22E-03	3.59E-03
beta-BHC	2.46E-06	8.47E-06	0.0165	g	1.49E-04	5.13E-04
Cadmium *	1.07E-04	1.72E-04	0.8	LOAEL	1.34E-04	2.14E-04
Chromium *	7.14E-05	1.15E-04	0.04	LOAEL	1.79E-03	2.86E-03
delta-BHC	4.95E-06	7.95E-06	0.0165	g	3.00E-04	4.82E-04
Dibutylphthalate	1.40E-03	2.25E-03	800	LD50, d	1.76E-06	2.82E-06
Dieldrin	6.92E-06	1.11E-05	17.9	LD50	3.87E-07	6.20E-07
Endrin	4.18E-06	6.70E-06	2.2	LC50	1.90E-06	3.05E-06
gamma-BHC	1.28E-05	2.05E-05	0.0165	NOAEL, i	7.74E-04	1.24E-03
Heptachlor	1.54E-06	2.47E-06	120	LD50	1.28E-08	2.06E-08
Lead *	5.13E-04	8.26E-04	500	NOAEL	1.03E-06	1.65E-06
Lead (Organic) *	7.39E-04	2.00E-03	10.7	LD50, k	6.91E-05	1.87E-04
Magnesium *	9.70E+00	1.57E+01	280	LD50, d	3.47E-02	5.61E-02
Manganese *	2.52E-02	4.04E-02	0.9	LD50, h	2.80E-02	4.49E-02
Mercury *	4.79E-04	7.69E-04	0.1	LOAEL	4.79E-03	7.69E-03
Nickel *	1.16E-04	1.86E-04	800	NOAEL	1.45E-07	2.33E-07
Tetrachlorobiphenyls	9.24E-05	1.48E-04	0.1	LD50, d, j	9.24E-04	1.48E-03
Pentachlorobiphenyls	1.53E-04	2.45E-04	0.05	LD50, d, j	3.06E-03	4.91E-03
Hexachlorobiphenyls	7.90E-05	1.27E-04	0.05	LD50, d, j	1.58E-03	2.54E-03
Heptachlorobiphenyls	2.60E-05	4.17E-05	0.05	LD50, d, j	5.20E-04	8.34E-04
Selenium *	1.69E-02	2.71E-02	4	NOAEL	4.22E-03	6.77E-03
Silver *	7.69E-04	1.23E-03	18.1	NOEL, h	4.25E-05	6.82E-05
				TOTAL EQ	0.08	0.14

TABLE D-7
Lagoon G

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for meta which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into th intake equation to estimate the concentration that is actually absorbed from the Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted

c Value from FWS, 1986.

d Value from Sax and Lewis, 1989.

e Toxicity value 1,2,3,4,7,8-HxCDF used as a surrogate

f Toxicity values for 2,3,7,8-TCDD used as a surrogate

g Toxicity values for gamma-BHC used as a surrogate

h Value from Toxicity Profile for that chemical

i IRIS, 1993

j The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

k Toxicity value from Eisler, 1988.

References

Eisler, R. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Re U.S. Fish Wildl. Serv. Biol. Rep. 85(1.14). 134pp.

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TABLE D-8
Ditch

Estimated Intake by Mallards and Ecological Risk Characterization
Ditch

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	eas. Max.	
B =	1	1	Worst-case assumption
FI =	0.001	0.002	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
1,2,3,4,6,7,8-HpCDD	2.19E-10	3.51E-10	0.06	LD50, c	3.64E-09	5.85E-09
2,4'-DDD	1.59E-07	2.55E-07	50	LDL, d	3.18E-09	5.10E-09
2,4'-DDT	4.03E-09	6.47E-09	200	LDL, d	2.02E-11	3.23E-11
4,4'-DDD	2.19E-06	3.51E-06	6	LOAEL	3.64E-07	5.84E-07
4,4'-DDE	3.79E-07	6.07E-07	2	LOAEL	1.89E-07	3.04E-07
4,4'-DDT	7.08E-08	1.14E-07	224	LD50	3.16E-10	5.07E-10
Aldrin	8.82E-08	1.41E-07	1	LC50	8.82E-08	1.41E-07
alpha-BHC	1.06E-09	1.84E-09	0.0165	e	6.40E-08	1.11E-07
Arsenic *	2.38E-04	3.82E-04	32.3	LD50	7.37E-06	1.18E-05
Barium *	7.92E-04	1.27E-03	0.7	NOAEL, f	1.13E-03	1.82E-03
Cadmium *	6.26E-06	1.00E-05	0.8	LOAEL	7.83E-06	1.26E-05
Chlordanes	9.58E-07	1.54E-06	70.9	LD50	1.35E-08	2.17E-08
Chromium *	1.08E-04	1.73E-04	0.04	LOAEL	2.69E-03	4.32E-03
delta-BHC	3.41E-08	5.47E-08	0.0165	e	2.07E-06	3.32E-06
Dieldrin	1.41E-07	2.27E-07	17.9	LD50	7.90E-09	1.27E-08
Diethylphthalate	1.18E-04	1.89E-04	860	LD50, d	1.37E-07	2.20E-07
gamma-BHC	1.15E-07	1.85E-07	0.0165	NOAEL, g	6.98E-06	1.12E-05
Heptachlor	2.35E-09	3.77E-09	120	LD50	1.96E-11	3.14E-11
Isodrin	8.26E-10	1.44E-09	NA			
Lead *	4.21E-04	6.76E-04	500	NOEL	8.42E-07	1.35E-06
Magnesium *	6.34E-01	1.02E+00	280	LD50, d	2.26E-03	3.63E-03
Manganese *	7.70E-04	1.23E-03	0.9	LD50, f	8.55E-04	1.37E-03
Mercury *	1.19E-05	1.92E-05	0.1	LOAEL	1.19E-04	1.92E-04
Nickel *	4.90E-05	7.87E-05	800	NOAEL	6.13E-08	9.83E-08
OCDD	1.42E-09	2.28E-09	0.1	LD50, d	1.42E-08	2.28E-08
OCDF	1.05E-10	1.68E-10	0.1	h	1.05E-09	1.68E-09
Tetrachlorobiphenyls	1.22E-06	1.96E-06	0.1	LD50, d, i	1.22E-05	1.96E-05
Pentachlorobiphenyls	1.58E-06	2.53E-06	0.05	LD50, d, i	3.15E-05	5.06E-05
Hexachlorobiphenyls	1.15E-06	1.84E-06	0.05	LD50, d, i	2.30E-05	3.68E-05
Heptachlorobiphenyls	6.74E-07	1.08E-06	0.05	LD50, d, i	1.35E-05	2.16E-05
Selenium *	2.68E-04	4.30E-04	4	NOAEL	6.70E-05	1.07E-04
Silver *	2.03E-05	3.25E-05	18.1	NOEL, f	1.12E-06	1.80E-06
				Total EQ	0.01	0.01

TABLE D-8
Ditch

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metal which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the d Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Nickel, .1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from FWS, 1986.

d Value from Sax and Lewis, 1989.

e Toxicity value for gamma-BHC used as a surrogate value

f Value from Toxicity Profile for that chemical

g IRIS, 1993

h Toxicity value for OCDD used as a surrogate value

i The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

References

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TABLE D-9
Lake Holloman

Estimated Intake by Mallards and Ecological Risk Characterization
Lake Holloman

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.245	0.49	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max
1,2,3,4,6,7,8-HpCDD	2.36E-09	3.78E-09	0.06	LD50, c	3.93E-08	6.31E-08
2,4'-DDD	7.37E-06	1.18E-05	50	LDL, d	1.47E-07	2.37E-07
2,4'-DDT	6.19E-06	9.93E-06	200	LDL, d	3.10E-08	4.97E-08
4,4'-DDD	7.17E-05	1.15E-04	6	LOAEL	1.19E-05	1.92E-05
4,4'-DDE	4.18E-05	6.71E-05	2	LOAEL	2.09E-05	3.35E-05
4,4'-DDT	8.10E-06	1.34E-05	224	LD50	3.61E-08	5.98E-08
Aldrin	1.66E-05	2.67E-05	1	LC50	1.66E-05	2.67E-05
Antimony *	7.58E-04	1.22E-03	0.07	LOAEL, e	1.08E-02	1.74E-02
Arsenic *	5.38E-02	8.64E-02	32.3	LD50	1.67E-03	2.68E-03
Barium *	3.72E-02	5.26E-02	0.7	NOAEL, f	5.31E-02	7.51E-02
Cadmium *	5.54E-04	8.88E-04	0.8	LOAEL	6.92E-04	1.11E-03
Chromium *	1.05E-03	1.69E-03	0.04	LOAEL	2.63E-02	4.22E-02
Dieldrin	2.33E-05	3.77E-05	17.9	LD50	1.30E-06	2.11E-06
HCB	3.82E-06	6.13E-06	0.54	NOAEL, f	7.08E-06	1.14E-05
Heptachlor	1.13E-05	1.81E-05	120	LD50	9.38E-08	1.50E-07
Lead *	2.94E-03	4.75E-03	500	NOAEL	5.88E-06	9.50E-06
Lead (organic) *	3.42E-03	8.73E-03	10.7	LD50, j	3.19E-04	8.16E-04
Magnesium *	1.89E+02	3.04E+02	280	LD50, d	6.75E-01	1.09E+00
Manganese *	6.57E-02	1.05E-01	0.9	LD50, f	7.30E-02	1.17E-01
Mercury *	2.27E-03	3.65E-03	0.1	LOAEL	2.27E-02	3.65E-02
Nickel *	1.73E-03	2.78E-03	800	NOAEL	2.17E-06	3.48E-06
OCDD	6.30E-08	1.01E-07	0.1	LD50, d	6.30E-07	1.01E-06
OCDF	3.77E-08	6.05E-08	0.1	g	3.77E-07	6.05E-07
Pyridine	4.62E-02	7.41E-02	89.1	LD50, d	5.18E-04	8.31E-04
Selenium *	4.25E-02	6.82E-02	4	NOAEL	1.06E-02	1.70E-02
Silver *	7.26E-04	1.17E-03	18.1	NOAEL, e	4.01E-05	6.44E-05
Thallium *	4.18E-03	6.70E-03	0.2	NOAEL, f	2.09E-02	3.35E-02
Chlordanes	5.45E-05	8.75E-05	70.9	LD50	7.69E-07	1.23E-06
Tetrachlorobiphenyls	1.94E-04	3.11E-04	0.1	LD50, d, h	1.94E-03	3.11E-03
Pentachlorobiphenyls	7.96E-05	1.28E-04	0.05	LD50, d, h	1.59E-03	2.55E-03
Hexachlorobiphenyls	1.08E-04	1.74E-04	0.05	LD50, d, h	2.17E-03	3.48E-03
Heptachlorobiphenyls	3.90E-05	6.26E-05	0.05	LD50, d, h	7.81E-04	1.25E-03
alpha-BHC	2.92E-07	5.58E-07	0.0165	i	1.77E-05	3.38E-05
bis(2-ethylhexyl)phthalate	7.03E-04	2.69E-03	200	NOAEL, f	3.52E-06	1.35E-05
delta-BHC	2.23E-05	3.58E-05	0.0165	i	1.35E-03	2.17E-03
gamma-BHC	4.77E-05	7.68E-05	0.0165	NOAEL, e	2.89E-03	4.66E-03
				Total EQ	0.91	1.45

TABLE D-9
Lake Holloman

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Antimony, .1; Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Magnesium, .3; Nickel, .1; Selenium, 1; Thallium. 1.
a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).
b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.
c Value from FWS, 1986.
d Value from Sax and Lewis, 1989.
e IRIS, 1993
f Value from Toxicity Profile for that chemical
g Toxicity value for OCDD used as a surrogate value
h The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.
i Toxicity values for gamma-BHC used as a surrogate
j Toxicity value from Eisler, 1988

References

Eisler, R. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish Wildl. Serv. Biol. Rep. 85(1.14). 134 pp.

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

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Heinz, Gary H. and Richard W. Johnson. 1979. Elimination of Endrin by Mallard Ducks. Toxicology, 12:189-196.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Materials Van Nostrand Reinhold International Company Limited. London, England.

Welty, Joel Carl and Luis Baptista. 1988. The Life of Birds, 4th ed. Saunders College Publishing. New York, New York, p. 103.

TABLE D-10
Lake Stinky

Estimated Intake by Mallards and Ecological Risk Characterization
Lake Stinky

Intake (mg/kg-day)= [(B)(FIa)(IRa)(Ca)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRa = Ingestion rate of algae (kg/day)
IRw = Ingestion rate of water (L/day)
Ca = Measured chemical concentration in algae (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.105	0.21	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
1,2,3,4,7,8-HxCDF	2.01E-08	3.22E-08	0.0072	LD50, c	2.79E-06	4.47E-06
1,2,3,7,8,9-HxCDF	8.37E-09	1.34E-08	0.08	LD50, c	1.05E-07	1.68E-07
2,4'-DDD	1.38E-06	2.21E-06	50	LDL, c	2.76E-08	4.42E-08
2,4'-DDT	2.90E-06	4.66E-06	200	LDL, c	1.45E-08	2.33E-08
4,4'-DDD	2.19E-05	3.57E-05	6	LOAEL	3.65E-06	5.95E-06
4,4'-DDE	7.21E-06	1.16E-05	2	LOAEL	3.61E-06	5.79E-06
Aldrin	7.60E-06	1.25E-05	1	LC50	7.60E-06	1.25E-05
Antimony *	3.77E-04	6.05E-04	0.07	LOAEL, d	5.39E-03	8.65E-03
Arsenic *	3.13E-02	5.02E-02	32.3	LD50	9.69E-04	1.55E-03
Barium *	1.20E-02	1.93E-02	0.7	NOAEL, e	1.72E-02	2.76E-02
Cadmium *	2.25E-04	3.62E-04	0.8	LOAEL	2.82E-04	4.52E-04
Chromium *	4.96E-03	7.95E-03	0.04	LOAEL	1.24E-01	1.99E-01
Dibutylphthalate	2.80E-02	4.50E-02	800	LD50, c	3.51E-05	5.62E-05
Dieldrin	5.93E-06	9.53E-06	17.9	LD50	3.31E-07	5.32E-07
Diethylphthalate	2.27E-02	3.64E-02	860	LD50, c	2.64E-05	4.23E-05
HCB	1.23E-06	1.97E-06	0.54	NOAEL, e	2.28E-06	3.65E-06
Heptachlor	8.41E-06	1.35E-05	120	LD50	7.01E-08	1.12E-07
Lead *	4.13E-03	1.33E-02	500	NOAEL	8.26E-06	2.65E-05
Magnesium *	1.28E+02	2.05E+02	280	LD50, c	4.57E-01	7.34E-01
Manganese *	5.11E-02	8.20E-02	0.9	LD50, e	5.68E-02	9.11E-02
Mercury *	7.42E-04	1.19E-03	0.1	LOAEL	7.42E-03	1.19E-02
Nickel *	1.27E-03	2.03E-03	800	NOAEL	1.58E-06	2.54E-06
Selenium *	6.72E-03	1.08E-02	4	NOAEL	1.68E-03	2.70E-03
Silver *	1.08E-04	1.73E-04	18.1	NOAEL, e	5.96E-06	9.56E-06
Thallium *	2.13E-03	3.41E-03	0.2	NOAEL, e	1.06E-02	1.71E-02
Tetrachlorobiphenyls	3.67E-05	5.88E-05	0.1	LD50, c, f	3.67E-04	5.88E-04
Pentachlorobiphenyls	2.67E-05	4.28E-05	0.05	LD50, c, f	5.33E-04	8.55E-04
Hexachlorobiphenyls	0.00E+00	0.00E+00	0.05	LD50, c, f	0.00E+00	0.00E+00
Heptachlorobiphenyls	8.46E-06	1.36E-05	0.05	LD50, c, f	1.69E-04	2.71E-04
alpha-BHC	1.66E-05	2.78E-05	0.0165	g	1.00E-03	1.68E-03
delta-BHC	9.63E-06	1.54E-05	0.0165	g	5.84E-04	9.36E-04
gamma-BHC	5.10E-05	8.19E-05	0.0165	NOAEL, d	3.09E-03	4.96E-03
				Total EQ	0.69	1.10

TABLE D-10
Lake Stinky

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metal which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the d Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Antimony, .1; Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Magnesium, .3; Nickel, .1; Selenium, 1; Thallium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from Sax and Lewis, 1989.

d IRIS, 1993

e Value from Toxicity Profile for that chemical

f The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

g Toxicity value for gamma-BHC used as surrogate

References

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

Heinz, Gary H. and Richard W. Johnson. 1979. Elimination of Endrin by Mallard Ducks Toxicology, 12:189-196.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Materials. Van Nostrand Reinhold International Compoany Limited. London, England.

Welty, Joel Carl and Luis Baptista. 1988. The Life of Birds, 4th ed. Saunders Colle Publishing. New York, New York, p. 103.

TABLE D-11
Lagoon A

Estimated Intake by Killdeer and Ecological Risk Characterization
Sewage Lagoon A

Intake (mg/kg-day)= [(B)(FIb)(IRb)(Cb)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRb = Ingestion rate of benthic organisms (kg/day)
IRw = Ingestion rate of water (L/day)
Cb = Measured chemical concentration in benthic organisms (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.33	1	Worst-case assumption
IRa =	0.011	0.012	EPA, 1988
IRw =	0.024	0.025	EPA, 1988
BW =	0.105	0.11	Killdeer (Oberholser, 1974)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
1,2,3,4,6,7,8-HpCDD	5.19E-08	1.64E-07	0.06	LD50, c	8.64E-07	2.73E-06
1,2,3,6,7,8-HxCDD	8.64E-09	2.73E-08	0.0072	d	1.20E-06	3.79E-06
1,2,3,7,8,9-HxCDF	9.33E-09	2.95E-08	0.08	LD50, c	1.17E-07	3.68E-07
2,4'-DDD	4.63E-05	1.46E-04	50	LDL, c	9.27E-07	2.92E-06
2,4'-DDT	3.38E-05	1.07E-04	200	LDL, c	1.69E-07	5.33E-07
4,4'-DDD	8.46E-04	2.67E-03	6	LOAEL	1.41E-04	4.45E-04
4,4'-DDE	4.84E-04	1.53E-03	2	LOAEL	2.42E-04	7.64E-04
4,4'-DDT	1.20E-04	3.79E-04	224	LD50	5.36E-07	1.69E-06
BEHP	1.84E+00	5.81E+00	200	NOAEL, e	1.84E-02	5.81E-02
Chlordanes	1.52E-04	4.79E-04	70.9	LD50	2.14E-06	6.75E-06
Dieldrin	1.13E-06	3.41E-06	17.9	LD50	6.32E-08	1.90E-07
gamma-BHC (lindane)	3.66E-05	1.16E-04	0.0165	NOAEL, f	2.22E-03	7.01E-03
HCB	6.43E-05	2.03E-04	0.54	NOAEL, e	1.19E-04	3.76E-04
Heptachlor	9.05E-07	2.73E-06	120	LD50	7.54E-09	2.27E-08
OCDD	4.60E-07	1.45E-06	0.1	LD50, c	4.60E-06	1.45E-05
Tetrachlorobiphenyls	9.58E-04	3.02E-03	0.1	LD50, c, g	9.58E-03	3.02E-02
Pentachlorobiphenyls	4.18E-03	1.32E-02	0.05	LD50, c, g	8.35E-02	2.64E-01
Hexachlorobiphenyls	4.23E-03	1.33E-02	0.05	LD50, c, g	8.46E-02	2.67E-01
Heptachlorobiphenyls	1.88E-03	5.92E-03	0.05	LD50, c, g	3.75E-02	1.18E-01
				Total EQ	0.02	0.07

TABLE D-11
Lagoon A

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).
b Species-specific toxicity values were used when available and the sources are cited in the toxicity write-up in the main text, unless otherwise noted.
c Value from Sax and Lewis, 1989.
d Toxicity value for 1,2,3,4,7,8-HxCDD used as a surrogate
e Toxicity values from ATSDR Toxicity Profiles for specific chemical.
f IRIS, 1993
g The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

References

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

Oberholser, Harry C., 1974. "Bird Life of Texas." Edgar B. Kincaid, ed.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Material Van Nostrand International Company Limited. London, England.

TABLE D-12
Lagoon E

Estimated Intake by Killdeer and Ecological Risk Characterization
Sewage Lagoon E

Intake (mg/kg-day)= [(B)(FIb)(IRb)(Cb)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRb = Ingestion rate of benthic organisms (kg/day)
IRw = Ingestion rate of water (L/day)
Cb = Measured chemical concentration in benthic organisms (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.33	1	Worst-case assumption
IRa =	0.011	0.012	EPA, 1988
IRw =	0.024	0.025	EPA, 1988
BW =	0.105	0.11	Killdeer (Oberholser, 1974)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
1,2,3,4,7,8-HxCDF	2.07E-09	6.55E-09	0.0072	LD50, c	2.88E-07	9.09E-07
2,4'-DDD	1.12E-05	3.55E-05	50	LDL, c	2.25E-07	7.09E-07
2-Naphthylamine	1.31E-02	4.12E-02	72.7	LD50, c	1.80E-04	5.67E-04
4,4'-DDD	5.21E-04	1.64E-03	6	LOAEL	8.68E-05	2.74E-04
4,4'-DDE	1.23E-04	4.30E-04	2	LOAEL	6.13E-05	2.15E-04
Antimony*	3.80E-04	1.20E-03	0.07	LOAEL, d	5.43E-03	1.71E-02
Arsenic *	9.68E-03	3.05E-02	32.3	LD50	3.00E-04	9.46E-04
Barium *	5.79E-02	1.83E-01	0.7	NOAEL, e	8.27E-02	2.61E-01
BEHP	7.21E-01	2.28E+00	200	NOAEL, e	3.61E-03	1.14E-02
Cadmium *	1.50E-04	4.73E-04	0.8	LOAEL	1.87E-04	5.91E-04
Chlordanes	6.91E-06	2.18E-05	70.9	LD50	9.75E-08	3.08E-07
Chromium *	3.47E-03	1.10E-02	0.04	LOAEL	8.69E-02	2.74E-01
Dieldrin	1.09E-06	3.30E-06	17.9	LD50	6.11E-08	1.84E-07
gamma-BHC	1.09E-06	3.30E-06	0.0165	NOAEL, d	6.63E-05	2.00E-04
HCB	1.73E-05	5.45E-05	0.54	NOAEL, e	3.20E-05	1.01E-04
Heptachlor	1.43E-06	4.53E-06	120	LD50	1.20E-08	3.77E-08
Lead *	7.86E-03	2.49E-02	500	NOAEL	1.57E-05	4.99E-05
Magnesium *	3.00E+01	9.49E+01	280	LD50, c	1.07E-01	3.39E-01
Manganese *	5.94E-02	1.88E-01	0.9	NOEL, e	6.60E-02	2.08E-01
Mercury *	1.56E-03	4.93E-03	0.1	LOAEL	1.56E-02	4.93E-02
Nickel *	1.80E-03	5.67E-03	800	NOAEL	2.25E-06	7.09E-06
OCDD	1.04E-07	3.27E-07	0.1	LD50, c	1.04E-06	3.27E-06
Tetrachlorobiphenyls	1.76E-04	5.55E-04	0.1	LD50, c, f	1.76E-03	5.55E-03
Pentachlorobiphenyls	0.00E+00	0.00E+00	0.05	LD50, c, f	0.00E+00	0.00E+00
Hexachlorobiphenyls	2.28E-04	7.20E-04	0.05	LD50, c, f	4.56E-03	1.44E-02
Heptachlorobiphenyls	1.04E-04	3.29E-04	0.05	LD50, c, f	2.09E-03	6.59E-03
Selenium *	4.35E-02	1.37E-01	0.05	NOAEL	8.69E-01	2.75E+00
Silver *	2.32E-02	7.33E-02	18.1	NOAEL, e	1.28E-03	4.05E-03
				Total EQ	1.25	3.94

TABLE D-12
Lagoon E

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metal. which tend to sorb strongly, particularly in hard water, to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Antimony is .1; Arsenic, 1; Barium, 0.2; Cadmium, .076; Chromium, .15; Lead, .5; Magnesium, .3; Manganese, .05; Mercury, 1; Nickel, .1; Selenium, 1; and Silver, .21.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from Sax and Lewis, 1989.

d IRIS, 1993

e Value from ATSDR Toxicity Profile for that Chemical

f The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

References

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

Oberholser, Harry C., 1974. Bird Life of Texas. Edgar B. Kincaid, ed., 1974.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Materials Van Nostrand Reinhold International Company Limited. New York, New York.

TABLE D-13
Ditch

Estimated Intake by Killdeer and Ecological Risk Characterization
Ditch

Intake (mg/kg-day)= [(B)(FIb)(IRb)(Cb)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRb = Ingestion rate of benthic organisms (kg/day)
IRw = Ingestion rate of water (L/day)
Cb = Measured chemical concentration in benthic organisms (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	eas. Max.	
B =	1	1	Worst-case assumption
FI =	0.33	1	Worst-case assumption
IRa =	0.011	0.012	EPA, 1988
IRw =	0.024	0.025	EPA, 1988
BW =	0.105	0.11	Killdeer (Oberholser, 1974)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
1,2,3,4,7,8-HxCDF	8.30E-09	2.62E-08	0.0072	LD50, c	1.15E-06	3.64E-06
2,4'-DDD	1.73E-05	5.45E-05	50	LDL, d	3.46E-07	1.09E-06
2,4'-DDE	2.90E-06	9.16E-06	50	e	5.81E-08	1.83E-07
4,4'-DDD	1.14E-03	3.60E-03	6	LOAEL	1.90E-04	6.00E-04
4,4'-DDE	4.84E-04	1.53E-03	2	LOAEL	2.42E-04	7.64E-04
4,4'-DDT	8.64E-06	2.73E-05	224	LD50	3.86E-08	1.22E-07
Dieldrin	8.30E-07	2.50E-06	17.9	LD50	4.64E-08	1.40E-07
HCB	1.73E-05	5.45E-05	0.54	NOAEL, c	3.20E-05	1.01E-04
Heptachlor	3.46E-06	1.09E-05	120	LD50	2.88E-08	9.09E-08
OCDD	1.21E-07	3.82E-07	0.1	LD50, d	1.21E-06	3.82E-06
Tetrachlorobiphenyls	1.83E-04	5.76E-04	0.1	LD50, c, g	1.83E-03	5.76E-03
Pentachlorobiphenyls	1.64E-04	5.16E-04	0.05	LD50, c, g	3.27E-03	1.03E-02
Hexachlorobiphenyls	4.06E-04	1.28E-03	0.05	LD50, c, g	8.12E-03	2.56E-02
Heptachlorobiphenyls	4.94E-05	1.56E-04	0.05	LD50, c, g	9.89E-04	3.12E-03
Chlordanes	3.46E-04	1.09E-03	70.9	LD50	4.88E-06	1.54E-05
alpha-BHC	5.88E-07	1.77E-06	0.0165	f	3.57E-05	1.07E-04
				Total EQ	0.0147	0.0464

TABLE D-13
Ditch

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAEL to NOAEL (UF=5).
b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups in the text, unless otherwise noted.
c Value from Sax and Lewis, 1989.
d Toxicity values from ATSDR Toxicity Profiles for specific chemical.
e Toxicity value for 2,4-DDD used as a surrogate
f Toxicity value for gamma-BHC used as a surrogate
g The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

References

Environmental Protection Agency (EPA). 1988. Recommendations for and Documentation of Biological Values for Use in Risk Assessment. PB88-179874. EPA/600/6-87/008 Environmental Criteria and Assessment Office. Office of Health and Environmental Assessment, Cincinnati, OH.

Oberholser, Harry C., 1974. "Bird Life of Texas." Edgar B. Kincaid, ed.

Sax, N. Irving and Richard J. Lewis. 1989. Dangerous Properties of Industrial Materials Van Nostrand Reinhold International Company Limited. Londin, England.

TABLE D-14
Lagoon G

Estimated Intake by Mergansers and Ecological Risk Characterization
Sewage Lagoon G

Intake (mg/kg-day)= [(B)(FIf)(IRf)(Cf)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRf = Ingestion rate of fish (kg/day)
IRw = Ingestion rate of water (L/day)
Cf = Measured chemical concentration in fish (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.165	0.33	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
2,4'-DDD	1.34E-05	2.15E-05	50	LDL, c	2.68E-07	4.30E-07
2,4'-DDT	1.64E-05	2.63E-05	200	LDL, c	8.20E-08	1.32E-07
4,4'-DDD	5.22E-04	8.38E-04	6	LOAEL	8.70E-05	1.40E-04
4,4'-DDE	2.62E-04	4.21E-04	2	LOAEL	1.31E-04	2.10E-04
4,4'-DDT	3.92E-05	6.29E-05	224	LD50	1.75E-07	2.81E-07
Aldrin	2.39E-06	3.84E-06	1	LC50	2.39E-06	3.84E-06
alpha-BHC	2.32E-06	7.76E-06	0.0165	d	1.41E-04	4.71E-04
Arsenic *	3.08E-03	5.04E-03	32.3	LD50	9.54E-05	1.56E-04
Barium *	3.60E-02	5.77E-02	0.7	NOAEL, e	5.14E-02	8.25E-02
beta-BHC	1.21E-05	3.19E-05	0.0165	d	7.34E-04	1.93E-03
Cadmium *	8.21E-05	1.32E-04	0.8	LOAEL	1.03E-04	1.65E-04
Chromium *	1.54E-04	2.47E-04	0.04	LOAEL	3.85E-03	6.17E-03
Dieldrin	3.49E-05	5.59E-05	17.9	LD50	1.95E-06	3.12E-06
HCB	1.38E-05	2.22E-05	0.54	NOAEL, e	2.56E-05	4.11E-05
gamma-BHC	2.09E-05	3.36E-05	0.0165	NOAEL, f	1.27E-03	2.04E-03
Heptachlor	8.71E-07	1.40E-06	120	LD50	7.26E-09	1.16E-08
Heptachlor epoxide	1.30E-06	2.08E-06	0.0025	LOAEL, f	5.18E-04	8.31E-04
Lead *	3.22E-05	6.03E-05	500	NOAEL	6.44E-08	1.21E-07
Lead (organic) *	2.03E-03	5.50E-03	10.7	LD50, h	1.90E-04	5.14E-04
Magnesium *	1.51E+01	2.46E+01	280	LD50, c	5.41E-02	8.80E-02
Manganese *	2.17E-02	3.49E-02	0.9	LD50, e	2.41E-02	3.87E-02
Mercury *	4.92E-06	8.54E-06	0.1	LOAEL	4.92E-05	8.54E-05
Tetrachlorobiphenyls	6.45E-04	1.03E-03	0.1	LD50, c, g	6.45E-03	1.03E-02
Pentachlorobiphenyls	1.69E-03	2.71E-03	0.05	LD50, c, g	3.38E-02	5.43E-02
Hexachlorobiphenyls	9.18E-04	1.47E-03	0.05	LD50, c, g	1.84E-02	2.95E-02
Heptachlorobiphenyls	6.08E-04	9.75E-04	0.05	LD50, c, g	1.22E-02	1.95E-02
Selenium *	4.96E-02	7.95E-02	4	NOAEL	1.24E-02	1.99E-02
Silver *	1.09E-03	1.75E-03	18.1	NOEL, e	6.03E-05	9.68E-05
				TOTAL EQ	0.22	0.36

TABLE D-14
Lagoon G

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Magnesium, .3; Selenium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups in alpha-BHC 0.0003152

c Value from Sax and Lewis, 1989.

d Toxicity values of gamma-BHC used as a surrogate

e Value from Toxicity Profile for that chemical

f IRIS, 1993

g The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

h Toxicity value from Eisler, 1988

References

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TABLE D-15
Lake Holloman

Estimated Intake by Mergansers and Ecological Risk Characterization
Lake Holloman

Intake (mg/kg-day)= [(B)(FIf)(IRf)(Cf)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRf = Ingestion rate of fish (kg/day)
IRw = Ingestion rate of water (L/day)
Cf = Measured chemical concentration in fish (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	Reas. Max.	
B =	1	1	Worst-case assumption
FI =	0.165	0.33	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Ecological Quotient Reas. Max.
1,2,3,7,8,9-HxCDD	9.08E-10	1.46E-09	0.06	LD50, c	1.51E-08	2.43E-08
2,3,7,8-TCDD	2.27E-10	3.64E-10	0.0108	LD50	2.10E-08	3.37E-08
2,3,7,8-TCDF	2.27E-10	3.64E-10	0.0108	d	2.10E-08	3.37E-08
2,4'-DDD	7.47E-06	1.20E-05	50	LDL, e	1.49E-07	2.40E-07
2,4'-DDE	1.03E-05	1.66E-05	50	f	2.06E-07	3.31E-07
4,4'-DDD	3.25E-04	5.21E-04	6	LOAEL	5.41E-05	8.68E-05
4,4'-DDE	1.81E-04	2.90E-04	2	LOAEL	9.04E-05	1.45E-04
4,4'-DDT	2.46E-05	3.97E-05	224	LD50	1.10E-07	1.77E-07
Acetophenone	1.74E-02	2.79E-02	81.5	LD50, e	2.14E-04	3.43E-04
Arsenic *	3.92E-03	6.35E-03	32.3	LD50	1.21E-04	1.97E-04
Barium *	2.53E-02	4.07E-02	0.7	NOAEL, g	3.62E-02	5.81E-02
Cadmium *	2.18E-05	3.50E-05	0.8	LOAEL	2.73E-05	4.38E-05
Chromium *	2.74E-04	4.39E-04	0.04	LOAEL	6.85E-03	1.10E-02
Dieldrin	2.05E-05	3.32E-05	17.9	LD50	1.15E-06	1.86E-06
HCB	8.08E-06	1.30E-05	0.54	NOAEL, g	1.50E-05	2.40E-05
Heptachlor	4.04E-06	6.48E-06	120	LD50	3.36E-08	5.40E-08
Lead *	9.87E-04	1.60E-03	500	NOAEL	1.97E-06	3.21E-06
Lead (organic) *	2.30E-03	5.88E-03	10.7	LD50, k	2.15E-04	5.50E-04
Magnesium *	1.72E+01	2.83E+01	280	LD50, e	6.14E-02	1.01E-01
Manganese *	2.16E-02	3.47E-02	0.9	LD50, g	2.40E-02	3.86E-02
Mercury *	1.58E-03	2.54E-03	0.1	LOAEL	1.58E-02	2.54E-02
Nickel *	3.32E-04	5.33E-04	800	NOAEL	4.15E-07	6.66E-07
OCDD	3.54E-08	5.68E-08	0.1	LD50, e	3.54E-07	5.68E-07
Tetrachlorobiphenyls	1.55E-04	2.48E-04	0.1	LD50, e, h	1.55E-03	2.48E-03
Pentachlorobiphenyls	5.33E-04	8.56E-04	0.05	LD50, e, h	1.07E-02	1.71E-02
Hexachlorobiphenyls	2.82E-04	4.53E-04	0.05	LD50, e, h	5.65E-03	9.06E-03
Heptachlorobiphenyls	1.28E-04	2.06E-04	0.05	LD50, e, h	2.57E-03	4.12E-03
Selenium *	3.95E-02	6.34E-02	4	NOAEL	9.88E-03	1.58E-02
Silver *	5.75E-04	9.22E-04	18.1	NOEL, i	3.18E-05	5.09E-05
Chlordanes	1.52E-04	2.44E-04	70.9	LD50	2.15E-06	3.44E-06
alpha-BHC	1.29E-05	2.08E-05	0.0165	j	7.82E-04	1.26E-03
bis(2-ethylhexyl)phthalat	5.43E-01	8.72E-01	200	NOAEL, g	2.72E-03	4.36E-03
delta-BHC	1.99E-06	3.19E-06	0.0165	j	1.21E-04	1.93E-04
gamma-BHC	1.48E-05	2.39E-05	0.0165	NOAEL, i	8.96E-04	1.45E-03
beta-BHC	3.82E-05	6.12E-05	0.0165	j	2.31E-03	3.71E-03
				Total EQ	0.18	0.29

TABLE D-15
Lake Holloman

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metal. which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Chromium, .15; Lead, .5; Mercury, 1; Magnesium, .3; Nickel, .1; Selenium, 1

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from FWS, 1986.

d Toxicity values for 2,3,7,8-TCDD used as a surrogate

e Value from Sax an Lewis, 1989.

f Toxicity values for 2,4-DD used as a surrogate

g Value from Toxicity Profile for that chemical

h The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

i IRIS, 1993

j Toxicity values for gamma-BHC used as a surrogate

k Toxicity value from Eisler, 1988.

References

Eisler, R. 1988. Lead Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review. U.S. Fish Wildl. Serv. Biol. Rep. 85(1.14). 134 pp.

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TABLE D-16
Ditch

Estimated Intake by Merganser and Ecological Risk Characterization
Ditch

Intake (mg/kg-day)= [(B)(FIf)(IRf)(Cf)/(BW)]+[(B)(FIw)(IRw)(Cw)/(BW)]

Where:
B = Fraction of contaminant in feed which is bioavailable (unitless)
FI = Fraction of food/water ingested from contaminated source (unitless)
IRf = Ingestion rate of fish (kg/day)
IRw = Ingestion rate of water (L/day)
Cf = Measured chemical concentration in fish (mg/kg)
Cw = Measured chemical concentration in water (mg/L)
BW = Body weight of bird (kg)

Assumptions

	Average	eas. Max.	
B =	1	1	Worst-case assumption
FI =	0.165	0.33	Site-specific assumption
IRa =	0.132	0.15	Welty and Baptista, 1988
IRw =	0.13	0.16	EPA, 1988
BW =	0.96	1.36	1 yr old mallards , (Heinz and Johnson, 1979)

Chemicals of Concern	Average Intake (mg/kg/d)	Reas.Max. Intake (mg/kg/d)	Criteria Footnote a	Source Footnote b	Ecological Quotient Average	Reas. Max.
1,2,3,4,7,8-HxCDF	0.00E+00	0.00E+00	0.0072	LD50, c	0.00E+00	0.00E+00
1,2,3,7,8,9-HxCDD	4.54E-10	7.28E-10	0.08	LD50, c	5.67E-09	9.10E-09
alpha-BHC	1.74E-07	3.03E-07	0.0165	d	1.06E-05	1.84E-05
Antimony	2.23E-03	3.58E-03	0.07	LOAEL, e	3.19E-02	5.11E-02
Arsenic *	3.65E-03	5.85E-03	32.3	LD50	1.13E-04	1.81E-04
Barium *	3.50E-02	5.62E-02	0.7	NOAEL, f	5.00E-02	8.02E-02
Cadmium *	2.88E-05	4.62E-05	0.8	LOAEL	3.60E-05	5.78E-05
delta-BHC	0.00E+00	0.00E+00	0.0165	d	0.00E+00	0.00E+00
Dieldrin	2.46E-07	4.27E-07	17.9	LD50	1.37E-08	2.39E-08
Endrin	1.08E-05	1.73E-05	2.2	LC50	4.91E-06	7.87E-06
Heptachlor epoxide	1.14E-05	1.84E-05	0.0025	LOAEL, f	4.58E-03	7.34E-03
Lead *	5.23E-04	8.39E-04	500	NOEL	1.05E-06	1.68E-06
Magnesium *	1.42E+01	2.27E+01	280	LD50, c	5.06E-02	8.11E-02
Manganese *	2.11E-02	3.39E-02	0.9	LD50, f	2.35E-02	3.77E-02
Mercury *	2.23E-03	3.58E-03	0.1	LOAEL	2.23E-02	3.58E-02
Tetrachlorobiphenyls	0.00E+00	0.00E+00	0.1	LD50, c, g	0.00E+00	0.00E+00
Pentachlorobiphenyls	0.00E+00	0.00E+00	0.05	LD50, c, g	0.00E+00	0.00E+00
Hexachlorobiphenyls	0.00E+00	0.00E+00	0.05	LD50, c, g	0.00E+00	0.00E+00
Heptachlorobiphenyls	0.00E+00	0.00E+00	0.05	LD50, c, g	0.00E+00	0.00E+00
Selenium *	5.96E-02	9.56E-02	4	NOAEL	1.49E-02	2.39E-02
Silver *	1.24E-03	2.00E-03	18.1	NOEL, f	6.88E-05	1.10E-04
Thallium *	3.10E-03	4.97E-03	0.2	NOAEL, f	1.55E-02	2.48E-02
				Total EQ	0.20	0.32

TABLE D-16
Ditch

* A bioavailability of 1.0 (or 100%) was used to calculate intake rates; although this is conservative for all contaminants, it is especially conservative for metals which tend to sorb strongly (particularly in hard water) to organic materials and soils, sediments and sludge. In order to more realistically assess exposure to metals, the absorption efficiency in the gastrointestinal tract was added into the intake equation to estimate the concentration that is actually absorbed from the diet. Absorption efficiency for Barium is 0.2, Manganese, 0.05; and for Silver, 0.21. Arsenic, 1; Cadmium, .076; Lead, .5; Mercury, 1; Magnesium, .3; Selenium, 1; Thallium, 1.

a The criteria have been extrapolated, as needed, from LD50s or LC50s to NOAELs (UF=10); or from LOAELs to NOAELs (UF=5).

b Species-specific toxicity values were used when available and sources are cited in the toxicity write-ups included in the text, unless otherwise noted.

c Value from Sax and Lewis, 1989.

d Toxicity value for gamma-BHC used as a surrogate

e IRIS, 1993

f Value from Toxicity Profile for that chemical

g The toxicity value for 3,3,4,4,5,5-Hexachlorobiphenyl was used for the class hexachlorobipenyls, pentachlorobiphenyls, and heptachlorobiphenyls; the toxicity the toxicity value for 3,3,4,4-TCB was used for the class tetrachlorobiphenyls.

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Table D-17
EQs for Fish in Pond A

	Surface Water		Calculated	Ecological	
Chemical	Concentrations (mg/L)		MATC	Quotient	
	Ave.	RM	(mg/L)	Ave	RM
4,4'-DDD	2.80E-05	2.80E-05	1.32E-02	2.12E-03	2.12E-03
4,4'-DDT	2.00E-05	2.00E-05	2.35E-03	8.51E-03	8.51E-03
delta-BHC	3.70E-05	3.70E-05	8.00E-05	4.63E-01	4.63E-01
Dieldrin	1.50E-05	1.50E-05	2.35E-04	6.38E-02	6.38E-02
Heptachlor	1.20E-05	1.20E-05	6.00E-04	2.00E-02	2.00E-02
Heptachlor epoxide	1.00E-05	1.00E-05	3.80E-06	2.63E+00	2.63E+00
			TOTAL EQ	3.19E+00	3.19E+00

Table D-18
EQs for Fish in Pond B

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave	RM		Ave	RM
4,4'-DDD	4.30E-05	4.30E-05	1.32E-02	3.26E-03	3.26E-03
4,4'-DDE	2.38E-04	5.75E-04	5.80E-04	4.10E-01	9.91E-01
4,4'-DDT	1.80E-05	1.80E-05	2.35E-03	7.66E-03	7.66E-03
alpha-BHC	2.24E-05	4.00E-05	9.40E-04	2.38E-02	4.26E-02
Antimony	2.20E-02	3.72E-02	1.40E-04	1.57E+02	2.65E+02
Arsenic	3.19E-03	3.42E-03	7.00E-02	4.55E-02	4.89E-02
Barium	3.09E-02	3.66E-02	NA	NA	NA
Benzoic Acid	5.00E-03	5.00E-03	NA	NA	NA
bis(2-Ethylhexyl)phthalate	8.50E-03	1.14E-02	3.60E-01	2.36E-02	3.16E-02
Chromium	2.33E-03	2.94E-03	1.20E-01	1.94E-02	2.45E-02
Chromium 6+	2.00E-04	4.92E-04	2.27E-01	8.83E-04	2.17E-03
Copper	3.46E-03	4.73E-03	NA	NA	NA
delta-BHC	1.70E-05	1.70E-05	8.00E-05	2.13E-01	2.13E-01
Dieldrin	2.20E-05	2.20E-05	2.35E-04	9.36E-02	9.36E-02
gamma-BHC	1.00E-05	1.00E-05	8.00E-05	1.25E-01	1.25E-01
Heptachlor	1.00E-05	1.00E-05	6.00E-04	1.67E-02	1.67E-02
Lead	3.89E-03	5.38E-03	4.52E-03	8.60E-01	1.19E+00
Magnesium	1.62E+02	2.03E+02	NA	NA	NA
Manganese	5.94E-02	7.60E-02	2.59E-01	2.29E-01	2.93E-01
Mercury	3.58E-04	5.10E-04	2.14E-04	1.67E+00	2.38E+00
Selenium	2.16E-03	2.89E-03	8.91E-02	2.43E-02	3.25E-02
Silver	1.68E-02	2.60E-02	1.20E-04	1.40E+02	2.17E+02
Chlordanes	8.75E-05	1.76E-04	1.00E-03	8.75E-02	1.76E-01
			TOTAL EQ	3.01E+02	4.88E+02

Table D-19
EQs for Fish in Pond C

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave	RM
Arsenic	2.42E-03	3.64E-03	7.00E-02	3.46E-02	5.20E-02
Barium	2.92E-02	3.90E-02	NA	NA	NA
beta-BHC	3.00E-05	3.00E-05	1.29E-02	2.33E-03	2.33E-03
bis(2-Ethylhexyl)phthalate	4.00E-03	4.00E-03	3.60E-01	1.11E-02	1.11E-02
Chromium	5.46E-03	1.25E-02	1.20E-01	4.55E-02	1.04E-01
Lead	5.44E-03	6.56E-03	4.52E-03	1.20E+00	1.45E+00
Magnesium	1.44E+02	1.68E+02	NA	NA	NA
Manganese	6.50E-02	7.56E-02	2.59E-01	2.51E-01	2.92E-01
			TOTAL EQ	1.55E+00	1.91E+00

Table D-20
EQs for Fish in Pond D

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave	RM		Ave	RM
Arsenic	4.12E-03	5.30E-03	7.00E-02	5.88E-02	7.57E-02
Barium	3.68E-02	3.83E-02	NA	NA	NA
Benzoic Acid	2.56E-02	2.69E-02	NA	NA	NA
bis(2-Ethylhexyl)phthalate	1.03E-02	1.51E-02	3.60E-01	2.87E-02	4.20E-02
Delta-BHC	2.10E-05	2.10E-05	8.00E-05	2.63E-01	2.63E-01
Dieldrin	1.50E-05	1.50E-05	2.35E-04	6.38E-02	6.38E-02
gamma-BHC	1.00E-05	1.00E-05	8.00E-05	1.25E-01	1.25E-01
Heptachlor	1.00E-05	1.00E-05	6.00E-04	1.67E-02	1.67E-02
Lead	4.18E-03	4.93E-03	4.52E-03	9.25E-01	1.09E+00
Magnesium	1.72E+02	1.75E+02	NA	NA	NA
Manganese	5.65E-02	7.17E-02	2.59E-01	2.18E-01	2.77E-01
Mercury	3.62E-04	6.05E-04	2.14E-04	1.69E+00	2.83E+00
Selenium	1.58E-03	2.34E-03	8.91E-02	1.78E-02	2.62E-02
			TOTAL EQ	3.41E+00	4.81E+00

Table D-21
EQs for Fish in Pond E

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave.	RM
4,4'-DDD	2.60E-05	2.60E-05	1.32E-02	1.97E-03	1.97E-03
4,4'-DDE	2.51E-04	4.52E-04	5.80E-04	4.33E-01	7.79E-01
Barium	3.43E-02	3.74E-02	NA	NA	NA
Benzoic Acid	1.00E-02	1.00E-02	NA	NA	NA
bis(2-Ethylhexyl)phthalate	7.67E-03	1.14E-02	3.60E-01	2.13E-02	3.16E-02
Dieldrin	1.45E-05	1.45E-05	2.35E-04	6.17E-02	6.17E-02
gamma-BHC	1.45E-05	1.45E-05	8.00E-05	1.81E-01	1.81E-01
Heptachlor	1.00E-05	1.00E-05	6.00E-04	1.67E-02	1.67E-02
Lead	2.25E-03	3.52E-03	4.52E-03	4.98E-01	7.79E-01
Magnesium	1.60E+02	1.73E+02	NA	NA	NA
Manganese	3.37E-02	3.91E-02	2.59E-01	1.30E-01	1.51E-01
Mercury	4.92E-04	5.60E-04	2.14E-04	2.30E+00	2.62E+00
Selenium	3.18E-03	4.48E-03	8.91E-02	3.57E-02	5.02E-02
			TOTAL EQ	3.68E+00	4.67E+00

Table D-22
EQs for Fish in Pond F

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave.	RM
4,4'-DDD	3.50E-05	3.50E-05	1.32E-02	2.65E-03	2.65E-03
4,4'-DDE	1.20E-04	1.20E-04	5.80E-04	2.07E-01	2.07E-01
gamma-BHC	1.20E-05	1.20E-05	8.00E-05	1.50E-01	1.50E-01
			TOTAL EQ	3.60E-01	3.60E-01

Table D-23
EQs for Fish in Pond G

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave.	RM
alpha-BHC	1.04E-04	2.00E-04	9.40E-04	1.11E-01	2.13E-01
Arsenic	4.48E-03	6.61E-03	7.00E-02	6.40E-02	9.44E-02
Barium	3.60E-02	3.80E-02	NA	NA	NA
beta-BHC	3.02E-04	6.00E-04	1.29E-02	2.34E-02	4.66E-02
bis(2-Ethylhexyl)phthalate	6.80E-03	8.87E-03	3.60E-01	1.89E-02	2.46E-02
gamma-BHC	9.90E-06	9.90E-06	8.00E-05	1.24E-01	1.24E-01
Lead	2.88E-03	3.11E-03	4.52E-03	6.37E-01	6.88E-01
Magnesium	2.18E+02	2.32E+02	NA	NA	NA
Manganese	6.64E-02	7.10E-02	2.59E-01	2.56E-01	2.74E-01
Mercury	2.20E-04	2.20E-04	2.14E-04	1.03E+00	1.03E+00
			TOTAL EQ	2.26E+00	2.49E+00

Table D-24
EQs for Fish in the Ditch

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave.	RM
alpha-BHC	7.80E-06	7.80E-06	9.40E-04	8.30E-03	8.30E-03
Dieldrin	1.10E-05	1.10E-05	2.35E-04	4.68E-02	4.68E-02
			TOTAL EQ	5.51E-02	5.51E-02

Table D-25
EQs for Fish in Lake Holloman

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave.	RM		Ave.	RM
4,4'-DDD	4.20E-06	4.20E-06	1.32E-02	3.18E-04	3.18E-04
4,4'-DDT	1.17E-05	1.80E-05	2.35E-03	4.98E-03	7.66E-03
alpha-BHC	8.80E-06	9.70E-06	9.40E-04	9.36E-03	1.03E-02
Arsenic	7.32E-03	8.45E-03	7.00E-02	1.05E-01	1.21E-01
Barium	4.00E-02	4.13E-02	NA	NA	NA
bis(2-Ethylhexyl)phthalate	2.12E-02	4.67E-02	3.60E-01	5.89E-02	1.30E-01
Dieldrin	6.80E-06	1.29E-05	2.35E-04	2.89E-02	5.49E-02
gamma-BHC	6.50E-06	1.15E-05	8.00E-05	8.13E-02	1.44E-01
Lead	3.22E-03	4.03E-03	4.52E-03	7.12E-01	8.90E-01
Magnesium	5.44E+02	5.61E+02	NA	NA	NA
Manganese	5.46E-02	5.77E-02	2.59E-01	2.11E-01	2.23E-01
Mercury	2.64E-04	3.21E-04	2.14E-04	1.23E+00	1.50E+00
			TOTAL EQ	2.45E+00	3.08E+00

Table D-26
EQs for Fish in Lake Stinky

Chemical	Surface Water Concentrations (mg/L)		Calculated MATC (mg/L)	Ecological Quotient	
	Ave	RM		Ave	RM
Aldrin	1.49E-05	2.50E-05	1.43E-03	1.04E-02	1.75E-02
alpha-BHC	5.50E-05	1.00E-04	9.40E-04	5.85E-02	1.06E-01
Dieldrin	1.10E-05	1.10E-05	2.35E-04	4.68E-02	4.68E-02
gamma-BHC	9.80E-06	9.80E-06	8.00E-05	1.23E-01	1.23E-01
Heptachlor	1.14E-05	1.80E-05	6.00E-04	1.90E-02	3.00E-02
			TOTAL EQ	2.57E-01	3.23E-01

APPENDIX L

BASELINE (HYPOTHETICAL FUTURE RESIDENTIAL) RISK ASSESSMENT FOR THE LAGOONS & LAKES

1.0 BASELINE (HYPOTHETICAL FUTURE RESIDENTIAL) RISK ASSESSMENT

This appendix presents the baseline (hypothetical future residential) risk assessment for the lagoons and lakes at HAFB. The baseline risk assessment was conducted at the request of the New Mexico Environmental Department (NMED). The baseline risk assessment differs from the actual site-specific risk assessments in that it includes residential land use over the entire contaminant source area (i.e., the lagoons) with little or no remedial activity occurring to prevent human exposure. Thus, the highly conservative, worst-case scenarios that were evaluated in the baseline assessment provide the greatest potential for human exposure. While these exposure scenarios are not likely to occur, they are useful because they provide a preliminary determination of whether risks are present at the site. If the baseline risk assessment concludes that no risks to human health are present, a refined analysis to determine the actual risks is unnecessary. Thus, the baseline risk assessment can be viewed as a screening tool. The sections that follow present the exposure assessment, risk characterization, uncertainties, and a summary of conclusions for the baseline risk assessment.

2.0 EXPOSURE ASSESSMENT

An exposure assessment issued to determine or estimate (qualitative or quantitative) the magnitude, frequency, duration, and route of human exposure to the chemicals of potential concern that are present at, or may have migrated from, a site. Aiding in the exposure assessment process, Section 1.3 of the main document provides a detailed description of the physical characteristics of the entire base and the surrounding area.

For the baseline risk assessment, human exposure to the chemicals of potential concern was evaluated by performing the following tasks: 1) identifying contaminant releases; 2) identifying exposure scenarios; 3) identifying potential exposure pathways; 4) identifying exposed populations; 5) estimating exposure point concentrations; 6) estimating contaminant intakes for specific pathways; and 7) determining uncertainties. The following subsections discuss these tasks in detail. Further information on how the estimated exposure concentrations were calculated is provided in Appendix F. The exposure assumptions, intake algorithms, and associated chemical intakes for each exposure pathway are presented later in this appendix.

2.1 Identification of Contaminant Releases

Sampling of all media indicates that sludge in the lagoons serves as the primary contaminant source, while other sources also contribute to the total contaminant load. Based on these sampling data, two significant fate and transport mechanisms of contaminant migration are relevant to the baseline assessment: 1) infiltration into underlying sediments (defined as subsurface soils); and 2) leaching into groundwater. Figure L-1 illustrates the relevant fate and transport mechanisms for the baseline (hypothetical future residential) scenario.

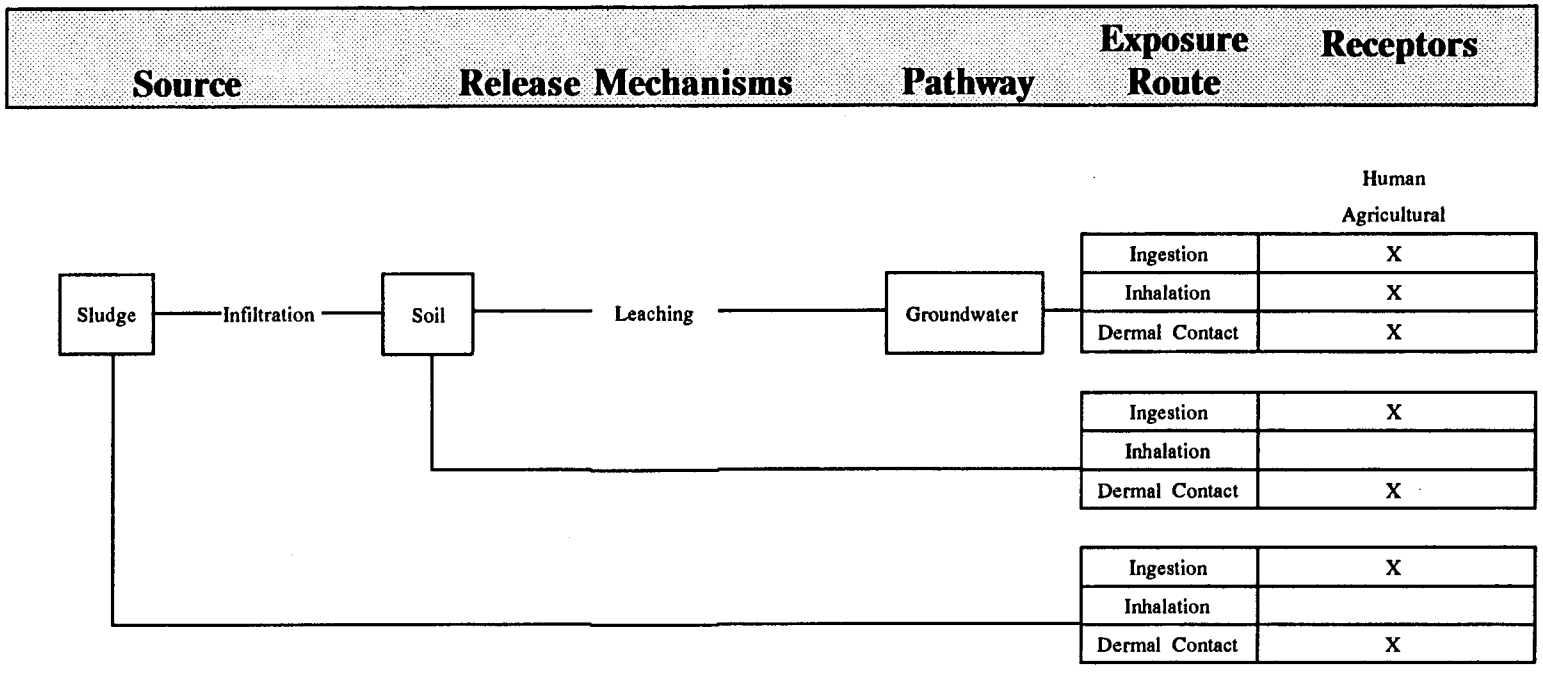

Figure L-1. Fate and Transport Schematic for the Future Hypothetical Residential Scenarios

2.2 Exposure Scenarios

As NMED requested, the baseline risk assessment assumes the residential land use at the contaminant source with little or no remediation activities occurring to prevent exposure. Based on this premise, only the residential exposure was included in the baseline assessment. Figure L-2 illustrates these potential residential exposures. To establish the exposure scenarios, only chronic residential exposure was assessed. Because the baseline risk assessment is intended to be a highly conservative analysis, chronic exposure durations of six years (children) and up to 30 years (adults) were used. Chronic exposure scenarios are based on predicted lifetime exposure and assume exposure to contaminant levels at the nearest receptor.

Based on these criteria, the residential scenarios that were analyzed include the chronic exposure of adults and children to the potential chemicals of concern of adults and children, for both average and reasonable maximum levels of exposure. Chronic exposure to adults and children was evaluated for: 1) an average case, using 50th percentile values for exposure parameters (i.e., exposure frequency and duration) when available and appropriate; and 2) a reasonable maximum case, using 90th or 95th percentile values for exposure parameters when available and appropriate.

Relating these scenarios to risk characterization, risk estimates for noncarcinogenic effects were predicted for both adults and children. Risk estimates for carcinogenic effects were predicted for adults only, based on an exposure duration of 70 years. Carcinogenic risk estimates were not predicted for children since cancer risks are approximate probabilities of developing cancer over a lifetime. The risk characterization results are presented in Section 3.0.

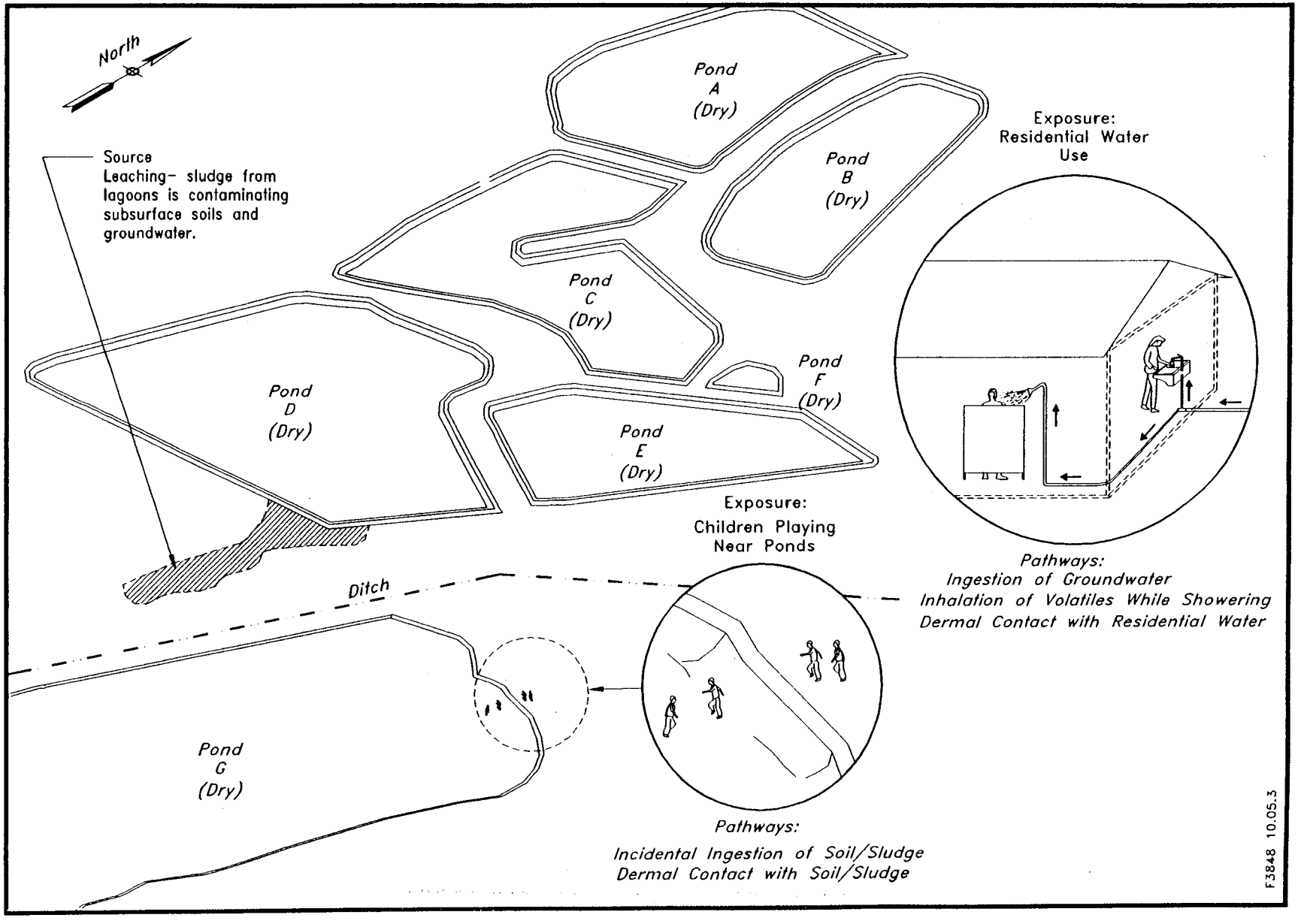

Figure L-2. Exposure Scenario Diagram for Baseline (Hypothetical Future Residential) Risk Assessment

2.3 Identification of Potential Exposure Pathways and Exposed Populations

Potential exposure pathways associated with residential receptors were evaluated to determine whether they were complete and significant. A discussion on the components of a complete exposure pathway is presented in Section 2.4.3 of the main document. Table L-1 documents the exposure pathways that are assumed to be complete for the baseline assessment. These pathways include the following: 1) dermal contact with sludge/sediment; 2) dermal contact with residential water (groundwater); 3) ingestion of sludge/sediment; 4) ingestion of drinking water (groundwater); and 5) inhalation of volatiles while showering. These pathways assume that the lagoons have been dewatered and were considered to be complete based on judgement of typical residential activities and the nature of the contaminated media present. The groundwater ingestion scenario has been included for evaluation of a worst-case scenario. Currently, groundwater beneath the facility is not potable due to high concentrations of total dissolved solids (TDS). For each of these pathways the exposure levels are based on the exposure assumptions in Equation L-1 and Tables L-2 through L-6 in Section 2.5 of this appendix.

(L-1)

The average shower concentration of the chemical is as follows:

$$C_s = \sum_{i=0}^{14} [(1-\exp(-F_a \times (T-i)/V_a)) \times K \times C_w/F_a]$$

Where:

C_s = Average shower concentration over T minutes
F_a = Air flow rate ($V_a \times F_r$) (m^3/min)
T = Time in shower (15 min)
V_a = Shower volume (3.736 m^3)
K = Volatilization coefficient ($0.5 \times (vp/200) \times F_w$) ($m^3$/min)
C_w = Initial water concentration (μg/L)
vp = Vapor pressure of chemical (mm Hg at 48°C)
F_r = Air flow rate relative to shower volume (1/hr)
F_w = Water flow rate (m^3/min)

Table L-1

Potentially Complete Exposure Pathways: Baseline (Hypothetical Future Residential) Risk Assessment Holloman AFB, New Mexico

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Dermal contact with chemicals in surface water	Residential adults and children	No	Lagoons are assumed to be dewatered.
Dermal contact with chemicals in sludge	Residential adults and children	Yes	Baseline assessment is highly conservative. Cannot preclude exposure if residential land use is assumed in the absence of remediation. Children would likely play in lagoons and would be exposed to sludge.
Dermal contact with chemicals in sediment	Residential adults and children	Yes	Baseline assessment is highly conservative. Cannot preclude exposure if residential land use is assumed in the absence of remediation. Children would likely play in lagoons and would be sediment.
Dermal contact with residential water (groundwater) while showering	Residential adults and children	Yes	Baseline assessment is highly conservative. Currently, the groundwater beneath the site is not potable due to high TDS. However, groundwater is assumed to be used for domestic purposes (e.g., showering, cooking, drinking).
Incidental ingestion of surface water	Residential adults and children	No	Lagoons are assumed to be dewatered.

Table L-1

Continued

Exposure Route, Medium, and Exposure Point	Potentially Exposed Population	Pathway Selected for Evaluation	Reason for Selection or Exclusion
Ingestion of groundwater	Residential adults and children	Yes	Baseline assessment is highly conservative. Currently, the groundwater beneath the site is not potable due to high TDS. However, groundwater is assumed to be used for domestic purposes (e.g., showering, cooking, drinking).
Inhalation of chemicals in ambient air (volatiles)	Residential adults and children	No	Concentrations of volatiles remaining in all media are low. If complete, pathway is likely to be insignificant relative to other exposures.
Inhalation of fugitive dust	Residential adults and children	No	Fugitive dust generation is possible but is likely to be insignificant relative to other exposures.
Ingestion of sludge	Residential adults and children	Yes	Ingestion of sludge is likely as lagoons have been dewatered and children are assumed to play in the lagoons.
Ingestion of sediment	Residential adults and children	Yes	Ingestion of sediment is likely as lagoons have been dewatered and children are assumed to play in the lagoons.
Ingestion of fruits, vegetables, and/or beef	Residential adults and children	No	Any contribution from this pathway would be negligible given other highly conservative exposure pathways.

Table L-2

Shower Vapor Concentrations (ug/m3)

Chemical	Pond A		Pond B		Pond C		Pond D		Pond E		Pond F		Pond G	
	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum	Average	Reasonable Maximum
4,4'-DDD	6.20E-13	7.97E-13	6.20E-13	7.97E-13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.35E-13	1.02E-12
4,4'-DDE	8.17E-13	1.13E-12	8.17E-13	1.13E-12	8.46E-13	1.91E-12	0.00	0.00	0.00	0.00	3.82E-12	7.29E-12	0.00	0.00
4,4'-DDT	1.49E-12	2.00E-12	1.49E-12	2.00E-12	1.10E-12	1.51E-12	3.82E-12	7.29E-12	3.82E-12	7.29E-12	1.02E-10	1.96E-10	0.00	0.00
Aldrin	4.58E-11	5.83E-11	4.58E-11	5.83E-11	6.05E-11	1.34E-10	1.02E-10	1.96E-10	1.02E-10	1.96E-10	3.99E-10	6.56E-10	0.00	0.00
alpha-BHC	4.38E-10	6.03E-10	4.39E-10	6.03E-10	0.00	0.00	3.99E-0	6.56E-10	3.99E-10	6.56E-10	1.69E-10	2.35E-10	3.56E-62	8.66E-62
alpha-Chlordane	3.63E-10	6.20E-10	3.63E-10	6.20E-10	2.60E-10	2.60E-10	1.69E-10	2.35E-10	1.69E-10	2.35E-10	0.00	0.00	0.00	0.00
beta-BHC	2.89E-13	4.13E-13	2.89E-13	4.13E-13	0.00	0.00	1.85E-13	2.48E-13	1.85E-13	2.48E-13	0.00	0.00	0.00	0.00
delta-BHC	1.81E-11	2.64E-11	1.81E-11	2.64E-11	2.61E-11	6.27E-11	1.56E-11	2.43E-11	1.56E-11	2.43E-11	0.00	0.00	0.00	0.00
Dibenzofuran	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87E-10	4.34E-10	0.00	0.00
Dieldrin	5.83E-11	8.41E-11	5.93E-11	8.41E-11	6.57E-11	1.53E-10	1.87E-10	4.34E-10	1.87E-10	4.34E-10	3.82E-10	5.23E-10	4.72E-12	7.68E-11
Endosulfan I	1.43E-10	1.99E-10	1.43E-10	1.99E-10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11E-62	1.99E-62
Endosulfan II	3.46E-10	4.15E-10	3.46E-10	4.15E-10	2.76E-10	4.02E-10	3.82E-10	5.23E-10	3.82E-10	5.23E-10	4.51E-10	5.19E-10	0.00	0.00
Endosulfan sulfate	4.51E-10	5.07E-10	4.51E-10	5.07E-10	2.39E-10	4.57E-10	4.51E-10	5.19E-10	4.51E-10	5.19E-10	4.19E-11	8.98E-11	3.14E-65	4.27E-65
Endrin	1.54E-11	2.28E-11	1.54E-11	2.28E-11	7.32E-12	1.73E-11	4.19E-11	8.98E-11	4.19E-11	8.98E-11	1.11E-11	1.85E-11	5.90E-19	1.03E-18
Endrin aldehyde	4.17E-12	5.75E-12	4.17E-12	5.75E-12	3.15E-12	3.46E-12	1.11E-11	1.85E-11	1.11E-11	1.85E-11	3.97E-10	7.37E-10	1.07E-18	1.94E-18
gamma-BHC	2.54E-10	4.36E-10	2.54E-10	4.38E-10	1.35E-10	3.05E-10	3.97E-10	7.37E-10	3.97E-10	7.37E-10	6.38E-10	1.44E-09	8.55E-21	1.98E-20
gamma-Chlordane	2.04E-08	3.82E-08	2.04E-08	3.82E-08	1.22E-08	2.32E-08	6.38E-10	1.44E-09	6.38E-10	1.44E-09	1.67E-11	2.73E-11	5.13E-11	1.32E-10
Heptachlor	7.84E-12	1.04E-11	7.84E-12	1.04E-11	0.00	0.00	1.67E-11	2.73E-11	1.67E-11	2.73E-11	5.07E-12	6.27E-12	1.11E-14	1.35E-14
Heptachlor epoxide	5.16E-12	6.09E-12	5.16E-12	6.09E-12	0.00	0.00	5.07E-12	6.27E-12	5.07E-12	6.27E-12	8.35E-12	1.49E-11	8.58E-15	2.39E-05
Isodrin	1.24E-11	2.05E-11	1.24E-11	2.05E-11	3.94E-12	4.02E-12	8.35E-12	1.49E-11	8.35E-12	1.49E-11	0.00	0.00	0.00	0.00
Methoxychlor	1.49E-09	1.49E-09	1.49E-09	1.49E-09	0.00	0.00	1.25E-08	2.08E-08	1.25E-08	2.08E-08	0.00	0.00	1.86E-33	1.86E-33

Table L-3

Exposure Assumptions for Potential Exposure from Dermal Contact with Chemical - Contaminated Lagoon Sludge/Sediment/Soil - Residential Scenario (Baseline Assessment)

Intake (mg/kg-day) = (CS x CF x SA x AF x ABS x EF x ED)/(BW x AT)		Assumptions			
		Chronic (residential)			
Parameters		Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CS =	Chemical Concentration in Sludge (mg/kg)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
CF =	Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06
SA =	Skin Surface Area Available for Contact (cm^2/event)	2600 [b]	2600 [b]	2425 [c]	2425 [c]
AF =	Sludge/Sediment to Skin Adherence Factor (mg/cm^2)	2.77 [d]	2.77 [d]	2.77 [d]	2.77 [d]
ABS =	Absorption Factor (unitless)	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]	Chemical-specific [e]
EF =	Exposure Frequency (events/year)	350 [f]	350 [f]	350 [f]	350 [f]
ED =	Exposure Duration (years)	9 [g]	30 [h]	6 [i]	6 [i]
BW =	Body Weight (kg)	70 [j]	70 [j]	15 [k]	15 [k]
AT =	Averaging Time (period over which exposure is averaged--days)				
	-- Noncarcinogenic effects	3285 [l]	10950 [l]	2190 [l]	2190 [l]
	-- Carcinogenic effects	25550 [m]	25550 [m]	NA	NA

[a] See text and tables for concentrations in sludge/sediment.
[b] Adult, based on average surface area for forearms, hands, lower legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with soils.
[c] Child, 3 through 6 years of age, based on average surface area for arms, hands, legs, and feet; EPA, 1989b. Surface area available for dermal contact was divided in half. One-half was assumed to be available for contact with sediment/sludge and one-half was assumed to be available for contact with soils.
[d] Kaolin clay (for hands); EPA, 1989a.
[e] ABS for cadmium is 0.002 (CAPCOA, 1991). It is recommended that values of 1% for inorganic chemicals and 10% for organic chemicals be used as estimates of dermal absorption from a soil matrix, (Clement, 1988).
[f] Days per year spent at home; EPA, 1991.
[g] National median time--50th percentile--time at one residence; EPA, 1989b.
[h] National upper bound time--90th percentile--time at one residence; EPA, 1989b.
[i] From birth through 6 years of age.
[j] Adult, average; EPA, 1989b.
[k] 1 through 6 years old, average body weight; EPA, 1991.
[l] ED x 365 days/year.
[m] 70 years x 365 days/year.

Table L-4

Exposure Assumptions for Potential Exposure from Dermal Contact with Chemicals While Showering - Residential Scenario (Baseline Assessment)

Absorbed Dose (mg/kg-day) = (CW x SA x PC x ET x EF x ED x CF)/(BW x AT)	Assumptions			
	Chronic (lifetime, residential)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
SA = Skin Surface Area Available for Contact (cm^2)	19400 [b]	19400 [b]	7280 [c]	7280 [c]
PC = Chemical-specific Dermal Permeability Constant (cm/hr)	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]	Chemical-specific [d]
ET = Exposure Time (hours/day)	0.12 [e]	0.25 [f]	0.12 [e]	0.25 [f]
EF = Exposure Frequency (days/year)	350 [g]	350 [g]	350 [g]	350 [g]
ED = Exposure Duration (years)	9 [h]	30 [i]	6 [j]	6 [j]
CF = Volumetric Conversion Factor for Water (liter/cm^3)	0.001	0.001	0.001	0.001
BW = Body Weight (kg)	70 [k]	70 [k]	15 [l]	15 [l]
AT = Averaging Time (period over which exposure is averaged--days)				
-- Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]
-- Carcinogenic effects	25550 [n]	25550 [n]	NA	NA

[a] See text and tables for concentrations in tap water.
[b] 50th percentile total body surface area, adult male; EPA, 1989b.
[c] 50th percentile total body surface area, 3 through 6 years; EPA, 1989b.
[d] The PCs for chloroform and trichloroethene are 0.13 cm/hr and 0.23 cm/hr, respectively (Bogen, et al, 1991). The default value for water (8.4E-04 cm/hr) is used for cadmium and 4,4'-DDT (EPA, 1989a).
[e] 50th percentile shower length, Australian study; EPA, 1989b.
[f] 95th percentile shower length, Australian study; EPA, 1989b.
[g] 90% of American population take bath/shower every day; EPA, 1989b. Days/year spent at home; EPA, 1991.
[h] National median time--50th percentile--time at one residence; EPA, 1989b.
[i] National upper bound time--90th percentile--time at one residence; EPA, 1989b.
[j] From birth through 6 years of age.
[k] Adult, average; EPA, 1989b.
[l] 1 through 6 years old, average body weight; EPA 1991.
[m] ED x 365 days/year.
[n] 70 years x 365 days/year.

Table L-5

Exposure Assumptions for Potential Exposure from Ingestion of Drinking Water - Residential Scenario (Baseline Assessment)

Intake (mg/kg-day) = (CW x IR x EF x ED)/(BW x AT)	Assumptions			
	Chronic (lifetime, residential)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CW = Chemical Concentration in Water (mg/liter)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IR = Ingestion Rate (liters/day)	1.4 [b]	2 [c]	1 [d]	1 [d]
EF = Exposure Frequency (days/year)	350 [e]	350 [e]	350 [e]	350 [e]
ED = Exposure Duration (years)	9 [f]	30 [g]	6 [h]	6 [h]
BW = Body Weight (kg)	70 [b]	70 [b]	15 [i]	15 [i]
AT = Averaging Time (period over which exposure is averaged—days)				
– Noncarcinogenic effects	3285 [j]	10950 [j]	2190 [j]	2190 [j]
– Carcinogenic effects	25550 [k]	25550 [k]	NA	NA

[a] See text and tables for concentrations in tap water.
[b] Adult, average; EPA, 1989b.
[c] Adult, 90th percentile; EPA, 1991.
[d] Ingestion rate is age-specific; EPA, 1989b.
[e] Days/year spent at home; EPA, 1991.
[f] National median time--50th percentile--time at one residence; EPA, 1989b.
[g] National upper bound time--90th percentile--time at one residence; EPA, 1989b.
[h] From birth through 6 years of age.
[i] 1 through 6 years old, average body weight; EPA, 1991.
[j] ED x 365 days/year.
[k] 70 years x 365 days/year.

Table L-6

Exposure Assumptions for Potential Exposure from Inhalation of Volatiles While Showering - Residential Scenario (Baseline Assessment)

Effective Air Concentration (EAC), ($\mu g/m^3$) = (CA x IRS x ET x EF X ED)/(IRD X CF X AT)	Assumptions			
	Chronic (lifetime, residential)			
Parameters	Adult Average	Adult Reasonable Maximum	Child Average	Child Reasonable Maximum
CA = Chemical Concentration in Air ($\mu g/m^3$)	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]	Chemical-specific [a]
IRS = Inhalation Rate in the Shower (m^3/hour)	0.6 [b]	0.6 [b]	0.6 [b]	0.6 [b]
ET = Exposure Time (hours/day)	0.12 [c]	0.25 [d]	0.12 [c]	0.25 [d]
EF = Exposure Frequency (days/year)	350 [e]	350 [e]	350 [e]	350 [e]
ED = Exposure Duration (years)	9 [f]	30 [g]	6 [h]	6 [h]
IRD = Inhalation Rate per Remainder of Day (m^3/hour)	0.833 [i]	0.833 [j]	0.67 [k]	1 [l]
CF = Conversion Factor (hour/day)	24	24	24	24
AT = Averaging Time (period over which exposure is averaged--days)				
– Noncarcinogenic effects	3285 [m]	10950 [m]	2190 [m]	2190 [m]
– Carcinogenic effects	25550 [n]	25550 [n]	NA	NA

a Calculated from concentration in tap water.
b Inhalation rate while showering (all age groups), EPA, 1989a.
c 50th percentile shower length (7 min), Australian study; EPA, 1989b.
d 95th percentile shower length (15 min), Australian study; EPA, 1989b.
e 90% of American population take bath/shower every day; EPA, 1989b. Days/year spent at home; EPA, 1991.
f National median time--50th percentile--time at one residence; EPA, 1989b.
g National upper bound time--90th percentile--time at one residence; EPA, 1989b.
h From birth through 6 years of age.
i Adult, average (20 m^3/day); EPA, 1989b.
j Adult, suggested upper bound for subgroups who would be expected to spend the majority of time at home; EPA, 1991.
k Child average (16 m^3/day); EPA, 1989b.
l Child upper bound (24m^3/day); EPA, 1989b.
m ED x 365 days/year.
n 70 years x 365 days/year.

Incomplete exposure pathways and pathways that may be complete but are likely to pose insignificant human health risks include: 1) inhalation of fugitive dust; and 2) ingestion of contaminated fruits, vegetables, and/or beef. The reason for using some of these pathways could be complete, their contribution is likely to be minor by comparison to those detailed above due to the exposure setting and the contaminated media present.

2.4 Estimating Exposure Point Concentrations

The various exposure media quantified for this risk assessment include sludge, sediment, groundwater, and air. The contaminant fate and transport sections in the main document discusses how exposure point concentrations are determined. For all exposure pathways except the inhalation of shower vapors pathway, actual media sample concentrations are used as the exposure point concentrations. These concentrations were obtained from the laboratory analyses performed on the samples that were taken during the RFI and previous investigations. These concentrations are located in Tables 2-5 through 8-5 located in the main text. Because exposure is assumed to occur at the lagoons, these concentrations represent valid exposure point concentrations.

Shower vapor concentrations were modeled with a simple spreadsheet model that converted water concentrations to average shower concentrations (Andelman, 1989). Equation L-1 presents the algorithm employed in the conversion. This model requires that the chemical's vapor pressure be reported at 48°C, which is the average shower temperature. Because vapor pressures are typically reported at ambient temperatures (20°C to 25°C), linear regressions were run for each chemical between the ambient vapor pressure and the vapor pressure at the boiling point 760 mm Hg, where available, or the melting point, to determine the vapor pressure at 48°C. The actual and modeled (shower vapor) exposure concentrations associated with the lagoons are provided in Table L-2.

2.5 Estimating Contaminant Intakes for Specific Pathways

One component of exposure assessment is the estimation of the dose, or intake, of each contaminant received by a receptor. Tables L-3 through L-6 summarize the assumptions and algorithms used to estimate the exposure for each exposure pathway. The rationale for selecting individual values is explained in footnotes to the tables. Calculated intakes are presented in Tables L-7 through L-48.

The standard assumptions regarding land use, body weight, exposure period, life expectancy, population characteristics, and lifestyle may not accurately represent the site-specific exposure situations. The assumptions used most likely overestimate human exposures but may underestimate them in some cases. The purpose of exposure parameter estimations is to reflect realistic, site-specific exposures. However, because the exact exposures, which more accurately depict all scenarios often cannot be determined, and because the assumption of residential land use in the baseline assessment is unlikely, the assumptions that have been made most likely err on the conservative (safe) side to protect human health.

Assumptions likely to overestimate exposure include the following: 1) residential land use prior to remediation or closure; 2) the amount of media intake is assumed to be constant and representative of the exposed population; 3) all adult residential exposures are assumed to occur over a 9-year or 30-year (chronic) time period for the average and reasonable maximum exposure scenario, respectively; 4) exposure is assumed to occur 350 days/year for all residential exposures; 5) 100 percent absorption of ingested and inhaled contaminants is assumed; and 6) 100 percent bioavailability is assumed for all ingested, inhaled, and dermally absorbed contaminants.

2.6 Uncertainties

Major sources of uncertainty associated with the baseline (hypothetical future residential) exposure assessment include the following: 1) the ability of the shower model to

realistically simulate chemical volatilization from groundwater to air; and 2) the accuracy of exposure assumptions in representing the degree and way in which individuals are exposed. Uncertainty is addressed in this risk assessment by using the following methods: 1) incorporating both average and reasonable maximum values to provide a range of results rather than single values; 2) using conservative estimates when defining reasonable maximum exposure assumptions in order to protect human health and the environment; and 3) identifying and discussing the major sources of uncertainty and their effects on the exposure estimates so the results can be properly interpreted and used for estimation of risks.

3.0 RISK CHARACTERIZATION

To characterize baseline (hypothetical future residential) risks for the lagoons, worst-case contaminant exposure levels were compared to chemical-specific toxicity information to identify potential levels of contamination that warrant concern for human health given residential land use over the entire contaminant source area.

3.1 Carcinogenic Risk

For each carcinogen present in the lagoons, the probability of an individual resident developing cancer over a lifetime of exposure was estimated from projected intake of a contaminant for a specific exposure period and its carcinogenic slope factor. These risk estimates were then summed across chemicals and pathways to calculate the total cancer risk for each residential exposure scenario. A detailed discussion of the methodology used to calculate risk is presented in Appendix I.

A cancer risk of 10^{-6} is considered *de minimis* for risk management purposes. The baseline carcinogenic risk estimate is a hypothetical worst-case estimate using conditions that do not actually exist at the lagoons. Therefore, "true risk" in all likelihood does not exceed the baseline risk estimates generated in this assessment and they can be expected to be less than the predicted risks discussed in succeeding sections of this risk assessment (USEPA, 1991).

3.2 Noncarcinogenic Hazard

To characterize baseline (hypothetical future residential) noncarcinogenic human health effects, comparisons were made between projected intake of a contaminant for a specific exposure period and its toxicity values (oral, dermal, and inhalation reference doses (RfDs)). A hazard quotient (HQ), which is the ratio of chemical intake compared to the chemical's toxicity value, was calculated for each exposure scenario. If an exposure level

exceeds the appropriate toxicity value (i.e., the hazard quotient is greater than one), there may be concern regarding the potential noncarcinogenic effects. The HQs associated with specific chemicals within any one pathway were then summed to determine the hazard index (HI) for that pathway. A more detailed discussion of the methodology used to calculate HQs and HIs is presented in Appendix I.

3.3 Risk Characterization for Hypothetical Future Residential Scenario

This scenario addresses pathways of exposure considered to be complete for hypothetical future on-site residents. The highly conservative pathways evaluated for the baseline assessment, while not likely to ever be complete, provide a preliminary determination of the potential for risks under worst-case conditions.

The hypothetical future on-site residential scenario assumes exposure to site-related contaminants via seven pathways of exposure: 1) dermal contact with sludge; 2) dermal contact with sediment (soils); 3) ingestion of groundwater; 4) dermal contact while showering; 5) inhalation while showering; 6) ingestion of sludge; and 7) ingestion of sediments (soils).

Exposure concentrations were based on the following: 1) measured concentrations in sludge; 2) measured concentrations in sediments; 3) measured (Ponds A through F) and modeled (Pond G only) concentrations in groundwater; and 4) modeled concentrations in shower vapors.

3.4 Risk Characterization Results for Pond A

Table L-7 presents a summary of noncancer hazard by scenario for adults and children at Pond A. Table L-10 illustrates a summary of carcinogenic risk by scenario for adults at Pond A. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-8 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway are presented in Table L-9. The total hazard indices for average and reasonable maximum exposure were 158 and 160, respectively. Both values are well above the *de minimis* value of one, and the values indicate a cause for concern regarding potential noncancer health effects in hypothetical future on-site adult residents. Heptachlor epoxide contributed the majority of the chemical-specific hazard (98% average; 97% reasonable maximum). Dermal contact with sludge contributed the majority of the pathway-specific hazard (86% average; 85% reasonable maximum). Ingestion of sludge contributed most of the remaining hazard (12% average and reasonable maximum).

Child Noncancer Hazard--Table L-8 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-9. The total hazard indices for average and reasonable maximum exposure were 788 and 794, respectively. Both values are well above the *de minimis* value of one, and they indicate a cause for concern regarding noncancer health effects in hypothetical future on-site child residents. Heptachlor epoxide contributed the majority of the chemical-specific hazard (98% average; 97% reasonable maximum). Dermal contact with sludge contributed the majority of the pathway-specific hazard (76% average; 75% reasonable maximum). Ingestion of sludge contributed most of the remaining hazard (23% average; 22% reasonable maximum).

Adult Carcinogenic Risk--Table L-11 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-12. The total cancer risks for average and reasonable maximum exposure were 2E-3 and 8E-3, respectively. Both values exceed the upper-bound risk range goal of 10^{-4}, and they indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. Heptachlor epoxide contributed most of the chemical-specific risk (99% average and reasonable maximum). Dermal contact with sludge was the major risk contributor to the pathway-specific risk (87% average and reasonable

maximum). Ingestion of sludge contributed most of the remaining risk (12% average and reasonable maximum).

3.5 Risk Characterization Results for Pond B

Table L-13 presents a summary of non-cancer hazard by scenario for adults and children at Pond B. Table L-16 illustrates a summary of carcinogenic risk by scenario for adults at Pond B. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-14 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway are presented in Table L-15. The total hazard indices for average and reasonable maximum exposure were 0.80 and 2.2, respectively. The reasonable maximum value is above the *de minimis* value of one, and it indicates a cause for concern regarding potential noncancer health effects in hypothetical future on-site adult residents. Gamma-chlordane contributed the majority of the chemical-specific hazard (66% average; 81% reasonable maximum). Dermal contact while showering contributed most to the pathway-specific hazard (44% average; 60% reasonable maximum), and was followed by ingestion of groundwater (31% average; 28% reasonable maximum).

Child Noncancer Hazard--Table L-14 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-15. The total hazard indices for average and reasonable maximum exposure were 3.1 and 5.9, respectively. Both values are above the *de minimis* value of one, and they indicate a cause for concern regarding noncancer health effects in hypothetical future on-site child residents. Gamma-chlordane contributed most of the chemical-specific hazard (41% average; 59% reasonable maximum), and it was followed by arsenic (25% average; 15% reasonable maximum). Ingestion of sludge contributed most of the pathway-specific hazard for average exposure (41%), which was followed by ingestion

of groundwater (27%). Dermal contact while showering contributed most of the reasonable maximum hazard (40%) and was followed by ingestion of groundwater (25%).

Adult Carcinogenic Risk--Table L-17 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-18. The total cancer risks for average and reasonable maximum exposure were 1E-4 and 5E-4, respectively. Both values exceed the upper-bound risk range goal of 10^{-4} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. PCB-1254 contributed most of the chemical-specific risk (63% average; 58% reasonable maximum), and it was followed by PCB-1260 (24% average; 21% reasonable maximum) Dermal contact with sludge was the major risk contributor to the pathway-specific risk (81% average; 73% reasonable maximum). Ingestion of sludge contributed most of the remaining risk (12% average; 11% reasonable maximum).

3.6 Risk Characterization Results for Pond C

Table L-19 presents a summary of noncancer hazard by scenario for adults and children at Pond C. Table L-22 illustrates a summary of carcinogenic risk by scenario for adults at Pond C. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-20 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-21. The total hazard indices for average and reasonable maximum exposure were 0.69 and 1.83, respectively. The reasonable maximum value exceeds the *de minimis* value of one, and it may indicate a cause for concern regarding potential noncancer health effects in hypothetical future on-site adult residents. Gamma-chlordane contributed the majority of the chemical-specific hazard (49% average; 62% reasonable maximum). Dermal contact with sludge contributed most to the average pathway-specific hazard (35%), which followed closely by dermal contact while showering (31%) and

ingestion of groundwater (21%). Dermal contact while showering contributed most to the reasonable maximum pathway-specific hazard (44%) and was followed closely by dermal contact with sludge (25%) and ingestion of groundwater (21%).

Child Noncancer Hazard--Table L-20 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-21. The total hazard indices for average and reasonable maximum exposure were 2.7 and 5.9, respectively. Both values are above the *de minimis* value of one, and they indicate a cause for concern regarding noncancer health effects in hypothetical future on-site child residents. Gamma-chlordane contributed most to the chemical-specific hazard (32% average; 38% reasonable maximum). The remaining risk is other pesticides and metals. Dermal contact with sludge contributed the majority of the pathway-specific hazard (38% average; 34% reasonable maximum). Ingestion of sludge contributed significant hazard as well (29% average; 26% reasonable maximum).

Adult Carcinogenic Risk--Table L-23 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-24. The total cancer risks for average and reasonable maximum exposure were 1E-5 and 10E-5, respectively. Both values exceed the lower-bound risk range goal of 10^{-6} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. Kepone contributed most of the average and reasonable maximum chemical-specific risk (38%). It was followed closely by gamma-chlordane (32% average; 38% reasonable maximum). Ingestion of sludge was the major risk contributor to the pathway-specific risk (42% average; 40% reasonable maximum). Dermal contact while showering and also contributed significant risk (20% average; 28% reasonable maximum).

3.7 Risk Characterization Results for Pond D

Table L-25 presents a summary of noncancer hazard by scenario for adults and children at Pond D. Table L-28 illustrates a summary of carcinogenic risk by scenario for adults at Pond D. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-26 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-27. The total hazard indices for average and reasonable maximum exposure were 0.08 and 0.23, respectively. Neither value is above the *de minimis* value of one. Alpha-chlordane contributed most to the average chemical-specific hazard (21%). The remaining hazard was contributed primarily by other pesticides. Gamma-chlordane was the major risk contributor to reasonable maximum risk with other pesticides contributing most of the remaining risk. Ingestion of groundwater contributed the majority of the pathway-specific hazard (62% average; 57% reasonable maximum). Dermal contact while showering contributed most of the remaining hazard.

Child Noncancer Hazard--Table L-26 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-27. The total hazard indices for average and reasonable maximum exposure were 0.27 and 0.57, respectively. Neither value is above the *de minimis* value of one. Arsenic contributed most to the average chemical-specific hazard (20%). The remaining hazard is contributed primarily by other pesticides. Gamma-chlordane contributed most to the reasonable maximum chemical-specific hazard (24%), with the remaining hazard contributed by other pesticides. Ingestion of groundwater contributed most of the pathway-specific hazard (62% average; 56% reasonable maximum). Ingestion of sediments and dermal contact while showering were responsible for most of the remaining hazard for the average and reasonable maximum exposures, respectively.

Adult Carcinogenic Risk--Table L-29 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-30. The total cancer risks for average and reasonable maximum exposure were 3E-6 and 3E-5, respectively. Both values exceed the lower-bound risk range goal of 10^{-6} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. Dieldrin contributed most to the chemical-specific risk (35% average; 38% reasonable maximum), and was followed by aldrin and DDT (19% and 14% for average exposure; 17% and 18% of reasonable maximum exposure). Ingestion of groundwater was the major risk contributor to the pathway-specific risk (78% average; 71% reasonable maximum). Dermal contact while showering contributed most of the remaining risk (20% average; 26% reasonable maximum).

3.8 Risk Characterization Results for Pond E

Table L-31 presents a summary of noncancer hazard by scenario for adults and children at Pond E. Table L-34 illustrates a summary of carcinogenic risk by scenario for adults at Pond E. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-32 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-33. The total hazard indices for average and reasonable maximum exposure were 68 and 68, respectively. Both values are well above the *de minimis* value of one, and they indicate a cause for concern regarding potential noncancer health effects in hypothetical future on-site adult residents. Heptachlor epoxide contributed the majority (99%) of the chemical-specific hazard for both average and reasonable maximum exposure. Dermal contact with sludge contributed the majority of the pathway-specific hazard (88% average; 87% reasonable maximum). Ingestion of sludge contributed most of the remaining hazard (12% average and reasonable maximum).

Child Noncancer Hazard--Table L-32 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway are presented in Table L-33. The total hazard indices for average and reasonable maximum exposure were 336 and 336, respectively. Both values are well above the *de minimis* value of one, and they indicate a cause for concern regarding noncancer health effects in hypothetical future on-site child residents. Heptachlor epoxide contributed the majority of both the average and reasonable maximum chemical-specific hazard (99%). Dermal contact with sludge contributed the majority of the average and reasonable maximum pathway-specific hazard (77%). Ingestion of sludge contributed most of the remaining hazard (23%).

Adult Carcinogenic Risk--Table L-35 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-36. The total cancer risks for average and reasonable maximum exposure were 1E-3 and 3E-3, respectively. Both values exceed the upper-bound risk range goal of 10^{-4} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. Heptachlor epoxide contributed most of the chemical-specific risk (99% average and reasonable maximum). Dermal contact with sludge was the major risk contributor to the pathway-specific risk (87% average and reasonable maximum). Ingestion of sludge contributed most of the remaining risk (12% average and reasonable maximum).

3.9 Risk Characterization Results for Pond F

Table L-37 presents a summary of noncancer hazard by scenario for adults and children at Pond F. Table L-40 illustrates a summary of carcinogenic risk by scenario for adults at Pond F. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-38 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-39. The total hazard indices for average and reasonable maximum exposure were 0.56 and 0.98, respectively. Neither value is above the *de minimis* value of one. Delta-BHC, DDD, and alpha-chlordane contributed the majority of the average chemical-specific hazard (36%, 25%, and 24%, respectively). They also were responsible for the majority of the reasonable maximum hazard, contributing 29%, 25%, and 24% of the total hazard, respectively. Dermal contact with sludge contributed most to the pathway-specific hazard (74% average; 66% reasonable maximum), and it was followed by ingestion of sludge (13% average; 11% reasonable maximum).

Child Noncancer Hazard--Table L-38 illustrates the noncancer hazard index summary for children. The individual non-cancer hazard estimates, broken down by chemical and pathway, are presented in Table L-39. The total hazard indices for average and reasonable maximum exposure were 2.7 and 4.3, respectively. Both values are above the *de minimis* value of one, and indicate a cause for concern regarding non-cancer health effects in hypothetical future on-site child residents. Gamma-chlordane contributed most of the chemical-specific hazard (37% average; 33% reasonable maximum), followed by DDD and alpha-chlordane (26% and 23% average; 29% and 24% reasonable maximum). Dermal contact with sludge contributed most of the pathway-specific hazard (67% average; 65% reasonable maximum), and it is followed by ingestion of sludge (25% average; 24% reasonable maximum).

Adult Carcinogenic Risk--Table L-41 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-42. The total cancer risks for average and reasonable maximum exposure were 7E-6 and 5E-5, respectively. Both values exceed the lower-bound risk range goal of 10^{-6} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. DDD, dieldrin, and DDE contributed most of the average chemical-specific risk (32%, 16%, and 10%, respectively). DDD, dieldrin, DDT and

aldrin were responsible for the majority of the reasonable maximum risk, contributing 25%, 23%, 11%, and 10% of the total risk, respectively. Dermal contact with sludge, followed by ingestion of groundwater, caused the majority of the pathway-specific risk (49% and 35% for average exposure; 34% and 44% for reasonable maximum exposure).

3.10 Risk Characterization Results for Pond G

Table L-43 presents a summary of noncancer hazard by scenario for adults and children at Pond G. Table L-46 illustrates a summary of carcinogenic risk by scenario for adults at Pond G. Cancer risk estimates were not modeled for children since cancer risk is estimated as the probability of developing cancer over a lifetime.

Adult Noncancer Hazard--Table L-44 illustrates the noncancer hazard index summary for adults. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-45. The total hazard indices for average and reasonable maximum exposure were 0.08 and 0.27, respectively. Neither value exceeds the *de minimis* value of one. DDD and gamma-chlordane contributed the majority of the chemical-specific hazard (44% and 40%, respectively). Alpha-chlordane, DDD, and gamma-chlordane contributed most of the reasonable maximum hazard (40%, 28%, and 20%, respectively). Dermal contact with sludge contributed the majority of the pathway-specific risk (79% average; 86% reasonable maximum).

Child Noncancer Hazard--Table L-44 illustrates the noncancer hazard index summary for children. The individual noncancer hazard estimates, broken down by chemical and pathway, are presented in Table L-45. The total hazard indices for average and reasonable maximum exposure were 0.41 and 1.3, respectively. The reasonable maximum value exceeds the *de minimis* value of one. DDD, gamma-chlordane, and arsenic are responsible for most of the average pathway-specific risk (40%, 36%, and 20%, respectively). Alpha-chlordane, DDD, and gamma-chlordane caused most of the reasonable maximum hazard, contributing 40%, 27%, and 23% of the total hazard, respectively. Dermal contact

with sludge contributed the majority of the pathway-specific risk (67% average; 78% reasonable maximum).

Adult Carcinogenic Risk--Table L-47 presents the cancer risk summary for adults. The individual cancer risk estimates, broken down by chemical and pathway, are illustrated in Table L-48. The total cancer risks for average and reasonable maximum exposure were 2E-6 and 2E-5, respectively. Both values exceed the lower-bound risk range goal of 10^{-6} and indicate a cause for concern regarding potential carcinogenic health effects in hypothetical future on-site residents. Alpha-BHC, DDD, and beryllium are responsible for the majority of the average chemical-specific risk (33%, 22%, and 20%, respectively). Alpha-chlordane, DDD, and gamma-chlordane caused most of the reasonable maximum risk (28%, 26%, and 15%, respectively). Dermal contact with sludge contributed the majority of the pathway-specific risk (72% average; 76% reasonable maximum).

4.0 LEAD EVALUATION

The standard approach for quantifying the effects of a chemical relies on identifying the dose associated with adverse effects. This approach has not been successful for lead. The Lead5 Model was obtained for this risk assessment and used in conjunction with site-specific data to estimate blood lead levels as an indicator of risk. The results generated by the Lead5 Model are presented in Appendix H. All blood lead levels were well below the 10 μg/dL cut off point (exposure level known to increase the risk of irreversible neurobehavioral deficits during infancy or childhood).

5.0 UNCERTAINTIES ASSOCIATED WITH RISK CHARACTERIZATION

Risk characterization results represent conditional *estimates* of risk that should be interpreted with an understanding of the considerable number of assumptions required in quantifying exposure, intake, and dose-response. Uncertainties associated with identification of chemicals of potential concern, exposure assessment, and toxicity assessment all contribute to the composite level of confidence that can be placed on the risk characterization results.

The majority of the tasks performed during risk assessment use conservative assumptions which tend to overestimate risk. However, limitations associated with analytical methods and the lack of USEPA-verified toxicity values for some chemicals could result in underestimation of risk. Other issues of uncertainty that are pertinent to the baseline risk assessment involve the methodology for identifying chemicals of potential concern, the origin of certain toxicity values, and expert judgement used in site characterization and exposure assessment.

6.0 SUMMARY

The analyses conducted for the baseline (hypothetical future residential) risk assessment predicts that carcinogenic risks exceed the 10^{-6} *de minimis* level. In addition, Ponds A, B, and E pose potential baseline carcinogenic risks in excess of 10^{-4}. Table L-49 presents a summary of these potential carcinogenic risks for each pond. Regarding noncarcinogenic hazard, all ponds except ponds D, F, and G possessed adult hazard indices exceeding unity. Hazard indices for children exceeded unity in all ponds except pond D. A summary of these hazard indices for each pond is presented in Table L-50.

The results of this risk assessment should not be interpreted as a characterization of absolute risk. Residential development prior to the completion of a "protective" lagoon closure action is highly unlikely. Beyond this point, the baseline risk assessment has been conducted using conservative exposure assumptions and modeling parameters that may overestimate the magnitude of any hypothetical residential risk associated with the HAFB lagoons. Therefore, the baseline risk assessment should be used to determine the need for further analysis that incorporates more realistic site parameters.

Conservative assumptions that may impact the baseline risk characterization include the use of the following: 1) chronic residential exposure scenario; 2) exposure frequency of 350 days per year; 3) reasonable maximum exposure duration of six to 30 years; and 4) chemical concentrations calculated for the nearest receptor site.

Table L-7
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond A-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond A (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	1.58E+02	1.60E+02
On-Site Residential, Child - Future (Lagoons Out of Operation)	7.88E+02	7.94E+02

Table L-8
Non-Cancer Index Summary
Holloman AFB, New Mexico
Pond A-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showerin	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	2.42E-04	6.23E-04	0.00E+00	0.00E+00	8.64E-04	5.46E-04
4,4'-DDE	1.60E-03	0.00E+00	4.09E-05	1.36E-04	2.22E-04	0.00E+00	2.00E-03	1.26E-03
4,4'-DDT	0.00E+00	0.00E+00	5.79E-04	3.11E-04	0.00E+00	0.00E+00	8.90E-04	5.63E-04
Aldrin	0.00E+00	0.00E+00	3.96E-03	8.50E-06	0.00E+00	0.00E+00	3.97E-03	2.51E-03
alpha-BHC	0.00E+00	0.00E+00	7.61E-04	3.78E-07	0.00E+00	0.00E+00	7.61E-04	4.81E-04
alpha-Chlordane	0.00E+00	0.00E+00	1.50E-02	2.33E-02	0.00E+00	0.00E+00	3.84E-02	2.42E-02
Antimony	1.41E-02	0.00E+00	0.00E+00	0.00E+00	1.95E-02	0.00E+00	3.36E-02	2.12E-02
Arsenic	3.52E-03	1.43E-03	0.00E+00	0.00E+00	4.89E-02	1.98E-02	7.36E-02	4.65E-02
Beryllium	1.24E-05	1.27E-05	0.00E+00	0.00E+00	1.73E-04	1.76E-04	3.73E-04	2.36E-04
beta-BHC	0.00E+00	0.00E+00	6.10E-04	1.68E-05	0.00E+00	0.00E+00	6.27E-04	3.96E-04
Cadmium (food)	1.32E-03	0.00E+00	0.00E+00	0.00E+00	9.16E-03	0.00E+00	1.05E-02	6.62E-03
delta-BHC	0.00E+00	0.00E+00	1.04E-03	2.86E-05	0.00E+00	0.00E+00	1.06E-03	6.73E-04
Dieldrin	0.00E+00	0.00E+00	3.03E-03	1.22E-04	0.00E+00	0.00E+00	3.15E-03	1.99E-03
Endosulfan I	2.07E-04	0.00E+00	5.46E-06	7.62E-09	2.87E-05	0.00E+00	2.41E-04	1.52E-04
Endosulfan II	1.36E-07	0.00E+00	4.17E-09	5.83E-12	1.88E-08	0.00E+00	1.59E-07	1.00E-07
Endosulfan sulfate	1.68E-04	0.00E+00	7.26E-05	2.46E-08	9.59E-05	0.00E+00	3.36E-04	2.13E-04
Endrin	0.00E+00	0.00E+00	1.25E-03	1.20E-04	0.00E+00	0.00E+00	1.37E-03	8.68E-04
gamma-BHC	0.00E+00	0.00E+00	1.03E-03	2.84E-06	0.00E+00	0.00E+00	1.03E-03	6.52E-04
gamma-Chlordane	8.06E-02	0.00E+00	2.08E-01	3.23E-01	1.12E-02	0.00E+00	6.23E-01	3.94E-01
Heptachlor	2.33E-03	0.00E+00	3.26E-04	1.64E-05	6.30E-04	0.00E+00	3.30E-03	2.09E-03
Heptachlor epoxide	1.37E+02	0.00E+00	8.26E-03	8.09E-04	1.90E+01	0.00E+00	1.56E+02	9.83E+01
Isodrin	0.00E+00	0.00E+00	1.01E-03	1.41E-06	0.00E+00	0.00E+00	1.01E-03	6.39E-04
Mercury	7.26E-03	0.00E+00	0.00E+00	0.00E+00	1.01E-02	0.00E+00	1.73E-02	1.10E-02
Methoxychlor	0.00E+00	0.00E+00	1.76E-05	1.62E-09	0.00E+00	0.00E+00	1.76E-05	1.12E-05
OCDD	7.50E-03	0.00E+00	0.00E+00	0.00E+00	1.04E-03	0.00E+00	8.54E-03	5.40E-03
Silver	2.84E-02	0.00E+00	0.00E+00	0.00E+00	3.95E-02	0.00E+00	6.79E-02	4.29E-02
Thallium	0.00E+00	7.33E-01	0.00E+00	0.00E+00	0.00E+00	1.02	1.75	1.11
Total by pathway	1.37E+02	7.34E-01	2.46E-01	3.49E-01	1.91E+01	1.04		
% Contribution by pathwa	8.64E+01	4.64E-01	1.55E-01	2.20E-01	1.21E+01	6.56E-01		
Scenario Total							1.58E+02	

Table L-8
Non-Cancer Index Summary
Holloman AFB, New Mexico
Pond A-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showerin	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	4.44E-04	1.67E-03	0.00E+00	0.00E+00	2.11E-03	1.32E-03
4,4'-DDE	1.60E-03	0.00E+00	8.10E-05	3.93E-04	2.22E-04	0.00E+00	2.29E-03	1.43E-03
4,4'-DDT	0.00E+00	0.00E+00	1.11E-03	8.72E-04	0.00E+00	0.00E+00	1.98E-03	1.24E-03
Aldrin	0.00E+00	0.00E+00	7.21E-03	2.26E-05	0.00E+00	0.00E+00	7.24E-03	4.52E-03
alpha-BHC	0.00E+00	0.00E+00	1.49E-03	1.08E-06	0.00E+00	0.00E+00	1.50E-03	9.35E-04
alpha-Chlordane	0.00E+00	0.00E+00	3.67E-02	8.29E-02	0.00E+00	0.00E+00	1.20E-01	7.47E-02
Antimony	1.41E-02	0.00E+00	0.00E+00	0.00E+00	1.95E-02	0.00E+00	3.36E-02	2.10E-02
Arsenic	4.23E-03	1.59E-03	0.00E+00	0.00E+00	5.87E-02	2.21E-02	8.66E-02	5.41E-02
Beryllium	1.60E-05	1.44E-05	0.00E+00	0.00E+00	2.22E-04	2.01E-04	4.53E-04	2.83E-04
beta-BHC	0.00E+00	0.00E+00	1.25E-03	5.01E-05	0.00E+00	0.00E+00	1.30E-03	8.09E-04
Cadmium (food)	1.70E-03	0.00E+00	0.00E+00	0.00E+00	1.18E-02	0.00E+00	1.35E-02	8.46E-03
delta-BHC	0.00E+00	0.00E+00	2.16E-03	8.71E-05	0.00E+00	0.00E+00	2.25E-03	1.41E-03
Dieldrin	0.00E+00	0.00E+00	6.25E-03	3.67E-04	0.00E+00	0.00E+00	6.61E-03	4.13E-03
Endosulfan I	2.07E-04	0.00E+00	1.08E-05	2.21E-08	2.87E-05	0.00E+00	2.46E-04	1.54E-04
Endosulfan II	1.36E-07	0.00E+00	7.16E-09	1.46E-11	1.88E-08	0.00E+00	1.62E-07	1.01E-07
Endosulfan sulfate	1.68E-04	0.00E+00	1.16E-04	5.76E-08	9.59E-05	0.00E+00	3.80E-04	2.37E-04
Endrin	0.00E+00	0.00E+00	2.65E-03	3.69E-04	0.00E+00	0.00E+00	3.02E-03	1.89E-03
gamma-BHC	0.00E+00	0.00E+00	2.53E-03	1.02E-05	0.00E+00	0.00E+00	2.54E-03	1.59E-03
gamma-Chlordane	8.06E-02	0.00E+00	5.58E-01	1.26	1.12E-02	0.00E+00	1.91	1.19
Heptachlor	2.33E-03	0.00E+00	6.19E-04	4.54E-05	6.30E-04	0.00E+00	3.62E-03	2.26E-03
Heptachlor epoxide	1.37E+02	0.00E+00	1.39E-02	1.99E-03	1.90E+01	0.00E+00	1.56E+02	9.72E+01
Isodrin	0.00E+00	0.00E+00	2.38E-03	4.86E-06	0.00E+00	0.00E+00	2.39E-03	1.49E-03
Mercury	9.90E-03	0.00E+00	0.00E+00	0.00E+00	1.37E-02	0.00E+00	2.37E-02	1.48E-02
Methoxychlor	0.00E+00	0.00E+00	2.52E-05	3.38E-09	0.00E+00	0.00E+00	2.52E-05	1.57E-05
OCDD	7.50E-03	0.00E+00	0.00E+00	0.00E+00	1.04E-03	0.00E+00	8.54E-03	5.33E-03
Silver	3.61E-02	0.00E+00	0.00E+00	0.00E+00	5.01E-02	0.00E+00	8.62E-02	5.38E-02
Thallium	0.00E+00	9.06E-01	0.00E+00	0.00E+00	0.00E+00	1.26	2.16	1.35
Total by pathway	1.37E+02	9.08E-01	6.37E-01	1.35	1.91E+01	1.28		
% Contribution by pathwa	8.54E+01	5.67E-01	3.98E-01	8.44E-01	1.20E+01	8.00E-01		
Scenario Total							1.60E+02	

Table L-8
Non-Cancer Index Summary
Holloman AFB, New Mexico
Pond A-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	8.05E-04	1.09E-03	0.00E+00	0.00E+00	1.90E-03	2.41E-04
4,4'-DDE	6.95E-03	0.00E+00	1.36E-04	2.38E-04	2.07E-03	0.00E+00	9.40E-03	1.19E-03
4,4'-DDT	0.00E+00	0.00E+00	1.93E-03	5.45E-04	0.00E+00	0.00E+00	2.48E-03	3.14E-04
Aldrin	0.00E+00	0.00E+00	1.32E-02	1.49E-05	0.00E+00	0.00E+00	1.32E-02	1.68E-03
alpha-BHC	0.00E+00	0.00E+00	2.54E-03	6.62E-07	0.00E+00	0.00E+00	2.54E-03	3.22E-04
alpha-Chlordane	0.00E+00	0.00E+00	5.01E-02	4.08E-02	0.00E+00	0.00E+00	9.09E-02	1.15E-02
Antimony	6.12E-02	0.00E+00	0.00E+00	0.00E+00	1.82E-01	0.00E+00	2.43E-01	3.09E-02
Arsenic	1.53E-02	6.22E-03	0.00E+00	0.00E+00	4.56E-01	1.85E-01	6.63E-01	8.41E-02
Beryllium	5.41E-05	5.51E-05	0.00E+00	0.00E+00	1.61E-03	1.64E-03	3.36E-03	4.27E-04
beta-BHC	0.00E+00	0.00E+00	2.03E-03	2.95E-05	0.00E+00	0.00E+00	2.06E-03	2.62E-04
Cadmium (food)	5.74E-03	0.00E+00	0.00E+00	0.00E+00	8.55E-02	0.00E+00	9.13E-02	1.16E-02
delta-BHC	0.00E+00	0.00E+00	3.45E-03	5.01E-05	0.00E+00	0.00E+00	3.50E-03	4.45E-04
Dieldrin	0.00E+00	0.00E+00	1.01E-02	2.14E-04	0.00E+00	0.00E+00	1.03E-02	1.31E-03
Endosulfan I	9.00E-04	0.00E+00	1.82E-05	1.34E-08	2.68E-04	0.00E+00	1.19E-03	1.50E-04
Endosulfan II	5.90E-07	0.00E+00	1.39E-08	1.02E-11	1.76E-07	0.00E+00	7.80E-07	9.90E-08
Endosulfan sulfate	7.30E-04	0.00E+00	2.42E-04	4.31E-08	8.95E-04	0.00E+00	1.87E-03	2.37E-04
Endrin	0.00E+00	0.00E+00	4.18E-03	2.10E-04	0.00E+00	0.00E+00	4.39E-03	5.57E-04
gamma-BHC	0.00E+00	0.00E+00	3.43E-03	4.98E-06	0.00E+00	0.00E+00	3.44E-03	4.36E-04
gamma-Chlordane	3.51E-01	0.00E+00	6.94E-01	5.66E-01	1.04E-01	0.00E+00	1.72	2.18E-01
Heptachlor	1.01E-02	0.00E+00	1.09E-03	2.87E-05	5.88E-03	0.00E+00	1.71E-02	2.17E-03
Heptachlor epoxide	5.95E+02	0.00E+00	2.75E-02	1.42E-03	1.77E+02	0.00E+00	7.72E+02	9.79E+01
Isodrin	0.00E+00	0.00E+00	3.37E-03	2.47E-06	0.00E+00	0.00E+00	3.37E-03	4.28E-04
Mercury	3.16E-02	0.00E+00	0.00E+00	0.00E+00	9.41E-02	0.00E+00	1.26E-01	1.60E-02
Methoxychlor	0.00E+00	0.00E+00	5.88E-05	2.84E-09	0.00E+00	0.00E+00	5.88E-05	7.47E-06
OCDD	3.26E-02	0.00E+00	0.00E+00	0.00E+00	9.72E-03	0.00E+00	4.24E-02	5.38E-03
Silver	1.24E-01	0.00E+00	0.00E+00	0.00E+00	3.68E-01	0.00E+00	4.92E-01	6.24E-02
Thallium	0.00E+00	3.19	0.00E+00	0.00E+00	0.00E+00	9.5	1.27E+01	1.61
Total by pathway	5.95E+02	3.2	8.19E-01	6.11E-01	1.78E+02	9.68		
% Contribution by pathwa	7.55E+01	4.06E-01	1.04E-01	7.75E-02	2.26E+01	1.23		
Scenario Total							7.88E+02	

Table L-8
Non-Cancer Index Summary
Holloman AFB, New Mexico
Pond A-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	1.04E-03	2.92E-03	0.00E+00	0.00E+00	3.96E-03	4.99E-04
4,4'-DDE	6.95E-03	0.00E+00	1.89E-04	6.88E-04	2.07E-03	0.00E+00	9.90E-03	1.25E-03
4,4'-DDT	0.00E+00	0.00E+00	2.60E-03	1.53E-03	0.00E+00	0.00E+00	4.12E-03	5.19E-04
Aldrin	0.00E+00	0.00E+00	1.68E-02	3.95E-05	0.00E+00	0.00E+00	1.69E-02	2.13E-03
alpha-BHC	0.00E+00	0.00E+00	3.49E-03	1.90E-06	0.00E+00	0.00E+00	3.49E-03	4.40E-04
alpha-Chlordane	0.00E+00	0.00E+00	8.55E-02	1.45E-01	0.00E+00	0.00E+00	2.31E-01	2.91E-02
Antimony	6.12E-02	0.00E+00	0.00E+00	0.00E+00	1.82E-01	0.00E+00	2.43E-01	3.07E-02
Arsenic	1.84E-02	6.94E-03	0.00E+00	0.00E+00	5.48E-01	2.07E-01	7.80E-01	9.82E-02
Beryllium	6.95E-05	6.29E-05	0.00E+00	0.00E+00	2.07E-03	1.87E-03	4.07E-03	5.13E-04
beta-BHC	0.00E+00	0.00E+00	2.91E-03	8.78E-05	0.00E+00	0.00E+00	2.99E-03	3.77E-04
Cadmium (food)	7.42E-03	0.00E+00	0.00E+00	0.00E+00	1.10E-01	0.00E+00	1.18E-01	1.49E-02
delta-BHC	0.00E+00	0.00E+00	5.05E-03	1.53E-04	0.00E+00	0.00E+00	5.20E-03	6.56E-04
Dieldrin	0.00E+00	0.00E+00	1.46E-02	6.43E-04	0.00E+00	0.00E+00	1.52E-02	1.92E-03
Endosulfan I	9.00E-04	0.00E+00	2.53E-05	3.86E-08	2.68E-04	0.00E+00	1.19E-03	1.50E-04
Endosulfan II	5.90E-07	0.00E+00	1.67E-08	2.55E-11	1.76E-07	0.00E+00	7.83E-07	9.87E-08
Endosulfan sulfate	7.30E-04	0.00E+00	2.72E-04	1.01E-07	8.95E-04	0.00E+00	1.90E-03	2.39E-04
Endrin	0.00E+00	0.00E+00	6.18E-03	6.47E-04	0.00E+00	0.00E+00	6.83E-03	8.60E-04
gamma-BHC	0.00E+00	0.00E+00	5.90E-03	1.78E-05	0.00E+00	0.00E+00	5.92E-03	7.46E-04
gamma-Chlordane	3.51E-01	0.00E+00	1.3	2.21	1.04E-01	0.00E+00	3.97	5.00E-01
Heptachlor	1.01E-02	0.00E+00	1.44E-03	7.94E-05	5.88E-03	0.00E+00	1.75E-02	2.21E-03
Heptachlor epoxide	5.95E+02	0.00E+00	3.25E-02	3.48E-03	1.77E+02	0.00E+00	7.72E+02	9.72E+01
Isodrin	0.00E+00	0.00E+00	5.56E-03	8.50E-06	0.00E+00	0.00E+00	5.57E-03	7.02E-04
Mercury	4.31E-02	0.00E+00	0.00E+00	0.00E+00	1.28E-01	0.00E+00	1.71E-01	2.16E-02
Methoxychlor	0.00E+00	0.00E+00	5.88E-05	5.92E-09	0.00E+00	0.00E+00	5.88E-05	7.41E-06
OCDD	3.26E-02	0.00E+00	0.00E+00	0.00E+00	9.72E-03	0.00E+00	4.24E-02	5.34E-03
Silver	1.57E-01	0.00E+00	0.00E+00	0.00E+00	4.67E-01	0.00E+00	6.24E-01	7.87E-02
Thallium	0.00E+00	3.94	0.00E+00	0.00E+00	0.00E+00	1.17E+01	1.57E+01	1.98
Total by pathway	5.95E+02	3.95	1.49	2.37	1.79E+02	1.19E+01		
% Contribution by pathwa	7.50E+01	4.98E-01	1.87E-01	2.98E-01	2.25E+01	1.51		
Scenario Total							7.94E+02	

Table L-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

Non-Cancer Risk Estimates								
Holloman Risk Assessment - Pond A (future-res)								
Scenario								
	Activity							
		Pathway						
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Residents Living On-site							
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDE	3.89E-03	6.22E-06	6.22E-06	1.60E-03	1.60E-03
			Antimony	4.00E-04	5.62E-06	5.62E-06	1.41E-02	1.41E-02
			Arsenic	3.00E-04	1.06E-06	1.27E-06	3.52E-03	4.23E-03
			Beryllium	5.00E-03	6.22E-08	7.98E-08	1.24E-05	1.60E-05
			Cadmium (food)	1.00E-03	1.32E-06	1.70E-06	1.32E-03	1.70E-03
			Endosulfan I	2.53E-02	5.23E-06	5.23E-06	2.07E-04	2.07E-04
			Endosulfan II	80	1.09E-05	1.09E-05	1.36E-07	1.36E-07
			Endosulfan sulfate	2.47E-02	4.14E-06	4.14E-06	1.68E-04	1.68E-04
			gamma-Chlordane	6.00E-05	4.83E-06	4.83E-06	8.06E-02	8.06E-02
			Heptachlor	9.75E-04	2.27E-06	2.27E-06	2.33E-03	2.33E-03
			Heptachlor epoxide	1.30E-05	1.78E-03	1.78E-03	1.37E+02	1.37E+02
			Mercury	3.00E-04	2.18E-06	2.97E-06	7.26E-03	9.90E-03
			OCDD	1.00E-06	7.50E-09	7.50E-09	7.50E-03	7.50E-03
			Silver	5.00E-03	1.42E-04	1.80E-04	2.84E-02	3.61E-02
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	4.28E-07	4.78E-07	1.43E-03	1.59E-03
			Beryllium	5.00E-03	6.33E-08	7.22E-08	1.27E-05	1.44E-05
			Thallium	8.00E-05	5.86E-05	7.25E-05	7.33E-01	9.06E-01

Table L-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

		IngestionOfDrinkingWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.21E-07	2.22E-07	2.42E-04	4.44E-04
			4,4'-DDE	3.89E-03	1.59E-07	3.15E-07	4.09E-05	8.10E-05
			4,4'-DDT	5.00E-04	2.90E-07	5.56E-07	5.79E-04	1.11E-03
			Aldrin	3.00E-05	1.19E-07	2.16E-07	3.96E-03	7.21E-03
			alpha-BHC	4.16E-04	3.16E-07	6.22E-07	7.61E-04	1.49E-03
			alpha-Chlordane	1.48E-05	2.22E-07	5.42E-07	1.50E-02	3.67E-02
			beta-BHC	3.30E-04	2.01E-07	4.11E-07	6.10E-04	1.25E-03
			delta-BHC	2.00E-04	2.07E-07	4.33E-07	1.04E-03	2.16E-03
			Dieldrin	5.00E-05	1.52E-07	3.12E-07	3.03E-03	6.25E-03
			Endosulfan I	2.53E-02	1.38E-07	2.74E-07	5.46E-06	1.08E-05
			Endosulfan II	80	3.34E-07	5.73E-07	4.17E-09	7.16E-09
			Endosulfan sulfate	6.00E-03	4.35E-07	6.99E-07	7.26E-05	1.16E-04
			Endrin	3.00E-04	3.76E-07	7.95E-07	1.25E-03	2.65E-03
			gamma-BHC	3.00E-04	3.09E-07	7.59E-07	1.03E-03	2.53E-03
			gamma-Chlordane	6.00E-05	1.25E-05	3.35E-05	2.08E-01	5.58E-01
			Heptachlor	5.00E-04	1.63E-07	3.10E-07	3.26E-04	6.19E-04
			Heptachlor epoxide	1.30E-05	1.07E-07	1.81E-07	8.26E-03	1.39E-02
			Isodrin	3.00E-04	3.03E-07	7.15E-07	1.01E-03	2.38E-03
			Methoxychlor	5.00E-03	8.82E-08	1.26E-07	1.76E-05	2.52E-05
		DermalContactWithWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	3.11E-07	8.34E-07	6.23E-04	1.67E-03
			4,4'-DDE	3.89E-03	5.29E-07	1.53E-06	1.36E-04	3.93E-04
			4,4'-DDT	1.12E-02	3.49E-06	9.76E-06	3.11E-04	8.72E-04
			Aldrin	7.54E-05	6.41E-10	1.70E-09	8.50E-06	2.26E-05
			alpha-BHC	1.17E-03	4.42E-10	1.27E-09	3.78E-07	1.08E-06
			alpha-Chlordane	1.48E-05	3.45E-07	1.23E-06	2.33E-02	8.29E-02
			beta-BHC	3.30E-04	5.56E-09	1.65E-08	1.68E-05	5.01E-05
			delta-BHC	2.00E-04	5.72E-09	1.74E-08	2.86E-05	8.71E-05
			Dieldrin	6.52E-05	7.96E-09	2.39E-08	1.22E-04	3.67E-04
			Endosulfan I	2.53E-02	1.93E-10	5.58E-10	7.62E-09	2.21E-08
			Endosulfan II	80	4.66E-10	1.17E-09	5.83E-12	1.46E-11
			Endosulfan sulfate	2.47E-02	6.08E-10	1.42E-09	2.46E-08	5.76E-08
			Endrin	6.00E-04	7.19E-08	2.22E-07	1.20E-04	3.69E-04
			gamma-BHC	3.00E-03	8.52E-09	3.05E-08	2.84E-06	1.02E-05
			gamma-Chlordane	6.00E-05	1.94E-05	7.58E-05	3.23E-01	1.26
			Heptachlor	9.75E-04	1.60E-08	4.42E-08	1.64E-05	4.54E-05
			Heptachlor epoxide	1.30E-05	1.05E-08	2.58E-08	8.09E-04	1.99E-03
			Isodrin	3.00E-04	4.23E-10	1.46E-09	1.41E-06	4.86E-06
			Methoxychlor	7.60E-02	1.23E-10	2.57E-10	1.62E-09	3.38E-09

Table L-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

		InhalationOfVapor: Shower Vapors						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index
		IngestionOfSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDE	3.89E-03	8.63E-07	8.63E-07	2.22E-04	2.22E-04
			Antimony	4.00E-04	7.81E-06	7.81E-06	1.95E-02	1.95E-02
			Arsenic	3.00E-04	1.47E-05	1.76E-05	4.89E-02	5.87E-02
			Beryllium	5.00E-03	8.63E-07	1.11E-06	1.73E-04	2.22E-04
			Cadmium (food)	1.00E-03	9.16E-06	1.18E-05	9.16E-03	1.18E-02
			Endosulfan I	2.53E-02	7.26E-07	7.26E-07	2.87E-05	2.87E-05
			Endosulfan II	80	1.51E-06	1.51E-06	1.88E-08	1.88E-08
			Endosulfan sulfate	6.00E-03	5.75E-07	5.75E-07	9.59E-05	9.59E-05
			gamma-Chlordane	6.00E-05	6.71E-07	6.71E-07	1.12E-02	1.12E-02
			Heptachlor	5.00E-04	3.15E-07	3.15E-07	6.30E-04	6.30E-04
			Heptachlor epoxide	1.30E-05	2.47E-04	2.47E-04	1.90E+01	1.90E+01
			Mercury	3.00E-04	3.02E-06	4.12E-06	1.01E-02	1.37E-02
			OCDD	1.00E-06	1.04E-09	1.04E-09	1.04E-03	1.04E-03
			Silver	5.00E-03	1.97E-04	2.50E-04	3.95E-02	5.01E-02
		IngestionOfSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	5.95E-06	6.64E-06	1.98E-02	2.21E-02
			Beryllium	5.00E-03	8.79E-07	1.00E-06	1.76E-04	2.01E-04
			Thallium	8.00E-05	8.14E-05	1.01E-04	1.02	1.26
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Residents Living On-site							
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDE	3.89E-03	2.71E-05	2.71E-05	6.95E-03	6.95E-03
			Antimony	4.00E-04	2.45E-05	2.45E-05	6.12E-02	6.12E-02
			Arsenic	3.00E-04	4.59E-06	5.52E-06	1.53E-02	1.84E-02
			Beryllium	5.00E-03	2.71E-07	3.47E-07	5.41E-05	6.95E-05
			Cadmium (food)	1.00E-03	5.74E-06	7.42E-06	5.74E-03	7.42E-03
			Endosulfan I	2.53E-02	2.28E-05	2.28E-05	9.00E-04	9.00E-04
			Endosulfan II	80	4.72E-05	4.72E-05	5.90E-07	5.90E-07
			Endosulfan sulfate	2.47E-02	1.80E-05	1.80E-05	7.30E-04	7.30E-04
			gamma-Chlordane	6.00E-05	2.10E-05	2.10E-05	3.51E-01	3.51E-01
			Heptachlor	9.75E-04	9.88E-06	9.88E-06	1.01E-02	1.01E-02
			Heptachlor epoxide	1.30E-05	7.73E-03	7.73E-03	5.95E+02	5.95E+02
			Mercury	3.00E-04	9.48E-06	1.29E-05	3.16E-02	4.31E-02
			OCDD	1.00E-06	3.26E-08	3.26E-08	3.26E-02	3.26E-02
			Silver	5.00E-03	6.18E-04	7.85E-04	1.24E-01	1.57E-01

Table L-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	1.86E-06	2.08E-06	6.22E-03	6.94E-03
			Beryllium	5.00E-03	2.75E-07	3.14E-07	5.51E-05	6.29E-05
			Thallium	8.00E-05	2.55E-04	3.15E-04	3.19	3.94
		IngestionOfDrinkingWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	4.03E-07	5.18E-07	8.05E-04	1.04E-03
			4,4'-DDE	3.89E-03	5.31E-07	7.35E-07	1.36E-04	1.89E-04
			4,4'-DDT	5.00E-04	9.65E-07	1.30E-06	1.93E-03	2.60E-03
			Aldrin	3.00E-05	3.96E-07	5.05E-07	1.32E-02	1.68E-02
			alpha-BHC	4.16E-04	1.05E-06	1.45E-06	2.54E-03	3.49E-03
			alpha-Chlordane	1.48E-05	7.42E-07	1.27E-06	5.01E-02	8.55E-02
			beta-BHC	3.30E-04	6.71E-07	9.59E-07	2.03E-03	2.91E-03
			delta-BHC	2.00E-04	6.90E-07	1.01E-06	3.45E-03	5.05E-03
			Dieldrin	5.00E-05	5.05E-07	7.29E-07	1.01E-02	1.46E-02
			Endosulfan I	2.53E-02	4.60E-07	6.39E-07	1.82E-05	2.53E-05
			Endosulfan II	80	1.11E-06	1.34E-06	1.39E-08	1.67E-08
			Endosulfan sulfate	6.00E-03	1.45E-06	1.63E-06	2.42E-04	2.72E-04
			Endrin	3.00E-04	1.25E-06	1.85E-06	4.18E-03	6.18E-03
			gamma-BHC	3.00E-04	1.03E-06	1.77E-06	3.43E-03	5.90E-03
			gamma-Chlordane	6.00E-05	4.17E-05	7.81E-05	6.94E-01	1.3
			Heptachlor	5.00E-04	5.43E-07	7.22E-07	1.09E-03	1.44E-03
			Heptachlor epoxide	1.30E-05	3.58E-07	4.22E-07	2.75E-02	3.25E-02
			Isodrin	3.00E-04	1.01E-06	1.67E-06	3.37E-03	5.56E-03
			Methoxychlor	5.00E-03	2.94E-07	2.94E-07	5.88E-05	5.88E-05

Table L-9
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

		DermalContactWithWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	5.45E-07	1.46E-06	1.09E-03	2.92E-03
			4,4'-DDE	3.89E-03	9.27E-07	2.68E-06	2.38E-04	6.88E-04
			4,4'-DDT	1.12E-02	6.11E-06	1.71E-05	5.45E-04	1.53E-03
			Aldrin	7.54E-05	1.12E-09	2.98E-09	1.49E-05	3.95E-05
			alpha-BHC	1.17E-03	7.74E-10	2.22E-09	6.62E-07	1.90E-06
			alpha-Chlordane	1.48E-05	6.04E-07	2.15E-06	4.08E-02	1.45E-01
			beta-BHC	3.30E-04	9.73E-09	2.90E-08	2.95E-05	8.78E-05
			delta-BHC	2.00E-04	1.00E-08	3.05E-08	5.01E-05	1.53E-04
			Dieldrin	6.52E-05	1.39E-08	4.19E-08	2.14E-04	6.43E-04
			Endosulfan I	2.53E-02	3.38E-10	9.77E-10	1.34E-08	3.86E-08
			Endosulfan II	80	8.16E-10	2.04E-09	1.02E-11	2.55E-11
			Endosulfan sulfate	2.47E-02	1.06E-09	2.49E-09	4.31E-08	1.01E-07
			Endrin	6.00E-04	1.26E-07	3.88E-07	2.10E-04	6.47E-04
			gamma-BHC	3.00E-03	1.49E-08	5.35E-08	4.98E-06	1.78E-05
			gamma-Chlordane	6.00E-05	3.40E-05	1.33E-04	5.66E-01	2.21
			Heptachlor	9.75E-04	2.80E-08	7.74E-08	2.87E-05	7.94E-05
			Heptachlor epoxide	1.30E-05	1.84E-08	4.52E-08	1.42E-03	3.48E-03
			Isodrin	3.00E-04	7.41E-10	2.55E-09	2.47E-06	8.50E-06
			Methoxychlor	7.60E-02	2.16E-10	4.50E-10	2.84E-09	5.92E-09
		InhalationOfVapor: Shower Vapors						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index
		IngestionOfSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDE	3.89E-03	8.05E-06	8.05E-06	2.07E-03	2.07E-03
			Antimony	4.00E-04	7.29E-05	7.29E-05	1.82E-01	1.82E-01
			Arsenic	3.00E-04	1.37E-04	1.64E-04	4.56E-01	5.48E-01
			Beryllium	5.00E-03	8.05E-06	1.03E-05	1.61E-03	2.07E-03
			Cadmium (food)	1.00E-03	8.55E-05	1.10E-04	8.55E-02	1.10E-01
			Endosulfan I	2.53E-02	6.78E-06	6.78E-06	2.68E-04	2.68E-04
			Endosulfan II	80	1.41E-05	1.41E-05	1.76E-07	1.76E-07
			Endosulfan sulfate	6.00E-03	5.37E-06	5.37E-06	8.95E-04	8.95E-04
			gamma-Chlordane	6.00E-05	6.26E-06	6.26E-06	1.04E-01	1.04E-01
			Heptachlor	5.00E-04	2.94E-06	2.94E-06	5.88E-03	5.88E-03
			Heptachlor epoxide	1.30E-05	2.30E-03	2.30E-03	1.77E+02	1.77E+02
			Mercury	3.00E-04	2.82E-05	3.85E-05	9.41E-02	1.28E-01
			OCDD	1.00E-06	9.72E-09	9.72E-09	9.72E-03	9.72E-03
			Silver	5.00E-03	1.84E-03	2.34E-03	3.68E-01	4.67E-01
		IngestionOfSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Arsenic	3.00E-04	5.55E-05	6.20E-05	1.85E-01	2.07E-01
			Beryllium	5.00E-03	8.20E-06	9.36E-06	1.64E-03	1.87E-03
			Thallium	8.00E-05	7.60E-04	9.39E-04	9.5	1.17E+01

Table L-10
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond A-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond A (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	2.50E-03	8.48E-03

Table L-11
Cancer Risk Summary
Holloman AFB, New Mexico
Pond A-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Slud	Dermal Contact with Sedime	Ingestion of Groundwa	Dermal Contact while Showe	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	3.73E-09	9.61E-09	0.00E+00	0.00E+00	0.00E+00	1.33E-08	5.33E-04
4,4'-DDE	2.72E-07	0.00E+00	6.96E-09	2.31E-08	0.00E+00	3.77E-08	0.00E+00	3.40E-07	1.36E-02
4,4'-DDT	0.00E+00	0.00E+00	1.27E-08	1.52E-07	6.42E-20	0.00E+00	0.00E+00	1.65E-07	6.59E-03
Aldrin	0.00E+00	0.00E+00	2.60E-07	1.40E-09	9.96E-17	0.00E+00	0.00E+00	2.61E-07	1.04E-02
alpha-BHC	0.00E+00	0.00E+00	2.56E-07	3.58E-10	3.50E-16	0.00E+00	0.00E+00	2.57E-07	1.02E-02
alpha-Chlordane	0.00E+00	0.00E+00	3.72E-08	5.77E-08	5.96E-17	0.00E+00	0.00E+00	9.49E-08	3.79E-03
Benzo(a)anthracene	1.42E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-07	0.00E+00	2.08E-06	8.29E-02
Benzo(a)pyrene	3.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-07	0.00E+00	4.47E-07	1.78E-02
Benzo(b)fluoranthene	1.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.32E-07	0.00E+00	1.68E-06	6.71E-02
Benzo(k)fluoranthene	3.43E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-07	0.00E+00	5.02E-07	2.00E-02
Beryllium	3.44E-08	3.50E-08	0.00E+00	0.00E+00	0.00E+00	4.77E-07	4.86E-07	1.03E-06	4.12E-02
beta-BHC	0.00E+00	0.00E+00	4.66E-08	1.29E-09	6.80E-20	0.00E+00	0.00E+00	4.79E-08	1.91E-03
Dieldrin	0.00E+00	0.00E+00	3.12E-07	1.64E-08	1.19E-16	0.00E+00	0.00E+00	3.28E-07	1.31E-02
gamma-BHC	0.00E+00	0.00E+00	5.16E-08	1.42E-09	0.00E+00	0.00E+00	0.00E+00	5.30E-08	2.12E-03
gamma-Chlordane	8.08E-07	0.00E+00	2.09E-06	3.24E-06	3.35E-15	1.12E-07	0.00E+00	6.25E-06	2.50E-01
Heptachlor	1.31E-06	0.00E+00	9.43E-08	9.24E-09	4.53E-18	1.82E-07	0.00E+00	1.60E-06	6.38E-02
Heptachlor epoxide	2.08E-03	0.00E+00	1.26E-07	1.23E-08	5.96E-18	2.88E-04	0.00E+00	2.37E-03	9.45E+01
Indeno(1,2,3-cd)pyrene	1.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-07	0.00E+00	1.67E-06	6.69E-02
OCDD	1.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.01E-08	0.00E+00	1.65E-07	6.58E-03
PCB-1254	7.27E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	0.00E+00	8.28E-05	3.3
PCB-1260	3.53E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.26E-06	0.00E+00	3.85E-05	1.54
Total by pathway	2.19E-03	3.50E-08	3.30E-06	3.53E-06	3.99E-15	3.05E-04	4.86E-07		
% Contribution by path	8.75E+01	1.40E-03	1.32E-01	1.41E-01	1.59E-10	1.22E+01	1.94E-02		
Scenario Total								2.50E-03	
Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Slud	Dermal Contact with Sedime	Ingestion of Groundwa	Dermal Contact while Showe	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	2.28E-08	8.58E-08	0.00E+00	0.00E+00	0.00E+00	1.09E-07	1.28E-03
4,4'-DDE	9.06E-07	0.00E+00	4.59E-08	2.23E-07	0.00E+00	1.26E-07	0.00E+00	1.30E-06	1.53E-02
4,4'-DDT	0.00E+00	0.00E+00	8.10E-08	1.42E-06	5.98E-19	0.00E+00	0.00E+00	1.50E-06	1.77E-02
Aldrin	0.00E+00	0.00E+00	1.58E-06	1.24E-08	8.81E-16	0.00E+00	0.00E+00	1.59E-06	1.87E-02
alpha-BHC	0.00E+00	0.00E+00	1.68E-06	3.42E-09	3.35E-15	0.00E+00	0.00E+00	1.68E-06	1.98E-02
alpha-Chlordane	0.00E+00	0.00E+00	3.02E-07	6.84E-07	7.07E-16	0.00E+00	0.00E+00	9.86E-07	1.16E-02
Benzo(a)anthracene	5.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-06	0.00E+00	8.61E-06	1.02E-01
Benzo(a)pyrene	1.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.71E-07	0.00E+00	1.49E-06	1.76E-02
Benzo(b)fluoranthene	5.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-06	0.00E+00	7.65E-06	9.01E-02
Benzo(k)fluoranthene	1.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.61E-07	0.00E+00	2.41E-06	2.84E-02
Beryllium	1.47E-07	1.33E-07	0.00E+00	0.00E+00	0.00E+00	2.04E-06	1.85E-06	4.17E-06	4.92E-02
beta-BHC	0.00E+00	0.00E+00	3.17E-07	1.28E-08	6.75E-19	0.00E+00	0.00E+00	3.30E-07	3.89E-03
Dieldrin	0.00E+00	0.00E+00	2.14E-06	1.64E-07	1.19E-15	0.00E+00	0.00E+00	2.31E-06	2.72E-02
gamma-BHC	0.00E+00	0.00E+00	4.23E-07	1.70E-08	0.00E+00	0.00E+00	0.00E+00	4.40E-07	5.19E-03
gamma-Chlordane	2.69E-06	0.00E+00	1.87E-05	4.22E-05	4.36E-14	3.74E-07	0.00E+00	6.39E-05	7.54E-01
Heptachlor	4.38E-06	0.00E+00	5.97E-07	8.53E-08	4.17E-17	6.08E-07	0.00E+00	5.67E-06	6.68E-02
Heptachlor epoxide	6.93E-03	0.00E+00	7.05E-07	1.01E-07	4.88E-17	9.62E-04	0.00E+00	7.89E-03	9.30E+01
Indeno(1,2,3-cd)pyrene	4.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-06	0.00E+00	6.08E-06	7.17E-02
OCDD	4.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.69E-08	0.00E+00	5.49E-07	6.47E-03
PCB-1254	2.94E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.09E-05	0.00E+00	3.35E-04	3.95
PCB-1260	1.35E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-05	0.00E+00	1.48E-04	1.74
Total by pathway	7.38E-03	1.33E-07	2.65E-05	4.50E-05	4.98E-14	1.03E-03	1.85E-06		
% Contribution by path	8.70E+01	1.57E-03	3.13E-01	5.31E-01	5.87E-10	1.21E+01	2.18E-02		
Scenario Total								8.48E-03	

Table L-12
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

Cancer Risk Estimates									
Holloman Risk Assessment - Pond A (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDE	3.40E-01	B2	7.99E-07	2.66E-06	2.72E-07	9.06E-07
			Benzo(a)anthracene	1.06	B2	1.34E-06	5.56E-06	1.42E-06	5.89E-06
			Benzo(a)pyrene	7.3	B2	4.19E-08	1.40E-07	3.06E-07	1.02E-06
			Benzo(b)fluoranthene	1.02	B2	1.13E-06	5.12E-06	1.15E-06	5.23E-06
			Benzo(k)fluoranthene	4.82E-01	B2	7.12E-07	3.41E-06	3.43E-07	1.64E-06
			Beryllium	4.3	B2	7.99E-09	3.42E-08	3.44E-08	1.47E-07
			gamma-Chlordane	1.3	B2	6.22E-07	2.07E-06	8.08E-07	2.69E-06
			Heptachlor	4.5	B2	2.92E-07	9.72E-07	1.31E-06	4.38E-06
			Heptachlor epoxide	9.1	B2	2.28E-04	7.61E-04	2.08E-03	6.93E-03
			Indeno(1,2,3-cd)pyrene	1.69	B2	6.77E-07	2.46E-06	1.14E-06	4.16E-06
			OCDD	150		9.64E-10	3.21E-09	1.45E-07	4.82E-07
			PCB-1254	7.7	B2	9.44E-06	3.82E-05	7.27E-05	2.94E-04
			PCB-1260	7.7	B2	4.58E-06	1.75E-05	3.53E-05	1.35E-04
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Beryllium	4.3	B2	8.14E-09	3.10E-08	3.50E-08	1.33E-07
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.55E-08	9.51E-08	3.73E-09	2.28E-08
			4,4'-DDE	3.40E-01	B2	2.05E-08	1.35E-07	6.96E-09	4.59E-08
			4,4'-DDT	3.40E-01	B2	3.72E-08	2.38E-07	1.27E-08	8.10E-08
			Aldrin	17	B2	1.53E-08	9.28E-08	2.60E-07	1.58E-06
			alpha-BHC	6.3	B2	4.07E-08	2.67E-07	2.56E-07	1.68E-06
			alpha-Chlordane	1.3	B2	2.86E-08	2.32E-07	3.72E-08	3.02E-07
			beta-BHC	1.8	C	2.59E-08	1.76E-07	4.66E-08	3.17E-07
			Dieldrin	16	B2	1.95E-08	1.34E-07	3.12E-07	2.14E-06
			gamma-BHC	1.3	B2/C	3.97E-08	3.25E-07	5.16E-08	4.23E-07
			gamma-Chlordane	1.3	B2	1.61E-06	1.44E-05	2.09E-06	1.87E-05
			Heptachlor	4.5	B2	2.10E-08	1.33E-07	9.43E-08	5.97E-07
			Heptachlor epoxide	9.1	B2	1.38E-08	7.75E-08	1.26E-07	7.05E-07

Table L-12
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond A-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	4.00E-08	3.57E-07	9.61E-09	8.58E-08
			4,4'-DDE	3.40E-01	B2	6.81E-08	6.55E-07	2.31E-08	2.23E-07
			4,4'-DDT	3.40E-01	B2	4.48E-07	4.18E-06	1.52E-07	1.42E-06
			Aldrin	17	B2	8.24E-11	7.29E-10	1.40E-09	1.24E-08
			alpha-BHC	6.3	B2	5.68E-11	5.43E-10	3.58E-10	3.42E-09
			alpha-Chlordane	1.3	B2	4.44E-08	5.26E-07	5.77E-08	6.84E-07
			beta-BHC	1.8	C	7.15E-10	7.09E-09	1.29E-09	1.28E-08
			Dieldrin	16	B2	1.02E-09	1.03E-08	1.64E-08	1.64E-07
			gamma-BHC	1.3	B2/C	1.10E-09	1.31E-08	1.42E-09	1.70E-08
			gamma-Chlordane	1.3	B2	2.49E-06	3.25E-05	3.24E-06	4.22E-05
			Heptachlor	4.5	B2	2.05E-09	1.90E-08	9.24E-09	8.53E-08
			Heptachlor epoxide	9.1	B2	1.35E-09	1.11E-08	1.23E-08	1.01E-07
		InhalationOfVapor: Shower Vapors							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EAC	Average Risk	Reas. Max. Risk
			4,4'-DDT*	9.70E-05	B2	6.62E-16	6.17E-15	6.42E-20	5.98E-19
			Aldrin*	4.90E-03	B2	2.03E-14	1.80E-13	9.96E-17	8.81E-16
			alpha-BHC*	1.80E-03	B2	1.94E-13	1.86E-12	3.50E-16	3.35E-15
			alpha-Chlordane*	3.70E-04	B2	1.61E-13	1.91E-12	5.96E-17	7.07E-16
			beta-BHC*	5.30E-04	C	1.28E-16	1.27E-15	6.80E-20	6.75E-19
			Dieldrin*	4.60E-03	B2	2.59E-14	2.59E-13	1.19E-16	1.19E-15
			gamma-Chlordane*	3.70E-04	B2	9.06E-12	1.18E-10	3.35E-15	4.36E-14
			Heptachlor*	1.30E-03	B2	3.48E-15	3.21E-14	4.53E-18	4.17E-17
			Heptachlor epoxide*	2.60E-03	B2	2.29E-15	1.88E-14	5.96E-18	4.88E-17
		IngestionOfSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDE	3.40E-01	B2	1.11E-07	3.70E-07	3.77E-08	1.26E-07
			Benzo(a)anthracene	1.06	B2	6.20E-07	2.57E-06	6.57E-07	2.73E-06
			Benzo(a)pyrene	7.3	B2	1.94E-08	6.46E-08	1.41E-07	4.71E-07
			Benzo(b)fluoranthene	1.02	B2	5.21E-07	2.37E-06	5.32E-07	2.42E-06
			Benzo(k)fluoranthene	4.82E-01	B2	3.29E-07	1.58E-06	1.59E-07	7.61E-07
			Beryllium	4.3	B2	1.11E-07	4.75E-07	4.77E-07	2.04E-06
			gamma-Chlordane	1.3	B2	8.63E-08	2.88E-07	1.12E-07	3.74E-07
			Heptachlor	4.5	B2	4.05E-08	1.35E-07	1.82E-07	6.08E-07
			Heptachlor epoxide	9.1	B2	3.17E-05	1.06E-04	2.88E-04	9.62E-04
			Indeno(1,2,3-cd)pyrene	1.69	B2	3.14E-07	1.14E-06	5.30E-07	1.92E-06
			OCDD	150		1.34E-10	4.46E-10	2.01E-08	6.69E-08
			PCB-1254	7.7	B2	1.31E-06	5.31E-06	1.01E-05	4.09E-05
			PCB-1260	7.7	B2	4.24E-07	1.62E-06	3.26E-06	1.25E-05
		IngestionOfSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Beryllium	4.3	B2	1.13E-07	4.30E-07	4.86E-07	1.85E-06

Table L-13
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond B-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond B (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Opera	7.99E-01	2.25
On-Site Residential, Child - Future (Lagoons Out of Opera	3.07	5.92

Table L-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	2.42E-04	6.23E-04	0.00E+00	0.00E+00	8.64E-04	1.08E-01
4,4'-DDE	0.00E+00	0.00E+00	4.09E-05	1.36E-04	0.00E+00	0.00E+00	1.77E-04	2.21E-02
4,4'-DDT	0.00E+00	0.00E+00	5.79E-04	3.11E-04	0.00E+00	0.00E+00	8.90E-04	1.11E-01
Aldrin	0.00E+00	0.00E+00	3.96E-03	8.50E-06	0.00E+00	0.00E+00	3.97E-03	4.97E-01
alpha-BHC	0.00E+00	0.00E+00	7.61E-04	3.78E-07	0.00E+00	0.00E+00	7.61E-04	9.52E-02
alpha-Chlordane	0.00E+00	0.00E+00	1.50E-02	2.33E-02	0.00E+00	0.00E+00	3.84E-02	4.8
Arsenic	4.55E-03	1.14E-03	0.00E+00	0.00E+00	6.32E-02	1.59E-02	8.47E-02	1.06E+01
Beryllium	1.86E-05	1.07E-05	0.00E+00	0.00E+00	2.58E-04	1.48E-04	4.36E-04	5.46E-02
beta-BHC	0.00E+00	0.00E+00	6.10E-04	1.68E-05	0.00E+00	0.00E+00	6.27E-04	7.84E-02
bis(2-Ethylhexyl)phtha	1.51E-02	0.00E+00	0.00E+00	0.00E+00	2.09E-03	0.00E+00	1.72E-02	2.15
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-02	0.00E+00	1.91E-02	2.39
delta-BHC	0.00E+00	0.00E+00	1.04E-03	2.86E-05	0.00E+00	0.00E+00	1.06E-03	1.33E-01
Dieldrin	0.00E+00	0.00E+00	3.03E-03	1.22E-04	0.00E+00	0.00E+00	3.15E-03	3.94E-01
Endosulfan I	0.00E+00	3.89E-07	5.46E-06	7.62E-09	0.00E+00	5.41E-08	5.91E-06	7.39E-04
Endosulfan II	0.00E+00	0.00E+00	4.17E-09	5.83E-12	0.00E+00	0.00E+00	4.18E-09	5.23E-07
Endosulfan sulfate	0.00E+00	0.00E+00	7.26E-05	2.46E-08	0.00E+00	0.00E+00	7.26E-05	9.08E-03
Endrin	0.00E+00	0.00E+00	1.25E-03	1.20E-04	0.00E+00	0.00E+00	1.37E-03	1.72E-01
gamma-BHC	0.00E+00	0.00E+00	1.03E-03	2.84E-06	0.00E+00	0.00E+00	1.03E-03	1.29E-01
gamma-Chlordane	0.00E+00	0.00E+00	2.08E-01	3.23E-01	0.00E+00	0.00E+00	5.32E-01	6.65E+01
Heptachlor	0.00E+00	0.00E+00	3.26E-04	1.64E-05	0.00E+00	0.00E+00	3.42E-04	4.28E-02
Heptachlor epoxide	0.00E+00	0.00E+00	8.26E-03	8.09E-04	0.00E+00	0.00E+00	9.07E-03	1.13
Isodrin	0.00E+00	0.00E+00	1.01E-03	1.41E-06	0.00E+00	0.00E+00	1.01E-03	1.27E-01
Isophorone	6.37E-05	0.00E+00	0.00E+00	0.00E+00	8.85E-06	0.00E+00	7.26E-05	9.08E-03
Mercury	1.61E-02	0.00E+00	0.00E+00	0.00E+00	2.24E-02	0.00E+00	3.86E-02	4.82
Methoxychlor	0.00E+00	0.00E+00	1.76E-05	1.62E-09	0.00E+00	0.00E+00	1.76E-05	2.21E-03
Silver	1.88E-02	0.00E+00	0.00E+00	0.00E+00	2.61E-02	0.00E+00	4.50E-02	5.63
Total by pathway	5.47E-02	1.15E-03	2.46E-01	3.49E-01	1.33E-01	1.60E-02		
% Contribution by pat	6.84	1.44E-01	3.07E+01	4.36E+01	1.67E+01	2		
Scenario Total							7.99E-01	

Table L-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	4.44E-04	1.67E-03	0.00E+00	0.00E+00	2.11E-03	9.38E-02
4,4'-DDE	0.00E+00	0.00E+00	8.10E-05	3.93E-04	0.00E+00	0.00E+00	4.74E-04	2.11E-02
4,4'-DDT	0.00E+00	0.00E+00	1.11E-03	8.72E-04	0.00E+00	0.00E+00	1.98E-03	8.82E-02
Aldrin	0.00E+00	0.00E+00	7.21E-03	2.26E-05	0.00E+00	0.00E+00	7.24E-03	3.22E-01
alpha-BHC	0.00E+00	0.00E+00	1.49E-03	1.08E-06	0.00E+00	0.00E+00	1.50E-03	6.65E-02
alpha-Chlordane	0.00E+00	0.00E+00	3.67E-02	8.29E-02	0.00E+00	0.00E+00	1.20E-01	5.31
Arsenic	4.87E-03	1.64E-03	0.00E+00	0.00E+00	6.76E-02	2.27E-02	9.68E-02	4.3
Beryllium	2.36E-05	1.35E-05	0.00E+00	0.00E+00	3.28E-04	1.88E-04	5.53E-04	2.46E-02
beta-BHC	0.00E+00	0.00E+00	1.25E-03	5.01E-05	0.00E+00	0.00E+00	1.30E-03	5.76E-02
bis(2-Ethylhexyl)phtha	1.99E-02	0.00E+00	0.00E+00	0.00E+00	2.76E-03	0.00E+00	2.26E-02	1.01
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-02	0.00E+00	2.44E-02	1.08
delta-BHC	0.00E+00	0.00E+00	2.16E-03	8.71E-05	0.00E+00	0.00E+00	2.25E-03	1.00E-01
Dieldrin	0.00E+00	0.00E+00	6.25E-03	3.67E-04	0.00E+00	0.00E+00	6.61E-03	2.94E-01
Endosulfan I	0.00E+00	5.57E-07	1.08E-05	2.21E-08	0.00E+00	7.73E-08	1.15E-05	5.10E-04
Endosulfan II	0.00E+00	0.00E+00	7.16E-09	1.46E-11	0.00E+00	0.00E+00	7.17E-09	3.19E-07
Endosulfan sulfate	0.00E+00	0.00E+00	1.16E-04	5.76E-08	0.00E+00	0.00E+00	1.16E-04	5.18E-03
Endrin	0.00E+00	0.00E+00	2.65E-03	3.69E-04	0.00E+00	0.00E+00	3.02E-03	1.34E-01
gamma-BHC	0.00E+00	0.00E+00	2.53E-03	1.02E-05	0.00E+00	0.00E+00	2.54E-03	1.13E-01
gamma-Chlordane	0.00E+00	0.00E+00	5.58E-01	1.26	0.00E+00	0.00E+00	1.82	8.09E+01
Heptachlor	0.00E+00	0.00E+00	6.19E-04	4.54E-05	0.00E+00	0.00E+00	6.65E-04	2.95E-02
Heptachlor epoxide	0.00E+00	0.00E+00	1.39E-02	1.99E-03	0.00E+00	0.00E+00	1.59E-02	7.06E-01
Isodrin	0.00E+00	0.00E+00	2.38E-03	4.86E-06	0.00E+00	0.00E+00	2.39E-03	1.06E-01
Isophorone	9.12E-05	0.00E+00	0.00E+00	0.00E+00	1.27E-05	0.00E+00	1.04E-04	4.61E-03
Mercury	1.91E-02	0.00E+00	0.00E+00	0.00E+00	2.66E-02	0.00E+00	4.57E-02	2.03
Methoxychlor	0.00E+00	0.00E+00	2.52E-05	3.38E-09	0.00E+00	0.00E+00	2.52E-05	1.12E-03
Silver	3.01E-02	0.00E+00	0.00E+00	0.00E+00	4.18E-02	0.00E+00	7.18E-02	3.19
Total by pathway	7.41E-02	1.65E-03	6.37E-01	1.35	1.63E-01	2.29E-02		
% Contribution by pat	3.29	7.34E-02	2.83E+01	6.01E+01	7.26	1.02		
Scenario Total							2.25	

Table L-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	8.05E-04	1.09E-03	0.00E+00	0.00E+00	1.90E-03	6.19E-02
4,4'-DDE	0.00E+00	0.00E+00	1.36E-04	2.38E-04	0.00E+00	0.00E+00	3.75E-04	1.22E-02
4,4'-DDT	0.00E+00	0.00E+00	1.93E-03	5.45E-04	0.00E+00	0.00E+00	2.48E-03	8.08E-02
Aldrin	0.00E+00	0.00E+00	1.32E-02	1.49E-05	0.00E+00	0.00E+00	1.32E-02	4.31E-01
alpha-BHC	0.00E+00	0.00E+00	2.54E-03	6.62E-07	0.00E+00	0.00E+00	2.54E-03	8.27E-02
alpha-Chlordane	0.00E+00	0.00E+00	5.01E-02	4.08E-02	0.00E+00	0.00E+00	9.09E-02	2.97
Arsenic	1.98E-02	4.97E-03	0.00E+00	0.00E+00	5.90E-01	1.48E-01	7.62E-01	2.49E+01
Beryllium	8.10E-05	4.65E-05	0.00E+00	0.00E+00	2.41E-03	1.39E-03	3.92E-03	1.28E-01
beta-BHC	0.00E+00	0.00E+00	2.03E-03	2.95E-05	0.00E+00	0.00E+00	2.06E-03	6.73E-02
bis(2-Ethylhexyl)phtha	6.56E-02	0.00E+00	0.00E+00	0.00E+00	1.95E-02	0.00E+00	8.51E-02	2.78
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-01	0.00E+00	1.79E-01	5.83
delta-BHC	0.00E+00	0.00E+00	3.45E-03	5.01E-05	0.00E+00	0.00E+00	3.50E-03	1.14E-01
Dieldrin	0.00E+00	0.00E+00	1.01E-02	2.14E-04	0.00E+00	0.00E+00	1.03E-02	3.36E-01
Endosulfan I	0.00E+00	1.69E-06	1.82E-05	1.34E-08	0.00E+00	5.04E-07	2.04E-05	6.66E-04
Endosulfan II	0.00E+00	0.00E+00	1.39E-08	1.02E-11	0.00E+00	0.00E+00	1.39E-08	4.54E-07
Endosulfan sulfate	0.00E+00	0.00E+00	2.42E-04	4.31E-08	0.00E+00	0.00E+00	2.42E-04	7.89E-03
Endrin	0.00E+00	0.00E+00	4.18E-03	2.10E-04	0.00E+00	0.00E+00	4.39E-03	1.43E-01
gamma-BHC	0.00E+00	0.00E+00	3.43E-03	4.98E-06	0.00E+00	0.00E+00	3.44E-03	1.12E-01
gamma-Chlordane	0.00E+00	0.00E+00	6.94E-01	5.66E-01	0.00E+00	0.00E+00	1.26	4.11E+01
Heptachlor	0.00E+00	0.00E+00	1.09E-03	2.87E-05	0.00E+00	0.00E+00	1.12E-03	3.64E-02
Heptachlor epoxide	0.00E+00	0.00E+00	2.75E-02	1.42E-03	0.00E+00	0.00E+00	2.90E-02	9.45E-01
Isodrin	0.00E+00	0.00E+00	3.37E-03	2.47E-06	0.00E+00	0.00E+00	3.37E-03	1.10E-01
Isophorone	2.77E-04	0.00E+00	0.00E+00	0.00E+00	8.26E-05	0.00E+00	3.60E-04	1.17E-02
Mercury	7.03E-02	0.00E+00	0.00E+00	0.00E+00	2.09E-01	0.00E+00	2.79E-01	9.12
Methoxychlor	0.00E+00	0.00E+00	5.88E-05	2.84E-09	0.00E+00	0.00E+00	5.88E-05	1.92E-03
Silver	8.20E-02	0.00E+00	0.00E+00	0.00E+00	2.44E-01	0.00E+00	3.26E-01	1.06E+01
Total by pathway	2.38E-01	5.02E-03	8.19E-01	6.11E-01	1.24	1.49E-01		
% Contribution by pat	7.76	1.64E-01	2.67E+01	1.99E+01	4.06E+01	4.88		
Scenario Total							3.07	

Table L-14
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	1.04E-03	2.92E-03	0.00E+00	0.00E+00	3.96E-03	6.68E-02
4,4'-DDE	0.00E+00	0.00E+00	1.89E-04	6.88E-04	0.00E+00	0.00E+00	8.77E-04	1.48E-02
4,4'-DDT	0.00E+00	0.00E+00	2.60E-03	1.53E-03	0.00E+00	0.00E+00	4.12E-03	6.96E-02
Aldrin	0.00E+00	0.00E+00	1.68E-02	3.95E-05	0.00E+00	0.00E+00	1.69E-02	2.85E-01
alpha-BHC	0.00E+00	0.00E+00	3.49E-03	1.90E-06	0.00E+00	0.00E+00	3.49E-03	5.89E-02
alpha-Chlordane	0.00E+00	0.00E+00	8.55E-02	1.45E-01	0.00E+00	0.00E+00	2.31E-01	3.9
Arsenic	2.12E-02	7.13E-03	0.00E+00	0.00E+00	6.31E-01	2.12E-01	8.71E-01	1.47E+01
Beryllium	1.03E-04	5.89E-05	0.00E+00	0.00E+00	3.06E-03	1.75E-03	4.98E-03	8.40E-02
beta-BHC	0.00E+00	0.00E+00	2.91E-03	8.78E-05	0.00E+00	0.00E+00	2.99E-03	5.06E-02
bis(2-Ethylhexyl)phtha	8.65E-02	0.00E+00	0.00E+00	0.00E+00	2.58E-02	0.00E+00	1.12E-01	1.9
Cadmium (food)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-01	0.00E+00	2.27E-01	3.84
delta-BHC	0.00E+00	0.00E+00	5.05E-03	1.53E-04	0.00E+00	0.00E+00	5.20E-03	8.79E-02
Dieldrin	0.00E+00	0.00E+00	1.46E-02	6.43E-04	0.00E+00	0.00E+00	1.52E-02	2.57E-01
Endosulfan I	0.00E+00	2.42E-06	2.53E-05	3.86E-08	0.00E+00	7.22E-07	2.85E-05	4.80E-04
Endosulfan II	0.00E+00	0.00E+00	1.67E-08	2.55E-11	0.00E+00	0.00E+00	1.67E-08	2.82E-07
Endosulfan sulfate	0.00E+00	0.00E+00	2.72E-04	1.01E-07	0.00E+00	0.00E+00	2.72E-04	4.59E-03
Endrin	0.00E+00	0.00E+00	6.18E-03	6.47E-04	0.00E+00	0.00E+00	6.83E-03	1.15E-01
gamma-BHC	0.00E+00	0.00E+00	5.90E-03	1.78E-05	0.00E+00	0.00E+00	5.92E-03	1.00E-01
gamma-Chlordane	0.00E+00	0.00E+00	1.3	2.21	0.00E+00	0.00E+00	3.51	5.93E+01
Heptachlor	0.00E+00	0.00E+00	1.44E-03	7.94E-05	0.00E+00	0.00E+00	1.52E-03	2.57E-02
Heptachlor epoxide	0.00E+00	0.00E+00	3.25E-02	3.48E-03	0.00E+00	0.00E+00	3.59E-02	6.07E-01
Isodrin	0.00E+00	0.00E+00	5.56E-03	8.50E-06	0.00E+00	0.00E+00	5.57E-03	9.41E-02
Isophorone	3.97E-04	0.00E+00	0.00E+00	0.00E+00	1.18E-04	0.00E+00	5.15E-04	8.70E-03
Mercury	8.33E-02	0.00E+00	0.00E+00	0.00E+00	2.48E-01	0.00E+00	3.31E-01	5.6
Methoxychlor	0.00E+00	0.00E+00	5.88E-05	5.92E-09	0.00E+00	0.00E+00	5.88E-05	9.93E-04
Silver	1.31E-01	0.00E+00	0.00E+00	0.00E+00	3.90E-01	0.00E+00	5.21E-01	8.79
Total by pathway	3.22E-01	7.19E-03	1.49	2.37	1.52	2.14E-01		
% Contribution by pat	5.44	1.21E-01	2.51E+01	4.00E+01	2.57E+01	3.61		
Scenario Total							5.92	

Table L-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond B (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.36E-06	1.46E-06	4.55E-03	4.87E-03	
			Beryllium	5.00E-03	9.31E-08	1.18E-07	1.86E-05	2.36E-05	
			bis(2-Ethylhexyl)phthal	2.00E-02	3.01E-04	3.97E-04	1.51E-02	1.99E-02	
			Isophorone	2.00E-01	1.27E-05	1.82E-05	6.37E-05	9.12E-05	
			Mercury	3.00E-04	4.84E-06	5.74E-06	1.61E-02	1.91E-02	
			Silver	5.00E-03	9.42E-05	1.50E-04	1.88E-02	3.01E-02	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	3.43E-07	4.91E-07	1.14E-03	1.64E-03	
			Beryllium	5.00E-03	5.34E-08	6.77E-08	1.07E-05	1.35E-05	
			Endosulfan I	2.53E-02	9.85E-09	1.41E-08	3.89E-07	5.57E-07	
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.21E-07	2.22E-07	2.42E-04	4.44E-04	
			4,4'-DDE	3.89E-03	1.59E-07	3.15E-07	4.09E-05	8.10E-05	
			4,4'-DDT	5.00E-04	2.90E-07	5.56E-07	5.79E-04	1.11E-03	
			Aldrin	3.00E-05	1.19E-07	2.16E-07	3.96E-03	7.21E-03	
			alpha-BHC	4.16E-04	3.16E-07	6.22E-07	7.61E-04	1.49E-03	
			alpha-Chlordane	1.48E-05	2.22E-07	5.42E-07	1.50E-02	3.67E-02	
			beta-BHC	3.30E-04	2.01E-07	4.11E-07	6.10E-04	1.25E-03	
			delta-BHC	2.00E-04	2.07E-07	4.33E-07	1.04E-03	2.16E-03	
			Dieldrin	5.00E-05	1.52E-07	3.12E-07	3.03E-03	6.25E-03	
			Endosulfan I	2.53E-02	1.38E-07	2.74E-07	5.46E-06	1.08E-05	
			Endosulfan II	80	3.34E-07	5.73E-07	4.17E-09	7.16E-09	
			Endosulfan sulfate	6.00E-03	4.35E-07	6.99E-07	7.26E-05	1.16E-04	
			Endrin	3.00E-04	3.76E-07	7.95E-07	1.25E-03	2.65E-03	
			gamma-BHC	3.00E-04	3.09E-07	7.59E-07	1.03E-03	2.53E-03	
			gamma-Chlordane	6.00E-05	1.25E-05	3.35E-05	2.08E-01	5.58E-01	
			Heptachlor	5.00E-04	1.63E-07	3.10E-07	3.26E-04	6.19E-04	
			Heptachlor epoxide	1.30E-05	1.07E-07	1.81E-07	8.26E-03	1.39E-02	
			Isodrin	3.00E-04	3.03E-07	7.15E-07	1.01E-03	2.38E-03	
			Methoxychlor	5.00E-03	8.82E-08	1.26E-07	1.76E-05	2.52E-05	

Table L-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.11E-07	8.34E-07	6.23E-04	1.67E-03	
			4,4'-DDE	3.89E-03	5.29E-07	1.53E-06	1.36E-04	3.93E-04	
			4,4'-DDT	1.12E-02	3.49E-06	9.76E-06	3.11E-04	8.72E-04	
			Aldrin	7.54E-05	6.41E-10	1.70E-09	8.50E-06	2.26E-05	
			alpha-BHC	1.17E-03	4.42E-10	1.27E-09	3.78E-07	1.08E-06	
			alpha-Chlordane	1.48E-05	3.45E-07	1.23E-06	2.33E-02	8.29E-02	
			beta-BHC	3.30E-04	5.56E-09	1.65E-08	1.68E-05	5.01E-05	
			delta-BHC	2.00E-04	5.72E-09	1.74E-08	2.86E-05	8.71E-05	
			Dieldrin	6.52E-05	7.96E-09	2.39E-08	1.22E-04	3.67E-04	
			Endosulfan I	2.53E-02	1.93E-10	5.58E-10	7.62E-09	2.21E-08	
			Endosulfan II	80	4.66E-10	1.17E-09	5.83E-12	1.46E-11	
			Endosulfan sulfate	2.47E-02	6.08E-10	1.42E-09	2.46E-08	5.76E-08	
			Endrin	6.00E-04	7.19E-08	2.22E-07	1.20E-04	3.69E-04	
			gamma-BHC	3.00E-03	8.52E-09	3.05E-08	2.84E-06	1.02E-05	
			gamma-Chlordane	6.00E-05	1.94E-05	7.58E-05	3.23E-01	1.26	
			Heptachlor	9.75E-04	1.60E-08	4.42E-08	1.64E-05	4.54E-05	
			Heptachlor epoxide	1.30E-05	1.05E-08	2.58E-08	8.09E-04	1.99E-03	
			Isodrin	3.00E-04	4.23E-10	1.46E-09	1.41E-06	4.86E-06	
			Methoxychlor	7.60E-02	1.23E-10	2.57E-10	1.62E-09	3.38E-09	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EA	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.89E-05	2.03E-05	6.32E-02	6.76E-02	
			Beryllium	5.00E-03	1.29E-06	1.64E-06	2.58E-04	3.28E-04	
			bis(2-Ethylhexyl)phthal	2.00E-02	4.18E-05	5.52E-05	2.09E-03	2.76E-03	
			Cadmium (food)	1.00E-03	1.91E-05	2.44E-05	1.91E-02	2.44E-02	
			Isophorone	2.00E-01	1.77E-06	2.53E-06	8.85E-06	1.27E-05	
			Mercury	3.00E-04	6.72E-06	7.97E-06	2.24E-02	2.66E-02	
			Silver	5.00E-03	1.31E-04	2.09E-04	2.61E-02	4.18E-02	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	4.76E-06	6.82E-06	1.59E-02	2.27E-02	
			Beryllium	5.00E-03	7.42E-07	9.40E-07	1.48E-04	1.88E-04	
			Endosulfan I	2.53E-02	1.37E-09	1.96E-09	5.41E-08	7.73E-08	

Table L-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	5.94E-06	6.35E-06	1.98E-02	2.12E-02	
			Beryllium	5.00E-03	4.05E-07	5.14E-07	8.10E-05	1.03E-04	
			bis(2-Ethylhexyl)phthal	2.00E-02	1.31E-03	1.73E-03	6.56E-02	8.65E-02	
			Isophorone	2.00E-01	5.55E-05	7.94E-05	2.77E-04	3.97E-04	
			Mercury	3.00E-04	2.11E-05	2.50E-05	7.03E-02	8.33E-02	
			Silver	5.00E-03	4.10E-04	6.54E-04	8.20E-02	1.31E-01	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.49E-06	2.14E-06	4.97E-03	7.13E-03	
			Beryllium	5.00E-03	2.33E-07	2.95E-07	4.65E-05	5.89E-05	
			Endosulfan I	2.53E-02	4.29E-08	6.13E-08	1.69E-06	2.42E-06	
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	4.03E-07	5.18E-07	8.05E-04	1.04E-03	
			4,4'-DDE	3.89E-03	5.31E-07	7.35E-07	1.36E-04	1.89E-04	
			4,4'-DDT	5.00E-04	9.65E-07	1.30E-06	1.93E-03	2.60E-03	
			Aldrin	3.00E-05	3.96E-07	5.05E-07	1.32E-02	1.68E-02	
			alpha-BHC	4.16E-04	1.05E-06	1.45E-06	2.54E-03	3.49E-03	
			alpha-Chlordane	1.48E-05	7.42E-07	1.27E-06	5.01E-02	8.55E-02	
			beta-BHC	3.30E-04	6.71E-07	9.59E-07	2.03E-03	2.91E-03	
			delta-BHC	2.00E-04	6.90E-07	1.01E-06	3.45E-03	5.05E-03	
			Dieldrin	5.00E-05	5.05E-07	7.29E-07	1.01E-02	1.46E-02	
			Endosulfan I	2.53E-02	4.60E-07	6.39E-07	1.82E-05	2.53E-05	
			Endosulfan II	80	1.11E-06	1.34E-06	1.39E-08	1.67E-08	
			Endosulfan sulfate	6.00E-03	1.45E-06	1.63E-06	2.42E-04	2.72E-04	
			Endrin	3.00E-04	1.25E-06	1.85E-06	4.18E-03	6.18E-03	
			gamma-BHC	3.00E-04	1.03E-06	1.77E-06	3.43E-03	5.90E-03	
			gamma-Chlordane	6.00E-05	4.17E-05	7.81E-05	6.94E-01	1.3	
			Heptachlor	5.00E-04	5.43E-07	7.22E-07	1.09E-03	1.44E-03	
			Heptachlor epoxide	1.30E-05	3.58E-07	4.22E-07	2.75E-02	3.25E-02	
			Isodrin	3.00E-04	1.01E-06	1.67E-06	3.37E-03	5.56E-03	
			Methoxychlor	5.00E-03	2.94E-07	2.94E-07	5.88E-05	5.88E-05	

Table L-15
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	5.45E-07	1.46E-06	1.09E-03	2.92E-03	
			4,4'-DDE	3.89E-03	9.27E-07	2.68E-06	2.38E-04	6.88E-04	
			4,4'-DDT	1.12E-02	6.11E-06	1.71E-05	5.45E-04	1.53E-03	
			Aldrin	7.54E-05	1.12E-09	2.98E-09	1.49E-05	3.95E-05	
			alpha-BHC	1.17E-03	7.74E-10	2.22E-09	6.62E-07	1.90E-06	
			alpha-Chlordane	1.48E-05	6.04E-07	2.15E-06	4.08E-02	1.45E-01	
			beta-BHC	3.30E-04	9.73E-09	2.90E-08	2.95E-05	8.78E-05	
			delta-BHC	2.00E-04	1.00E-08	3.05E-08	5.01E-05	1.53E-04	
			Dieldrin	6.52E-05	1.39E-08	4.19E-08	2.14E-04	6.43E-04	
			Endosulfan I	2.53E-02	3.38E-10	9.77E-10	1.34E-08	3.86E-08	
			Endosulfan II	80	8.16E-10	2.04E-09	1.02E-11	2.55E-11	
			Endosulfan sulfate	2.47E-02	1.06E-09	2.49E-09	4.31E-08	1.01E-07	
			Endrin	6.00E-04	1.26E-07	3.88E-07	2.10E-04	6.47E-04	
			gamma-BHC	3.00E-03	1.49E-08	5.35E-08	4.98E-06	1.78E-05	
			gamma-Chlordane	6.00E-05	3.40E-05	1.33E-04	5.66E-01	2.21	
			Heptachlor	9.75E-04	2.80E-08	7.74E-08	2.87E-05	7.94E-05	
			Heptachlor epoxide	1.30E-05	1.84E-08	4.52E-08	1.42E-03	3.48E-03	
			Isodrin	3.00E-04	7.41E-10	2.55E-09	2.47E-06	8.50E-06	
			Methoxychlor	7.60E-02	2.16E-10	4.50E-10	2.84E-09	5.92E-09	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EA	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	1.77E-04	1.89E-04	5.90E-01	6.31E-01	
			Beryllium	5.00E-03	1.21E-05	1.53E-05	2.41E-03	3.06E-03	
			bis(2-Ethylhexyl)phthal	2.00E-02	3.90E-04	5.15E-04	1.95E-02	2.58E-02	
			Cadmium (food)	1.00E-03	1.79E-04	2.27E-04	1.79E-01	2.27E-01	
			Isophorone	2.00E-01	1.65E-05	2.36E-05	8.26E-05	1.18E-04	
			Mercury	3.00E-04	6.28E-05	7.44E-05	2.09E-01	2.48E-01	
			Silver	5.00E-03	1.22E-03	1.95E-03	2.44E-01	3.90E-01	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intak	Reas. Max. Inta	Average Haz. Ind	Reas. Max. Haz. Index	
			Arsenic	3.00E-04	4.44E-05	6.37E-05	1.48E-01	2.12E-01	
			Beryllium	5.00E-03	6.93E-06	8.77E-06	1.39E-03	1.75E-03	
			Endosulfan I	2.53E-02	1.28E-08	1.83E-08	5.04E-07	7.22E-07	

Table L-16
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond B-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond B (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Ope	1.06E-04	4.72E-04

Table L-17
Cancer Risk Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	3.73E-09	9.61E-09	0.00E+00	0.00E+00	0.00E+00	1.33E-08	1.26E-02
4,4'-DDE	0.00E+00	0.00E+00	6.96E-09	2.31E-08	0.00E+00	0.00E+00	0.00E+00	3.01E-08	2.84E-02
4,4'-DDT	0.00E+00	0.00E+00	1.27E-08	1.52E-07	6.42E-20	0.00E+00	0.00E+00	1.65E-07	1.56E-01
Aldrin	0.00E+00	0.00E+00	2.60E-07	1.40E-09	9.96E-17	0.00E+00	0.00E+00	2.61E-07	2.47E-01
alpha-BHC	0.00E+00	0.00E+00	2.56E-07	3.58E-10	3.50E-16	0.00E+00	0.00E+00	2.57E-07	2.42E-01
alpha-Chlordane	0.00E+00	0.00E+00	3.72E-08	5.77E-08	5.96E-17	0.00E+00	0.00E+00	9.49E-08	8.95E-02
Benzo(a)pyrene	2.93E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-06	0.00E+00	4.28E-06	4.04
Benzo(b)fluoranthene	7.20E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.33E-07	0.00E+00	1.05E-06	9.93E-01
Beryllium	5.15E-08	2.95E-08	0.00E+00	0.00E+00	0.00E+00	7.14E-07	4.10E-07	1.21E-06	1.14
beta-BHC	0.00E+00	0.00E+00	4.66E-08	1.29E-09	6.80E-20	0.00E+00	0.00E+00	4.79E-08	4.52E-02
bis(2-Ethylhexyl)phthalate	5.42E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-08	0.00E+00	6.18E-07	5.83E-01
Dieldrin	0.00E+00	0.00E+00	3.12E-07	1.64E-08	1.19E-16	0.00E+00	0.00E+00	3.28E-07	3.10E-01
gamma-BHC	0.00E+00	0.00E+00	5.16E-08	1.42E-09	0.00E+00	0.00E+00	0.00E+00	5.30E-08	5.00E-02
gamma-Chlordane	0.00E+00	0.00E+00	2.09E-06	3.24E-06	3.35E-15	0.00E+00	0.00E+00	5.33E-06	5.03
Heptachlor	0.00E+00	0.00E+00	9.43E-08	9.24E-09	4.53E-18	0.00E+00	0.00E+00	1.04E-07	9.77E-02
Heptachlor epoxide	0.00E+00	0.00E+00	1.26E-07	1.23E-08	5.96E-18	0.00E+00	0.00E+00	1.38E-07	1.30E-01
Isophorone	1.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.16E-10	0.00E+00	1.77E-09	1.67E-03
PCB-1254	5.83E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.10E-06	0.00E+00	6.64E-05	6.27E+01
PCB-1260	2.34E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-06	0.00E+00	2.56E-05	2.41E+01
Total by pathway	8.60E-05	2.95E-08	3.30E-06	3.53E-06	3.99E-15	1.27E-05	4.10E-07		
% Contribution by pathwa	8.11E+01	2.79E-02	3.11	3.33	3.76E-09	1.20E+01	3.87E-01		
Scenario Total								1.06E-04	

Table L-17
Cancer Risk Summary
Holloman AFB, New Mexico
Pond B-Future Residential

Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	0.00E+00	0.00E+00	2.28E-08	8.58E-08	0.00E+00	0.00E+00	0.00E+00	1.09E-07	2.30E-02
4,4'-DDE	0.00E+00	0.00E+00	4.59E-08	2.23E-07	0.00E+00	0.00E+00	0.00E+00	2.69E-07	5.70E-02
4,4'-DDT	0.00E+00	0.00E+00	8.10E-08	1.42E-06	5.98E-19	0.00E+00	0.00E+00	1.50E-06	3.19E-01
Aldrin	0.00E+00	0.00E+00	1.58E-06	1.24E-08	8.81E-16	0.00E+00	0.00E+00	1.59E-06	3.37E-01
alpha-BHC	0.00E+00	0.00E+00	1.68E-06	3.42E-09	3.35E-15	0.00E+00	0.00E+00	1.68E-06	3.57E-01
alpha-Chlordane	0.00E+00	0.00E+00	3.02E-07	6.84E-07	7.07E-16	0.00E+00	0.00E+00	9.86E-07	2.09E-01
Benzo(a)pyrene	1.14E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.29E-06	0.00E+00	1.67E-05	3.54
Benzo(b)fluoranthene	2.82E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-06	0.00E+00	4.13E-06	8.76E-01
Beryllium	2.18E-07	1.25E-07	0.00E+00	0.00E+00	0.00E+00	3.02E-06	1.73E-06	5.10E-06	1.08
beta-BHC	0.00E+00	0.00E+00	3.17E-07	1.28E-08	6.75E-19	0.00E+00	0.00E+00	3.30E-07	6.99E-02
bis(2-Ethylhexyl)phthalate	2.38E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-07	0.00E+00	2.72E-06	5.76E-01
Dieldrin	0.00E+00	0.00E+00	2.14E-06	1.64E-07	1.19E-15	0.00E+00	0.00E+00	2.31E-06	4.89E-01
gamma-BHC	0.00E+00	0.00E+00	4.23E-07	1.70E-08	0.00E+00	0.00E+00	0.00E+00	4.40E-07	9.33E-02
gamma-Chlordane	0.00E+00	0.00E+00	1.87E-05	4.22E-05	4.36E-14	0.00E+00	0.00E+00	6.09E-05	1.29E+01
Heptachlor	0.00E+00	0.00E+00	5.97E-07	8.53E-08	4.17E-17	0.00E+00	0.00E+00	6.82E-07	1.45E-01
Heptachlor epoxide	0.00E+00	0.00E+00	7.05E-07	1.01E-07	4.88E-17	0.00E+00	0.00E+00	8.06E-07	1.71E-01
Isophorone	7.43E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E-09	0.00E+00	8.46E-09	1.79E-03
PCB-1254	2.39E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.32E-05	0.00E+00	2.72E-04	5.77E+01
PCB-1260	9.07E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.39E-06	0.00E+00	9.91E-05	2.10E+01
Total by pathway	3.47E-04	1.25E-07	2.65E-05	4.50E-05	4.98E-14	5.15E-05	1.73E-06		
% Contribution by pathwa	7.35E+01	2.65E-02	5.63	9.55	1.06E-08	1.09E+01	3.67E-01		
Scenario Total								4.72E-04	

Table L-18
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

Cancer Risk Estimates										
Holloman Risk Assessment - Pond B (future-res)										
Scenario										
	Activity									
		Pathway								
On-Site Residential, Adult - Future (Lagoons Out of Operation)										
	Residents Living On-site									
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Benzo(a)pyrene	7.3	B2	4.01E-07	1.57E-06	2.93E-06	1.14E-05	
			Benzo(b)fluoranthene	1.02	B2	7.06E-07	2.77E-06	7.20E-07	2.82E-06	
			Beryllium	4.3	B2	1.20E-08	5.06E-08	5.15E-08	2.18E-07	
			bis(2-Ethylhexyl)phtha	1.40E-02	B2	3.87E-05	1.70E-04	5.42E-07	2.38E-06	
			Isophorone	9.50E-04	C	1.64E-06	7.82E-06	1.56E-09	7.43E-09	
			PCB-1254	7.7	B2	7.58E-06	3.10E-05	5.83E-05	2.39E-04	
			PCB-1260	7.7	B2	3.04E-06	1.18E-05	2.34E-05	9.07E-05	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Beryllium	4.3	B2	6.87E-09	2.90E-08	2.95E-08	1.25E-07	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.55E-08	9.51E-08	3.73E-09	2.28E-08	
			4,4'-DDE	3.40E-01	B2	2.05E-08	1.35E-07	6.96E-09	4.59E-08	
			4,4'-DDT	3.40E-01	B2	3.72E-08	2.38E-07	1.27E-08	8.10E-08	
			Aldrin	17	B2	1.53E-08	9.28E-08	2.60E-07	1.58E-06	
			alpha-BHC	6.3	B2	4.07E-08	2.67E-07	2.56E-07	1.68E-06	
			alpha-Chlordane	1.3	B2	2.86E-08	2.32E-07	3.72E-08	3.02E-07	
			beta-BHC	1.8	C	2.59E-08	1.76E-07	4.66E-08	3.17E-07	
			Dieldrin	16	B2	1.95E-08	1.34E-07	3.12E-07	2.14E-06	
			gamma-BHC	1.3	B2/C	3.97E-08	3.25E-07	5.16E-08	4.23E-07	
			gamma-Chlordane	1.3	B2	1.61E-06	1.44E-05	2.09E-06	1.87E-05	
			Heptachlor	4.5	B2	2.10E-08	1.33E-07	9.43E-08	5.97E-07	
			Heptachlor epoxide	9.1	B2	1.38E-08	7.75E-08	1.26E-07	7.05E-07	

Table L-18
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond B-Future Residential

		DermalContactWithWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	4.00E-08	3.57E-07	9.61E-09	8.58E-08	
			4,4'-DDE	3.40E-01	B2	6.81E-08	6.55E-07	2.31E-08	2.23E-07	
			4,4'-DDT	3.40E-01	B2	4.48E-07	4.18E-06	1.52E-07	1.42E-06	
			Aldrin	17	B2	8.24E-11	7.29E-10	1.40E-09	1.24E-08	
			alpha-BHC	6.3	B2	5.68E-11	5.43E-10	3.58E-10	3.42E-09	
			alpha-Chlordane	1.3	B2	4.44E-08	5.26E-07	5.77E-08	6.84E-07	
			beta-BHC	1.8	C	7.15E-10	7.09E-09	1.29E-09	1.28E-08	
			Dieldrin	16	B2	1.02E-09	1.03E-08	1.64E-08	1.64E-07	
			gamma-BHC	1.3	B2/C	1.10E-09	1.31E-08	1.42E-09	1.70E-08	
			gamma-Chlordane	1.3	B2	2.49E-06	3.25E-05	3.24E-06	4.22E-05	
			Heptachlor	4.5	B2	2.05E-09	1.90E-08	9.24E-09	8.53E-08	
			Heptachlor epoxide	9.1	B2	1.35E-09	1.11E-08	1.23E-08	1.01E-07	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EA	Average Risk	Reas. Max. Risk	
			4,4'-DDT*	9.70E-05	B2	6.62E-16	6.17E-15	6.42E-20	5.98E-19	
			Aldrin*	4.90E-03	B2	2.03E-14	1.80E-13	9.96E-17	8.81E-16	
			alpha-BHC*	1.80E-03	B2	1.94E-13	1.86E-12	3.50E-16	3.35E-15	
			alpha-Chlordane*	3.70E-04	B2	1.61E-13	1.91E-12	5.96E-17	7.07E-16	
			beta-BHC*	5.30E-04	C	1.28E-16	1.27E-15	6.80E-20	6.75E-19	
			Dieldrin*	4.60E-03	B2	2.59E-14	2.59E-13	1.19E-16	1.19E-15	
			gamma-Chlordane*	3.70E-04	B2	9.06E-12	1.18E-10	3.35E-15	4.36E-14	
			Heptachlor*	1.30E-03	B2	3.48E-15	3.21E-14	4.53E-18	4.17E-17	
			Heptachlor epoxide*	2.60E-03	B2	2.29E-15	1.88E-14	5.96E-18	4.88E-17	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Benzo(a)pyrene	7.3	B2	1.86E-07	7.24E-07	1.36E-06	5.29E-06	
			Benzo(b)fluoranthene	1.02	B2	3.27E-07	1.28E-06	3.33E-07	1.31E-06	
			Beryllium	4.3	B2	1.66E-07	7.03E-07	7.14E-07	3.02E-06	
			bis(2-Ethylhexyl)phtha	1.40E-02	B2	5.38E-06	2.37E-05	7.53E-08	3.31E-07	
			Isophorone	9.50E-04	C	2.27E-07	1.09E-06	2.16E-10	1.03E-09	
			PCB-1254	7.7	B2	1.05E-06	4.31E-06	8.10E-06	3.32E-05	
			PCB-1260	7.7	B2	2.81E-07	1.09E-06	2.17E-06	8.39E-06	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Beryllium	4.3	B2	9.54E-08	4.03E-07	4.10E-07	1.73E-06	

Table L-19
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond C-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond C (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Ope	6.87E-01	1.83
On-Site Residential, Child - Future (Lagoons Out of Ope	2.71	5.95

Table L-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Shower	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
2,4,5-T	9.90E-05	0.00E+00	0.00E+00	0.00E+00	1.37E-05	0.00E+00	1.13E-04	1.64E-02
4,4'-DDD	4.58E-02	1.20E-03	0.00E+00	0.00E+00	6.36E-03	1.67E-04	5.36E-02	7.79
4,4'-DDE	2.52E-03	7.62E-05	4.24E-05	1.41E-04	3.50E-04	1.06E-05	3.14E-03	4.57E-01
4,4'-DDT	1.49E-04	6.97E-06	4.30E-04	2.31E-04	4.63E-04	2.17E-05	1.30E-03	1.89E-01
Aldrin	0.00E+00	5.48E-04	5.24E-03	1.12E-05	0.00E+00	1.91E-04	5.99E-03	8.72E-01
alpha-Chlordane	4.60E-02	0.00E+00	1.08E-02	1.67E-02	6.39E-03	0.00E+00	7.98E-02	1.16E+01
Arsenic	2.14E-04	0.00E+00	0.00E+00	0.00E+00	2.97E-03	0.00E+00	3.18E-03	4.63E-01
Beryllium	6.30E-06	7.89E-06	0.00E+00	0.00E+00	8.75E-05	1.10E-04	2.11E-04	3.07E-02
beta-BHC	0.00E+00	2.78E-04	0.00E+00	0.00E+00	0.00E+00	3.86E-05	3.17E-04	4.61E-02
Cyanide	2.82E-02	0.00E+00	0.00E+00	0.00E+00	3.92E-03	0.00E+00	3.22E-02	4.68
delta-BHC	7.43E-02	2.02E-04	1.50E-03	4.13E-05	1.03E-02	2.81E-05	8.64E-02	1.26E+01
Dieldrin	0.00E+00	0.00E+00	3.41E-03	1.38E-04	0.00E+00	0.00E+00	3.55E-03	5.17E-01
Endosulfan I	3.22E-04	3.03E-05	0.00E+00	0.00E+00	4.47E-05	4.20E-06	4.01E-04	5.84E-02
Endosulfan II	0.00E+00	0.00E+00	3.33E-09	4.65E-12	0.00E+00	0.00E+00	3.34E-09	4.86E-07
Endosulfan sulfate	0.00E+00	2.17E-06	3.84E-05	1.30E-08	0.00E+00	1.24E-06	4.18E-05	6.08E-03
Endrin	0.00E+00	0.00E+00	5.95E-04	5.68E-05	0.00E+00	0.00E+00	6.51E-04	9.48E-02
gamma-BHC	0.00E+00	0.00E+00	5.50E-04	1.52E-06	0.00E+00	0.00E+00	5.51E-04	8.02E-02
gamma-Chlordane	1.75E-02	0.00E+00	1.25E-01	1.94E-01	2.43E-03	0.00E+00	3.39E-01	4.93E+01
Heptachlor epoxide	0.00E+00	2.98E-03	0.00E+00	0.00E+00	0.00E+00	4.14E-04	3.40E-03	4.94E-01
Isodrin	0.00E+00	0.00E+00	3.20E-04	4.46E-07	0.00E+00	0.00E+00	3.20E-04	4.66E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-02	0.00E+00	1.74E-02	2.53
Silver	1.88E-02	0.00E+00	0.00E+00	0.00E+00	2.61E-02	0.00E+00	4.50E-02	6.55
Vanadium	4.53E-03	0.00E+00	0.00E+00	0.00E+00	6.29E-03	0.00E+00	1.08E-02	1.58
Total by pathway	2.39E-01	5.33E-03	1.48E-01	2.11E-01	8.32E-02	9.86E-04		
% Contribution by path	3.47E+01	7.76E-01	2.15E+01	3.07E+01	1.21E+01	1.43E-01		
Scenario Total							6.87E-01	

Table L-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Shower	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
2,4,5-T	1.49E-04	0.00E+00	0.00E+00	0.00E+00	2.07E-05	0.00E+00	1.70E-04	9.26E-03
4,4'-DDD	9.31E-02	1.82E-03	0.00E+00	0.00E+00	1.29E-02	2.53E-04	1.08E-01	5.89
4,4'-DDE	5.50E-03	1.51E-04	1.37E-04	6.63E-04	7.63E-04	2.10E-05	7.23E-03	3.94E-01
4,4'-DDT	2.30E-04	1.51E-05	8.38E-04	6.57E-04	7.14E-04	4.70E-05	2.50E-03	1.36E-01
Aldrin	0.00E+00	1.14E-03	1.65E-02	5.17E-05	0.00E+00	4.00E-04	1.81E-02	9.88E-01
alpha-Chlordane	6.55E-02	0.00E+00	1.54E-02	3.48E-02	9.09E-03	0.00E+00	1.25E-01	6.8
Arsenic	7.08E-04	0.00E+00	0.00E+00	0.00E+00	9.84E-03	0.00E+00	1.05E-02	5.75E-01
Beryllium	8.19E-06	8.25E-06	0.00E+00	0.00E+00	1.14E-04	1.15E-04	2.45E-04	1.33E-02
beta-BHC	0.00E+00	7.13E-04	0.00E+00	0.00E+00	0.00E+00	9.90E-05	8.12E-04	4.43E-02
Cyanide	8.25E-02	0.00E+00	0.00E+00	0.00E+00	1.15E-02	0.00E+00	9.39E-02	5.12
delta-BHC	1.49E-01	4.29E-04	5.14E-03	2.07E-04	2.07E-02	5.95E-05	1.76E-01	9.59
Dieldrin	0.00E+00	0.00E+00	1.13E-02	6.67E-04	0.00E+00	0.00E+00	1.20E-02	6.55E-01
Endosulfan I	6.68E-04	5.98E-05	0.00E+00	0.00E+00	9.27E-05	8.30E-06	8.29E-04	4.52E-02
Endosulfan II	0.00E+00	0.00E+00	6.92E-09	1.41E-11	0.00E+00	0.00E+00	6.93E-09	3.78E-07
Endosulfan sulfate	0.00E+00	3.36E-06	1.05E-04	5.20E-08	0.00E+00	1.92E-06	1.10E-04	6.02E-03
Endrin	0.00E+00	0.00E+00	2.01E-03	2.80E-04	0.00E+00	0.00E+00	2.29E-03	1.25E-01
gamma-BHC	0.00E+00	0.00E+00	1.77E-03	7.13E-06	0.00E+00	0.00E+00	1.78E-03	9.70E-02
gamma-Chlordane	2.74E-02	0.00E+00	3.38E-01	7.65E-01	3.80E-03	0.00E+00	1.13	6.18E+01
Heptachlor epoxide	0.00E+00	6.50E-03	0.00E+00	0.00E+00	0.00E+00	9.02E-04	7.40E-03	4.04E-01
Isodrin	0.00E+00	0.00E+00	4.66E-04	9.49E-07	0.00E+00	0.00E+00	4.67E-04	2.54E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.82E-02	0.00E+00	4.82E-02	2.63
Silver	3.01E-02	0.00E+00	0.00E+00	0.00E+00	4.18E-02	0.00E+00	7.18E-02	3.92
Vanadium	5.51E-03	0.00E+00	0.00E+00	0.00E+00	7.66E-03	0.00E+00	1.32E-02	7.18E-01
Total by pathway	4.60E-01	1.08E-02	3.92E-01	8.02E-01	1.67E-01	1.91E-03		
% Contribution by path	2.51E+01	5.91E-01	2.14E+01	4.37E+01	9.12	1.04E-01		
Scenario Total							1.83	

Table L-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Shower	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
2,4,5-T	4.31E-04	0.00E+00	0.00E+00	0.00E+00	1.28E-04	0.00E+00	5.59E-04	2.06E-02
4,4'-DDD	1.99E-01	5.23E-03	0.00E+00	0.00E+00	5.94E-02	1.56E-03	2.66E-01	9.8
4,4'-DDE	1.10E-02	3.32E-04	1.41E-04	2.47E-04	3.26E-03	9.87E-05	1.50E-02	5.55E-01
4,4'-DDT	6.47E-04	3.03E-05	1.43E-03	4.04E-04	4.32E-03	2.02E-04	7.03E-03	2.60E-01
Aldrin	0.00E+00	2.38E-03	1.75E-02	1.97E-05	0.00E+00	1.78E-03	2.17E-02	7.99E-01
alpha-Chlordane	2.00E-01	0.00E+00	3.59E-02	2.92E-02	5.96E-02	0.00E+00	3.25E-01	1.20E+01
Arsenic	9.30E-04	0.00E+00	0.00E+00	0.00E+00	2.77E-02	0.00E+00	2.86E-02	1.06
Beryllium	2.74E-05	3.44E-05	0.00E+00	0.00E+00	8.16E-04	1.02E-03	1.90E-03	7.01E-02
beta-BHC	0.00E+00	1.21E-03	0.00E+00	0.00E+00	0.00E+00	3.60E-04	1.57E-03	5.79E-02
Cyanide	1.23E-01	0.00E+00	0.00E+00	0.00E+00	3.66E-02	0.00E+00	1.60E-01	5.89
delta-BHC	3.23E-01	8.80E-04	4.99E-03	7.23E-05	9.63E-02	2.62E-04	4.26E-01	1.57E+01
Dieldrin	0.00E+00	0.00E+00	1.14E-02	2.41E-04	0.00E+00	0.00E+00	1.16E-02	4.29E-01
Endosulfan I	1.40E-03	1.32E-04	0.00E+00	0.00E+00	4.17E-04	3.92E-05	1.99E-03	7.35E-02
Endosulfan II	0.00E+00	0.00E+00	1.11E-08	8.15E-12	0.00E+00	0.00E+00	1.11E-08	4.10E-07
Endosulfan sulfate	0.00E+00	9.44E-06	1.28E-04	2.28E-08	0.00E+00	1.16E-05	1.49E-04	5.49E-03
Endrin	0.00E+00	0.00E+00	1.98E-03	9.95E-05	0.00E+00	0.00E+00	2.08E-03	7.68E-02
gamma-BHC	0.00E+00	0.00E+00	1.83E-03	2.66E-06	0.00E+00	0.00E+00	1.84E-03	6.77E-02
gamma-Chlordane	7.62E-02	0.00E+00	4.17E-01	3.40E-01	2.27E-02	0.00E+00	8.55E-01	3.16E+01
Heptachlor epoxide	0.00E+00	1.30E-02	0.00E+00	0.00E+00	0.00E+00	3.86E-03	1.68E-02	6.21E-01
Isodrin	0.00E+00	0.00E+00	1.07E-03	7.82E-07	0.00E+00	0.00E+00	1.07E-03	3.93E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.63E-01	0.00E+00	1.63E-01	6
Silver	8.20E-02	0.00E+00	0.00E+00	0.00E+00	2.44E-01	0.00E+00	3.26E-01	1.20E+01
Vanadium	1.97E-02	0.00E+00	0.00E+00	0.00E+00	5.88E-02	0.00E+00	7.85E-02	2.9
Total by pathway	1.04	2.32E-02	4.93E-01	3.70E-01	7.77E-01	9.20E-03		
% Contribution by path	3.83E+01	8.57E-01	1.82E+01	1.36E+01	2.87E+01	3.40E-01		
Scenario Total							2.71	

Table L-20
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond C-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Shower	Ingestion of Slud	Ingestion of Sedimen	Total	% Contrib
2,4,5-T	6.49E-04	0.00E+00	0.00E+00	0.00E+00	1.93E-04	0.00E+00	8.42E-04	1.42E-02
4,4'-DDD	4.05E-01	7.93E-03	0.00E+00	0.00E+00	1.21E-01	2.36E-03	5.36E-01	9.01
4,4'-DDE	2.39E-02	6.58E-04	3.19E-04	1.16E-03	7.12E-03	1.96E-04	3.34E-02	5.61E-01
4,4'-DDT	9.99E-04	6.58E-05	1.96E-03	1.15E-03	6.66E-03	4.39E-04	1.13E-02	1.90E-01
Aldrin	0.00E+00	4.98E-03	3.86E-02	9.05E-05	0.00E+00	3.73E-03	4.74E-02	7.97E-01
alpha-Chlordane	2.85E-01	0.00E+00	3.59E-02	6.09E-02	8.48E-02	0.00E+00	4.66E-01	7.84
Arsenic	3.08E-03	0.00E+00	0.00E+00	0.00E+00	9.18E-02	0.00E+00	9.49E-02	1.6
Beryllium	3.56E-05	3.59E-05	0.00E+00	0.00E+00	1.06E-03	1.07E-03	2.20E-03	3.70E-02
beta-BHC	0.00E+00	3.10E-03	0.00E+00	0.00E+00	0.00E+00	9.24E-04	4.03E-03	6.77E-02
Cyanide	3.59E-01	0.00E+00	0.00E+00	0.00E+00	1.07E-01	0.00E+00	4.66E-01	7.83
delta-BHC	6.50E-01	1.87E-03	1.20E-02	3.62E-04	1.93E-01	5.55E-04	8.58E-01	1.44E+01
Dieldrin	0.00E+00	0.00E+00	2.65E-02	1.17E-03	0.00E+00	0.00E+00	2.76E-02	4.65E-01
Endosulfan I	2.91E-03	2.60E-04	0.00E+00	0.00E+00	8.65E-04	7.75E-05	4.11E-03	6.91E-02
Endosulfan II	0.00E+00	0.00E+00	1.61E-08	2.47E-11	0.00E+00	0.00E+00	1.62E-08	2.72E-07
Endosulfan sulfate	0.00E+00	1.46E-05	2.45E-04	9.10E-08	0.00E+00	1.79E-05	2.78E-04	4.67E-03
Endrin	0.00E+00	0.00E+00	4.69E-03	4.91E-04	0.00E+00	0.00E+00	5.18E-03	8.71E-02
gamma-BHC	0.00E+00	0.00E+00	4.13E-03	1.25E-05	0.00E+00	0.00E+00	4.15E-03	6.97E-02
gamma-Chlordane	1.19E-01	0.00E+00	7.88E-01	1.34	3.55E-02	0.00E+00	2.28	3.84E+01
Heptachlor epoxide	0.00E+00	2.83E-02	0.00E+00	0.00E+00	0.00E+00	8.42E-03	3.67E-02	6.17E-01
Isodrin	0.00E+00	0.00E+00	1.09E-03	1.66E-06	0.00E+00	0.00E+00	1.09E-03	1.83E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.50E-01	0.00E+00	4.50E-01	7.57
Silver	1.31E-01	0.00E+00	0.00E+00	0.00E+00	3.90E-01	0.00E+00	5.21E-01	8.75
Vanadium	2.40E-02	0.00E+00	0.00E+00	0.00E+00	7.14E-02	0.00E+00	9.54E-02	1.6
Total by pathway	2	4.72E-02	9.14E-01	1.4	1.56	1.78E-02		
% Contribution by path	3.37E+01	7.94E-01	1.54E+01	2.36E+01	2.62E+01	2.99E-01		
Scenario Total							5.95	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond C (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	9.90E-07	1.49E-06	9.90E-05	1.49E-04	
			4,4'-DDD	5.00E-04	2.29E-05	4.65E-05	4.58E-02	9.31E-02	
			4,4'-DDE	3.89E-03	9.80E-06	2.14E-05	2.52E-03	5.50E-03	
			4,4'-DDT	1.12E-02	1.67E-06	2.57E-06	1.49E-04	2.30E-04	
			alpha-Chlordane	1.48E-05	6.81E-07	9.69E-07	4.60E-02	6.55E-02	
			Arsenic	3.00E-04	6.41E-08	2.13E-07	2.14E-04	7.08E-04	
			Beryllium	5.00E-03	3.15E-08	4.09E-08	6.30E-06	8.19E-06	
			Cyanide	2.00E-02	5.65E-04	1.65E-03	2.82E-02	8.25E-02	
			delta-BHC	2.00E-04	1.49E-05	2.99E-05	7.43E-02	1.49E-01	
			Endosulfan I	2.53E-02	8.15E-06	1.69E-05	3.22E-04	6.68E-04	
			gamma-Chlorda	6.00E-05	1.05E-06	1.64E-06	1.75E-02	2.74E-02	
			Silver	5.00E-03	9.42E-05	1.50E-04	1.88E-02	3.01E-02	
			Vanadium	7.00E-03	3.17E-05	3.86E-05	4.53E-03	5.51E-03	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	6.01E-07	9.11E-07	1.20E-03	1.82E-03	
			4,4'-DDE	3.89E-03	2.96E-07	5.88E-07	7.62E-05	1.51E-04	
			4,4'-DDT	1.12E-02	7.81E-08	1.69E-07	6.97E-06	1.51E-05	
			Aldrin	7.54E-05	4.13E-08	8.63E-08	5.48E-04	1.14E-03	
			Beryllium	5.00E-03	3.95E-08	4.13E-08	7.89E-06	8.25E-06	
			beta-BHC	3.30E-04	9.18E-08	2.35E-07	2.78E-04	7.13E-04	
			delta-BHC	2.00E-04	4.04E-08	8.57E-08	2.02E-04	4.29E-04	
			Endosulfan I	2.53E-02	7.66E-07	1.51E-06	3.03E-05	5.98E-05	
			Endosulfan sulfa	2.47E-02	5.35E-08	8.29E-08	2.17E-06	3.36E-06	
			Heptachlor epox	1.30E-05	3.88E-08	8.45E-08	2.98E-03	6.50E-03	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	1.65E-07	5.32E-07	4.24E-05	1.37E-04	
			4,4'-DDT	5.00E-04	2.15E-07	4.19E-07	4.30E-04	8.38E-04	
			Aldrin	3.00E-05	1.57E-07	4.96E-07	5.24E-03	1.65E-02	
			alpha-Chlordane	1.48E-05	1.59E-07	2.27E-07	1.08E-02	1.54E-02	
			delta-BHC	2.00E-04	2.99E-07	1.03E-06	1.50E-03	5.14E-03	
			Dieldrin	5.00E-05	1.71E-07	5.67E-07	3.41E-03	1.13E-02	
			Endosulfan II	80	2.67E-07	5.53E-07	3.33E-09	6.92E-09	
			Endosulfan sulfa	6.00E-03	2.30E-07	6.30E-07	3.84E-05	1.05E-04	
			Endrin	3.00E-04	1.78E-07	6.03E-07	5.95E-04	2.01E-03	
			gamma-BHC	3.00E-04	1.65E-07	5.32E-07	5.50E-04	1.77E-03	
			gamma-Chlorda	6.00E-05	7.50E-06	2.03E-05	1.25E-01	3.38E-01	
			Isodrin	3.00E-04	9.59E-08	1.40E-07	3.20E-04	4.66E-04	
		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	5.49E-07	2.58E-06	1.41E-04	6.63E-04	
			4,4'-DDT	1.12E-02	2.59E-06	7.36E-06	2.31E-04	6.57E-04	
			Aldrin	7.54E-05	8.47E-10	3.90E-09	1.12E-05	5.17E-05	
			alpha-Chlordane	1.48E-05	2.47E-07	5.14E-07	1.67E-02	3.48E-02	
			delta-BHC	2.00E-04	8.26E-09	4.14E-08	4.13E-05	2.07E-04	
			Dieldrin	6.52E-05	8.97E-09	4.35E-08	1.38E-04	6.67E-04	
			Endosulfan II	80	3.72E-10	1.13E-09	4.65E-12	1.41E-11	
			Endosulfan sulfa	2.47E-02	3.21E-10	1.28E-09	1.30E-08	5.20E-08	
			Endrin	6.00E-04	3.41E-08	1.68E-07	5.68E-05	2.80E-04	
			gamma-BHC	3.00E-03	4.55E-09	2.14E-08	1.52E-06	7.13E-06	
			gamma-Chlorda	6.00E-05	1.16E-05	4.59E-05	1.94E-01	7.65E-01	
			Isodrin	3.00E-04	1.34E-10	2.85E-10	4.46E-07	9.49E-07	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Ind	Reas. Max. Haz. Index	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	1.37E-07	2.07E-07	1.37E-05	2.07E-05	
			4,4'-DDD	5.00E-04	3.18E-06	6.46E-06	6.36E-03	1.29E-02	
			4,4'-DDE	3.89E-03	1.36E-06	2.97E-06	3.50E-04	7.63E-04	
			4,4'-DDT	5.00E-04	2.31E-07	3.57E-07	4.63E-04	7.14E-04	
			alpha-Chlordane	1.48E-05	9.45E-08	1.35E-07	6.39E-03	9.09E-03	
			Arsenic	3.00E-04	8.90E-07	2.95E-06	2.97E-03	9.84E-03	
			Beryllium	5.00E-03	4.37E-07	5.68E-07	8.75E-05	1.14E-04	
			Cyanide	2.00E-02	7.84E-05	2.29E-04	3.92E-03	1.15E-02	
			delta-BHC	2.00E-04	2.06E-06	4.15E-06	1.03E-02	2.07E-02	
			Endosulfan I	2.53E-02	1.13E-06	2.35E-06	4.47E-05	9.27E-05	
			gamma-Chlorda	6.00E-05	1.46E-07	2.28E-07	2.43E-03	3.80E-03	
			Kepone	1.00E-03	1.74E-05	4.82E-05	1.74E-02	4.82E-02	
			Silver	5.00E-03	1.31E-04	2.09E-04	2.61E-02	4.18E-02	
			Vanadium	7.00E-03	4.41E-05	5.36E-05	6.29E-03	7.66E-03	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	8.34E-08	1.26E-07	1.67E-04	2.53E-04	
			4,4'-DDE	3.89E-03	4.11E-08	8.17E-08	1.06E-05	2.10E-05	
			4,4'-DDT	5.00E-04	1.08E-08	2.35E-08	2.17E-05	4.70E-05	
			Aldrin	3.00E-05	5.74E-09	1.20E-08	1.91E-04	4.00E-04	
			Beryllium	5.00E-03	5.48E-07	5.73E-07	1.10E-04	1.15E-04	
			beta-BHC	3.30E-04	1.27E-08	3.27E-08	3.86E-05	9.90E-05	
			delta-BHC	2.00E-04	5.62E-09	1.19E-08	2.81E-05	5.95E-05	
			Endosulfan I	2.53E-02	1.06E-07	2.10E-07	4.20E-06	8.30E-06	
			Endosulfan sulfa	6.00E-03	7.43E-09	1.15E-08	1.24E-06	1.92E-06	
			Heptachlor epox	1.30E-05	5.38E-09	1.17E-08	4.14E-04	9.02E-04	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	4.31E-06	6.49E-06	4.31E-04	6.49E-04	
			4,4'-DDD	5.00E-04	9.97E-05	2.03E-04	1.99E-01	4.05E-01	
			4,4'-DDE	3.89E-03	4.26E-05	9.31E-05	1.10E-02	2.39E-02	
			4,4'-DDT	1.12E-02	7.25E-06	1.12E-05	6.47E-04	9.99E-04	
			alpha-Chlordane	1.48E-05	2.96E-06	4.22E-06	2.00E-01	2.85E-01	
			Arsenic	3.00E-04	2.79E-07	9.25E-07	9.30E-04	3.08E-03	
			Beryllium	5.00E-03	1.37E-07	1.78E-07	2.74E-05	3.56E-05	
			Cyanide	2.00E-02	2.46E-03	7.18E-03	1.23E-01	3.59E-01	
			delta-BHC	2.00E-04	6.47E-05	1.30E-04	3.23E-01	6.50E-01	
			Endosulfan I	2.53E-02	3.55E-05	7.35E-05	1.40E-03	2.91E-03	
			gamma-Chlorda	6.00E-05	4.57E-06	7.15E-06	7.62E-02	1.19E-01	
			Silver	5.00E-03	4.10E-04	6.54E-04	8.20E-02	1.31E-01	
			Vanadium	7.00E-03	1.38E-04	1.68E-04	1.97E-02	2.40E-02	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.61E-06	3.96E-06	5.23E-03	7.93E-03	
			4,4'-DDE	3.89E-03	1.29E-06	2.56E-06	3.32E-04	6.58E-04	
			4,4'-DDT	1.12E-02	3.40E-07	7.37E-07	3.03E-05	6.58E-05	
			Aldrin	7.54E-05	1.80E-07	3.76E-07	2.38E-03	4.98E-03	
			Beryllium	5.00E-03	1.72E-07	1.80E-07	3.44E-05	3.59E-05	
			beta-BHC	3.30E-04	3.99E-07	1.02E-06	1.21E-03	3.10E-03	
			delta-BHC	2.00E-04	1.76E-07	3.73E-07	8.80E-04	1.87E-03	
			Endosulfan I	2.53E-02	3.33E-06	6.58E-06	1.32E-04	2.60E-04	
			Endosulfan sulfa	2.47E-02	2.33E-07	3.61E-07	9.44E-06	1.46E-05	
			Heptachlor epox	1.30E-05	1.69E-07	3.68E-07	1.30E-02	2.83E-02	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	5.50E-07	1.24E-06	1.41E-04	3.19E-04	
			4,4'-DDT	5.00E-04	7.16E-07	9.78E-07	1.43E-03	1.96E-03	
			Aldrin	3.00E-05	5.24E-07	1.16E-06	1.75E-02	3.86E-02	
			alpha-Chlordane	1.48E-05	5.31E-07	5.31E-07	3.59E-02	3.59E-02	
			delta-BHC	2.00E-04	9.97E-07	2.40E-06	4.99E-03	1.20E-02	
			Dieldrin	5.00E-05	5.69E-07	1.32E-06	1.14E-02	2.65E-02	
			Endosulfan II	80	8.89E-07	1.29E-06	1.11E-08	1.61E-08	
			Endosulfan sulfa	6.00E-03	7.67E-07	1.47E-06	1.28E-04	2.45E-04	
			Endrin	3.00E-04	5.95E-07	1.41E-06	1.98E-03	4.69E-03	
			gamma-BHC	3.00E-04	5.50E-07	1.24E-06	1.83E-03	4.13E-03	
			gamma-Chlorda	6.00E-05	2.50E-05	4.73E-05	4.17E-01	7.88E-01	
			Isodrin	3.00E-04	3.20E-07	3.26E-07	1.07E-03	1.09E-03	
		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDE	3.89E-03	9.61E-07	4.51E-06	2.47E-04	1.16E-03	
			4,4'-DDT	1.12E-02	4.53E-06	1.29E-05	4.04E-04	1.15E-03	
			Aldrin	7.54E-05	1.48E-09	6.82E-09	1.97E-05	9.05E-05	
			alpha-Chlordane	1.48E-05	4.32E-07	9.01E-07	2.92E-02	6.09E-02	
			delta-BHC	2.00E-04	1.45E-08	7.24E-08	7.23E-05	3.62E-04	
			Dieldrin	6.52E-05	1.57E-08	7.61E-08	2.41E-04	1.17E-03	
			Endosulfan II	80	6.52E-10	1.97E-09	8.15E-12	2.47E-11	
			Endosulfan sulfa	2.47E-02	5.63E-10	2.25E-09	2.28E-08	9.10E-08	
			Endrin	6.00E-04	5.97E-08	2.94E-07	9.95E-05	4.91E-04	
			gamma-BHC	3.00E-03	7.97E-09	3.75E-08	2.66E-06	1.25E-05	
			gamma-Chlorda	6.00E-05	2.04E-05	8.03E-05	3.40E-01	1.34	
			Isodrin	3.00E-04	2.35E-10	4.98E-10	7.82E-07	1.66E-06	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Ind	Reas. Max. Haz. Index	

Table L-21
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			2,4,5-T	1.00E-02	1.28E-06	1.93E-06	1.28E-04	1.93E-04	
			4,4'-DDD	5.00E-04	2.97E-05	6.03E-05	5.94E-02	1.21E-01	
			4,4'-DDE	3.89E-03	1.27E-05	2.77E-05	3.26E-03	7.12E-03	
			4,4'-DDT	5.00E-04	2.16E-06	3.33E-06	4.32E-03	6.66E-03	
			alpha-Chlordane	1.48E-05	8.82E-07	1.26E-06	5.96E-02	8.48E-02	
			Arsenic	3.00E-04	8.31E-06	2.75E-05	2.77E-02	9.18E-02	
			Beryllium	5.00E-03	4.08E-06	5.31E-06	8.16E-04	1.06E-03	
			Cyanide	2.00E-02	7.32E-04	2.14E-03	3.66E-02	1.07E-01	
			delta-BHC	2.00E-04	1.93E-05	3.87E-05	9.63E-02	1.93E-01	
			Endosulfan I	2.53E-02	1.06E-05	2.19E-05	4.17E-04	8.65E-04	
			gamma-Chlorda	6.00E-05	1.36E-06	2.13E-06	2.27E-02	3.55E-02	
			Kepone	1.00E-03	1.63E-04	4.50E-04	1.63E-01	4.50E-01	
			Silver	5.00E-03	1.22E-03	1.95E-03	2.44E-01	3.90E-01	
			Vanadium	7.00E-03	4.11E-04	5.00E-04	5.88E-02	7.14E-02	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intak	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	7.78E-07	1.18E-06	1.56E-03	2.36E-03	
			4,4'-DDE	3.89E-03	3.84E-07	7.62E-07	9.87E-05	1.96E-04	
			4,4'-DDT	5.00E-04	1.01E-07	2.19E-07	2.02E-04	4.39E-04	
			Aldrin	3.00E-05	5.35E-08	1.12E-07	1.78E-03	3.73E-03	
			Beryllium	5.00E-03	5.11E-06	5.35E-06	1.02E-03	1.07E-03	
			beta-BHC	3.30E-04	1.19E-07	3.05E-07	3.60E-04	9.24E-04	
			delta-BHC	2.00E-04	5.24E-08	1.11E-07	2.62E-04	5.55E-04	
			Endosulfan I	2.53E-02	9.93E-07	1.96E-06	3.92E-05	7.75E-05	
			Endosulfan sulfa	6.00E-03	6.94E-08	1.07E-07	1.16E-05	1.79E-05	
			Heptachlor epox	1.30E-05	5.02E-08	1.09E-07	3.86E-03	8.42E-03	

Table L-22
Cancer Risk Summary
Holloman AFB, New Mexico
Pond C-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediment	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediment	Total	% Contrib
4,4'-DDD	7.07E-07	1.85E-08	0.00E+00	0.00E+00	0.00E+00	9.82E-08	2.57E-09	8.26E-07	7.72
4,4'-DDE	4.28E-07	1.30E-08	7.21E-09	2.40E-08	0.00E+00	5.95E-08	1.80E-09	5.34E-07	4.99
4,4'-DDT	7.28E-08	3.41E-09	9.39E-09	1.13E-07	4.74E-20	1.01E-08	4.74E-10	2.09E-07	1.96
Aldrin	0.00E+00	9.03E-08	3.44E-07	1.85E-09	1.32E-16	0.00E+00	1.25E-08	4.48E-07	4.19
alpha-Chlordane	1.14E-07	0.00E+00	2.66E-08	4.13E-08	4.27E-17	1.58E-08	0.00E+00	1.97E-07	1.85
Beryllium	1.74E-08	2.18E-08	0.00E+00	0.00E+00	0.00E+00	2.42E-07	3.03E-07	5.84E-07	5.46
beta-BHC	0.00E+00	2.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-09	2.42E-08	2.26E-01
Dieldrin	0.00E+00	0.00E+00	3.51E-07	1.85E-08	1.34E-16	0.00E+00	0.00E+00	3.70E-07	3.45
gamma-BHC	0.00E+00	0.00E+00	2.76E-08	7.61E-10	0.00E+00	0.00E+00	0.00E+00	2.83E-08	2.65E-01
gamma-Chlordane	1.76E-07	0.00E+00	1.25E-06	1.94E-06	2.00E-15	2.44E-08	0.00E+00	3.40E-06	3.18E+01
Heptachlor epoxide	0.00E+00	4.53E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.30E-09	5.16E-08	4.83E-01
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.03E-06	0.00E+00	4.03E-06	3.77E+01
Total by pathway	1.51E-06	2.14E-07	2.02E-06	2.14E-06	2.31E-15	4.48E-06	3.30E-07		
% Contribution by pathway	1.42E+01	2	1.89E+01	2.00E+01	2.16E-08	4.19E+01	3.08		
Scenario Total								1.07E-05	
Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediment	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediment	Total	% Contrib
4,4'-DDD	4.79E-06	9.37E-08	0.00E+00	0.00E+00	0.00E+00	6.64E-07	1.30E-08	5.56E-06	5.61
4,4'-DDE	3.12E-06	8.57E-08	7.74E-08	3.76E-07	0.00E+00	4.33E-07	1.19E-08	4.10E-06	4.14
4,4'-DDT	3.75E-07	2.47E-08	6.11E-08	1.07E-06	4.52E-19	5.20E-08	3.43E-09	1.59E-06	1.6
Aldrin	0.00E+00	6.29E-07	3.61E-06	2.84E-08	2.02E-15	0.00E+00	8.73E-08	4.36E-06	4.4
alpha-Chlordane	5.40E-07	0.00E+00	1.27E-07	2.87E-07	2.97E-16	7.49E-08	0.00E+00	1.03E-06	1.04
Beryllium	7.55E-08	7.61E-08	0.00E+00	0.00E+00	0.00E+00	1.05E-06	1.06E-06	2.26E-06	2.28
beta-BHC	0.00E+00	1.81E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-08	2.07E-07	2.09E-01
Dieldrin	0.00E+00	0.00E+00	3.89E-06	2.98E-07	2.17E-15	0.00E+00	0.00E+00	4.19E-06	4.23
gamma-BHC	0.00E+00	0.00E+00	2.96E-07	1.19E-08	0.00E+00	0.00E+00	0.00E+00	3.08E-07	3.11E-01
gamma-Chlordane	9.15E-07	0.00E+00	1.13E-05	2.56E-05	2.65E-14	1.27E-07	0.00E+00	3.79E-05	3.83E+01
Heptachlor epoxide	0.00E+00	3.29E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.57E-08	3.75E-07	3.79E-01
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.72E-05	0.00E+00	3.72E-05	3.76E+01
Total by pathway	9.81E-06	1.42E-06	1.94E-05	2.76E-05	3.10E-14	3.96E-05	1.24E-06		
% Contribution by pathway	9.9	1.43	1.95E+01	2.79E+01	3.13E-08	4.00E+01	1.25		
Scenario Total								9.91E-05	

Table L-23
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond C-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond C (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operati	1.07E-05	9.91E-05

Table L-24
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

Cancer Risk Estimates										
Holloman Risk Assessment - Pond C (future-res)										
Scenario										
	Activity									
		Pathway								
On-Site Residential, Adult - Future (Lagoons Out of Operation)										
	Residents Living On-site									
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.95E-06	1.99E-05	7.07E-07	4.79E-06	
			4,4'-DDE	3.40E-01	B2	1.26E-06	9.16E-06	4.28E-07	3.12E-06	
			4,4'-DDT	3.40E-01	B2	2.14E-07	1.10E-06	7.28E-08	3.75E-07	
			alpha-Chlordane	1.3	B2	8.75E-08	4.15E-07	1.14E-07	5.40E-07	
			Beryllium	4.3	B2	4.05E-09	1.75E-08	1.74E-08	7.55E-08	
			gamma-Chlordan	1.3	B2	1.35E-07	7.04E-07	1.76E-07	9.15E-07	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	7.72E-08	3.90E-07	1.85E-08	9.37E-08	
			4,4'-DDE	3.40E-01	B2	3.81E-08	2.52E-07	1.30E-08	8.57E-08	
			4,4'-DDT	3.40E-01	B2	1.00E-08	7.26E-08	3.41E-09	2.47E-08	
			Aldrin	17	B2	5.31E-09	3.70E-08	9.03E-08	6.29E-07	
			Beryllium	4.3	B2	5.07E-09	1.77E-08	2.18E-08	7.61E-08	
			beta-BHC	1.8	C	1.18E-08	1.01E-07	2.12E-08	1.81E-07	
			Heptachlor epoxi	9.1	B2	4.98E-09	3.62E-08	4.53E-08	3.29E-07	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDE	3.40E-01	B2	2.12E-08	2.28E-07	7.21E-09	7.74E-08	
			4,4'-DDT	3.40E-01	B2	2.76E-08	1.80E-07	9.39E-09	6.11E-08	
			Aldrin	17	B2	2.02E-08	2.13E-07	3.44E-07	3.61E-06	
			alpha-Chlordane	1.3	B2	2.05E-08	9.75E-08	2.66E-08	1.27E-07	
			Dieldrin	16	B2	2.19E-08	2.43E-07	3.51E-07	3.89E-06	
			gamma-BHC	1.3	B2/C	2.12E-08	2.28E-07	2.76E-08	2.96E-07	
			gamma-Chlordan	1.3	B2	9.64E-07	8.69E-06	1.25E-06	1.13E-05	

Table L-24
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond C-Future Residential

		DermalContactWithWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDE	3.40E-01	B2	7.05E-08	1.10E-06	2.40E-08	3.76E-07	
			4,4'-DDT	3.40E-01	B2	3.32E-07	3.15E-06	1.13E-07	1.07E-06	
			Aldrin	17	B2	1.09E-10	1.67E-09	1.85E-09	2.84E-08	
			alpha-Chlordane	1.3	B2	3.18E-08	2.20E-07	4.13E-08	2.87E-07	
			Dieldrin	16	B2	1.15E-09	1.86E-08	1.85E-08	2.98E-07	
			gamma-BHC	1.3	B2/C	5.85E-10	9.17E-09	7.61E-10	1.19E-08	
			gamma-Chlordan	1.3	B2	1.50E-06	1.97E-05	1.94E-06	2.56E-05	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EA	Average Risk	Reas. Max. Risk	
			4,4'-DDT*	9.70E-05	B2	4.88E-16	4.66E-15	4.74E-20	4.52E-19	
			Aldrin*	4.90E-03	B2	2.69E-14	4.13E-13	1.32E-16	2.02E-15	
			alpha-Chlordane*	3.70E-04	B2	1.15E-13	8.02E-13	4.27E-17	2.97E-16	
			Dieldrin*	4.60E-03	B2	2.92E-14	4.72E-13	1.34E-16	2.17E-15	
			gamma-Chlordan	3.70E-04	B2	5.42E-12	7.15E-11	2.00E-15	2.65E-14	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	4.09E-07	2.77E-06	9.82E-08	6.64E-07	
			4,4'-DDE	3.40E-01	B2	1.75E-07	1.27E-06	5.95E-08	4.33E-07	
			4,4'-DDT	3.40E-01	B2	2.97E-08	1.53E-07	1.01E-08	5.20E-08	
			alpha-Chlordane	1.3	B2	1.22E-08	5.76E-08	1.58E-08	7.49E-08	
			Beryllium	4.3	B2	5.62E-08	2.44E-07	2.42E-07	1.05E-06	
			gamma-Chlordan	1.3	B2	1.88E-08	9.77E-08	2.44E-08	1.27E-07	
			Kepone	1.8		2.24E-06	2.07E-05	4.03E-06	3.72E-05	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.07E-08	5.42E-08	2.57E-09	1.30E-08	
			4,4'-DDE	3.40E-01	B2	5.29E-09	3.50E-08	1.80E-09	1.19E-08	
			4,4'-DDT	3.40E-01	B2	1.39E-09	1.01E-08	4.74E-10	3.43E-09	
			Aldrin	17	B2	7.38E-10	5.14E-09	1.25E-08	8.73E-08	
			Beryllium	4.3	B2	7.05E-08	2.46E-07	3.03E-07	1.06E-06	
			beta-BHC	1.8	C	1.64E-09	1.40E-08	2.95E-09	2.52E-08	
			Heptachlor epoxi	9.1	B2	6.92E-10	5.03E-09	6.30E-09	4.57E-08	

Table L-25
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond D-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond D (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Oper	8.10E-02	2.32E-01
On-Site Residential, Child - Future (Lagoons Out of Oper	2.69E-01	5.57E-01

Table L-26
Average Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Average Non-Cancer Hazard Index Summary						
On-Site Residential, Adult - Future (Lagoons Out of Operation)						
	Dermal Contact with Sedim	Ingestion of Groundw	Dermal Contact while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	5.58E-04	0.00E+00	0.00E+00	7.75E-05	6.36E-04	7.86E-01
4,4'-DDE	1.30E-05	0.00E+00	0.00E+00	1.80E-06	1.48E-05	1.82E-02
4,4'-DDT	7.54E-06	1.49E-03	8.00E-04	2.35E-05	2.32E-03	2.86
Aldrin	0.00E+00	8.82E-03	1.89E-05	0.00E+00	8.84E-03	1.09E+01
alpha-BHC	0.00E+00	6.92E-04	3.43E-07	0.00E+00	6.92E-04	8.55E-01
alpha-Chlordane	0.00E+00	7.00E-03	1.09E-02	0.00E+00	1.79E-02	2.21E+01
Arsenic	4.04E-04	0.00E+00	0.00E+00	5.62E-03	6.02E-03	7.44
beta-BHC	1.90E-04	3.89E-04	1.07E-05	2.64E-05	6.17E-04	7.62E-01
delta-BHC	2.18E-04	8.82E-04	2.44E-05	3.02E-05	1.15E-03	1.43
Dieldrin	0.00E+00	9.74E-03	3.93E-04	0.00E+00	1.01E-02	1.25E+01
Endosulfan II	0.00E+00	4.60E-09	6.43E-12	0.00E+00	4.61E-09	5.69E-06
Endosulfan sulfate	4.35E-06	7.26E-05	2.46E-08	2.49E-06	7.94E-05	9.81E-02
Endrin	0.00E+00	3.40E-03	3.25E-04	0.00E+00	3.73E-03	4.6
gamma-BHC	1.24E-05	1.61E-03	4.45E-06	1.72E-05	1.64E-03	2.03
gamma-Chlordane	7.40E-05	6.52E-03	1.01E-02	1.03E-05	1.67E-02	2.07E+01
Heptachlor	2.80E-05	6.94E-04	3.49E-05	7.59E-06	7.65E-04	9.45E-01
Heptachlor epoxide	0.00E+00	8.11E-03	7.95E-04	0.00E+00	8.91E-03	1.10E+01
Isodrin	0.00E+00	6.78E-04	9.47E-07	0.00E+00	6.79E-04	8.38E-01
Methoxychlor	0.00E+00	1.48E-04	1.36E-08	0.00E+00	1.48E-04	1.82E-01
Total by pathway	1.51E-03	5.03E-02	2.34E-02	5.81E-03		
% Contribution by path	1.87	6.21E+01	2.89E+01	7.18		
Scenario Total					8.10E-02	

Table L-26
Average Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary						
On-Site Residential, Adult - Future (Lagoons Out of Operation)						
	Dermal Contact with Sedim	Ingestion of Groundw	Dermal Contact while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	1.53E-03	0.00E+00	0.00E+00	2.12E-04	1.74E-03	7.50E-01
4,4'-DDE	3.07E-05	0.00E+00	0.00E+00	4.26E-06	3.49E-05	1.51E-02
4,4'-DDT	1.65E-04	4.06E-03	3.18E-03	5.12E-04	7.92E-03	3.41
Aldrin	0.00E+00	2.43E-02	7.59E-05	0.00E+00	2.44E-02	1.05E+01
alpha-BHC	0.00E+00	1.63E-03	1.18E-06	0.00E+00	1.63E-03	7.01E-01
alpha-Chlordane	0.00E+00	1.39E-02	3.14E-02	0.00E+00	4.53E-02	1.95E+01
Arsenic	5.52E-04	0.00E+00	0.00E+00	7.67E-03	8.22E-03	3.54
beta-BHC	3.47E-04	7.47E-04	3.01E-05	4.82E-05	1.17E-03	5.05E-01
delta-BHC	4.04E-04	1.99E-03	8.00E-05	5.60E-05	2.53E-03	1.09
Dieldrin	0.00E+00	3.22E-02	1.89E-03	0.00E+00	3.41E-02	1.47E+01
Endosulfan II	0.00E+00	9.01E-09	1.83E-11	0.00E+00	9.03E-09	3.89E-06
Endosulfan sulfate	8.71E-06	1.19E-04	5.90E-08	4.98E-06	1.33E-04	5.72E-02
Endrin	0.00E+00	1.04E-02	1.45E-03	0.00E+00	1.18E-02	5.09
gamma-BHC	2.20E-05	4.27E-03	1.72E-05	3.06E-05	4.34E-03	1.87
gamma-Chlordane	7.40E-05	2.10E-02	4.75E-02	1.03E-05	6.86E-02	2.95E+01
Heptachlor	5.21E-05	1.62E-03	1.19E-04	1.41E-05	1.81E-03	7.78E-01
Heptachlor epoxide	0.00E+00	1.43E-02	2.05E-03	0.00E+00	1.64E-02	7.05
Isodrin	0.00E+00	1.73E-03	3.52E-06	0.00E+00	1.73E-03	7.45E-01
Methoxychlor	0.00E+00	3.51E-04	4.70E-08	0.00E+00	3.51E-04	1.51E-01
Total by pathway	3.18E-03	1.33E-01	8.78E-02	8.56E-03		
% Contribution by path	1.37	5.71E+01	3.78E+01	3.69		
Scenario Total					2.32E-01	

Table L-26
Average Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Average Non-Cancer Hazard Index Summary						
On-Site Residential, Child - Future (Lagoons Out of Operation)						
	Dermal Contact with Sedim	Ingestion of Groundw	Dermal Contact while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	2.43E-03	0.00E+00	0.00E+00	7.24E-04	3.15E-03	1.17
4,4'-DDE	5.64E-05	0.00E+00	0.00E+00	1.68E-05	7.32E-05	2.72E-02
4,4'-DDT	3.28E-05	4.96E-03	1.40E-03	2.19E-04	6.61E-03	2.46
Aldrin	0.00E+00	2.94E-02	3.31E-05	0.00E+00	2.94E-02	1.09E+01
alpha-BHC	0.00E+00	2.31E-03	6.01E-07	0.00E+00	2.31E-03	8.56E-01
alpha-Chlordane	0.00E+00	2.33E-02	1.90E-02	0.00E+00	4.23E-02	1.57E+01
Arsenic	1.76E-03	0.00E+00	0.00E+00	5.24E-02	5.42E-02	2.01E+01
beta-BHC	8.28E-04	1.30E-03	1.88E-05	2.46E-04	2.39E-03	8.88E-01
delta-BHC	9.47E-04	2.94E-03	4.26E-05	2.82E-04	4.21E-03	1.56
Dieldrin	0.00E+00	3.25E-02	6.87E-04	0.00E+00	3.32E-02	1.23E+01
Endosulfan II	0.00E+00	1.53E-08	1.13E-11	0.00E+00	1.54E-08	5.70E-06
Endosulfan sulfate	1.89E-05	2.42E-04	4.31E-08	2.32E-05	2.84E-04	1.05E-01
Endrin	0.00E+00	1.13E-02	5.69E-04	0.00E+00	1.19E-02	4.42
gamma-BHC	5.38E-05	5.37E-03	7.79E-06	1.60E-04	5.59E-03	2.08
gamma-Chlordane	3.22E-04	2.17E-02	1.77E-02	9.59E-05	3.99E-02	1.48E+01
Heptachlor	1.22E-04	2.31E-03	6.11E-05	7.08E-05	2.57E-03	9.54E-01
Heptachlor epoxide	0.00E+00	2.70E-02	1.39E-03	0.00E+00	2.84E-02	1.06E+01
Isodrin	0.00E+00	2.26E-03	1.66E-06	0.00E+00	2.26E-03	8.39E-01
Methoxychlor	0.00E+00	4.92E-04	2.38E-08	0.00E+00	4.92E-04	1.83E-01
Total by pathway	6.57E-03	1.68E-01	4.09E-02	5.43E-02		
% Contribution by path	2.44	6.22E+01	1.52E+01	2.01E+01		
Scenario Total					2.69E-01	

Table L-26
Average Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary						
On-Site Residential, Child - Future (Lagoons Out of Operation)						
	Dermal Contact with Sedim	Ingestion of Groundw	Dermal Contact while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	6.66E-03	0.00E+00	0.00E+00	1.98E-03	8.64E-03	1.55
4,4'-DDE	1.34E-04	0.00E+00	0.00E+00	3.98E-05	1.73E-04	3.11E-02
4,4'-DDT	7.17E-04	9.47E-03	5.57E-03	4.78E-03	2.05E-02	3.69
Aldrin	0.00E+00	5.67E-02	1.33E-04	0.00E+00	5.68E-02	1.02E+01
alpha-BHC	0.00E+00	3.80E-03	2.06E-06	0.00E+00	3.80E-03	6.82E-01
alpha-Chlordane	0.00E+00	3.24E-02	5.50E-02	0.00E+00	8.74E-02	1.57E+01
Arsenic	2.40E-03	0.00E+00	0.00E+00	7.16E-02	7.40E-02	1.33E+01
beta-BHC	1.51E-03	1.74E-03	5.27E-05	4.49E-04	3.76E-03	6.74E-01
delta-BHC	1.76E-03	4.63E-03	1.40E-04	5.23E-04	7.05E-03	1.27
Dieldrin	0.00E+00	7.52E-02	3.32E-03	0.00E+00	7.85E-02	1.41E+01
Endosulfan II	0.00E+00	2.10E-08	3.21E-11	0.00E+00	2.10E-08	3.78E-06
Endosulfan sulfate	3.79E-05	2.78E-04	1.03E-07	4.65E-05	3.63E-04	6.51E-02
Endrin	0.00E+00	2.42E-02	2.53E-03	0.00E+00	2.67E-02	4.8
gamma-BHC	9.59E-05	9.97E-03	3.01E-05	2.86E-04	1.04E-02	1.86
gamma-Chlordane	3.22E-04	4.90E-02	8.32E-02	9.59E-05	1.33E-01	2.38E+01
Heptachlor	2.27E-04	3.78E-03	2.08E-04	1.32E-04	4.35E-03	7.81E-01
Heptachlor epoxide	0.00E+00	3.34E-02	3.58E-03	0.00E+00	3.70E-02	6.65
Isodrin	0.00E+00	4.03E-03	6.16E-06	0.00E+00	4.03E-03	7.24E-01
Methoxychlor	0.00E+00	8.18E-04	8.23E-08	0.00E+00	8.18E-04	1.47E-01
Total by pathway	1.39E-02	3.09E-01	1.54E-01	7.99E-02		
% Contribution by path	2.49	5.56E+01	2.76E+01	1.43E+01		
Scenario Total					5.57E-01	

Table L-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond D (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.79E-07	7.65E-07	5.58E-04	1.53E-03	
			4,4'-DDE	3.89E-03	5.04E-08	1.19E-07	1.30E-05	3.07E-05	
			4,4'-DDT	1.12E-02	8.45E-08	1.84E-06	7.54E-06	1.65E-04	
			Arsenic	3.00E-04	1.21E-07	1.66E-07	4.04E-04	5.52E-04	
			beta-BHC	3.30E-04	6.27E-08	1.14E-07	1.90E-04	3.47E-04	
			delta-BHC	2.00E-04	4.35E-08	8.07E-08	2.18E-04	4.04E-04	
			Endosulfan sulfat	2.47E-02	1.08E-07	2.15E-07	4.35E-06	8.71E-06	
			gamma-BHC	3.00E-03	3.71E-08	6.61E-08	1.24E-05	2.20E-05	
			gamma-Chlordan	6.00E-05	4.44E-09	4.44E-09	7.40E-05	7.40E-05	
			Heptachlor	9.75E-04	2.73E-08	5.08E-08	2.80E-05	5.21E-05	

Table L-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	7.44E-07	2.03E-06	1.49E-03	4.06E-03	
			Aldrin	3.00E-05	2.65E-07	7.29E-07	8.82E-03	2.43E-02	
			alpha-BHC	4.16E-04	2.88E-07	6.77E-07	6.92E-04	1.63E-03	
			alpha-Chlordane	1.48E-05	1.04E-07	2.05E-07	7.00E-03	1.39E-02	
			beta-BHC	3.30E-04	1.28E-07	2.47E-07	3.89E-04	7.47E-04	
			delta-BHC	2.00E-04	1.76E-07	3.97E-07	8.82E-04	1.99E-03	
			Dieldrin	5.00E-05	4.87E-07	1.61E-06	9.74E-03	3.22E-02	
			Endosulfan II	80	3.68E-07	7.21E-07	4.60E-09	9.01E-09	
			Endosulfan sulfat	6.00E-03	4.35E-07	7.15E-07	7.26E-05	1.19E-04	
			Endrin	3.00E-04	1.02E-06	3.11E-06	3.40E-03	1.04E-02	
			gamma-BHC	3.00E-04	4.83E-07	1.28E-06	1.61E-03	4.27E-03	
			gamma-Chlordan	6.00E-05	3.91E-07	1.26E-06	6.52E-03	2.10E-02	
			Heptachlor	5.00E-04	3.47E-07	8.11E-07	6.94E-04	1.62E-03	
			Heptachlor epoxi	1.30E-05	1.05E-07	1.86E-07	8.11E-03	1.43E-02	
			Isodrin	3.00E-04	2.03E-07	5.18E-07	6.78E-04	1.73E-03	
			Methoxychlor	5.00E-03	7.38E-07	1.75E-06	1.48E-04	3.51E-04	
		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDT	1.12E-02	8.96E-06	3.56E-05	8.00E-04	3.18E-03	
			Aldrin	7.54E-05	1.43E-09	5.73E-09	1.89E-05	7.59E-05	
			alpha-BHC	1.17E-03	4.02E-10	1.38E-09	3.43E-07	1.18E-06	
			alpha-Chlordane	1.48E-05	1.61E-07	4.65E-07	1.09E-02	3.14E-02	
			beta-BHC	3.30E-04	3.55E-09	9.93E-09	1.07E-05	3.01E-05	
			delta-BHC	2.00E-04	4.87E-09	1.60E-08	2.44E-05	8.00E-05	
			Dieldrin	6.52E-05	2.56E-08	1.23E-07	3.93E-04	1.89E-03	
			Endosulfan II	80	5.14E-10	1.47E-09	6.43E-12	1.83E-11	
			Endosulfan sulfat	2.47E-02	6.08E-10	1.46E-09	2.46E-08	5.90E-08	
			Endrin	6.00E-04	1.95E-07	8.68E-07	3.25E-04	1.45E-03	
			gamma-BHC	3.00E-03	1.33E-08	5.16E-08	4.45E-06	1.72E-05	
			gamma-Chlordan	6.00E-05	6.07E-07	2.85E-06	1.01E-02	4.75E-02	
			Heptachlor	9.75E-04	3.40E-08	1.16E-07	3.49E-05	1.19E-04	
			Heptachlor epoxi	1.30E-05	1.03E-08	2.66E-08	7.95E-04	2.05E-03	
			Isodrin	3.00E-04	2.84E-10	1.05E-09	9.47E-07	3.52E-06	
			Methoxychlor	7.60E-02	1.03E-09	3.57E-09	1.36E-08	4.70E-08	

Table L-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EA	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.88E-08	1.06E-07	7.75E-05	2.12E-04	
			4,4'-DDE	3.89E-03	7.00E-09	1.66E-08	1.80E-06	4.26E-06	
			4,4'-DDT	5.00E-04	1.17E-08	2.56E-07	2.35E-05	5.12E-04	
			Arsenic	3.00E-04	1.68E-06	2.30E-06	5.62E-03	7.67E-03	
			beta-BHC	3.30E-04	8.71E-09	1.59E-08	2.64E-05	4.82E-05	
			delta-BHC	2.00E-04	6.04E-09	1.12E-08	3.02E-05	5.60E-05	
			Endosulfan sulfat	6.00E-03	1.49E-08	2.99E-08	2.49E-06	4.98E-06	
			gamma-BHC	3.00E-04	5.15E-09	9.18E-09	1.72E-05	3.06E-05	
			gamma-Chlordan	6.00E-05	6.16E-10	6.16E-10	1.03E-05	1.03E-05	
			Heptachlor	5.00E-04	3.79E-09	7.05E-09	7.59E-06	1.41E-05	
On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.22E-06	3.33E-06	2.43E-03	6.66E-03	
			4,4'-DDE	3.89E-03	2.19E-07	5.20E-07	5.64E-05	1.34E-04	
			4,4'-DDT	1.12E-02	3.68E-07	8.03E-06	3.28E-05	7.17E-04	
			Arsenic	3.00E-04	5.28E-07	7.21E-07	1.76E-03	2.40E-03	
			beta-BHC	3.30E-04	2.73E-07	4.98E-07	8.28E-04	1.51E-03	
			delta-BHC	2.00E-04	1.89E-07	3.51E-07	9.47E-04	1.76E-03	
			Endosulfan sulfat	2.47E-02	4.68E-07	9.36E-07	1.89E-05	3.79E-05	
			gamma-BHC	3.00E-03	1.61E-07	2.88E-07	5.38E-05	9.59E-05	
			gamma-Chlordan	6.00E-05	1.93E-08	1.93E-08	3.22E-04	3.22E-04	
			Heptachlor	9.75E-04	1.19E-07	2.21E-07	1.22E-04	2.27E-04	

Table L-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.48E-06	4.74E-06	4.96E-03	9.47E-03	
			Aldrin	3.00E-05	8.82E-07	1.70E-06	2.94E-02	5.67E-02	
			alpha-BHC	4.16E-04	9.59E-07	1.58E-06	2.31E-03	3.80E-03	
			alpha-Chlordane	1.48E-05	3.45E-07	4.79E-07	2.33E-02	3.24E-02	
			beta-BHC	3.30E-04	4.28E-07	5.75E-07	1.30E-03	1.74E-03	
			delta-BHC	2.00E-04	5.88E-07	9.27E-07	2.94E-03	4.63E-03	
			Dieldrin	5.00E-05	1.62E-06	3.76E-06	3.25E-02	7.52E-02	
			Endosulfan II	80	1.23E-06	1.68E-06	1.53E-08	2.10E-08	
			Endosulfan sulfat	6.00E-03	1.45E-06	1.67E-06	2.42E-04	2.78E-04	
			Endrin	3.00E-04	3.40E-06	7.26E-06	1.13E-02	2.42E-02	
			gamma-BHC	3.00E-04	1.61E-06	2.99E-06	5.37E-03	9.97E-03	
			gamma-Chlordan	6.00E-05	1.30E-06	2.94E-06	2.17E-02	4.90E-02	
			Heptachlor	5.00E-04	1.16E-06	1.89E-06	2.31E-03	3.78E-03	
			Heptachlor epoxi	1.30E-05	3.52E-07	4.35E-07	2.70E-02	3.34E-02	
			Isodrin	3.00E-04	6.78E-07	1.21E-06	2.26E-03	4.03E-03	
			Methoxychlor	5.00E-03	2.46E-06	4.09E-06	4.92E-04	8.18E-04	
		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDT	1.12E-02	1.57E-05	6.24E-05	1.40E-03	5.57E-03	
			Aldrin	7.54E-05	2.50E-09	1.00E-08	3.31E-05	1.33E-04	
			alpha-BHC	1.17E-03	7.04E-10	2.41E-09	6.01E-07	2.06E-06	
			alpha-Chlordane	1.48E-05	2.81E-07	8.14E-07	1.90E-02	5.50E-02	
			beta-BHC	3.30E-04	6.21E-09	1.74E-08	1.88E-05	5.27E-05	
			delta-BHC	2.00E-04	8.53E-09	2.80E-08	4.26E-05	1.40E-04	
			Dieldrin	6.52E-05	4.48E-08	2.16E-07	6.87E-04	3.32E-03	
			Endosulfan II	80	9.01E-10	2.57E-09	1.13E-11	3.21E-11	
			Endosulfan sulfat	2.47E-02	1.06E-09	2.55E-09	4.31E-08	1.03E-07	
			Endrin	6.00E-04	3.42E-07	1.52E-06	5.69E-04	2.53E-03	
			gamma-BHC	3.00E-03	2.34E-08	9.04E-08	7.79E-06	3.01E-05	
			gamma-Chlordan	6.00E-05	1.06E-06	4.99E-06	1.77E-02	8.32E-02	
			Heptachlor	9.75E-04	5.95E-08	2.03E-07	6.11E-05	2.08E-04	
			Heptachlor epoxi	1.30E-05	1.81E-08	4.66E-08	1.39E-03	3.58E-03	
			Isodrin	3.00E-04	4.97E-10	1.85E-09	1.66E-06	6.16E-06	
			Methoxychlor	7.60E-02	1.81E-09	6.25E-09	2.38E-08	8.23E-08	

Table L-27
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EA	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Int	Average Haz. Ind	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.62E-07	9.91E-07	7.24E-04	1.98E-03	
			4,4'-DDE	3.89E-03	6.53E-08	1.55E-07	1.68E-05	3.98E-05	
			4,4'-DDT	5.00E-04	1.09E-07	2.39E-06	2.19E-04	4.78E-03	
			Arsenic	3.00E-04	1.57E-05	2.15E-05	5.24E-02	7.16E-02	
			beta-BHC	3.30E-04	8.13E-08	1.48E-07	2.46E-04	4.49E-04	
			delta-BHC	2.00E-04	5.64E-08	1.05E-07	2.82E-04	5.23E-04	
			Endosulfan sulfat	6.00E-03	1.39E-07	2.79E-07	2.32E-05	4.65E-05	
			gamma-BHC	3.00E-04	4.81E-08	8.57E-08	1.60E-04	2.86E-04	
			gamma-Chlordan	6.00E-05	5.75E-09	5.75E-09	9.59E-05	9.59E-05	
			Heptachlor	5.00E-04	3.54E-08	6.58E-08	7.08E-05	1.32E-04	

Table L-28
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond D-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond D (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Opera	3.03E-06	3.15E-05

Table L-29
Cancer Risk Summary
Holloman AFB, New Mexico
Pond D-Future Residential

Average Cancer Risk							
On-Site Residential, Adult - Future (Lagoons Out of Operation)							
	Dermal Contact with Sedi	Ingestion of Groundw	Dermal Contact while Showe	Inhalation while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	8.62E-09	0.00E+00	0.00E+00	0.00E+00	1.20E-09	9.81E-09	3.23E-01
4,4'-DDE	2.20E-09	0.00E+00	0.00E+00	0.00E+00	3.06E-10	2.51E-09	8.27E-02
4,4'-DDT	3.69E-09	3.25E-08	3.92E-07	1.65E-19	5.13E-10	4.28E-07	1.41E+01
Aldrin	0.00E+00	5.78E-07	3.12E-09	2.22E-16	0.00E+00	5.82E-07	1.92E+01
alpha-BHC	0.00E+00	2.33E-07	3.25E-10	3.19E-16	0.00E+00	2.33E-07	7.69
alpha-Chlordane	0.00E+00	1.73E-08	2.69E-08	2.78E-17	0.00E+00	4.42E-08	1.46
beta-BHC	1.45E-08	2.97E-08	8.21E-10	4.35E-20	2.02E-09	4.71E-08	1.55
Dieldrin	0.00E+00	1.00E-06	5.27E-08	3.82E-16	0.00E+00	1.05E-06	3.48E+01
gamma-BHC	6.20E-09	8.08E-08	2.23E-09	0.00E+00	8.61E-10	9.01E-08	2.97
gamma-Chlordane	7.42E-10	6.54E-08	1.01E-07	1.05E-16	1.03E-10	1.68E-07	5.53
Heptachlor	1.58E-08	2.01E-07	1.97E-08	9.64E-18	2.20E-09	2.39E-07	7.86
Heptachlor epoxide	0.00E+00	1.23E-07	1.21E-08	5.85E-18	0.00E+00	1.35E-07	4.47
Total by pathway	5.18E-08	2.36E-06	6.11E-07	1.07E-15	7.19E-09		
% Contribution by path	1.71	7.79E+01	2.01E+01	3.53E-08	2.37E-01		
Scenario Total						3.03E-06	
Reas. Max. Cancer Risk							
On-Site Residential, Adult - Future (Lagoons Out of Operation)							
	Dermal Contact with Sedi	Ingestion of Groundw	Dermal Contact while Showe	Inhalation while Shower	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	7.86E-08	0.00E+00	0.00E+00	0.00E+00	1.09E-08	8.96E-08	2.85E-01
4,4'-DDE	1.74E-08	0.00E+00	0.00E+00	0.00E+00	2.42E-09	1.98E-08	6.30E-02
4,4'-DDT	2.69E-07	2.96E-07	5.19E-06	2.18E-18	3.73E-08	5.80E-06	1.84E+01
Aldrin	0.00E+00	5.31E-06	4.17E-08	2.96E-15	0.00E+00	5.35E-06	1.70E+01
alpha-BHC	0.00E+00	1.83E-06	3.72E-09	3.64E-15	0.00E+00	1.83E-06	5.82
alpha-Chlordane	0.00E+00	1.14E-07	2.59E-07	2.68E-16	0.00E+00	3.73E-07	1.19
beta-BHC	8.83E-08	1.90E-07	7.66E-09	4.05E-19	1.23E-08	2.98E-07	9.49E-01
Dieldrin	0.00E+00	1.10E-05	8.46E-07	6.16E-15	0.00E+00	1.19E-05	3.78E+01
gamma-BHC	3.68E-08	7.14E-07	2.88E-08	0.00E+00	5.11E-09	7.85E-07	2.5
gamma-Chlordane	2.47E-09	7.02E-07	1.59E-06	1.64E-15	3.43E-10	2.29E-06	7.29
Heptachlor	9.80E-08	1.56E-06	2.23E-07	1.09E-16	1.36E-08	1.90E-06	6.04
Heptachlor epoxide	0.00E+00	7.27E-07	1.04E-07	5.03E-17	0.00E+00	8.30E-07	2.64
Total by pathway	5.90E-07	2.25E-05	8.30E-06	1.48E-14	8.20E-08		
% Contribution by path	1.88	7.15E+01	2.64E+01	4.71E-08	2.61E-01		
Scenario Total						3.15E-05	

Table L-30
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

Cancer Risk Estimates										
Holloman Risk Assessment - Pond D (future-res)										
Scenario										
	Activity									
		Pathway								
On-Site Residential, Adult - Future (Lagoons Out of Operation)										
	Residents Living On-site									
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.59E-08	3.28E-07	8.62E-09	7.86E-08	
			4,4'-DDE	3.40E-01	B2	6.48E-09	5.12E-08	2.20E-09	1.74E-08	
			4,4'-DDT	3.40E-01	B2	1.09E-08	7.91E-07	3.69E-09	2.69E-07	
			beta-BHC	1.8	C	8.07E-09	4.90E-08	1.45E-08	8.83E-08	
			gamma-BHC	1.3	B2/C	4.77E-09	2.83E-08	6.20E-09	3.68E-08	
			gamma-Chlordan	1.3	B2	5.71E-10	1.90E-09	7.42E-10	2.47E-09	
			Heptachlor	4.5	B2	3.51E-09	2.18E-08	1.58E-08	9.80E-08	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDT	3.40E-01	B2	9.57E-08	8.70E-07	3.25E-08	2.96E-07	
			Aldrin	17	B2	3.40E-08	3.12E-07	5.78E-07	5.31E-06	
			alpha-BHC	6.3	B2	3.70E-08	2.90E-07	2.33E-07	1.83E-06	
			alpha-Chlordane	1.3	B2	1.33E-08	8.81E-08	1.73E-08	1.14E-07	
			beta-BHC	1.8	C	1.65E-08	1.06E-07	2.97E-08	1.90E-07	
			Dieldrin	16	B2	6.26E-08	6.90E-07	1.00E-06	1.10E-05	
			gamma-BHC	1.3	B2/C	6.21E-08	5.50E-07	8.08E-08	7.14E-07	
			gamma-Chlordan	1.3	B2	5.03E-08	5.40E-07	6.54E-08	7.02E-07	
			Heptachlor	4.5	B2	4.46E-08	3.48E-07	2.01E-07	1.56E-06	
			Heptachlor epoxi	9.1	B2	1.36E-08	7.98E-08	1.23E-07	7.27E-07	

Table L-30
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond D-Future Residential

		DermalContactWithWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDT	3.40E-01	B2	1.15E-06	1.53E-05	3.92E-07	5.19E-06	
			Aldrin	17	B2	1.83E-10	2.45E-09	3.12E-09	4.17E-08	
			alpha-BHC	6.3	B2	5.17E-11	5.91E-10	3.25E-10	3.72E-09	
			alpha-Chlordane	1.3	B2	2.07E-08	1.99E-07	2.69E-08	2.59E-07	
			beta-BHC	1.8	C	4.56E-10	4.25E-09	8.21E-10	7.66E-09	
			Dieldrin	16	B2	3.29E-09	5.29E-08	5.27E-08	8.46E-07	
			gamma-BHC	1.3	B2/C	1.72E-09	2.21E-08	2.23E-09	2.88E-08	
			gamma-Chlordan	1.3	B2	7.80E-08	1.22E-06	1.01E-07	1.59E-06	
			Heptachlor	4.5	B2	4.37E-09	4.96E-08	1.97E-08	2.23E-07	
			Heptachlor epoxi	9.1	B2	1.33E-09	1.14E-08	1.21E-08	1.04E-07	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EA	Average Risk	Reas. Max. Risk	
			4,4'-DDT*	9.70E-05	B2	1.70E-15	2.25E-14	1.65E-19	2.18E-18	
			Aldrin*	4.90E-03	B2	4.53E-14	6.04E-13	2.22E-16	2.96E-15	
			alpha-BHC*	1.80E-03	B2	1.77E-13	2.02E-12	3.19E-16	3.64E-15	
			alpha-Chlordane*	3.70E-04	B2	7.50E-14	7.25E-13	2.78E-17	2.68E-16	
			beta-BHC*	5.30E-04	C	8.21E-17	7.65E-16	4.35E-20	4.05E-19	
			Dieldrin*	4.60E-03	B2	8.30E-14	1.34E-12	3.82E-16	6.16E-15	
			gamma-Chlordan	3.70E-04	B2	2.83E-13	4.44E-12	1.05E-16	1.64E-15	
			Heptachlor*	1.30E-03	B2	7.42E-15	8.42E-14	9.64E-18	1.09E-16	
			Heptachlor epoxi	2.60E-03	B2	2.25E-15	1.93E-14	5.85E-18	5.03E-17	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	4.98E-09	4.55E-08	1.20E-09	1.09E-08	
			4,4'-DDE	3.40E-01	B2	9.00E-10	7.10E-09	3.06E-10	2.42E-09	
			4,4'-DDT	3.40E-01	B2	1.51E-09	1.10E-07	5.13E-10	3.73E-08	
			beta-BHC	1.8	C	1.12E-09	6.81E-09	2.02E-09	1.23E-08	
			gamma-BHC	1.3	B2/C	6.62E-10	3.93E-09	8.61E-10	5.11E-09	
			gamma-Chlordan	1.3	B2	7.93E-11	2.64E-10	1.03E-10	3.43E-10	
			Heptachlor	4.5	B2	4.88E-10	3.02E-09	2.20E-09	1.36E-08	

Table L-31
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New mexico
Pond E-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond E (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	6.76E+01	6.79E+01
On-Site Residential, Child - Future (Lagoons Out of Operation)	3.36E+02	3.36E+02

Table L-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	1.98E-02	2.52E-04	0.00E+00	0.00E+00	2.75E-03	3.50E-05	2.28E-02	3.37E-02
4,4'-DDE	9.30E-04	6.19E-06	0.00E+00	0.00E+00	1.29E-04	8.59E-07	1.07E-03	1.58E-03
4,4'-DDT	8.91E-05	2.56E-06	1.49E-03	8.00E-04	2.77E-04	7.96E-06	2.67E-03	3.94E-03
Aldrin	0.00E+00	1.93E-04	8.82E-03	1.89E-05	0.00E+00	6.72E-05	9.10E-03	1.35E-02
alpha-BHC	0.00E+00	1.24E-05	6.92E-04	3.43E-07	0.00E+00	4.85E-06	7.09E-04	1.05E-03
alpha-Chlordane	0.00E+00	8.42E-04	7.00E-03	1.09E-02	0.00E+00	1.17E-04	1.88E-02	2.78E-02
Antimony	1.63E-02	1.63E-02	0.00E+00	0.00E+00	2.26E-02	2.26E-02	7.78E-02	1.15E-01
Arsenic	5.43E-04	5.39E-04	0.00E+00	0.00E+00	7.53E-03	7.49E-03	1.61E-02	2.38E-02
beta-BHC	0.00E+00	1.51E-04	3.89E-04	1.07E-05	0.00E+00	2.10E-05	5.72E-04	8.46E-04
delta-BHC	0.00E+00	1.42E-04	8.82E-04	2.44E-05	0.00E+00	1.97E-05	1.07E-03	1.58E-03
Dieldrin	0.00E+00	0.00E+00	9.74E-03	3.93E-04	0.00E+00	0.00E+00	1.01E-02	1.50E-02
Endosulfan II	0.00E+00	4.20E-10	4.60E-09	6.43E-12	0.00E+00	5.83E-11	5.09E-09	7.52E-09
Endosulfan sulfate	0.00E+00	1.37E-06	7.26E-05	2.46E-08	0.00E+00	7.80E-07	7.47E-05	1.10E-04
Endrin	0.00E+00	0.00E+00	3.40E-03	3.25E-04	0.00E+00	0.00E+00	3.73E-03	5.51E-03
gamma-BHC	2.22E-04	0.00E+00	1.61E-03	4.45E-06	3.08E-04	0.00E+00	2.14E-03	3.17E-03
gamma-Chlordane	2.55E-02	3.04E-04	6.52E-03	1.01E-02	3.54E-03	4.22E-05	4.60E-02	6.80E-02
Heptachlor	5.97E-03	1.42E-05	6.94E-04	3.49E-05	1.62E-03	3.84E-06	8.33E-03	1.23E-02
Heptachlor epoxide	5.92E+01	0.00E+00	8.11E-03	7.95E-04	8.22	0.00E+00	6.74E+01	9.97E+01
Isodrin	0.00E+00	0.00E+00	6.78E-04	9.47E-07	0.00E+00	0.00E+00	6.79E-04	1.00E-03
Methoxychlor	0.00E+00	0.00E+00	1.48E-04	1.36E-08	0.00E+00	0.00E+00	1.48E-04	2.18E-04
Total by pathway	5.93E+01	1.87E-02	5.03E-02	2.34E-02	8.26	3.04E-02		
% Contribution by pathway	8.76E+01	2.77E-02	7.43E-02	3.46E-02	1.22E+01	4.50E-02		
Scenario Total							6.76E+01	

Table L-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	5.23E-02	5.77E-04	0.00E+00	0.00E+00	7.26E-03	8.02E-05	6.02E-02	8.87E-02
4,4'-DDE	2.08E-03	9.59E-06	0.00E+00	0.00E+00	2.88E-04	1.33E-06	2.38E-03	3.50E-03
4,4'-DDT	1.11E-04	2.81E-06	4.06E-03	3.18E-03	3.45E-04	8.75E-06	7.71E-03	1.14E-02
Aldrin	0.00E+00	2.21E-04	2.43E-02	7.59E-05	0.00E+00	7.72E-05	2.47E-02	3.63E-02
alpha-BHC	0.00E+00	1.35E-05	1.63E-03	1.18E-06	0.00E+00	5.27E-06	1.65E-03	2.43E-03
alpha-Chlordane	0.00E+00	9.60E-04	1.39E-02	3.14E-02	0.00E+00	1.33E-04	4.64E-02	6.84E-02
Antimony	1.63E-02	1.63E-02	0.00E+00	0.00E+00	2.26E-02	2.26E-02	7.78E-02	1.15E-01
Arsenic	7.53E-04	6.96E-04	0.00E+00	0.00E+00	1.05E-02	9.66E-03	2.16E-02	3.18E-02
beta-BHC	0.00E+00	2.63E-04	7.47E-04	3.01E-05	0.00E+00	3.65E-05	1.08E-03	1.59E-03
delta-BHC	0.00E+00	2.43E-04	1.99E-03	8.00E-05	0.00E+00	3.38E-05	2.34E-03	3.45E-03
Dieldrin	0.00E+00	0.00E+00	3.22E-02	1.89E-03	0.00E+00	0.00E+00	3.41E-02	5.03E-02
Endosulfan II	0.00E+00	5.18E-10	9.01E-09	1.83E-11	0.00E+00	7.20E-11	9.62E-09	1.42E-08
Endosulfan sulfate	0.00E+00	2.06E-06	1.19E-04	5.90E-08	0.00E+00	1.17E-06	1.22E-04	1.80E-04
Endrin	0.00E+00	0.00E+00	1.04E-02	1.45E-03	0.00E+00	0.00E+00	1.18E-02	1.74E-02
gamma-BHC	3.15E-04	0.00E+00	4.27E-03	1.72E-05	4.37E-04	0.00E+00	5.04E-03	7.43E-03
gamma-Chlordane	5.16E-02	4.50E-04	2.10E-02	4.75E-02	7.17E-03	6.24E-05	1.28E-01	1.88E-01
Heptachlor	5.97E-03	1.62E-05	1.62E-03	1.19E-04	1.62E-03	4.40E-06	9.35E-03	1.38E-02
Heptachlor epoxide	5.92E+01	0.00E+00	1.43E-02	2.05E-03	8.22	0.00E+00	6.74E+01	9.94E+01
Isodrin	0.00E+00	0.00E+00	1.73E-03	3.52E-06	0.00E+00	0.00E+00	1.73E-03	2.55E-03
Methoxychlor	0.00E+00	0.00E+00	3.51E-04	4.70E-08	0.00E+00	0.00E+00	3.51E-04	5.17E-04
Total by pathway	5.93E+01	1.97E-02	1.33E-01	8.78E-02	8.27	3.27E-02		
% Contribution by pathway	8.74E+01	2.91E-02	1.95E-01	1.29E-01	1.22E+01	4.82E-02		
Scenario Total							6.79E+01	

Table L-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	8.61E-02	1.10E-03	0.00E+00	0.00E+00	2.56E-02	3.26E-04	1.13E-01	3.37E-02
4,4'-DDE	4.05E-03	2.69E-05	0.00E+00	0.00E+00	1.21E-03	8.02E-06	5.29E-03	1.58E-03
4,4'-DDT	3.88E-04	1.11E-05	4.96E-03	1.40E-03	2.59E-03	7.43E-05	9.42E-03	2.81E-03
Aldrin	0.00E+00	8.38E-04	2.94E-02	3.31E-05	0.00E+00	6.27E-04	3.09E-02	9.21E-03
alpha-BHC	0.00E+00	5.40E-05	2.31E-03	6.01E-07	0.00E+00	4.52E-05	2.40E-03	7.17E-04
alpha-Chlordane	0.00E+00	3.67E-03	2.33E-02	1.90E-02	0.00E+00	1.09E-03	4.71E-02	1.40E-02
Antimony	7.09E-02	7.09E-02	0.00E+00	0.00E+00	2.11E-01	2.11E-01	5.64E-01	1.68E-01
Arsenic	2.36E-03	2.35E-03	0.00E+00	0.00E+00	7.03E-02	6.99E-02	1.45E-01	4.32E-02
beta-BHC	0.00E+00	6.58E-04	1.30E-03	1.88E-05	0.00E+00	1.96E-04	2.17E-03	6.47E-04
delta-BHC	0.00E+00	6.17E-04	2.94E-03	4.26E-05	0.00E+00	1.84E-04	3.78E-03	1.13E-03
Dieldrin	0.00E+00	0.00E+00	3.25E-02	6.87E-04	0.00E+00	0.00E+00	3.32E-02	9.88E-03
Endosulfan II	0.00E+00	1.83E-09	1.53E-08	1.13E-11	0.00E+00	5.44E-10	1.77E-08	5.28E-09
Endosulfan sulfate	0.00E+00	5.94E-06	2.42E-04	4.31E-08	0.00E+00	7.28E-06	2.55E-04	7.60E-05
Endrin	0.00E+00	0.00E+00	1.13E-02	5.69E-04	0.00E+00	0.00E+00	1.19E-02	3.55E-03
gamma-BHC	9.65E-04	0.00E+00	5.37E-03	7.79E-06	2.87E-03	0.00E+00	9.21E-03	2.75E-03
gamma-Chlordane	1.11E-01	1.32E-03	2.17E-02	1.77E-02	3.30E-02	3.94E-04	1.85E-01	5.52E-02
Heptachlor	2.60E-02	6.17E-05	2.31E-03	6.11E-05	1.51E-02	3.58E-05	4.35E-02	1.30E-02
Heptachlor epoxide	2.58E+02	0.00E+00	2.70E-02	1.39E-03	7.67E+01	0.00E+00	3.34E+02	9.96E+01
Isodrin	0.00E+00	0.00E+00	2.26E-03	1.66E-06	0.00E+00	0.00E+00	2.26E-03	6.74E-04
Methoxychlor	0.00E+00	0.00E+00	4.92E-04	2.38E-08	0.00E+00	0.00E+00	4.92E-04	1.47E-04
Total by pathway	2.58E+02	8.16E-02	1.68E-01	4.09E-02	7.71E+01	2.84E-01		
% Contribution by pathway	7.69E+01	2.43E-02	4.99E-02	1.22E-02	2.30E+01	8.46E-02		
Scenario Total							3.36E+02	

Table L-32
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	2.28E-01	2.51E-03	0.00E+00	0.00E+00	6.78E-02	7.48E-04	2.99E-01	8.88E-02
4,4'-DDE	9.04E-03	4.17E-05	0.00E+00	0.00E+00	2.69E-03	1.24E-05	1.18E-02	3.51E-03
4,4'-DDT	4.83E-04	1.22E-05	9.47E-03	5.57E-03	3.22E-03	8.17E-05	1.88E-02	5.60E-03
Aldrin	0.00E+00	9.63E-04	5.67E-02	1.33E-04	0.00E+00	7.21E-04	5.85E-02	1.74E-02
alpha-BHC	0.00E+00	5.88E-05	3.80E-03	2.06E-06	0.00E+00	4.92E-05	3.91E-03	1.16E-03
alpha-Chlordane	0.00E+00	4.18E-03	3.24E-02	5.50E-02	0.00E+00	1.24E-03	9.28E-02	2.76E-02
Antimony	7.09E-02	7.09E-02	0.00E+00	0.00E+00	2.11E-01	2.11E-01	5.64E-01	1.68E-01
Arsenic	3.28E-03	3.03E-03	0.00E+00	0.00E+00	9.76E-02	9.01E-02	1.94E-01	5.77E-02
beta-BHC	0.00E+00	1.14E-03	1.74E-03	5.27E-05	0.00E+00	3.40E-04	3.28E-03	9.75E-04
delta-BHC	0.00E+00	1.06E-03	4.63E-03	1.40E-04	0.00E+00	3.16E-04	6.15E-03	1.83E-03
Dieldrin	0.00E+00	0.00E+00	7.52E-02	3.32E-03	0.00E+00	0.00E+00	7.85E-02	2.33E-02
Endosulfan II	0.00E+00	2.26E-09	2.10E-08	3.21E-11	0.00E+00	6.72E-10	2.40E-08	7.13E-09
Endosulfan sulfate	0.00E+00	8.95E-06	2.78E-04	1.03E-07	0.00E+00	1.10E-05	2.98E-04	8.87E-05
Endrin	0.00E+00	0.00E+00	2.42E-02	2.53E-03	0.00E+00	0.00E+00	2.67E-02	7.95E-03
gamma-BHC	1.37E-03	0.00E+00	9.97E-03	3.01E-05	4.08E-03	0.00E+00	1.55E-02	4.60E-03
gamma-Chlordane	2.25E-01	1.96E-03	4.90E-02	8.32E-02	6.69E-02	5.83E-04	4.26E-01	1.27E-01
Heptachlor	2.60E-02	7.07E-05	3.78E-03	2.08E-04	1.51E-02	4.10E-05	4.52E-02	1.34E-02
Heptachlor epoxide	2.58E+02	0.00E+00	3.34E-02	3.58E-03	7.67E+01	0.00E+00	3.34E+02	9.95E+01
Isodrin	0.00E+00	0.00E+00	4.03E-03	6.16E-06	0.00E+00	0.00E+00	4.03E-03	1.20E-03
Methoxychlor	0.00E+00	0.00E+00	8.18E-04	8.23E-08	0.00E+00	0.00E+00	8.18E-04	2.43E-04
Total by pathway	2.58E+02	8.59E-02	3.09E-01	1.54E-01	7.72E+01	3.05E-01		
% Contribution by pathway	7.68E+01	2.55E-02	9.20E-02	4.57E-02	2.30E+01	9.08E-02		
Scenario Total							3.36E+02	

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

Non-Cancer Risk Estimates								
Holloman Risk Assessment - Pond E (future-res)								
Scenario								
	Activity							
		Pathway						
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Residents Living On-site							
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	9.90E-06	2.61E-05	1.98E-02	5.23E-02
			4,4'-DDE	3.89E-03	3.62E-06	8.08E-06	9.30E-04	2.08E-03
			4,4'-DDT	1.12E-02	9.98E-07	1.24E-06	8.91E-05	1.11E-04
			Antimony	4.00E-04	6.51E-06	6.51E-06	1.63E-02	1.63E-02
			Arsenic	3.00E-04	1.63E-07	2.26E-07	5.43E-04	7.53E-04
			gamma-BHC	3.00E-03	6.65E-07	9.44E-07	2.22E-04	3.15E-04
			gamma-Chlordane	6.00E-05	1.53E-06	3.10E-06	2.55E-02	5.16E-02
			Heptachlor	9.75E-04	5.82E-06	5.82E-06	5.97E-03	5.97E-03
			Heptachlor epoxide	1.30E-05	7.70E-04	7.70E-04	5.92E+01	5.92E+01
		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.26E-07	2.89E-07	2.52E-04	5.77E-04
			4,4'-DDE	3.89E-03	2.41E-08	3.73E-08	6.19E-06	9.59E-06
			4,4'-DDT	1.12E-02	2.87E-08	3.15E-08	2.56E-06	2.81E-06
			Aldrin	7.54E-05	1.45E-08	1.67E-08	1.93E-04	2.21E-04
			alpha-BHC	1.17E-03	1.45E-08	1.58E-08	1.24E-05	1.35E-05
			alpha-Chlordane	1.48E-05	1.25E-08	1.42E-08	8.42E-04	9.60E-04
			Antimony	4.00E-04	6.51E-06	6.51E-06	1.63E-02	1.63E-02
			Arsenic	3.00E-04	1.62E-07	2.09E-07	5.39E-04	6.96E-04
			beta-BHC	3.30E-04	4.99E-08	8.66E-08	1.51E-04	2.63E-04
			delta-BHC	2.00E-04	2.83E-08	4.87E-08	1.42E-04	2.43E-04
			Endosulfan II	80	3.36E-08	4.15E-08	4.20E-10	5.18E-10
			Endosulfan sulfate	2.47E-02	3.37E-08	5.08E-08	1.37E-06	2.06E-06
			gamma-Chlordane	6.00E-05	1.83E-08	2.70E-08	3.04E-04	4.50E-04
			Heptachlor	9.75E-04	1.38E-08	1.58E-08	1.42E-05	1.62E-05

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

		IngestionOfDrinkingWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	7.44E-07	2.03E-06	1.49E-03	4.06E-03
			Aldrin	3.00E-05	2.65E-07	7.29E-07	8.82E-03	2.43E-02
			alpha-BHC	4.16E-04	2.88E-07	6.77E-07	6.92E-04	1.63E-03
			alpha-Chlordane	1.48E-05	1.04E-07	2.05E-07	7.00E-03	1.39E-02
			beta-BHC	3.30E-04	1.28E-07	2.47E-07	3.89E-04	7.47E-04
			delta-BHC	2.00E-04	1.76E-07	3.97E-07	8.82E-04	1.99E-03
			Dieldrin	5.00E-05	4.87E-07	1.61E-06	9.74E-03	3.22E-02
			Endosulfan II	80	3.68E-07	7.21E-07	4.60E-09	9.01E-09
			Endosulfan sulfate	6.00E-03	4.35E-07	7.15E-07	7.26E-05	1.19E-04
			Endrin	3.00E-04	1.02E-06	3.11E-06	3.40E-03	1.04E-02
			gamma-BHC	3.00E-04	4.83E-07	1.28E-06	1.61E-03	4.27E-03
			gamma-Chlordane	6.00E-05	3.91E-07	1.26E-06	6.52E-03	2.10E-02
			Heptachlor	5.00E-04	3.47E-07	8.11E-07	6.94E-04	1.62E-03
			Heptachlor epoxide	1.30E-05	1.05E-07	1.86E-07	8.11E-03	1.43E-02
			Isodrin	3.00E-04	2.03E-07	5.18E-07	6.78E-04	1.73E-03
			Methoxychlor	5.00E-03	7.38E-07	1.75E-06	1.48E-04	3.51E-04
		DermalContactWithWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	1.12E-02	8.96E-06	3.56E-05	8.00E-04	3.18E-03
			Aldrin	7.54E-05	1.43E-09	5.73E-09	1.89E-05	7.59E-05
			alpha-BHC	1.17E-03	4.02E-10	1.38E-09	3.43E-07	1.18E-06
			alpha-Chlordane	1.48E-05	1.61E-07	4.65E-07	1.09E-02	3.14E-02
			beta-BHC	3.30E-04	3.55E-09	9.93E-09	1.07E-05	3.01E-05
			delta-BHC	2.00E-04	4.87E-09	1.60E-08	2.44E-05	8.00E-05
			Dieldrin	6.52E-05	2.56E-08	1.23E-07	3.93E-04	1.89E-03
			Endosulfan II	80	5.14E-10	1.47E-09	6.43E-12	1.83E-11
			Endosulfan sulfate	2.47E-02	6.08E-10	1.46E-09	2.46E-08	5.90E-08
			Endrin	6.00E-04	1.95E-07	8.68E-07	3.25E-04	1.45E-03
			gamma-BHC	3.00E-03	1.33E-08	5.16E-08	4.45E-06	1.72E-05
			gamma-Chlordane	6.00E-05	6.07E-07	2.85E-06	1.01E-02	4.75E-02
			Heptachlor	9.75E-04	3.40E-08	1.16E-07	3.49E-05	1.19E-04
			Heptachlor epoxide	1.30E-05	1.03E-08	2.66E-08	7.95E-04	2.05E-03
			Isodrin	3.00E-04	2.84E-10	1.05E-09	9.47E-07	3.52E-06
			Methoxychlor	7.60E-02	1.03E-09	3.57E-09	1.36E-08	4.70E-08
		InhalationOfVapor: Shower vapors						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

		IngestionOfSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.37E-06	3.63E-06	2.75E-03	7.26E-03
			4,4'-DDE	3.89E-03	5.02E-07	1.12E-06	1.29E-04	2.88E-04
			4,4'-DDT	5.00E-04	1.39E-07	1.73E-07	2.77E-04	3.45E-04
			Antimony	4.00E-04	9.04E-06	9.04E-06	2.26E-02	2.26E-02
			Arsenic	3.00E-04	2.26E-06	3.14E-06	7.53E-03	1.05E-02
			gamma-BHC	3.00E-04	9.23E-08	1.31E-07	3.08E-04	4.37E-04
			gamma-Chlordane	6.00E-05	2.12E-07	4.30E-07	3.54E-03	7.17E-03
			Heptachlor	5.00E-04	8.08E-07	8.08E-07	1.62E-03	1.62E-03
			Heptachlor epoxide	1.30E-05	1.07E-04	1.07E-04	8.22	8.22
		IngestionOfSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.75E-08	4.01E-08	3.50E-05	8.02E-05
			4,4'-DDE	3.89E-03	3.34E-09	5.18E-09	8.59E-07	1.33E-06
			4,4'-DDT	5.00E-04	3.98E-09	4.38E-09	7.96E-06	8.75E-06
			Aldrin	3.00E-05	2.02E-09	2.32E-09	6.72E-05	7.72E-05
			alpha-BHC	4.16E-04	2.02E-09	2.19E-09	4.85E-06	5.27E-06
			alpha-Chlordane	1.48E-05	1.73E-09	1.97E-09	1.17E-04	1.33E-04
			Antimony	4.00E-04	9.04E-06	9.04E-06	2.26E-02	2.26E-02
			Arsenic	3.00E-04	2.25E-06	2.90E-06	7.49E-03	9.66E-03
			beta-BHC	3.30E-04	6.93E-09	1.20E-08	2.10E-05	3.65E-05
			delta-BHC	2.00E-04	3.93E-09	6.76E-09	1.97E-05	3.38E-05
			Endosulfan II	80	4.66E-09	5.76E-09	5.83E-11	7.20E-11
			Endosulfan sulfate	6.00E-03	4.68E-09	7.05E-09	7.80E-07	1.17E-06
			gamma-Chlordane	6.00E-05	2.53E-09	3.74E-09	4.22E-05	6.24E-05
			Heptachlor	5.00E-04	1.92E-09	2.20E-09	3.84E-06	4.40E-06
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Residents Living On-site							
		DermalContactWithSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	4.31E-05	1.14E-04	8.61E-02	2.28E-01
			4,4'-DDE	3.89E-03	1.58E-05	3.52E-05	4.05E-03	9.04E-03
			4,4'-DDT	1.12E-02	4.35E-06	5.41E-06	3.88E-04	4.83E-04
			Antimony	4.00E-04	2.83E-05	2.83E-05	7.09E-02	7.09E-02
			Arsenic	3.00E-04	7.09E-07	9.83E-07	2.36E-03	3.28E-03
			gamma-BHC	3.00E-03	2.89E-06	4.11E-06	9.65E-04	1.37E-03
			gamma-Chlordane	6.00E-05	6.66E-06	1.35E-05	1.11E-01	2.25E-01
			Heptachlor	9.75E-04	2.53E-05	2.53E-05	2.60E-02	2.60E-02
			Heptachlor epoxide	1.30E-05	3.35E-03	3.35E-03	2.58E+02	2.58E+02

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

		DermalContactWithSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	5.48E-07	1.26E-06	1.10E-03	2.51E-03
			4,4'-DDE	3.89E-03	1.05E-07	1.62E-07	2.69E-05	4.17E-05
			4,4'-DDT	1.12E-02	1.25E-07	1.37E-07	1.11E-05	1.22E-05
			Aldrin	7.54E-05	6.32E-08	7.26E-08	8.38E-04	9.63E-04
			alpha-BHC	1.17E-03	6.32E-08	6.87E-08	5.40E-05	5.88E-05
			alpha-Chlordane	1.48E-05	5.42E-08	6.18E-08	3.67E-03	4.18E-03
			Antimony	4.00E-04	2.83E-05	2.83E-05	7.09E-02	7.09E-02
			Arsenic	3.00E-04	7.04E-07	9.08E-07	2.35E-03	3.03E-03
			beta-BHC	3.30E-04	2.17E-07	3.77E-07	6.58E-04	1.14E-03
			delta-BHC	2.00E-04	1.23E-07	2.12E-07	6.17E-04	1.06E-03
			Endosulfan II	80	1.46E-07	1.80E-07	1.83E-09	2.26E-09
			Endosulfan sulfate	2.47E-02	1.47E-07	2.21E-07	5.94E-06	8.95E-06
			gamma-Chlordane	6.00E-05	7.94E-08	1.17E-07	1.32E-03	1.96E-03
			Heptachlor	9.75E-04	6.02E-08	6.89E-08	6.17E-05	7.07E-05
		IngestionOfDrinkingWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	5.00E-04	2.48E-06	4.74E-06	4.96E-03	9.47E-03
			Aldrin	3.00E-05	8.82E-07	1.70E-06	2.94E-02	5.67E-02
			alpha-BHC	4.16E-04	9.59E-07	1.58E-06	2.31E-03	3.80E-03
			alpha-Chlordane	1.48E-05	3.45E-07	4.79E-07	2.33E-02	3.24E-02
			beta-BHC	3.30E-04	4.28E-07	5.75E-07	1.30E-03	1.74E-03
			delta-BHC	2.00E-04	5.88E-07	9.27E-07	2.94E-03	4.63E-03
			Dieldrin	5.00E-05	1.62E-06	3.76E-06	3.25E-02	7.52E-02
			Endosulfan II	80	1.23E-06	1.68E-06	1.53E-08	2.10E-08
			Endosulfan sulfate	6.00E-03	1.45E-06	1.67E-06	2.42E-04	2.78E-04
			Endrin	3.00E-04	3.40E-06	7.26E-06	1.13E-02	2.42E-02
			gamma-BHC	3.00E-04	1.61E-06	2.99E-06	5.37E-03	9.97E-03
			gamma-Chlordane	6.00E-05	1.30E-06	2.94E-06	2.17E-02	4.90E-02
			Heptachlor	5.00E-04	1.16E-06	1.89E-06	2.31E-03	3.78E-03
			Heptachlor epoxide	1.30E-05	3.52E-07	4.35E-07	2.70E-02	3.34E-02
			Isodrin	3.00E-04	6.78E-07	1.21E-06	2.26E-03	4.03E-03
			Methoxychlor	5.00E-03	2.46E-06	4.09E-06	4.92E-04	8.18E-04

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

		DermalContactWithWater: Groundwater						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDT	1.12E-02	1.57E-05	6.24E-05	1.40E-03	5.57E-03
			Aldrin	7.54E-05	2.50E-09	1.00E-08	3.31E-05	1.33E-04
			alpha-BHC	1.17E-03	7.04E-10	2.41E-09	6.01E-07	2.06E-06
			alpha-Chlordane	1.48E-05	2.81E-07	8.14E-07	1.90E-02	5.50E-02
			beta-BHC	3.30E-04	6.21E-09	1.74E-08	1.88E-05	5.27E-05
			delta-BHC	2.00E-04	8.53E-09	2.80E-08	4.26E-05	1.40E-04
			Dieldrin	6.52E-05	4.48E-08	2.16E-07	6.87E-04	3.32E-03
			Endosulfan II	80	9.01E-10	2.57E-09	1.13E-11	3.21E-11
			Endosulfan sulfate	2.47E-02	1.06E-09	2.55E-09	4.31E-08	1.03E-07
			Endrin	6.00E-04	3.42E-07	1.52E-06	5.69E-04	2.53E-03
			gamma-BHC	3.00E-03	2.34E-08	9.04E-08	7.79E-06	3.01E-05
			gamma-Chlordane	6.00E-05	1.06E-06	4.99E-06	1.77E-02	8.32E-02
			Heptachlor	9.75E-04	5.95E-08	2.03E-07	6.11E-05	2.08E-04
			Heptachlor epoxide	1.30E-05	1.81E-08	4.66E-08	1.39E-03	3.58E-03
			Isodrin	3.00E-04	4.97E-10	1.85E-09	1.66E-06	6.16E-06
			Methoxychlor	7.60E-02	1.81E-09	6.25E-09	2.38E-08	8.23E-08
		InhalationOfVapor: Shower vapors						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index
		IngestionOfSoil: Sludge						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.28E-05	3.39E-05	2.56E-02	6.78E-02
			4,4'-DDE	3.89E-03	4.69E-06	1.05E-05	1.21E-03	2.69E-03
			4,4'-DDT	5.00E-04	1.29E-06	1.61E-06	2.59E-03	3.22E-03
			Antimony	4.00E-04	8.44E-05	8.44E-05	2.11E-01	2.11E-01
			Arsenic	3.00E-04	2.11E-05	2.93E-05	7.03E-02	9.76E-02
			gamma-BHC	3.00E-04	8.62E-07	1.22E-06	2.87E-03	4.08E-03
			gamma-Chlordane	6.00E-05	1.98E-06	4.01E-06	3.30E-02	6.69E-02
			Heptachlor	5.00E-04	7.54E-06	7.54E-06	1.51E-02	1.51E-02
			Heptachlor epoxide	1.30E-05	9.97E-04	9.97E-04	7.67E+01	7.67E+01

Table L-33
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E- Future Residential

		IngestionOfSoil: Soil						
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index
			4,4'-DDD	5.00E-04	1.63E-07	3.74E-07	3.26E-04	7.48E-04
			4,4'-DDE	3.89E-03	3.12E-08	4.83E-08	8.02E-06	1.24E-05
			4,4'-DDT	5.00E-04	3.71E-08	4.08E-08	7.43E-05	8.17E-05
			Aldrin	3.00E-05	1.88E-08	2.16E-08	6.27E-04	7.21E-04
			alpha-BHC	4.16E-04	1.88E-08	2.05E-08	4.52E-05	4.92E-05
			alpha-Chlordane	1.48E-05	1.62E-08	1.84E-08	1.09E-03	1.24E-03
			Antimony	4.00E-04	8.44E-05	8.44E-05	2.11E-01	2.11E-01
			Arsenic	3.00E-04	2.10E-05	2.70E-05	6.99E-02	9.01E-02
			beta-BHC	3.30E-04	6.46E-08	1.12E-07	1.96E-04	3.40E-04
			delta-BHC	2.00E-04	3.67E-08	6.31E-08	1.84E-04	3.16E-04
			Endosulfan II	80	4.35E-08	5.37E-08	5.44E-10	6.72E-10
			Endosulfan sulfate	6.00E-03	4.37E-08	6.58E-08	7.28E-06	1.10E-05
			gamma-Chlordane	6.00E-05	2.37E-08	3.50E-08	3.94E-04	5.83E-04
			Heptachlor	5.00E-04	1.79E-08	2.05E-08	3.58E-05	4.10E-05

Table L-34
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond E-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond E (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	1.03E-03	3.47E-03

Table L-35
Cancer Risk Summary
Holloman AFB, New Mexico
Pond E-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	3.05E-07	3.89E-09	0.00E+00	0.00E+00	0.00E+00	4.24E-08	5.40E-10	3.52E-07	3.41E-02
4,4'-DDE	1.58E-07	1.05E-09	0.00E+00	0.00E+00	0.00E+00	2.20E-08	1.46E-10	1.81E-07	1.76E-02
4,4'-DDT	4.36E-08	1.25E-09	3.25E-08	3.92E-07	1.65E-19	6.06E-09	1.74E-10	4.75E-07	4.60E-02
Aldrin	0.00E+00	3.17E-08	5.78E-07	3.12E-09	2.22E-16	0.00E+00	4.41E-09	6.18E-07	5.98E-02
alpha-BHC	0.00E+00	1.18E-08	2.33E-07	3.25E-10	3.19E-16	0.00E+00	1.63E-09	2.47E-07	2.39E-02
alpha-Chlordane	0.00E+00	2.08E-09	1.73E-08	2.69E-08	2.78E-17	0.00E+00	2.89E-10	4.65E-08	4.50E-03
beta-BHC	0.00E+00	1.15E-08	2.97E-08	8.21E-10	4.35E-20	0.00E+00	1.60E-09	4.37E-08	4.23E-03
Dieldrin	0.00E+00	0.00E+00	1.00E-06	5.27E-08	3.82E-16	0.00E+00	0.00E+00	1.05E-06	1.02E-01
gamma-BHC	1.11E-07	0.00E+00	8.08E-08	2.23E-09	0.00E+00	1.54E-08	0.00E+00	2.10E-07	2.03E-02
gamma-Chlordane	2.56E-07	3.05E-09	6.54E-08	1.01E-07	1.05E-16	3.55E-08	4.24E-10	4.61E-07	4.47E-02
Heptachlor	3.37E-06	8.00E-09	2.01E-07	1.97E-08	9.64E-18	4.68E-07	1.11E-09	4.06E-06	3.93E-01
Heptachlor epoxide	9.00E-04	0.00E+00	1.23E-07	1.21E-08	5.85E-18	1.25E-04	0.00E+00	1.03E-03	9.92E+01
Total by pathway	9.05E-04	7.44E-08	2.36E-06	6.11E-07	1.07E-15	1.26E-04	1.03E-08		
% Contribution by pathwa	8.75E+01	7.20E-03	2.29E-01	5.91E-02	1.04E-10	1.22E+01	9.99E-04		
Scenario Total								1.03E-03	
Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	2.69E-06	2.97E-08	0.00E+00	0.00E+00	0.00E+00	3.73E-07	4.12E-09	3.10E-06	8.93E-02
4,4'-DDE	1.18E-06	5.43E-09	0.00E+00	0.00E+00	0.00E+00	1.63E-07	7.54E-10	1.35E-06	3.88E-02
4,4'-DDT	1.81E-07	4.59E-09	2.96E-07	5.19E-06	2.18E-18	2.52E-08	6.38E-10	5.70E-06	1.64E-01
Aldrin	0.00E+00	1.22E-07	5.31E-06	4.17E-08	2.96E-15	0.00E+00	1.69E-08	5.49E-06	1.58E-01
alpha-BHC	0.00E+00	4.26E-08	1.83E-06	3.72E-09	3.64E-15	0.00E+00	5.92E-09	1.88E-06	5.42E-02
alpha-Chlordane	0.00E+00	7.91E-09	1.14E-07	2.59E-07	2.68E-16	0.00E+00	1.10E-09	3.83E-07	1.10E-02
beta-BHC	0.00E+00	6.68E-08	1.90E-07	7.66E-09	4.05E-19	0.00E+00	9.28E-09	2.74E-07	7.90E-03
Dieldrin	0.00E+00	0.00E+00	1.10E-05	8.46E-07	6.16E-15	0.00E+00	0.00E+00	1.19E-05	3.43E-01
gamma-BHC	5.26E-07	0.00E+00	7.14E-07	2.88E-08	0.00E+00	7.31E-08	0.00E+00	1.34E-06	3.87E-02
gamma-Chlordane	1.73E-06	1.50E-08	7.02E-07	1.59E-06	1.64E-15	2.40E-07	2.09E-09	4.27E-06	1.23E-01
Heptachlor	1.12E-05	3.05E-08	1.56E-06	2.23E-07	1.09E-16	1.56E-06	4.24E-09	1.46E-05	4.21E-01
Heptachlor epoxide	3.00E-03	0.00E+00	7.27E-07	1.04E-07	5.03E-17	4.17E-04	0.00E+00	3.42E-03	9.86E+01
Total by pathway	3.02E-03	3.24E-07	2.25E-05	8.30E-06	1.48E-14	4.19E-04	4.50E-08		
% Contribution by pathwa	8.70E+01	9.35E-03	6.48E-01	2.39E-01	4.28E-10	1.21E+01	1.30E-03		
Scenario Total								3.47E-03	

Table L-36
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E-Future Residential

Cancer Risk Estimates									
Holloman Risk Assessment - Pond E (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.27E-06	1.12E-05	3.05E-07	2.69E-06
			4,4'-DDE	3.40E-01	B2	4.65E-07	3.46E-06	1.58E-07	1.18E-06
			4,4'-DDT	3.40E-01	B2	1.28E-07	5.33E-07	4.36E-08	1.81E-07
			gamma-BHC	1.3	B2/C	8.55E-08	4.05E-07	1.11E-07	5.26E-07
			gamma-Chlordane	1.3	B2	1.97E-07	1.33E-06	2.56E-07	1.73E-06
			Heptachlor	4.5	B2	7.48E-07	2.49E-06	3.37E-06	1.12E-05
			Heptachlor epoxide	9.1	B2	9.89E-05	3.30E-04	9.00E-04	3.00E-03
		DermalContactWithSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.62E-08	1.24E-07	3.89E-09	2.97E-08
			4,4'-DDE	3.40E-01	B2	3.09E-09	1.60E-08	1.05E-09	5.43E-09
			4,4'-DDT	3.40E-01	B2	3.69E-09	1.35E-08	1.25E-09	4.59E-09
			Aldrin	17	B2	1.87E-09	7.15E-09	3.17E-08	1.22E-07
			alpha-BHC	6.3	B2	1.87E-09	6.77E-09	1.18E-08	4.26E-08
			alpha-Chlordane	1.3	B2	1.60E-09	6.09E-09	2.08E-09	7.91E-09
			beta-BHC	1.8	C	6.41E-09	3.71E-08	1.15E-08	6.68E-08
			gamma-Chlordane	1.3	B2	2.35E-09	1.16E-08	3.05E-09	1.50E-08
			Heptachlor	4.5	B2	1.78E-09	6.79E-09	8.00E-09	3.05E-08
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDT	3.40E-01	B2	9.57E-08	8.70E-07	3.25E-08	2.96E-07
			Aldrin	17	B2	3.40E-08	3.12E-07	5.78E-07	5.31E-06
			alpha-BHC	6.3	B2	3.70E-08	2.90E-07	2.33E-07	1.83E-06
			alpha-Chlordane	1.3	B2	1.33E-08	8.81E-08	1.73E-08	1.14E-07
			beta-BHC	1.8	C	1.65E-08	1.06E-07	2.97E-08	1.90E-07
			Dieldrin	16	B2	6.26E-08	6.90E-07	1.00E-06	1.10E-05
			gamma-BHC	1.3	B2/C	6.21E-08	5.50E-07	8.08E-08	7.14E-07
			gamma-Chlordane	1.3	B2	5.03E-08	5.40E-07	6.54E-08	7.02E-07
			Heptachlor	4.5	B2	4.46E-08	3.48E-07	2.01E-07	1.56E-06
			Heptachlor epoxide	9.1	B2	1.36E-08	7.98E-08	1.23E-07	7.27E-07

Table L-36
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond E-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDT	3.40E-01	B2	1.15E-06	1.53E-05	3.92E-07	5.19E-06
			Aldrin	17	B2	1.83E-10	2.45E-09	3.12E-09	4.17E-08
			alpha-BHC	6.3	B2	5.17E-11	5.91E-10	3.25E-10	3.72E-09
			alpha-Chlordane	1.3	B2	2.07E-08	1.99E-07	2.69E-08	2.59E-07
			beta-BHC	1.8	C	4.56E-10	4.25E-09	8.21E-10	7.66E-09
			Dieldrin	16	B2	3.29E-09	5.29E-08	5.27E-08	8.46E-07
			gamma-BHC	1.3	B2/C	1.72E-09	2.21E-08	2.23E-09	2.88E-08
			gamma-Chlordane	1.3	B2	7.80E-08	1.22E-06	1.01E-07	1.59E-06
			Heptachlor	4.5	B2	4.37E-09	4.96E-08	1.97E-08	2.23E-07
			Heptachlor epoxide	9.1	B2	1.33E-09	1.14E-08	1.21E-08	1.04E-07
		InhalationOfVapor: Shower vapors							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EAC	Average Risk	Reas. Max. Risk
			4,4'-DDT*	9.70E-05	B2	1.70E-15	2.25E-14	1.65E-19	2.18E-18
			Aldrin*	4.90E-03	B2	4.53E-14	6.04E-13	2.22E-16	2.96E-15
			alpha-BHC*	1.80E-03	B2	1.77E-13	2.02E-12	3.19E-16	3.64E-15
			alpha-Chlordane*	3.70E-04	B2	7.50E-14	7.25E-13	2.78E-17	2.68E-16
			beta-BHC*	5.30E-04	C	8.21E-17	7.65E-16	4.35E-20	4.05E-19
			Dieldrin*	4.60E-03	B2	8.30E-14	1.34E-12	3.82E-16	6.16E-15
			gamma-Chlordane*	3.70E-04	B2	2.83E-13	4.44E-12	1.05E-16	1.64E-15
			Heptachlor*	1.30E-03	B2	7.42E-15	8.42E-14	9.64E-18	1.09E-16
			Heptachlor epoxide*	2.60E-03	B2	2.25E-15	1.93E-14	5.85E-18	5.03E-17
		IngestionOfSoil: Sludge							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	1.77E-07	1.56E-06	4.24E-08	3.73E-07
			4,4'-DDE	3.40E-01	B2	6.46E-08	4.81E-07	2.20E-08	1.63E-07
			4,4'-DDT	3.40E-01	B2	1.78E-08	7.40E-08	6.06E-09	2.52E-08
			gamma-BHC	1.3	B2/C	1.19E-08	5.62E-08	1.54E-08	7.31E-08
			gamma-Chlordane	1.3	B2	2.73E-08	1.84E-07	3.55E-08	2.40E-07
			Heptachlor	4.5	B2	1.04E-07	3.46E-07	4.68E-07	1.56E-06
			Heptachlor epoxide	9.1	B2	1.37E-05	4.58E-05	1.25E-04	4.17E-04
		IngestionOfSoil: Soil							
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk
			4,4'-DDD	2.40E-01	B2	2.25E-09	1.72E-08	5.40E-10	4.12E-09
			4,4'-DDE	3.40E-01	B2	4.30E-10	2.22E-09	1.46E-10	7.54E-10
			4,4'-DDT	3.40E-01	B2	5.12E-10	1.88E-09	1.74E-10	6.38E-10
			Aldrin	17	B2	2.59E-10	9.93E-10	4.41E-09	1.69E-08
			alpha-BHC	6.3	B2	2.59E-10	9.40E-10	1.63E-09	5.92E-09
			alpha-Chlordane	1.3	B2	2.22E-10	8.45E-10	2.89E-10	1.10E-09
			beta-BHC	1.8	C	8.90E-10	5.16E-09	1.60E-09	9.28E-09
			gamma-Chlordane	1.3	B2	3.26E-10	1.60E-09	4.24E-10	2.09E-09
			Heptachlor	4.5	B2	2.47E-10	9.42E-10	1.11E-09	4.24E-09

Table L-37
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond F-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond F (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Ope	5.63E-01	9.78E-01
On-Site Residential, Child - Future (Lagoons Out of Ope	2.7	4.3

Table L-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	1.22E-01	7.30E-04	0.00E+00	0.00E+00	1.70E-02	1.01E-04	1.40E-01	2.49E+01
4,4'-DDE	3.51E-03	3.80E-05	0.00E+00	0.00E+00	4.88E-04	5.28E-06	4.04E-03	7.18E-01
4,4'-DDT	1.19E-04	5.11E-06	1.49E-03	8.00E-04	3.70E-04	1.59E-05	2.80E-03	4.97E-01
Aldrin	0.00E+00	0.00E+00	8.82E-03	1.89E-05	0.00E+00	0.00E+00	8.84E-03	1.57
alpha-BHC	0.00E+00	0.00E+00	6.92E-04	3.43E-07	0.00E+00	0.00E+00	6.92E-04	1.23E-01
alpha-Chlordane	1.01E-01	0.00E+00	7.00E-03	1.09E-02	1.40E-02	0.00E+00	1.33E-01	2.36E+01
Arsenic	1.04E-03	0.00E+00	0.00E+00	0.00E+00	1.44E-02	0.00E+00	1.54E-02	2.74
beta-BHC	0.00E+00	0.00E+00	3.89E-04	1.07E-05	0.00E+00	0.00E+00	4.00E-04	7.11E-02
delta-BHC	1.78E-01	1.33E-04	8.82E-04	2.44E-05	2.47E-02	1.85E-05	2.03E-01	3.61E+01
Dieldrin	0.00E+00	0.00E+00	9.74E-03	3.93E-04	0.00E+00	0.00E+00	1.01E-02	1.8
Endosulfan II	0.00E+00	0.00E+00	4.60E-09	6.43E-12	0.00E+00	0.00E+00	4.61E-09	8.19E-07
Endosulfan sulfate	0.00E+00	0.00E+00	7.26E-05	2.46E-08	0.00E+00	0.00E+00	7.26E-05	1.29E-02
Endrin	0.00E+00	0.00E+00	3.40E-03	3.25E-04	0.00E+00	0.00E+00	3.73E-03	6.62E-01
gamma-BHC	2.32E-04	0.00E+00	1.61E-03	4.45E-06	3.22E-04	0.00E+00	2.17E-03	3.85E-01
gamma-Chlordane	9.21E-03	7.40E-05	6.52E-03	1.01E-02	1.28E-03	1.03E-05	2.72E-02	4.83
Heptachlor	5.21E-04	0.00E+00	6.94E-04	3.49E-05	1.41E-04	0.00E+00	1.39E-03	2.47E-01
Heptachlor epoxide	0.00E+00	0.00E+00	8.11E-03	7.95E-04	0.00E+00	0.00E+00	8.91E-03	1.58
Isodrin	0.00E+00	0.00E+00	6.78E-04	9.47E-07	0.00E+00	0.00E+00	6.79E-04	1.21E-01
Methoxychlor	0.00E+00	0.00E+00	1.48E-04	1.36E-08	0.00E+00	0.00E+00	1.48E-04	2.62E-02
Total by pathway	4.16E-01	9.80E-04	5.03E-02	2.34E-02	7.26E-02	1.51E-04		
% Contribution by path	7.38E+01	1.74E-01	8.93	4.15	1.29E+01	2.69E-02		
Scenario Total							5.63E-01	

Table L-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	2.17E-01	7.30E-04	0.00E+00	0.00E+00	3.01E-02	1.01E-04	2.48E-01	2.54E+01
4,4'-DDE	4.82E-03	3.80E-05	0.00E+00	0.00E+00	6.69E-04	5.28E-06	5.53E-03	5.65E-01
4,4'-DDT	1.41E-04	5.11E-06	4.06E-03	3.18E-03	4.38E-04	1.59E-05	7.84E-03	8.02E-01
Aldrin	0.00E+00	0.00E+00	2.43E-02	7.59E-05	0.00E+00	0.00E+00	2.44E-02	2.49
alpha-BHC	0.00E+00	0.00E+00	1.63E-03	1.18E-06	0.00E+00	0.00E+00	1.63E-03	1.66E-01
alpha-Chlordane	1.67E-01	0.00E+00	1.39E-02	3.14E-02	2.31E-02	0.00E+00	2.35E-01	2.40E+01
Arsenic	1.32E-03	0.00E+00	0.00E+00	0.00E+00	1.83E-02	0.00E+00	1.96E-02	2
beta-BHC	0.00E+00	0.00E+00	7.47E-04	3.01E-05	0.00E+00	0.00E+00	7.77E-04	7.94E-02
delta-BHC	2.47E-01	1.33E-04	1.99E-03	8.00E-05	3.42E-02	1.85E-05	2.83E-01	2.89E+01
Dieldrin	0.00E+00	0.00E+00	3.22E-02	1.89E-03	0.00E+00	0.00E+00	3.41E-02	3.49
Endosulfan II	0.00E+00	0.00E+00	9.01E-09	1.83E-11	0.00E+00	0.00E+00	9.03E-09	9.22E-07
Endosulfan sulfate	0.00E+00	0.00E+00	1.19E-04	5.90E-08	0.00E+00	0.00E+00	1.19E-04	1.22E-02
Endrin	0.00E+00	0.00E+00	1.04E-02	1.45E-03	0.00E+00	0.00E+00	1.18E-02	1.21
gamma-BHC	2.50E-04	0.00E+00	4.27E-03	1.72E-05	3.47E-04	0.00E+00	4.89E-03	5.00E-01
gamma-Chlordane	1.05E-02	7.40E-05	2.10E-02	4.75E-02	1.46E-03	1.03E-05	8.06E-02	8.24
Heptachlor	5.36E-04	0.00E+00	1.62E-03	1.19E-04	1.45E-04	0.00E+00	2.42E-03	2.48E-01
Heptachlor epoxide	0.00E+00	0.00E+00	1.43E-02	2.05E-03	0.00E+00	0.00E+00	1.64E-02	1.67
Isodrin	0.00E+00	0.00E+00	1.73E-03	3.52E-06	0.00E+00	0.00E+00	1.73E-03	1.77E-01
Methoxychlor	0.00E+00	0.00E+00	3.51E-04	4.70E-08	0.00E+00	0.00E+00	3.51E-04	3.58E-02
Total by pathway	6.48E-01	9.80E-04	1.33E-01	8.78E-02	1.09E-01	1.51E-04		
% Contribution by path	6.62E+01	1.00E-01	1.36E+01	8.98	1.11E+01	1.55E-02		
Scenario Total							9.78E-01	

Table L-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	5.32E-01	3.18E-03	0.00E+00	0.00E+00	1.59E-01	9.46E-04	6.95E-01	2.57E+01
4,4'-DDE	1.53E-02	1.66E-04	0.00E+00	0.00E+00	4.55E-03	4.93E-05	2.01E-02	7.43E-01
4,4'-DDT	5.18E-04	2.22E-05	4.96E-03	1.40E-03	3.45E-03	1.48E-04	1.05E-02	3.89E-01
Aldrin	0.00E+00	0.00E+00	2.94E-02	3.31E-05	0.00E+00	0.00E+00	2.94E-02	1.09
alpha-BHC	0.00E+00	0.00E+00	2.31E-03	6.01E-07	0.00E+00	0.00E+00	2.31E-03	8.54E-02
alpha-Chlordane	4.40E-01	0.00E+00	2.33E-02	1.90E-02	1.31E-01	0.00E+00	6.13E-01	2.27E+01
Arsenic	4.51E-03	0.00E+00	0.00E+00	0.00E+00	1.34E-01	0.00E+00	1.39E-01	5.14
beta-BHC	0.00E+00	0.00E+00	1.30E-03	1.88E-05	0.00E+00	0.00E+00	1.32E-03	4.88E-02
delta-BHC	7.73E-01	5.80E-04	2.94E-03	4.26E-05	2.30E-01	1.73E-04	1.01	3.73E+01
Dieldrin	0.00E+00	0.00E+00	3.25E-02	6.87E-04	0.00E+00	0.00E+00	3.32E-02	1.23
Endosulfan II	0.00E+00	0.00E+00	1.53E-08	1.13E-11	0.00E+00	0.00E+00	1.54E-08	5.68E-07
Endosulfan sulfate	0.00E+00	0.00E+00	2.42E-04	4.31E-08	0.00E+00	0.00E+00	2.42E-04	8.96E-03
Endrin	0.00E+00	0.00E+00	1.13E-02	5.69E-04	0.00E+00	0.00E+00	1.19E-02	4.41E-01
gamma-BHC	1.01E-03	0.00E+00	5.37E-03	7.79E-06	3.00E-03	0.00E+00	9.39E-03	3.48E-01
gamma-Chlordane	4.01E-02	3.22E-04	2.17E-02	1.77E-02	1.19E-02	9.59E-05	9.19E-02	3.4
Heptachlor	2.27E-03	0.00E+00	2.31E-03	6.11E-05	1.32E-03	0.00E+00	5.96E-03	2.21E-01
Heptachlor epoxide	0.00E+00	0.00E+00	2.70E-02	1.39E-03	0.00E+00	0.00E+00	2.84E-02	1.05
Isodrin	0.00E+00	0.00E+00	2.26E-03	1.66E-06	0.00E+00	0.00E+00	2.26E-03	8.37E-02
Methoxychlor	0.00E+00	0.00E+00	4.92E-04	2.38E-08	0.00E+00	0.00E+00	4.92E-04	1.82E-02
Total by pathway	1.81	4.27E-03	1.68E-01	4.09E-02	6.78E-01	1.41E-03		
% Contribution by path	6.70E+01	1.58E-01	6.2	1.52	2.51E+01	5.23E-02		
Scenario Total							2.7	

Table L-38
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond F-Future Residential

Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Slu	Dermal Contact with Sedim	Ingestion of Groundwa	Dermal Contact while Showe	Ingestion of Slud	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	9.45E-01	3.18E-03	0.00E+00	0.00E+00	2.81E-01	9.46E-04	1.23	2.86E+01
4,4'-DDE	2.10E-02	1.66E-04	0.00E+00	0.00E+00	6.24E-03	4.93E-05	2.74E-02	6.37E-01
4,4'-DDT	6.13E-04	2.22E-05	9.47E-03	5.57E-03	4.09E-03	1.48E-04	1.99E-02	4.63E-01
Aldrin	0.00E+00	0.00E+00	5.67E-02	1.33E-04	0.00E+00	0.00E+00	5.68E-02	1.32
alpha-BHC	0.00E+00	0.00E+00	3.80E-03	2.06E-06	0.00E+00	0.00E+00	3.80E-03	8.82E-02
alpha-Chlordane	7.25E-01	0.00E+00	3.24E-02	5.50E-02	2.16E-01	0.00E+00	1.03	2.39E+01
Arsenic	5.73E-03	0.00E+00	0.00E+00	0.00E+00	1.70E-01	0.00E+00	1.76E-01	4.09
beta-BHC	0.00E+00	0.00E+00	1.74E-03	5.27E-05	0.00E+00	0.00E+00	1.80E-03	4.17E-02
delta-BHC	1.07	5.80E-04	4.63E-03	1.40E-04	3.20E-01	1.73E-04	1.4	3.25E+01
Dieldrin	0.00E+00	0.00E+00	7.52E-02	3.32E-03	0.00E+00	0.00E+00	7.85E-02	1.82
Endosulfan II	0.00E+00	0.00E+00	2.10E-08	3.21E-11	0.00E+00	0.00E+00	2.10E-08	4.89E-07
Endosulfan sulfate	0.00E+00	0.00E+00	2.78E-04	1.03E-07	0.00E+00	0.00E+00	2.78E-04	6.46E-03
Endrin	0.00E+00	0.00E+00	2.42E-02	2.53E-03	0.00E+00	0.00E+00	2.67E-02	6.21E-01
gamma-BHC	1.09E-03	0.00E+00	9.97E-03	3.01E-05	3.24E-03	0.00E+00	1.43E-02	3.33E-01
gamma-Chlordane	4.58E-02	3.22E-04	4.90E-02	8.32E-02	1.36E-02	9.59E-05	1.92E-01	4.46
Heptachlor	2.33E-03	0.00E+00	3.78E-03	2.08E-04	1.36E-03	0.00E+00	7.68E-03	1.78E-01
Heptachlor epoxide	0.00E+00	0.00E+00	3.34E-02	3.58E-03	0.00E+00	0.00E+00	3.70E-02	8.60E-01
Isodrin	0.00E+00	0.00E+00	4.03E-03	6.16E-06	0.00E+00	0.00E+00	4.03E-03	9.37E-02
Methoxychlor	0.00E+00	0.00E+00	8.18E-04	8.23E-08	0.00E+00	0.00E+00	8.18E-04	1.90E-02
Total by pathway	2.82	4.27E-03	3.09E-01	1.54E-01	1.02	1.41E-03		
% Contribution by path	6.55E+01	9.91E-02	7.19	3.57	2.36E+01	3.28E-02		
Scenario Total							4.3	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond F (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	6.12E-05	1.09E-04	1.22E-01	2.17E-01	
			4,4'-DDE	3.89E-03	1.37E-05	1.87E-05	3.51E-03	4.82E-03	
			4,4'-DDT	1.12E-02	1.33E-06	1.58E-06	1.19E-04	1.41E-04	
			alpha-Chlordane	1.48E-05	1.49E-06	2.47E-06	1.01E-01	1.67E-0I	
			Arsenic	3.00E-04	3.11E-07	3.95E-07	1.04E-03	1.32E-03	
			delta-BHC	2.00E-04	3.55E-05	4.93E-05	1.78E-01	2.47E-01	
			gamma-BHC	3.00E-03	6.96E-07	7.50E-07	2.32E-04	2.50E-04	
			gamma-Chlorda	6.00E-05	5.52E-07	6.31E-07	9.21E-03	1.05E-02	
			Heptachlor	9.75E-04	5.08E-07	5.23E-07	5.21E-04	5.36E-04	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.65E-07	3.65E-07	7.30E-04	7.30E-04	
			4,4'-DDE	3.89E-03	1.48E-07	1.48E-07	3.80E-05	3.80E-05	
			4,4'-DDT	1.12E-02	5.72E-08	5.72E-08	5.11E-06	5.11E-06	
			delta-BHC	2.00E-04	2.66E-08	2.66E-08	1.33E-04	1.33E-04	
			gamma-Chlorda	6.00E-05	4.44E-09	4.44E-09	7.40E-05	7.40E-05	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	7.44E-07	2.03E-06	1.49E-03	4.06E-03	
			Aldrin	3.00E-05	2.65E-07	7.29E-07	8.82E-03	2.43E-02	
			alpha-BHC	4.16E-04	2.88E-07	6.77E-07	6.92E-04	1.63E-03	
			alpha-Chlordane	1.48E-05	1.04E-07	2.05E-07	7.00E-03	1.39E-02	
			beta-BHC	3.30E-04	1.28E-07	2.47E-07	3.89E-04	7.47E-04	
			delta-BHC	2.00E-04	1.76E-07	3.97E-07	8.82E-04	1.99E-03	
			Dieldrin	5.00E-05	4.87E-07	1.61E-06	9.74E-03	3.22E-02	
			Endosulfan II	80	3.68E-07	7.21E-07	4.60E-09	9.01E-09	
			Endosulfan sulfa	6.00E-03	4.35E-07	7.15E-07	7.26E-05	1.19E-04	
			Endrin	3.00E-04	1.02E-06	3.11E-06	3.40E-03	1.04E-02	
			gamma-BHC	3.00E-04	4.83E-07	1.28E-06	1.61E-03	4.27E-03	
			gamma-Chlorda	6.00E-05	3.91E-07	1.26E-06	6.52E-03	2.10E-02	
			Heptachlor	5.00E-04	3.47E-07	8.11E-07	6.94E-04	1.62E-03	
			Heptachlor epox	1.30E-05	1.05E-07	1.86E-07	8.11E-03	1.43E-02	
			Isodrin	3.00E-04	2.03E-07	5.18E-07	6.78E-04	1.73E-03	
			Methoxychlor	5.00E-03	7.38E-07	1.75E-06	1.48E-04	3.51E-04	
		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	1.12E-02	8.96E-06	3.56E-05	8.00E-04	3.18E-03	
			Aldrin	7.54E-05	1.43E-09	5.73E-09	1.89E-05	7.59E-05	
			alpha-BHC	1.17E-03	4.02E-10	1.38E-09	3.43E-07	1.18E-06	
			alpha-Chlordane	1.48E-05	1.61E-07	4.65E-07	1.09E-02	3.14E-02	
			beta-BHC	3.30E-04	3.55E-09	9.93E-09	1.07E-05	3.01E-05	
			delta-BHC	2.00E-04	4.87E-09	1.60E-08	2.44E-05	8.00E-05	
			Dieldrin	6.52E-05	2.56E-08	1.23E-07	3.93E-04	1.89E-03	
			Endosulfan II	80	5.14E-10	1.47E-09	6.43E-12	1.83E-11	
			Endosulfan sulfa	2.47E-02	6.08E-10	1.46E-09	2.46E-08	5.90E-08	
			Endrin	6.00E-04	1.95E-07	8.68E-07	3.25E-04	1.45E-03	
			gamma-BHC	3.00E-03	1.33E-08	5.16E-08	4.45E-06	1.72E-05	
			gamma-Chlorda	6.00E-05	6.07E-07	2.85E-06	1.01E-02	4.75E-02	
			Heptachlor	9.75E-04	3.40E-08	1.16E-07	3.49E-05	1.19E-04	
			Heptachlor epox	1.30E-05	1.03E-08	2.66E-08	7.95E-04	2.05E-03	
			Isodrin	3.00E-04	2.84E-10	1.05E-09	9.47E-07	3.52E-06	
			Methoxychlor	7.60E-02	1.03E-09	3.57E-09	1.36E-08	4.70E-08	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	8.49E-06	1.51E-05	1.70E-02	3.01E-02	
			4,4'-DDE	3.89E-03	1.90E-06	2.60E-06	4.88E-04	6.69E-04	
			4,4'-DDT	5.00E-04	1.85E-07	2.19E-07	3.70E-04	4.38E-04	
			alpha-Chlordane	1.48E-05	2.08E-07	3.42E-07	1.40E-02	2.31E-02	
			Arsenic	3.00E-04	4.32E-06	5.48E-06	1.44E-02	1.83E-02	
			delta-BHC	2.00E-04	4.93E-06	6.85E-06	2.47E-02	3.42E-02	
			gamma-BHC	3.00E-04	9.66E-08	1.04E-07	3.22E-04	3.47E-04	
			gamma-Chlorda	6.00E-05	7.67E-08	8.77E-08	1.28E-03	1.46E-03	
			Heptachlor	5.00E-04	7.05E-08	7.26E-08	1.41E-04	1.45E-04	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	5.07E-08	5.07E-08	1.01E-04	1.01E-04	
			4,4'-DDE	3.89E-03	2.05E-08	2.05E-08	5.28E-06	5.28E-06	
			4,4'-DDT	5.00E-04	7.95E-09	7.95E-09	1.59E-05	1.59E-05	
			delta-BHC	2.00E-04	3.70E-09	3.70E-09	1.85E-05	1.85E-05	
			gamma-Chlorda	6.00E-05	6.16E-10	6.16E-10	1.03E-05	1.03E-05	
On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.66E-04	4.72E-04	5.32E-01	9.45E-01	
			4,4'-DDE	3.89E-03	5.95E-05	8.16E-05	1.53E-02	2.10E-02	
			4,4'-DDT	1.12E-02	5.80E-06	6.87E-06	5.18E-04	6.13E-04	
			alpha-Chlordane	1.48E-05	6.51E-06	1.07E-05	4.40E-01	7.25E-01	
			Arsenic	3.00E-04	1.35E-06	1.72E-06	4.51E-03	5.73E-03	
			delta-BHC	2.00E-04	1.55E-04	2.15E-04	7.73E-01	1.07	
			gamma-BHC	3.00E-03	3.03E-06	3.26E-06	1.01E-03	1.09E-03	
			gamma-Chlorda	6.00E-05	2.40E-06	2.75E-06	4.01E-02	4.58E-02	
			Heptachlor	9.75E-04	2.21E-06	2.28E-06	2.27E-03	2.33E-03	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.59E-06	1.59E-06	3.18E-03	3.18E-03	
			4,4'-DDE	3.89E-03	6.44E-07	6.44E-07	1.66E-04	1.66E-04	
			4,4'-DDT	1.12E-02	2.49E-07	2.49E-07	2.22E-05	2.22E-05	
			delta-BHC	2.00E-04	1.16E-07	1.16E-07	5.80E-04	5.80E-04	
			gamma-Chlorda	6.00E-05	1.93E-08	1.93E-08	3.22E-04	3.22E-04	
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	5.00E-04	2.48E-06	4.74E-06	4.96E-03	9.47E-03	
			Aldrin	3.00E-05	8.82E-07	1.70E-06	2.94E-02	5.67E-02	
			alpha-BHC	4.16E-04	9.59E-07	1.58E-06	2.31E-03	3.80E-03	
			alpha-Chlordane	1.48E-05	3.45E-07	4.79E-07	2.33E-02	3.24E-02	
			beta-BHC	3.30E-04	4.28E-07	5.75E-07	1.30E-03	1.74E-03	
			delta-BHC	2.00E-04	5.88E-07	9.27E-07	2.94E-03	4.63E-03	
			Dieldrin	5.00E-05	1.62E-06	3.76E-06	3.25E-02	7.52E-02	
			Endosulfan II	80	1.23E-06	1.68E-06	1.53E-08	2.10E-08	
			Endosulfan sulfa	6.00E-03	1.45E-06	1.67E-06	2.42E-04	2.78E-04	
			Endrin	3.00E-04	3.40E-06	7.26E-06	1.13E-02	2.42E-02	
			gamma-BHC	3.00E-04	1.61E-06	2.99E-06	5.37E-03	9.97E-03	
			gamma-Chlorda	6.00E-05	1.30E-06	2.94E-06	2.17E-02	4.90E-02	
			Heptachlor	5.00E-04	1.16E-06	1.89E-06	2.31E-03	3.78E-03	
			Heptachlor epox	1.30E-05	3.52E-07	4.35E-07	2.70E-02	3.34E-02	
			Isodrin	3.00E-04	6.78E-07	1.21E-06	2.26E-03	4.03E-03	
			Methoxychlor	5.00E-03	2.46E-06	4.09E-06	4.92E-04	8.18E-04	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDT	1.12E-02	1.57E-05	6.24E-05	1.40E-03	5.57E-03	
			Aldrin	7.54E-05	2.50E-09	1.00E-08	3.31E-05	1.33E-04	
			alpha-BHC	1.17E-03	7.04E-10	2.41E-09	6.01E-07	2.06E-06	
			alpha-Chlordane	1.48E-05	2.81E-07	8.14E-07	1.90E-02	5.50E-02	
			beta-BHC	3.30E-04	6.21E-09	1.74E-08	1.88E-05	5.27E-05	
			delta-BHC	2.00E-04	8.53E-09	2.80E-08	4.26E-05	1.40E-04	
			Dieldrin	6.52E-05	4.48E-08	2.16E-07	6.87E-04	3.32E-03	
			Endosulfan II	80	9.01E-10	2.57E-09	1.13E-11	3.21E-11	
			Endosulfan sulfa	2.47E-02	1.06E-09	2.55E-09	4.31E-08	1.03E-07	
			Endrin	6.00E-04	3.42E-07	1.52E-06	5.69E-04	2.53E-03	
			gamma-BHC	3.00E-03	2.34E-08	9.04E-08	7.79E-06	3.01E-05	
			gamma-Chlorda	6.00E-05	1.06E-06	4.99E-06	1.77E-02	8.32E-02	
			Heptachlor	9.75E-04	5.95E-08	2.03E-07	6.11E-05	2.08E-04	
			Heptachlor epox	1.30E-05	1.81E-08	4.66E-08	1.39E-03	3.58E-03	
			Isodrin	3.00E-04	4.97E-10	1.85E-09	1.66E-06	6.16E-06	
			Methoxychlor	7.60E-02	1.81E-09	6.25E-09	2.38E-08	8.23E-08	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	7.93E-05	1.41E-04	1.59E-01	2.81E-01	
			4,4'-DDE	3.89E-03	1.77E-05	2.43E-05	4.55E-03	6.24E-03	
			4,4'-DDT	5.00E-04	1.73E-06	2.05E-06	3.45E-03	4.09E-03	
			alpha-Chlordane	1.48E-05	1.94E-06	3.20E-06	1.31E-01	2.16E-01	
			Arsenic	3.00E-04	4.03E-05	5.11E-05	1.34E-01	1.70E-01	
			delta-BHC	2.00E-04	4.60E-05	6.39E-05	2.30E-01	3.20E-01	
			gamma-BHC	3.00E-04	9.01E-07	9.72E-07	3.00E-03	3.24E-03	
			gamma-Chlorda	6.00E-05	7.16E-07	8.18E-07	1.19E-02	1.36E-02	
			Heptachlor	5.00E-04	6.58E-07	6.78E-07	1.32E-03	1.36E-03	

Table L-39
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	4.73E-07	4.73E-07	9.46E-04	9.46E-04	
			4,4'-DDE	3.89E-03	1.92E-07	1.92E-07	4.93E-05	4.93E-05	
			4,4'-DDT	5.00E-04	7.42E-08	7.42E-08	1.48E-04	1.48E-04	
			delta-BHC	2.00E-04	3.45E-08	3.45E-08	1.73E-04	1.73E-04	
			gamma-Chlorda	6.00E-05	5.75E-09	5.75E-09	9.59E-05	9.59E-05	

Table L-40
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond F-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond F (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Ope	6.75E-06	5.05E-05

Table L-41
Cancer Risk Summary
Holloman AFB, New Mexico
Pond F-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	1.89E-06	1.13E-08	0.00E+00	0.00E+00	0.00E+00	2.62E-07	1.56E-09	2.16E-06	3.20E+01
4,4'-DDE	5.97E-07	6.47E-09	0.00E+00	0.00E+00	0.00E+00	8.29E-08	8.98E-10	6.88E-07	1.02E+01
4,4'-DDT	5.82E-08	2.50E-09	3.25E-08	3.92E-07	1.65E-19	8.08E-09	3.47E-10	4.93E-07	7.31
Aldrin	0.00E+00	0.00E+00	5.78E-07	3.12E-09	2.22E-16	0.00E+00	0.00E+00	5.82E-07	8.61
alpha-BHC	0.00E+00	0.00E+00	2.33E-07	3.25E-10	3.19E-16	0.00E+00	0.00E+00	2.33E-07	3.46
alpha-Chlordane	2.50E-07	0.00E+00	1.73E-08	2.69E-08	2.78E-17	3.47E-08	0.00E+00	3.29E-07	4.87
beta-BHC	0.00E+00	0.00E+00	2.97E-08	8.21E-10	4.35E-20	0.00E+00	0.00E+00	3.06E-08	4.53E-01
Dieldrin	0.00E+00	0.00E+00	1.00E-06	5.27E-08	3.82E-16	0.00E+00	0.00E+00	1.05E-06	1.56E+01
gamma-BHC	1.16E-07	0.00E+00	8.08E-08	2.23E-09	0.00E+00	1.61E-08	0.00E+00	2.15E-07	3.19
gamma-Chlordane	9.23E-08	7.42E-10	6.54E-08	1.01E-07	1.05E-16	1.28E-08	1.03E-10	2.73E-07	4.04
Heptachlor	2.94E-07	0.00E+00	2.01E-07	1.97E-08	9.64E-18	4.08E-08	0.00E+00	5.55E-07	8.23
Heptachlor epoxide	0.00E+00	0.00E+00	1.23E-07	1.21E-08	5.85E-18	0.00E+00	0.00E+00	1.35E-07	2.01
Total by pathway	3.30E-06	2.10E-08	2.36E-06	6.11E-07	1.07E-15	4.58E-07	2.91E-09		
% Contribution by pathway	4.88E+01	3.11E-01	3.50E+01	9.05	1.59E-08	6.78	4.31E-02		
Scenario Total								6.75E-06	
Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Inhalation while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	1.12E-05	3.75E-08	0.00E+00	0.00E+00	0.00E+00	1.55E-06	5.21E-09	1.28E-05	2.52E+01
4,4'-DDE	2.73E-06	2.16E-08	0.00E+00	0.00E+00	0.00E+00	3.79E-07	2.99E-09	3.14E-06	6.2
4,4'-DDT	2.30E-07	8.34E-09	2.96E-07	5.19E-06	2.18E-18	3.19E-08	1.16E-09	5.76E-06	1.14E+01
Aldrin	0.00E+00	0.00E+00	5.31E-06	4.17E-08	2.96E-15	0.00E+00	0.00E+00	5.35E-06	1.06E+01
alpha-BHC	0.00E+00	0.00E+00	1.83E-06	3.72E-09	3.64E-15	0.00E+00	0.00E+00	1.83E-06	3.62
alpha-Chlordane	1.37E-06	0.00E+00	1.14E-07	2.59E-07	2.68E-16	1.91E-07	0.00E+00	1.94E-06	3.84
beta-BHC	0.00E+00	0.00E+00	1.90E-07	7.66E-09	4.05E-19	0.00E+00	0.00E+00	1.98E-07	3.92E-01
Dieldrin	0.00E+00	0.00E+00	1.10E-05	8.46E-07	6.16E-15	0.00E+00	0.00E+00	1.19E-05	2.35E+01
gamma-BHC	4.18E-07	0.00E+00	7.14E-07	2.88E-08	0.00E+00	5.80E-08	0.00E+00	1.22E-06	2.41
gamma-Chlordane	3.52E-07	2.47E-09	7.02E-07	1.59E-06	1.64E-15	4.88E-08	3.43E-10	2.69E-06	5.33
Heptachlor	1.01E-06	0.00E+00	1.56E-06	2.23E-07	1.09E-16	1.40E-07	0.00E+00	2.94E-06	5.81
Heptachlor epoxide	0.00E+00	0.00E+00	7.27E-07	1.04E-07	5.03E-17	0.00E+00	0.00E+00	8.30E-07	1.64
Total by pathway	1.73E-05	6.99E-08	2.25E-05	8.30E-06	1.48E-14	2.40E-06	9.71E-09		
% Contribution by pathway	3.42E+01	1.38E-01	4.45E+01	1.64E+01	2.93E-08	4.75	1.92E-02		
Scenario Total								5.05E-05	

Table L-42
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

Cancer Risk Estimates										
Holloman Risk Assessment - Pond F (future-res)										
Scenario										
	Activity									
		Pathway								
On-Site Residential, Adult - Future (Lagoons Out of Operation)										
	Residents Living On-site									
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	7.86E-06	4.65E-05	1.89E-06	1.12E-05	
			4,4'-DDE	3.40E-01	B2	1.76E-06	8.03E-06	5.97E-07	2.73E-06	
			4,4'-DDT	3.40E-01	B2	1.71E-07	6.77E-07	5.82E-08	2.30E-07	
			alpha-Chlordane	1.3	B2	1.92E-07	1.06E-06	2.50E-07	1.37E-06	
			gamma-BHC	1.3	B2/C	8.94E-08	3.21E-07	1.16E-07	4.18E-07	
			gamma-Chlordane	1.3	B2	7.10E-08	2.71E-07	9.23E-08	3.52E-07	
			Heptachlor	4.5	B2	6.53E-08	2.24E-07	2.94E-07	1.01E-06	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	4.69E-08	1.56E-07	1.13E-08	3.75E-08	
			4,4'-DDE	3.40E-01	B2	1.90E-08	6.34E-08	6.47E-09	2.16E-08	
			4,4'-DDT	3.40E-01	B2	7.36E-09	2.45E-08	2.50E-09	8.34E-09	
			gamma-Chlordane	1.3	B2	5.71E-10	1.90E-09	7.42E-10	2.47E-09	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDT	3.40E-01	B2	9.57E-08	8.70E-07	3.25E-08	2.96E-07	
			Aldrin	17	B2	3.40E-08	3.12E-07	5.78E-07	5.31E-06	
			alpha-BHC	6.3	B2	3.70E-08	2.90E-07	2.33E-07	1.83E-06	
			alpha-Chlordane	1.3	B2	1.33E-08	8.81E-08	1.73E-08	1.14E-07	
			beta-BHC	1.8	C	1.65E-08	1.06E-07	2.97E-08	1.90E-07	
			Dieldrin	16	B2	6.26E-08	6.90E-07	1.00E-06	1.10E-05	
			gamma-BHC	1.3	B2/C	6.21E-08	5.50E-07	8.08E-08	7.14E-07	
			gamma-Chlordane	1.3	B2	5.03E-08	5.40E-07	6.54E-08	7.02E-07	
			Heptachlor	4.5	B2	4.46E-08	3.48E-07	2.01E-07	1.56E-06	
			Heptachlor epoxide	9.1	B2	1.36E-08	7.98E-08	1.23E-07	7.27E-07	

Table L-42
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond F-Future Residential

		DermalContactWithWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDT	3.40E-01	B2	1.15E-06	1.53E-05	3.92E-07	5.19E-06	
			Aldrin	17	B2	1.83E-10	2.45E-09	3.12E-09	4.17E-08	
			alpha-BHC	6.3	B2	5.17E-11	5.91E-10	3.25E-10	3.72E-09	
			alpha-Chlordane	1.3	B2	2.07E-08	1.99E-07	2.69E-08	2.59E-07	
			beta-BHC	1.8	C	4.56E-10	4.25E-09	8.21E-10	7.66E-09	
			Dieldrin	16	B2	3.29E-09	5.29E-08	5.27E-08	8.46E-07	
			gamma-BHC	1.3	B2/C	1.72E-09	2.21E-08	2.23E-09	2.88E-08	
			gamma-Chlordane	1.3	B2	7.80E-08	1.22E-06	1.01E-07	1.59E-06	
			Heptachlor	4.5	B2	4.37E-09	4.96E-08	1.97E-08	2.23E-07	
			Heptachlor epoxide	9.1	B2	1.33E-09	1.14E-08	1.21E-08	1.04E-07	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EAC	Average Risk	Reas. Max. Risk	
			4,4'-DDT*	9.70E-05	B2	1.70E-15	2.25E-14	1.65E-19	2.18E-18	
			Aldrin*	4.90E-03	B2	4.53E-14	6.04E-13	2.22E-16	2.96E-15	
			alpha-BHC*	1.80E-03	B2	1.77E-13	2.02E-12	3.19E-16	3.64E-15	
			alpha-Chlordane*	3.70E-04	B2	7.50E-14	7.25E-13	2.78E-17	2.68E-16	
			beta-BHC*	5.30E-04	C	8.21E-17	7.65E-16	4.35E-20	4.05E-19	
			Dieldrin*	4.60E-03	B2	8.30E-14	1.34E-12	3.82E-16	6.16E-15	
			gamma-Chlordane	3.70E-04	B2	2.83E-13	4.44E-12	1.05E-16	1.64E-15	
			Heptachlor*	1.30E-03	B2	7.42E-15	8.42E-14	9.64E-18	1.09E-16	
			Heptachlor epoxide	2.60E-03	B2	2.25E-15	1.93E-14	5.85E-18	5.03E-17	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.09E-06	6.46E-06	2.62E-07	1.55E-06	
			4,4'-DDE	3.40E-01	B2	2.44E-07	1.12E-06	8.29E-08	3.79E-07	
			4,4'-DDT	3.40E-01	B2	2.38E-08	9.39E-08	8.08E-09	3.19E-08	
			alpha-Chlordane	1.3	B2	2.67E-08	1.47E-07	3.47E-08	1.91E-07	
			gamma-BHC	1.3	B2/C	1.24E-08	4.46E-08	1.61E-08	5.80E-08	
			gamma-Chlordane	1.3	B2	9.86E-09	3.76E-08	1.28E-08	4.88E-08	
			Heptachlor	4.5	B2	9.07E-09	3.11E-08	4.08E-08	1.40E-07	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CDI	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	6.52E-09	2.17E-08	1.56E-09	5.21E-09	
			4,4'-DDE	3.40E-01	B2	2.64E-09	8.81E-09	8.98E-10	2.99E-09	
			4,4'-DDT	3.40E-01	B2	1.02E-09	3.41E-09	3.47E-10	1.16E-09	
			gamma-Chlordane	1.3	B2	7.93E-11	2.64E-10	1.03E-10	3.43E-10	

Table L-43
Summary of Non-Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond G-Future Residential

Summary of Non-Cancer Risks by Scenario		
Holloman Risk Assessment - Pond G (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	8.05E-02	2.75E-01
On-Site Residential, Child - Future (Lagoons Out of Operation)	4.12E-01	1.31

Table L-44
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	3.26E-02	1.42E-04	1.70E-04	4.37E-04	2.26E-03	9.86E-06	3.56E-02	4.42E+01
4,4'-DDE	9.04E-04	9.26E-06	0.00E+00	0.00E+00	6.27E-05	6.43E-07	9.76E-04	1.21
4,4'-DDT	1.45E-04	0.00E+00	0.00E+00	0.00E+00	2.25E-04	0.00E+00	3.70E-04	4.59E-01
alpha-BHC	8.00E-04	3.37E-05	6.18E-56	3.07E-59	1.56E-04	6.59E-06	9.96E-04	1.24
Arsenic	0.00E+00	1.19E-03	0.00E+00	0.00E+00	0.00E+00	8.28E-03	9.47E-03	1.18E+01
Beryllium	2.29E-05	0.00E+00	0.00E+00	0.00E+00	1.59E-04	0.00E+00	1.82E-04	2.26E-01
beta-BHC	0.00E+00	1.85E-04	0.00E+00	0.00E+00	0.00E+00	1.28E-05	1.97E-04	2.45E-01
Dieldrin	0.00E+00	0.00E+00	2.45E-04	9.89E-06	0.00E+00	0.00E+00	2.55E-04	3.17E-01
Endosulfan I	0.00E+00	0.00E+00	4.24E-61	5.92E-64	0.00E+00	0.00E+00	4.24E-61	5.27E-58
Endosulfan sulfate	0.00E+00	8.23E-07	5.05E-60	1.71E-63	0.00E+00	2.35E-07	1.06E-06	1.31E-03
Endrin	0.00E+00	0.00E+00	4.79E-11	4.58E-12	0.00E+00	0.00E+00	5.25E-11	6.51E-08
gamma-BHC	0.00E+00	1.32E-05	3.47E-14	9.58E-17	0.00E+00	9.19E-06	2.24E-05	2.78E-02
gamma-Chlordane	2.90E-02	0.00E+00	5.24E-04	8.13E-04	2.02E-03	0.00E+00	3.24E-02	4.02E+01
Heptachlor	0.00E+00	3.44E-05	4.60E-07	2.31E-08	0.00E+00	4.66E-06	3.95E-05	4.91E-02
Heptachlor epoxide	0.00E+00	0.00E+00	1.37E-05	1.35E-06	0.00E+00	0.00E+00	1.51E-05	1.87E-02
Isodrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.50E-06	8.50E-06	1.06E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.55E-05	0.00E+00	3.55E-05	4.41E-02
Methoxychlor	0.00E+00	0.00E+00	2.20E-29	2.02E-33	0.00E+00	0.00E+00	2.20E-29	2.73E-26
Total by pathway	6.35E-02	1.61E-03	9.53E-04	1.26E-03	4.92E-03	8.33E-03		
% Contribution by pathway	7.88E+01	2	1.18	1.57	6.1	1.03E+01		
Scenario Total							8.05E-02	
Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Adult - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	7.03E-02	2.10E-04	5.70E-04	2.14E-03	4.88E-03	1.46E-05	7.81E-02	2.84E+01
4,4'-DDE	1.57E-03	1.14E-05	0.00E+00	0.00E+00	1.09E-04	7.91E-07	1.69E-03	6.17E-01
4,4'-DDT	2.06E-04	0.00E+00	0.00E+00	0.00E+00	3.21E-04	0.00E+00	5.27E-04	1.92E-01
alpha-BHC	1.25E-03	4.17E-05	2.15E-55	1.55E-58	2.44E-04	8.15E-06	1.54E-03	5.61E-01
alpha-Chlordane	1.04E-01	0.00E+00	0.00E+00	0.00E+00	7.21E-03	0.00E+00	1.11E-01	4.04E+01
Arsenic	0.00E+00	1.43E-03	0.00E+00	0.00E+00	0.00E+00	9.96E-03	1.14E-02	4.15
Beryllium	3.02E-05	0.00E+00	0.00E+00	0.00E+00	2.10E-04	0.00E+00	2.40E-04	8.73E-02
beta-BHC	0.00E+00	3.20E-04	0.00E+00	0.00E+00	0.00E+00	2.22E-05	3.42E-04	1.24E-01
Dieldrin	0.00E+00	0.00E+00	5.48E-04	3.22E-05	0.00E+00	0.00E+00	5.80E-04	2.11E-01
Endosulfan I	0.00E+00	0.00E+00	1.08E-60	2.21E-63	0.00E+00	0.00E+00	1.09E-60	3.95E-58
Endosulfan sulfate	0.00E+00	1.12E-06	9.82E-60	4.86E-63	0.00E+00	3.20E-07	1.44E-06	5.23E-04
Endrin	0.00E+00	0.00E+00	1.20E-10	1.67E-11	0.00E+00	0.00E+00	1.36E-10	4.96E-08
gamma-BHC	0.00E+00	1.67E-05	1.15E-13	4.63E-16	0.00E+00	1.16E-05	2.82E-05	1.03E-02
gamma-Chlordane	5.88E-02	0.00E+00	1.92E-03	4.35E-03	4.08E-03	0.00E+00	6.92E-02	2.52E+01
Heptachlor	0.00E+00	4.33E-05	8.00E-07	5.86E-08	0.00E+00	5.86E-06	5.00E-05	1.82E-02
Heptachlor epoxide	0.00E+00	0.00E+00	5.04E-05	7.19E-06	0.00E+00	0.00E+00	5.76E-05	2.09E-02
Isodrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-05	1.20E-05	4.37E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.42E-05	0.00E+00	5.42E-05	1.97E-02
Methoxychlor	0.00E+00	0.00E+00	3.15E-29	4.21E-33	0.00E+00	0.00E+00	3.15E-29	1.14E-26
Total by pathway	2.36E-01	2.08E-03	3.09E-03	6.53E-03	1.71E-02	1.00E-02		
% Contribution by pathway	8.59E+01	7.56E-01	1.12	2.38	6.23	3.65		
Scenario Total							2.75E-01	

Table L-44
Non-Cancer Hazard Index Summary
Holloman AFB, New Mexico
Pond G-Future Residential

Average Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	1.42E-01	6.18E-04	5.65E-04	7.65E-04	2.11E-02	9.21E-05	1.65E-01	4.00E+01
4,4'-DDE	3.93E-03	4.03E-05	0.00E+00	0.00E+00	5.86E-04	6.00E-06	4.57E-03	1.11
4,4'-DDT	6.30E-04	0.00E+00	0.00E+00	0.00E+00	2.10E-03	0.00E+00	2.73E-03	6.62E-01
alpha-BHC	3.48E-03	1.47E-04	2.06E-55	5.37E-59	1.46E-03	6.15E-05	5.15E-03	1.25
Arsenic	0.00E+00	5.19E-03	0.00E+00	0.00E+00	0.00E+00	7.72E-02	8.24E-02	2.00E+01
Beryllium	9.96E-05	0.00E+00	0.00E+00	0.00E+00	1.48E-03	0.00E+00	1.58E-03	3.84E-01
beta-BHC	0.00E+00	8.04E-04	0.00E+00	0.00E+00	0.00E+00	1.20E-04	9.23E-04	2.24E-01
Dieldrin	0.00E+00	0.00E+00	8.18E-04	1.73E-05	0.00E+00	0.00E+00	8.36E-04	2.03E-01
Endosulfan I	0.00E+00	0.00E+00	1.41E-60	1.04E-63	0.00E+00	0.00E+00	1.41E-60	3.43E-58
Endosulfan sulfate	0.00E+00	3.58E-06	1.68E-59	3.00E-63	0.00E+00	2.19E-06	5.78E-06	1.40E-03
Endrin	0.00E+00	0.00E+00	1.60E-10	8.02E-12	0.00E+00	0.00E+00	1.68E-10	4.07E-08
gamma-BHC	0.00E+00	5.76E-05	1.16E-13	1.68E-16	0.00E+00	8.58E-05	1.43E-04	3.48E-02
gamma-Chlordane	1.26E-01	0.00E+00	1.75E-03	1.42E-03	1.88E-02	0.00E+00	1.48E-01	3.60E+01
Heptachlor	0.00E+00	1.50E-04	1.53E-06	4.05E-08	0.00E+00	4.35E-05	1.95E-04	4.72E-02
Heptachlor epoxide	0.00E+00	0.00E+00	4.58E-05	2.36E-06	0.00E+00	0.00E+00	4.81E-05	1.17E-02
Isodrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.94E-05	7.94E-05	1.93E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.31E-04	0.00E+00	3.31E-04	8.03E-02
Methoxychlor	0.00E+00	0.00E+00	7.34E-29	3.54E-33	0.00E+00	0.00E+00	7.34E-29	1.78E-26
Total by pathway	2.76E-01	7.01E-03	3.18E-03	2.21E-03	4.59E-02	7.77E-02		
% Contribution by pathway	6.70E+01	1.7	7.71E-01	5.36E-01	1.11E+01	1.89E+01		
Scenario Total							4.12E-01	
Reas. Max. Non-Cancer Hazard Index Summary								
On-Site Residential, Child - Future (Lagoons Out of Operation)								
	Dermal Contact with Sludge	Dermal Contact with Sediments	Ingestion of Groundwater	Dermal Contact while Showering	Ingestion of Sludge	Ingestion of Sediments	Total	% Contrib
4,4'-DDD	3.06E-01	9.14E-04	1.33E-03	3.75E-03	4.55E-02	1.36E-04	3.58E-01	2.73E+01
4,4'-DDE	6.85E-03	4.96E-05	0.00E+00	0.00E+00	1.02E-03	7.38E-06	7.93E-03	6.06E-01
4,4'-DDT	8.97E-04	0.00E+00	0.00E+00	0.00E+00	2.99E-03	0.00E+00	3.89E-03	2.97E-01
alpha-BHC	5.43E-03	1.82E-04	5.01E-55	2.72E-58	2.27E-03	7.61E-05	7.97E-03	6.09E-01
alpha-Chlordane	4.52E-01	0.00E+00	0.00E+00	0.00E+00	6.73E-02	0.00E+00	5.20E-01	3.97E+01
Arsenic	0.00E+00	6.25E-03	0.00E+00	0.00E+00	0.00E+00	9.30E-02	9.92E-02	7.58
Beryllium	1.32E-04	0.00E+00	0.00E+00	0.00E+00	1.96E-03	0.00E+00	2.09E-03	1.60E-01
beta-BHC	0.00E+00	1.39E-03	0.00E+00	0.00E+00	0.00E+00	2.07E-04	1.60E-03	1.22E-01
Dieldrin	0.00E+00	0.00E+00	1.28E-03	5.64E-05	0.00E+00	0.00E+00	1.33E-03	1.02E-01
Endosulfan I	0.00E+00	0.00E+00	2.53E-60	3.86E-63	0.00E+00	0.00E+00	2.53E-60	1.93E-58
Endosulfan sulfate	0.00E+00	4.87E-06	2.29E-59	8.51E-63	0.00E+00	2.98E-06	7.85E-06	6.00E-04
Endrin	0.00E+00	0.00E+00	2.79E-10	2.92E-11	0.00E+00	0.00E+00	3.08E-10	2.36E-08
gamma-BHC	0.00E+00	7.25E-05	2.68E-13	8.11E-16	0.00E+00	1.08E-04	1.80E-04	1.38E-02
gamma-Chlordane	2.56E-01	0.00E+00	4.49E-03	7.62E-03	3.81E-02	0.00E+00	3.06E-01	2.34E+01
Heptachlor	0.00E+00	1.88E-04	1.87E-06	1.03E-07	0.00E+00	5.47E-05	2.45E-04	1.87E-02
Heptachlor epoxide	0.00E+00	0.00E+00	1.18E-04	1.26E-05	0.00E+00	0.00E+00	1.30E-04	9.94E-03
Isodrin	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-04	1.12E-04	8.58E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.06E-04	0.00E+00	5.06E-04	3.86E-02
Methoxychlor	0.00E+00	0.00E+00	7.34E-29	7.38E-33	0.00E+00	0.00E+00	7.34E-29	5.61E-27
Total by pathway	1.03	9.05E-03	7.21E-03	1.14E-02	1.60E-01	9.37E-02		
% Contribution by pathway	7.85E+01	6.91E-01	5.51E-01	8.74E-01	1.22E+01	7.16		
Scenario Total							1.31	

Table L-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

Non-Cancer Risk Estimates									
Holloman Risk Assessment - Pond G (future-res)									
Scenario									
	Activity								
		Pathway							
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.63E-05	3.51E-05	3.26E-02	7.03E-02	
			4,4'-DDE	3.89E-03	3.52E-06	6.12E-06	9.04E-04	1.57E-03	
			4,4'-DDT	1.12E-02	1.62E-06	2.31E-06	1.45E-04	2.06E-04	
			alpha-BHC	1.17E-03	9.36E-07	1.46E-06	8.00E-04	1.25E-03	
			alpha-Chlordane	1.48E-05	0.00E+00	1.54E-06	0.00E+00	1.04E-01	
			Beryllium	5.00E-03	1.14E-07	1.51E-07	2.29E-05	3.02E-05	
			gamma-Chlordane	6.00E-05	1.74E-06	3.53E-06	2.90E-02	5.88E-02	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	7.10E-08	1.05E-07	1.42E-04	2.10E-04	
			4,4'-DDE	3.89E-03	3.60E-08	4.43E-08	9.26E-06	1.14E-05	
			alpha-BHC	1.17E-03	3.95E-08	4.88E-08	3.37E-05	4.17E-05	
			Arsenic	3.00E-04	3.58E-07	4.30E-07	1.19E-03	1.43E-03	
			beta-BHC	3.30E-04	6.09E-08	1.06E-07	1.85E-04	3.20E-04	
			Endosulfan sulfate	2.47E-02	2.03E-08	2.76E-08	8.23E-07	1.12E-06	
			gamma-BHC	3.00E-03	3.97E-08	5.00E-08	1.32E-05	1.67E-05	
			Heptachlor	9.75E-04	3.35E-08	4.22E-08	3.44E-05	4.33E-05	
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	8.48E-08	2.85E-07	1.70E-04	5.70E-04	
			alpha-BHC	4.16E-04	2.57E-59	8.93E-59	6.18E-56	2.15E-55	
			Dieldrin	5.00E-05	1.23E-08	2.74E-08	2.45E-04	5.48E-04	
			Endosulfan I	2.53E-02	1.07E-62	2.74E-62	4.24E-61	1.08E-60	
			Endosulfan sulfate	6.00E-03	3.03E-62	5.89E-62	5.05E-60	9.82E-60	
			Endrin	3.00E-04	1.44E-14	3.59E-14	4.79E-11	1.20E-10	
			gamma-BHC	3.00E-04	1.04E-17	3.45E-17	3.47E-14	1.15E-13	
			gamma-Chlordane	6.00E-05	3.15E-08	1.15E-07	5.24E-04	1.92E-03	
			Heptachlor	5.00E-04	2.30E-10	4.00E-10	4.60E-07	8.00E-07	
			Heptachlor epoxide	1.30E-05	1.79E-10	6.55E-10	1.37E-05	5.04E-05	
			Methoxychlor	5.00E-03	1.10E-31	1.57E-31	2.20E-29	3.15E-29	

Table L-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.18E-07	1.07E-06	4.37E-04	2.14E-03	
			alpha-BHC	1.17E-03	3.59E-62	1.82E-61	3.07E-59	1.55E-58	
			Dieldrin	6.52E-05	6.45E-10	2.10E-09	9.89E-06	3.22E-05	
			Endosulfan I	2.53E-02	1.50E-65	5.58E-65	5.92E-64	2.21E-63	
			Endosulfan sulfate	2.47E-02	4.23E-65	1.20E-64	1.71E-63	4.86E-63	
			Endrin	6.00E-04	2.75E-15	1.00E-14	4.58E-12	1.67E-11	
			gamma-BHC	3.00E-03	2.87E-19	1.39E-18	9.58E-17	4.63E-16	
			gamma-Chlordane	6.00E-05	4.88E-08	2.61E-07	8.13E-04	4.35E-03	
			Heptachlor	9.75E-04	2.25E-11	5.71E-11	2.31E-08	5.86E-08	
			Heptachlor epoxide	1.30E-05	1.75E-11	9.35E-11	1.35E-06	7.19E-06	
			Methoxychlor	7.60E-02	1.54E-34	3.20E-34	2.02E-33	4.21E-33	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.13E-06	2.44E-06	2.26E-03	4.88E-03	
			4,4'-DDE	3.89E-03	2.44E-07	4.25E-07	6.27E-05	1.09E-04	
			4,4'-DDT	5.00E-04	1.13E-07	1.60E-07	2.25E-04	3.21E-04	
			alpha-BHC	4.16E-04	6.50E-08	1.01E-07	1.56E-04	2.44E-04	
			alpha-Chlordane	1.48E-05	0.00E+00	1.07E-07	0.00E+00	7.21E-03	
			Beryllium	5.00E-03	7.94E-07	1.05E-06	1.59E-04	2.10E-04	
			gamma-Chlordane	6.00E-05	1.21E-07	2.45E-07	2.02E-03	4.08E-03	
			Kepone	1.00E-03	3.55E-08	5.42E-08	3.55E-05	5.42E-05	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	4.93E-09	7.29E-09	9.86E-06	1.46E-05	
			4,4'-DDE	3.89E-03	2.50E-09	3.08E-09	6.43E-07	7.91E-07	
			alpha-BHC	4.16E-04	2.74E-09	3.39E-09	6.59E-06	8.15E-06	
			Arsenic	3.00E-04	2.48E-06	2.99E-06	8.28E-03	9.96E-03	
			beta-BHC	3.30E-04	4.23E-09	7.33E-09	1.28E-05	2.22E-05	
			Endosulfan sulfate	6.00E-03	1.41E-09	1.92E-09	2.35E-07	3.20E-07	
			gamma-BHC	3.00E-04	2.76E-09	3.47E-09	9.19E-06	1.16E-05	
			Heptachlor	5.00E-04	2.33E-09	2.93E-09	4.66E-06	5.86E-06	
			Isodrin	3.00E-04	2.55E-09	3.61E-09	8.50E-06	1.20E-05	

Table L-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Residents Living On-site								
		DermalContactWithSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	7.09E-05	1.53E-04	1.42E-01	3.06E-01	
			4,4'-DDE	3.89E-03	1.53E-05	2.66E-05	3.93E-03	6.85E-03	
			4,4'-DDT	1.12E-02	7.06E-06	1.01E-05	6.30E-04	8.97E-04	
			alpha-BHC	1.17E-03	4.07E-06	6.36E-06	3.48E-03	5.43E-03	
			alpha-Chlordane	1.48E-05	0.00E+00	6.69E-06	0.00E+00	4.52E-01	
			Beryllium	5.00E-03	4.98E-07	6.58E-07	9.96E-05	1.32E-04	
			gamma-Chlordane	6.00E-05	7.59E-06	1.54E-05	1.26E-01	2.56E-01	
		DermalContactWithSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.09E-07	4.57E-07	6.18E-04	9.14E-04	
			4,4'-DDE	3.89E-03	1.57E-07	1.93E-07	4.03E-05	4.96E-05	
			alpha-BHC	1.17E-03	1.72E-07	2.13E-07	1.47E-04	1.82E-04	
			Arsenic	3.00E-04	1.56E-06	1.87E-06	5.19E-03	6.25E-03	
			beta-BHC	3.30E-04	2.65E-07	4.60E-07	8.04E-04	1.39E-03	
			Endosulfan sulfate	2.47E-02	8.85E-08	1.20E-07	3.58E-06	4.87E-06	
			gamma-BHC	3.00E-03	1.73E-07	2.17E-07	5.76E-05	7.25E-05	
			Heptachlor	9.75E-04	1.46E-07	1.84E-07	1.50E-04	1.88E-04	
		IngestionOfDrinkingWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	2.83E-07	6.65E-07	5.65E-04	1.33E-03	
			alpha-BHC	4.16E-04	8.57E-59	2.08E-58	2.06E-55	5.01E-55	
			Dieldrin	5.00E-05	4.09E-08	6.39E-08	8.18E-04	1.28E-03	
			Endosulfan I	2.53E-02	3.57E-62	6.39E-62	1.41E-60	2.53E-60	
			Endosulfan sulfate	6.00E-03	1.01E-61	1.37E-61	1.68E-59	2.29E-59	
			Endrin	3.00E-04	4.79E-14	8.37E-14	1.60E-10	2.79E-10	
			gamma-BHC	3.00E-04	3.47E-17	8.05E-17	1.16E-13	2.68E-13	
			gamma-Chlordane	6.00E-05	1.05E-07	2.69E-07	1.75E-03	4.49E-03	
			Heptachlor	5.00E-04	7.67E-10	9.33E-10	1.53E-06	1.87E-06	
			Heptachlor epoxide	1.30E-05	5.95E-10	1.53E-09	4.58E-05	1.18E-04	
			Methoxychlor	5.00E-03	3.67E-31	3.67E-31	7.34E-29	7.34E-29	

Table L-45
Non-Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

		DermalContactWithWater: Groundwater							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	3.83E-07	1.88E-06	7.65E-04	3.75E-03	
			alpha-BHC	1.17E-03	6.29E-62	3.19E-61	5.37E-59	2.72E-58	
			Dieldrin	6.52E-05	1.13E-09	3.68E-09	1.73E-05	5.64E-05	
			Endosulfan I	2.53E-02	2.62E-65	9.77E-65	1.04E-63	3.86E-63	
			Endosulfan sulfate	2.47E-02	7.41E-65	2.10E-64	3.00E-63	8.51E-63	
			Endrin	6.00E-04	4.81E-15	1.75E-14	8.02E-12	2.92E-11	
			gamma-BHC	3.00E-03	5.03E-19	2.43E-18	1.68E-16	8.11E-16	
			gamma-Chlordane	6.00E-05	8.55E-08	4.57E-07	1.42E-03	7.62E-03	
			Heptachlor	9.75E-04	3.95E-11	1.00E-10	4.05E-08	1.03E-07	
			Heptachlor epoxide	1.30E-05	3.06E-11	1.64E-10	2.36E-06	1.26E-05	
			Methoxychlor	7.60E-02	2.69E-34	5.61E-34	3.54E-33	7.38E-33	
		InhalationOfVapor: Shower vapors							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			Contaminant*	Chronic RfC	Average EAC	Reas. Max. EAC	Average Haz. Index	Reas. Max. Haz. Index	
		IngestionOfSoil: Sludge							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	1.05E-05	2.28E-05	2.11E-02	4.55E-02	
			4,4'-DDE	3.89E-03	2.28E-06	3.97E-06	5.86E-04	1.02E-03	
			4,4'-DDT	5.00E-04	1.05E-06	1.50E-06	2.10E-03	2.99E-03	
			alpha-BHC	4.16E-04	6.06E-07	9.46E-07	1.46E-03	2.27E-03	
			alpha-Chlordane	1.48E-05	0.00E+00	9.96E-07	0.00E+00	6.73E-02	
			Beryllium	5.00E-03	7.41E-06	9.79E-06	1.48E-03	1.96E-03	
			gamma-Chlordane	6.00E-05	1.13E-06	2.29E-06	1.88E-02	3.81E-02	
			Kepone	1.00E-03	3.31E-07	5.06E-07	3.31E-04	5.06E-04	
		IngestionOfSoil: Soil							
			Contaminant	Chronic RfD	Average Intake	Reas. Max. Intake	Average Haz. Index	Reas. Max. Haz. Index	
			4,4'-DDD	5.00E-04	4.60E-08	6.80E-08	9.21E-05	1.36E-04	
			4,4'-DDE	3.89E-03	2.33E-08	2.87E-08	6.00E-06	7.38E-06	
			alpha-BHC	4.16E-04	2.56E-08	3.16E-08	6.15E-05	7.61E-05	
			Arsenic	3.00E-04	2.32E-05	2.79E-05	7.72E-02	9.30E-02	
			beta-BHC	3.30E-04	3.95E-08	6.84E-08	1.20E-04	2.07E-04	
			Endosulfan sulfate	6.00E-03	1.32E-08	1.79E-08	2.19E-06	2.98E-06	
			gamma-BHC	3.00E-04	2.57E-08	3.24E-08	8.58E-05	1.08E-04	
			Heptachlor	5.00E-04	2.17E-08	2.73E-08	4.35E-05	5.47E-05	
			Isodrin	3.00E-04	2.38E-08	3.37E-08	7.94E-05	1.12E-04	

Table L-46
Summary of Cancer Risks by Scenario
Holloman AFB, New Mexico
Pond G-Future Residential

Summary of Cancer Risks by Scenario		
Holloman Risk Assessment - Pond G (future-res)		
Chronic Exposure		
Scenario	Average	Reas. Max.
On-Site Residential, Adult - Future (Lagoons Out of Operation)	2.54E-06	1.56E-05
On-Site Residential, Child - Future (Lagoons Out of Operation)	9.23E-06	1.61E-05

Table L-47
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G-Future Residential

Average Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Slu	Dermal Contact with Sedime	Ingestion of Groundwat	Dermal Contact while Shower	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	5.02E-07	2.19E-09	2.62E-09	6.74E-09	0.00E+00	3.49E-08	1.52E-10	5.49E-07	2.16E+01
4,4'-DDE	1.54E-07	1.57E-09	0.00E+00	0.00E+00	0.00E+00	1.07E-08	1.09E-10	1.66E-07	6.53
4,4'-DDT	7.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-09	0.00E+00	7.58E-08	2.98
alpha-BHC	7.58E-07	3.20E-08	2.08E-59	2.91E-62	2.85E-68	5.26E-08	2.22E-09	8.45E-07	3.33E+01
Beryllium	6.32E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-07	0.00E+00	5.02E-07	1.98E+01
beta-BHC	0.00E+00	1.41E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.79E-10	1.51E-08	5.93E-01
Dieldrin	0.00E+00	0.00E+00	2.52E-08	1.33E-09	9.64E-18	0.00E+00	0.00E+00	2.66E-08	1.05
gamma-BHC	0.00E+00	6.64E-09	1.74E-18	4.80E-20	0.00E+00	0.00E+00	4.61E-10	7.10E-09	2.79E-01
gamma-Chlordane	2.91E-07	0.00E+00	5.26E-09	8.16E-09	8.43E-18	2.02E-08	0.00E+00	3.25E-07	1.28E+01
Heptachlor	0.00E+00	1.94E-08	1.33E-10	1.30E-11	6.41E-21	0.00E+00	1.35E-09	2.09E-08	8.23E-01
Heptachlor epoxide	0.00E+00	0.00E+00	2.09E-10	2.05E-11	9.91E-21	0.00E+00	0.00E+00	2.29E-10	9.03E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.21E-09	0.00E+00	8.21E-09	3.23E-01
Total by pathway	1.84E-06	7.59E-08	3.35E-08	1.63E-08	1.81E-17	5.70E-07	5.27E-09		
% Contribution by pathw	7.24E+01	2.99	1.32	6.40E-01	7.12E-10	2.25E+01	2.07E-01		
Scenario Total								2.54E-06	
Reas. Max. Cancer Risk									
On-Site Residential, Adult - Future (Lagoons Out of Operation)									
	Dermal Contact with Slu	Dermal Contact with Sedime	Ingestion of Groundwat	Dermal Contact while Shower	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	3.61E-06	1.08E-08	2.93E-08	1.10E-07	0.00E+00	2.51E-07	7.49E-10	4.02E-06	2.58E+01
4,4'-DDE	8.92E-07	6.46E-09	0.00E+00	0.00E+00	0.00E+00	6.19E-08	4.48E-10	9.61E-07	6.16
4,4'-DDT	3.37E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.34E-08	0.00E+00	3.60E-07	2.31
alpha-BHC	3.94E-06	1.32E-07	2.41E-58	4.91E-61	4.81E-67	2.74E-07	9.15E-09	4.36E-06	2.80E+01
alpha-Chlordane	8.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-08	0.00E+00	9.16E-07	5.88
Beryllium	2.79E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-06	0.00E+00	2.21E-06	1.42E+01
beta-BHC	0.00E+00	8.14E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.65E-09	8.71E-08	5.59E-01
Dieldrin	0.00E+00	0.00E+00	1.88E-07	1.44E-08	1.09E-15	0.00E+00	0.00E+00	2.02E-07	1.3
gamma-BHC	0.00E+00	2.78E-08	1.92E-17	7.74E-19	0.00E+00	0.00E+00	1.93E-09	2.98E-08	1.91E-01
gamma-Chlordane	1.97E-06	0.00E+00	6.43E-08	1.45E-07	1.51E-16	1.37E-07	0.00E+00	2.31E-06	1.48E+01
Heptachlor	0.00E+00	8.14E-08	7.71E-10	1.10E-10	5.41E-20	0.00E+00	5.65E-09	8.79E-08	5.64E-01
Heptachlor epoxide	0.00E+00	0.00E+00	2.55E-09	3.65E-10	1.92E-10	0.00E+00	0.00E+00	3.11E-09	2.00E-02
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.18E-08	0.00E+00	4.18E-08	2.68E-01
Total by pathway	1.19E-05	3.40E-07	2.85E-07	2.70E-07	1.92E-10	2.78E-06	2.36E-08		
% Contribution by pathw	7.63E+01	2.18	1.83	1.73	1.23E-03	1.78E+01	1.51E-01		
Scenario Total								1.56E-05	

Table L-47
Cancer Risk Summary
Holloman AFB, New Mexico
Pond G-Future Residential

Average Cancer Risk									
On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Dermal Contact with Slu	Dermal Contact with Sedime	Ingestion of Groundwat	Dermal Contact while Shower	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	1.46E-06	6.36E-09	5.81E-09	7.87E-09	0.00E+00	2.17E-07	9.47E-10	1.70E-06	1.84E+01
4,4'-DDE	4.46E-07	4.57E-09	0.00E+00	0.00E+00	0.00E+00	6.64E-08	6.80E-10	5.18E-07	5.61
4,4'-DDT	2.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.06E-08	0.00E+00	2.36E-07	2.56
alpha-BHC	2.20E-06	9.28E-08	4.63E-59	3.39E-62	2.36E-68	3.27E-07	1.38E-08	2.63E-06	2.85E+01
Beryllium	1.83E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.73E-06	0.00E+00	2.91E-06	3.16E+01
beta-BHC	0.00E+00	4.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.09E-09	4.70E-08	5.09E-01
Dieldrin	0.00E+00	0.00E+00	5.61E-08	1.55E-09	7.99E-18	0.00E+00	0.00E+00	5.77E-08	6.24E-01
gamma-BHC	0.00E+00	1.93E-08	3.87E-18	5.61E-20	0.00E+00	0.00E+00	2.87E-09	2.21E-08	2.40E-01
gamma-Chlordane	8.45E-07	0.00E+00	1.17E-08	9.52E-09	6.99E-18	1.26E-07	0.00E+00	9.92E-07	1.07E+01
Heptachlor	0.00E+00	5.63E-08	2.96E-10	1.52E-11	5.31E-21	0.00E+00	8.38E-09	6.50E-08	7.04E-01
Heptachlor epoxide	0.00E+00	0.00E+00	4.64E-10	2.39E-11	8.21E-21	0.00E+00	0.00E+00	4.88E-10	5.29E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.11E-08	0.00E+00	5.11E-08	5.53E-01
Total by pathway	5.34E-06	2.20E-07	7.44E-08	1.90E-08	1.50E-17	3.55E-06	3.28E-08		
% Contribution by pathw	5.78E+01	2.38	8.05E-01	2.06E-01	1.62E-10	3.84E+01	3.55E-01		
Scenario Total								9.23E-06	
Reas. Max. Cancer Risk									
On-Site Residential, Child - Future (Lagoons Out of Operation)									
	Dermal Contact with Slu	Dermal Contact with Sedime	Ingestion of Groundwat	Dermal Contact while Shower	Inhalation while Showeri	Ingestion of Sludg	Ingestion of Sedime	Total	% Contrib
4,4'-DDD	3.15E-06	9.40E-09	1.37E-08	3.86E-08	0.00E+00	4.68E-07	1.40E-09	3.68E-06	2.28E+01
4,4'-DDE	7.76E-07	5.62E-09	0.00E+00	0.00E+00	0.00E+00	1.16E-07	8.37E-10	8.98E-07	5.58
4,4'-DDT	2.93E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.36E-08	0.00E+00	3.37E-07	2.09
alpha-BHC	3.43E-06	1.15E-07	1.13E-58	1.72E-61	8.01E-68	5.11E-07	1.71E-08	4.08E-06	2.53E+01
alpha-Chlordane	7.46E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-07	0.00E+00	8.57E-07	5.32
Beryllium	2.42E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.61E-06	0.00E+00	3.85E-06	2.39E+01
beta-BHC	0.00E+00	7.09E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E-08	8.15E-08	5.06E-01
Dieldrin	0.00E+00	0.00E+00	8.77E-08	5.04E-09	1.81E-16	0.00E+00	0.00E+00	9.27E-08	5.76E-01
gamma-BHC	0.00E+00	2.42E-08	8.98E-18	2.71E-19	0.00E+00	0.00E+00	3.61E-09	2.78E-08	1.73E-01
gamma-Chlordane	1.71E-06	0.00E+00	3.00E-08	5.09E-08	2.51E-17	2.55E-07	0.00E+00	2.05E-06	1.27E+01
Heptachlor	0.00E+00	7.08E-08	3.60E-10	3.86E-11	9.02E-21	0.00E+00	1.05E-08	8.18E-08	5.08E-01
Heptachlor epoxide	0.00E+00	0.00E+00	1.19E-09	1.28E-10	3.19E-11	0.00E+00	0.00E+00	1.35E-09	8.39E-03
Kepone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.80E-08	0.00E+00	7.80E-08	4.84E-01
Total by pathway	1.03E-05	2.96E-07	1.33E-07	9.47E-08	3.19E-11	5.19E-06	4.40E-08		
% Contribution by pathw	6.42E+01	1.84	8.25E-01	5.88E-01	1.98E-04	3.22E+01	2.73E-01		
Scenario Total								1.61E-05	

Table L-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

Cancer Risk Estimates										
Holloman Risk Assessment - Pond G (future-res)										
Scenario										
	Activity									
		Pathway								
On-Site Residential, Adult - Future (Lagoons Out of Operation)										
	Residents Living On-site									
		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.09E-06	1.51E-05	5.02E-07	3.61E-06	
			4,4'-DDE	3.40E-01	B2	4.52E-07	2.62E-06	1.54E-07	8.92E-07	
			4,4'-DDT	3.40E-01	B2	2.08E-07	9.90E-07	7.09E-08	3.37E-07	
			alpha-BHC	6.3	B2	1.20E-07	6.26E-07	7.58E-07	3.94E-06	
			alpha-Chlordane	1.3	B2	0.00E+00	6.59E-07	0.00E+00	8.57E-07	
			Beryllium	4.3	B2	1.47E-08	6.48E-08	6.32E-08	2.79E-07	
			gamma-Chlordane	1.3	B2	2.24E-07	1.51E-06	2.91E-07	1.97E-06	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	9.13E-09	4.50E-08	2.19E-09	1.08E-08	
			4,4'-DDE	3.40E-01	B2	4.63E-09	1.90E-08	1.57E-09	6.46E-09	
			alpha-BHC	6.3	B2	5.07E-09	2.09E-08	3.20E-08	1.32E-07	
			beta-BHC	1.8	C	7.83E-09	4.52E-08	1.41E-08	8.14E-08	
			gamma-BHC	1.3	B2/C	5.11E-09	2.14E-08	6.64E-09	2.78E-08	
			Heptachlor	4.5	B2	4.31E-09	1.81E-08	1.94E-08	8.14E-08	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.09E-08	1.22E-07	2.62E-09	2.93E-08	
			alpha-BHC	6.3	B2	3.30E-60	3.83E-59	2.08E-59	2.41E-58	
			Dieldrin	16	B2	1.58E-09	1.17E-08	2.52E-08	1.88E-07	
			gamma-BHC	1.3	B2/C	1.34E-18	1.48E-17	1.74E-18	1.92E-17	
			gamma-Chlordane	1.3	B2	4.04E-09	4.94E-08	5.26E-09	6.43E-08	
			Heptachlor	4.5	B2	2.96E-11	1.71E-10	1.33E-10	7.71E-10	
			Heptachlor epoxide	9.1	B2	2.30E-11	2.81E-10	2.09E-10	2.55E-09	
		DermalContactWithWater: Groundwater								

Table L-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.81E-08	4.59E-07	6.74E-09	1.10E-07	
			alpha-BHC	6.3	B2	4.62E-63	7.80E-62	2.91E-62	4.91E-61	
			Dieldrin	16	B2	8.29E-11	9.00E-10	1.33E-09	1.44E-08	
			gamma-BHC	1.3	B2/C	3.70E-20	5.96E-19	4.80E-20	7.74E-19	
			gamma-Chlordane	1.3	B2	6.27E-09	1.12E-07	8.16E-09	1.45E-07	
			Heptachlor	4.5	B2	2.90E-12	2.45E-11	1.30E-11	1.10E-10	
			Heptachlor epoxide	9.1	B2	2.25E-12	4.01E-11	2.05E-11	3.65E-10	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EA	Average Risk	Reas. Max. Risk	
			alpha-BHC*	1.80E-03	B2	1.58E-65	2.67E-64	2.85E-68	4.81E-67	
			Dieldrin*	4.60E-03	B2	2.10E-15	2.37E-13	9.64E-18	1.09E-15	
			gamma-Chlordane*	3.70E-04	B2	2.28E-14	4.07E-13	8.43E-18	1.51E-16	
			Heptachlor*	1.30E-03	B2	4.93E-18	4.16E-17	6.41E-21	5.41E-20	
			Heptachlor epoxide	2.60E-03	B2	3.81E-18	7.37E-08	9.91E-21	1.92E-10	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	1.45E-07	1.05E-06	3.49E-08	2.51E-07	
			4,4'-DDE	3.40E-01	B2	3.14E-08	1.82E-07	1.07E-08	6.19E-08	
			4,4'-DDT	3.40E-01	B2	1.45E-08	6.87E-08	4.92E-09	2.34E-08	
			alpha-BHC	6.3	B2	8.35E-09	4.35E-08	5.26E-08	2.74E-07	
			alpha-Chlordane	1.3	B2	0.00E+00	4.57E-08	0.00E+00	5.95E-08	
			Beryllium	4.3	B2	1.02E-07	4.50E-07	4.39E-07	1.93E-06	
			gamma-Chlordane	1.3	B2	1.56E-08	1.05E-07	2.02E-08	1.37E-07	
			Kepone	1.8		4.56E-09	2.32E-08	8.21E-09	4.18E-08	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	6.34E-10	3.12E-09	1.52E-10	7.49E-10	
			4,4'-DDE	3.40E-01	B2	3.21E-10	1.32E-09	1.09E-10	4.48E-10	
			alpha-BHC	6.3	B2	3.52E-10	1.45E-09	2.22E-09	9.15E-09	
			beta-BHC	1.8	C	5.44E-10	3.14E-09	9.79E-10	5.65E-09	
			gamma-BHC	1.3	B2/C	3.54E-10	1.49E-09	4.61E-10	1.93E-09	
			Heptachlor	4.5	B2	2.99E-10	1.26E-09	1.35E-09	5.65E-09	
On-Site Residential, Child - Future (Lagoons Out of Operation)										
	Residents Living On-site									

Table L-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

		DermalContactWithSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	6.07E-06	1.31E-05	1.46E-06	3.15E-06	
			4,4'-DDE	3.40E-01	B2	1.31E-06	2.28E-06	4.46E-07	7.76E-07	
			4,4'-DDT	3.40E-01	B2	6.05E-07	8.62E-07	2.06E-07	2.93E-07	
			alpha-BHC	6.3	B2	3.49E-07	5.45E-07	2.20E-06	3.43E-06	
			alpha-Chlordane	1.3	B2	0.00E+00	5.74E-07	0.00E+00	7.46E-07	
			Beryllium	4.3	B2	4.27E-08	5.64E-08	1.83E-07	2.42E-07	
			gamma-Chlordane	1.3	B2	6.50E-07	1.32E-06	8.45E-07	1.71E-06	
		DermalContactWithSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.65E-08	3.92E-08	6.36E-09	9.40E-09	
			4,4'-DDE	3.40E-01	B2	1.34E-08	1.65E-08	4.57E-09	5.62E-09	
			alpha-BHC	6.3	B2	1.47E-08	1.82E-08	9.28E-08	1.15E-07	
			beta-BHC	1.8	C	2.27E-08	3.94E-08	4.09E-08	7.09E-08	
			gamma-BHC	1.3	B2/C	1.48E-08	1.86E-08	1.93E-08	2.42E-08	
			Heptachlor	4.5	B2	1.25E-08	1.57E-08	5.63E-08	7.08E-08	
		IngestionOfDrinkingWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	2.42E-08	5.70E-08	5.81E-09	1.37E-08	
			alpha-BHC	6.3	B2	7.34E-60	1.79E-59	4.63E-59	1.13E-58	
			Dieldrin	16	B2	3.51E-09	5.48E-09	5.61E-08	8.77E-08	
			gamma-BHC	1.3	B2/C	2.98E-18	6.90E-18	3.87E-18	8.98E-18	
			gamma-Chlordane	1.3	B2	8.99E-09	2.31E-08	1.17E-08	3.00E-08	
			Heptachlor	4.5	B2	6.58E-11	8.00E-11	2.96E-10	3.60E-10	
			Heptachlor epoxide	9.1	B2	5.10E-11	1.31E-10	4.64E-10	1.19E-09	
		DermalContactWithWater: Groundwater								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.28E-08	1.61E-07	7.87E-09	3.86E-08	
			alpha-BHC	6.3	B2	5.39E-63	2.73E-62	3.39E-62	1.72E-61	
			Dieldrin	16	B2	9.68E-11	3.15E-10	1.55E-09	5.04E-09	
			gamma-BHC	1.3	B2/C	4.31E-20	2.09E-19	5.61E-20	2.71E-19	
			gamma-Chlordane	1.3	B2	7.32E-09	3.92E-08	9.52E-09	5.09E-08	
			Heptachlor	4.5	B2	3.38E-12	8.58E-12	1.52E-11	3.86E-11	
			Heptachlor epoxide	9.1	B2	2.62E-12	1.40E-11	2.39E-11	1.28E-10	
		InhalationOfVapor: Shower vapors								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			Contaminant*	SFC	Evidence	Average EAC	Reas. Max. EA	Average Risk	Reas. Max. Risk	

Table L-48
Cancer Risk Estimates
Holloman AFB, New Mexico
Pond G-Future Residential

			alpha-BHC*	1.80E-03	B2	1.31E-65	4.45E-65	2.36E-68	8.01E-68	
			Dieldrin*	4.60E-03	B2	1.74E-15	3.95E-14	7.99E-18	1.81E-16	
			gamma-Chlordane*	3.70E-04	B2	1.89E-14	6.78E-14	6.99E-18	2.51E-17	
			Heptachlor*	1.30E-03	B2	4.09E-18	6.93E-18	5.31E-21	9.02E-21	
			Heptachlor epoxide	2.60E-03	B2	3.16E-18	1.23E-08	8.21E-21	3.19E-11	
		IngestionOfSoil: Sludge								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	9.04E-07	1.95E-06	2.17E-07	4.68E-07	
			4,4'-DDE	3.40E-01	B2	1.95E-07	3.40E-07	6.64E-08	1.16E-07	
			4,4'-DDT	3.40E-01	B2	9.00E-08	1.28E-07	3.06E-08	4.36E-08	
			alpha-BHC	6.3	B2	5.20E-08	8.11E-08	3.27E-07	5.11E-07	
			alpha-Chlordane	1.3	B2	0.00E+00	8.54E-08	0.00E+00	1.11E-07	
			Beryllium	4.3	B2	6.35E-07	8.39E-07	2.73E-06	3.61E-06	
			gamma-Chlordane	1.3	B2	9.68E-08	1.96E-07	1.26E-07	2.55E-07	
			Kepone	1.8		2.84E-08	4.33E-08	5.11E-08	7.80E-08	
		IngestionOfSoil: Soil								
			Contaminant	SF	Evidence	Average CDI	Reas. Max. CD	Average Risk	Reas. Max. Risk	
			4,4'-DDD	2.40E-01	B2	3.95E-09	5.83E-09	9.47E-10	1.40E-09	
			4,4'-DDE	3.40E-01	B2	2.00E-09	2.46E-09	6.80E-10	8.37E-10	
			alpha-BHC	6.3	B2	2.19E-09	2.71E-09	1.38E-08	1.71E-08	
			beta-BHC	1.8	C	3.38E-09	5.86E-09	6.09E-09	1.06E-08	
			gamma-BHC	1.3	B2/C	2.21E-09	2.77E-09	2.87E-09	3.61E-09	
			Heptachlor	4.5	B2	1.86E-09	2.34E-09	8.38E-09	1.05E-08	

Table L-49

Identification of Key Chemicals and Exposure Pathways that Drive Baseline (Hypothetical Future Residential) Carcinogenic Risk for Ponds A through G, Holloman AFB, New Mexico

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond A			
- Adult, Average	2.4E-3	Heptachlor epoxide (99)	Dermal contact with sludge (87) Ingestion of sludge (12)
- Adult, Reasonable Maximum	8.0E-3	Heptachlor epoxide (99)	Dermal contact with sludge (87) Ingestion of sludge (12)
Pond B			
- Adult, Average	1.1E-4	PCB-1254 (63) PCB-1260 (24)	Dermal contact with sludge (81) Ingestion of sludge (12)
- Adult, Reasonable Maximum	4.7E-4	PCB-1254 (58) PCB-1260 (21)	Dermal contact with sludge (73) Ingestion of sludge (11)
Pond C			
- Adult, Average	1.1E-5	Kepone (38) gamma-Chlordane (32)	Ingestion of sludge (42) Dermal contact in shower (20)
- Adult, Reasonable Maximum	9.9E-5	Kepone (38) gamma-Chlordane (38)	Ingestion of sludge (40) Dermal contact in shower (28)

Table L-49

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond D			
- Adult, Average	3.0E-6	Dieldrin (35) Aldrin (19) DDT (17)	Ingestion of groundwater (78) Dermal contact in shower (20)
- Adult, Reasonable Maximum	3.1E-5	Dieldrin (38) Aldrin (14) DDT (18)	Ingestion of groundwater (71) Dermal contact in shower (26)
Pond E			
- Adult, Average	1.0E-3	Heptachlor epoxide (99)	Dermal contact with sludge (87) Ingestion of sludge (12)
- Adult, Reasonable Maximum	3.5E-3	Heptachlor epoxide (99)	Dermal contact with sludge (87) Ingestion of sludge (12)
Pond F			
- Adult, Average	6.7E-6	DDD (32) Dieldrin (16) DDE (10)	Dermal contact with sludge (49) Ingestion of groundwater (35)
- Adult, Reasonable Maximum	5.0E-5	DDD (25) Dieldrin (23) DDT (11) Aldrin (10)	Dermal contact with sludge (34) Ingestion of groundwater (44)

Table L-49

(Continued)

Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond G			
- Adult, Average	2.5E-6	alpha-BHC (33) DDD (22) Beryllium (20)	Dermal contact with sludge (72)
- Adult, Reasonable Maximum	1.6E-5	alpha-Chlordane (28) DDD (26) gamma-Chlordane (15)	Dermal contact with sludge (76)

Table L-50

Identification of Key Chemicals and Exposure Pathways that Drive Baseline (Hypothetical Future Residential) Noncarcinogenic Risk for Ponds A through G, Holloman AFB, New Mexico

Location and Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)		Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)	
Pond A					
- Adult, Average	158	Heptachlor epoxide	(98)	Dermal contact with sludge Ingestion of sludge	(86) (12)
- Adult, Reasonable Maximum	160	Heptachlor epoxide	(97)	Dermal contact with sludge Ingestion of sludge	(85) (12)
- Child, Average	788	Heptachlor epoxide	(98)	Dermal contact with sludge Ingestion of sludge	(76) (76)
- Child, Reasonable Maximum	794	Heptachlor epoxide	(97)	Dermal contact with sludge Ingestion of sludge	(75) (22)
Pond B					
- Adult, Average	0.8	gamma-Chlordane	(66)	Dermal contact in shower Ingestion of groundwater	(44) (31)
- Adult, Reasonable Maximum	2.2	gamma-Chlordane	(81)	Dermal contact in shower Ingestion of groundwater	(60) (28)
- Child, Average	3.1	gamma-Chlordane arsenic	(41) (25)	Ingestion of sludge Ingestion of groundwater	(41) (27)
- Child, Reasonable Maximum	5.9	gamma-Chlordane arsenic	(59) (15)	Dermal contact in shower Ingestion of groundwater	(40) (25)

Table L-50

(Continued)

Location and Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond C			
- Adult, Average	0.69	gamma-Chlordane (49)	Dermal contact with sludge (35) Dermal contact in shower (31) Ingestion of groundwater (21)
- Adult, Reasonable Maximum	1.83	gamma-Chlordane (62)	Dermal contact in shower (44) Dermal contact with sludge (25) Ingestion of groundwater (21)
- Child, Average	2.7	gamma-Chlordane (32)	Dermal contact with sludge (38) Ingestion of sludge (29)
- Child, Reasonable Maximum	5.9	gamma-Chlordane (38)	Dermal contact with sludge (44) Ingestion of sludge (26)
Pond D			
- Adult, Average	0.08	alpha-Chlordane (21)	Ingestion of groundwater (62)
- Adult, Reasonable Maximum	0.23	gamma-Chlordane	Ingestion of groundwater (57)
- Child, Average	0.27	Arsenic (20)	Ingestion of groundwater (62)
- Child, Reasonable Maximum	0.57	gamma-Chlordane (24)	Ingestion of groundwater (56)

Table L-50

(Continued)

Location and Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond E			
- Adult, Average	68	Heptachlor epoxide (99)	Dermal contact with sludge (88) Ingestion of sludge (12)
- Adult, Reasonable Maximum	68	Heptachlor epoxide (99)	Dermal contact with sludge (87) Ingestion of sludge (12)
- Child, Average	336	Heptachlor epoxide (99)	Dermal contact with sludge (77) Ingestion of sludge (23)
- Child, Reasonable Maximum	336	Heptachlor epoxide (99)	Dermal contact with sludge (77) Ingestion of sludge (23)

Table L-50

(Continued)

Location and Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond F			
- Adult, Average	0.56	delta-BHC (36) DDD (25) alpha-Chlordane (24)	Dermal contact with sludge (74) Ingestion of sludge (13)
- Adult, Reasonable Maximum	0.98	delta-BHC (29) DDD (25) alpha-Chlordane (24)	Dermal contact with sludge (66) Ingestion of sludge (11)
- Child, Average	2.7	gamma-Chlordane (37) DDD (26) alpha-Chlordane (23)	Dermal contact with sludge (67) Ingestion of sludge (25)
- Child, Reasonable Maximum	4.3	gamma-Chlordane (33) DDD (29) alpha-Chlordane (24)	Dermal contact with sludge (65) Ingestion of sludge (24)

Table L-50

(Continued)

Location and Scenario	Total Scenario Risk	Chemicals that Contribute Chemical-Specific Risk (% Contribution)	Exposure Pathways that Contribute Pathway-Specific Risk (% Contribution)
Pond G			
- Adult, Average	0.08	DDD (44) gamma-Chlordane (40)	Dermal contact with sludge (79)
- Adult, Reasonable Maximum	0.27	alpha-Chlordane (40) DDD (28) gamma-Chlordane (20)	Dermal contact with sludge (86)
- Child, Average	0.41	DDD (40) gamma-Chlordane (36) Arsenic (20)	Dermal contact with sludge (67)
- Child, Reasonable Maximum	1.3	alpha-Chlordane (28) DDD (26) gamma-Chlordane (15)	Dermal contact with sludge (78)

7.0 REFERENCES

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APPENDIX M

BIOTA SAMPLING AND ANALYSIS QUALITY CONTROL/ QUALITY ASSURANCE REPORT (WITH ATTACHMENTS)

1.0 INTRODUCTION

This report presents results of biota sampling and analysis associated with the Sewage Lagoons and Lakes Investigation conducted at Holloman Air Force Base (AFB). Biota samples were collected by Environmental Technical Services Company of Austin, Texas. Chemical analyses were performed by Geochemical and Environmental Research Group of College Station, Texas. Results and findings for the surface water, groundwater, soil, and sediment samples analyzed during this investigation are presented in the *Sampling and Quality Control Summary Report, Sewage Lagoons and Lakes Investigation (SQCSR)* (Radian, September 1993).

Overall, QA/QC data associated with this program indicate that the measurement data are acceptable and defensible. The QA/QC data indicate that QC mechanisms were effective in ensuring measurement data reliability within expected limits of sampling and analytical error. When interpreting the data, the following potential limitations should be considered:

Pesticides and PCBs

- Based on laboratory blank results, low level pesticide and PCB contamination was present in analytical systems. This should not impact overall data usability because field sample results show substantially greater concentrations.

- Based on matrix spike recoveries and laboratory control sample recoveries, field sample results for beta-BHC and HCB may be biased low by approximately 75 percent.

- Based on reported matrix spike recoveries (126-476%), reported 4,4'-DDD results may be biased high.

- Three of eight 4,4'-DDE matrix spike recoveries (293%, 180%, 256%) are above the objective. All five laboratory control sample recoveries for this analyte are within the objective. Reported 4,4'-DDE results may be biased high because of a matrix effect.

Semivolatile Organic Compounds

- Laboratory blank results (i.e., reagent and method) indicate that phthalate contamination was present in the analytical systems. Field sample results for di-n-butylphthalate and bis(2-ethylhexyl)phthalate may be biased high because of laboratory contamination.

Dioxins and Furans

- Laboratory blank results indicate some laboratory contamination. Reported results may be biased high.

- Based on spike recoveries, reported results may be biased slightly high.

2.0 SUMMARY OF FIELD ACTIVITIES

To achieve the objectives of this program, a series of field tasks was performed at Holloman AFB. The activities were developed according to the USACE Scope of Services dated 17 August 1992 and are discussed in this section.

2.1 Biota Samples

Biota samples were collected in all sewage lagoons and lakes, as well as in the ditch connecting Pond G and Lake Holloman. All biota sampling started downstream (Lake Stinky) and moved upstream, so that contaminants potentially stirred up during sampling activities would not interfere with analytical results for the samples collected.

2.1.1 Plankton Samples

Sample Locations

Composite plankton samples were collected along perpendicular transects through the center of each sewage lagoon (Ponds A-G). The sampling strategy assumed that plankton distribution was uniform and normal, and that shore-to-shore samples would be representative of plankton populations in the lagoons. Sampling transects are shown in Figures M-1 through M-7. Three composite plankton samples were collected in Lake Holloman, along the transects as shown in Figure M-8.

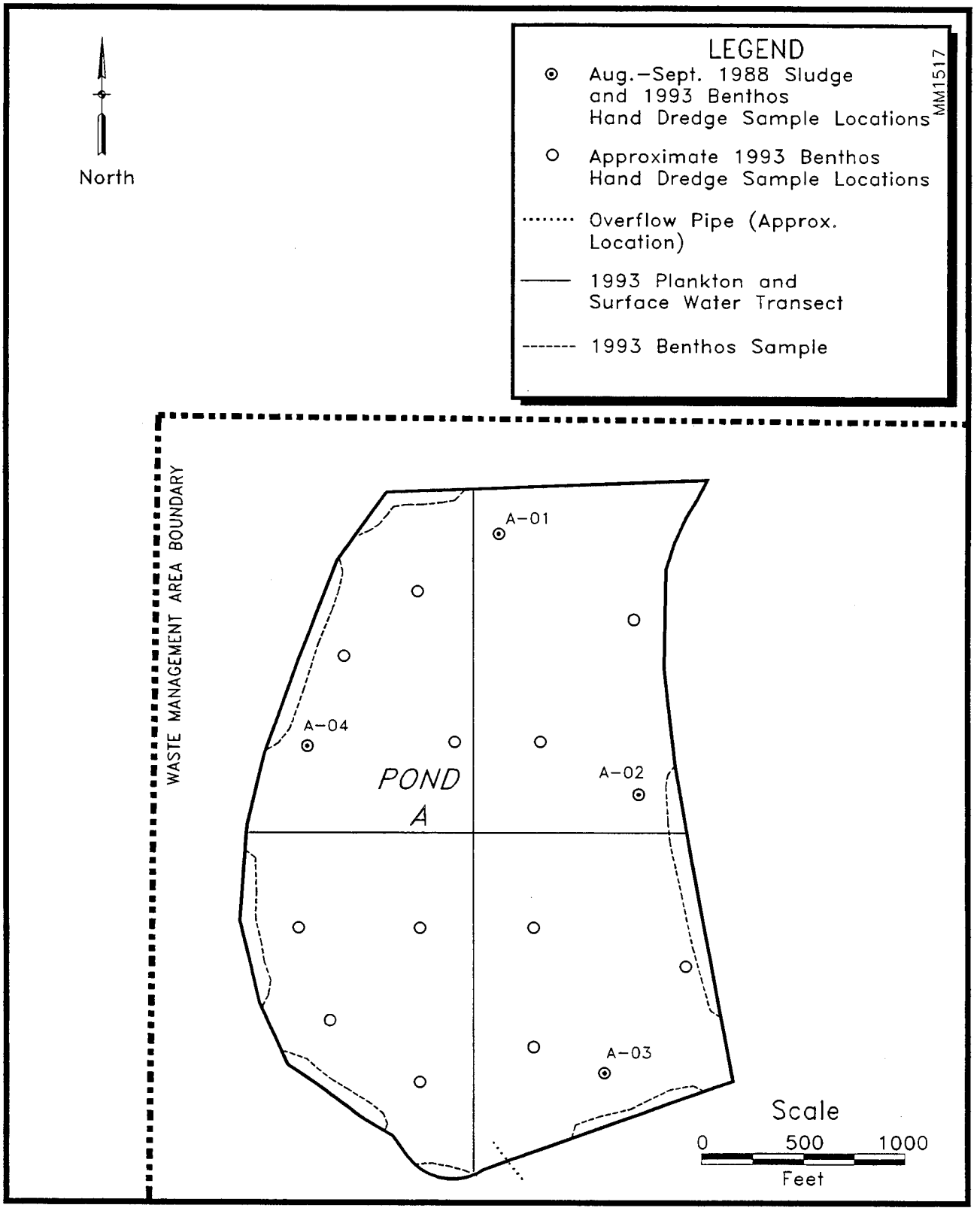

Figure M-1. Biota Sampling Locations in Pond A

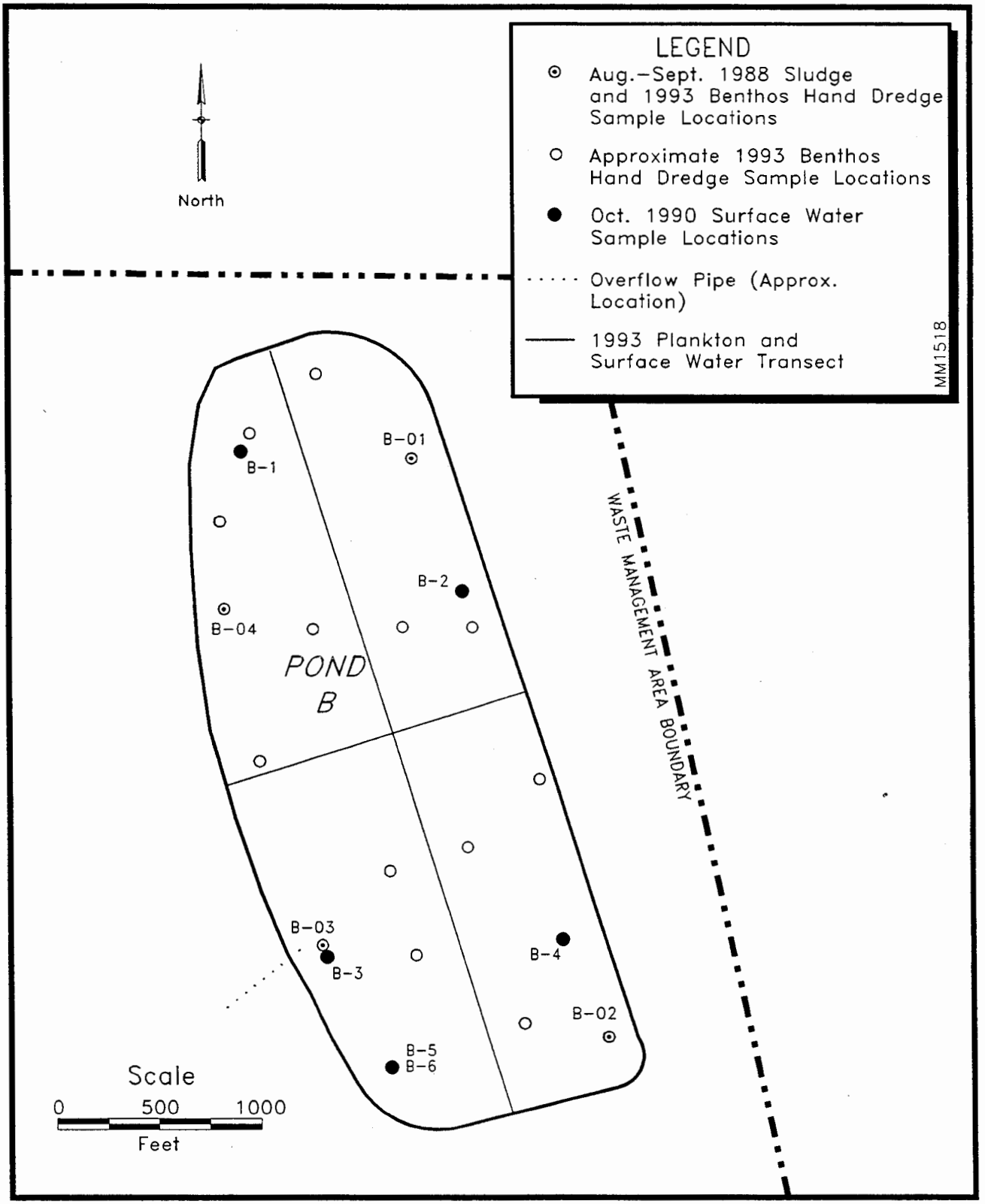

Figure M-2. Biota Sampling Locations in Pond B

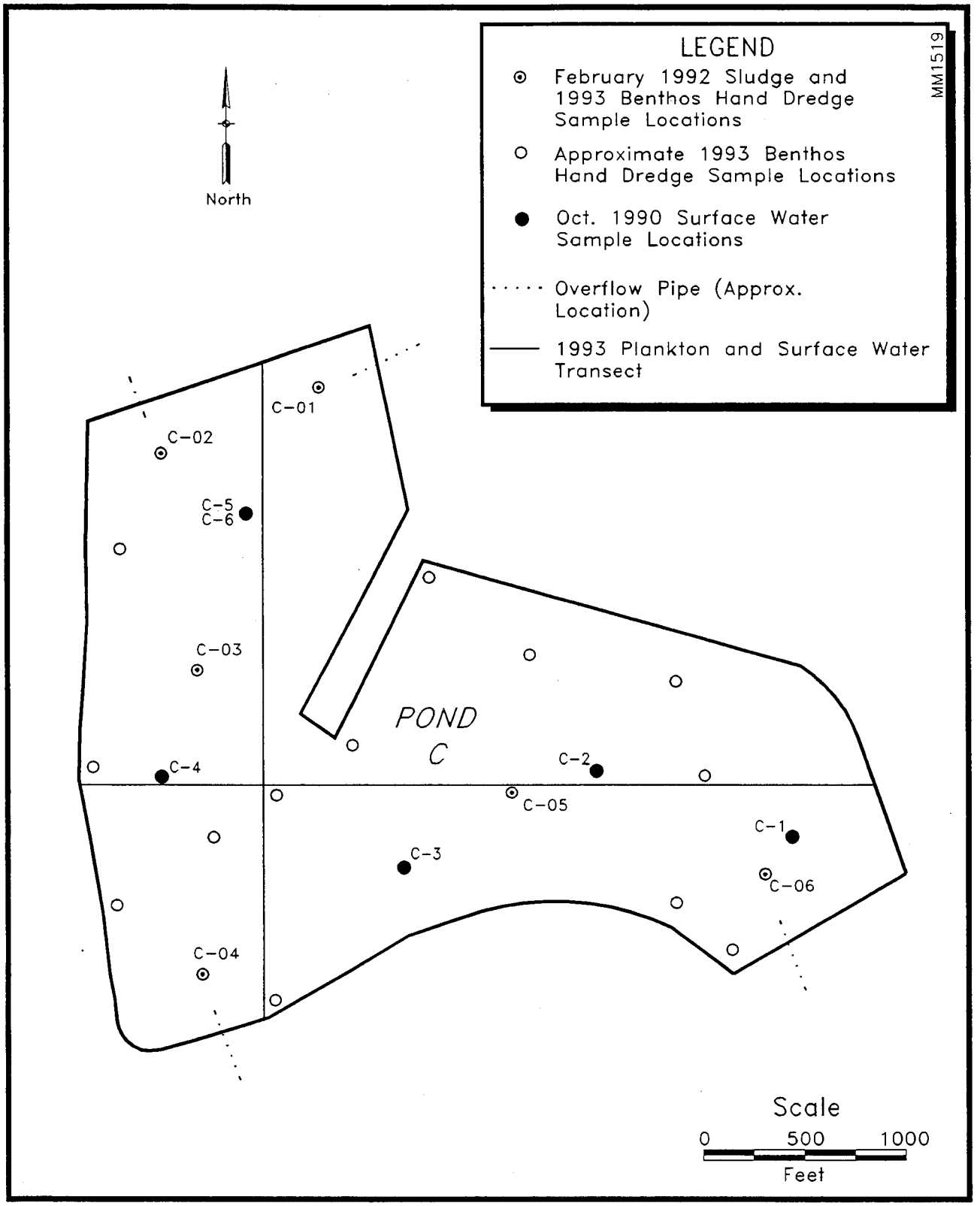

Figure M-3. Biota Sampling Locations in Pond C

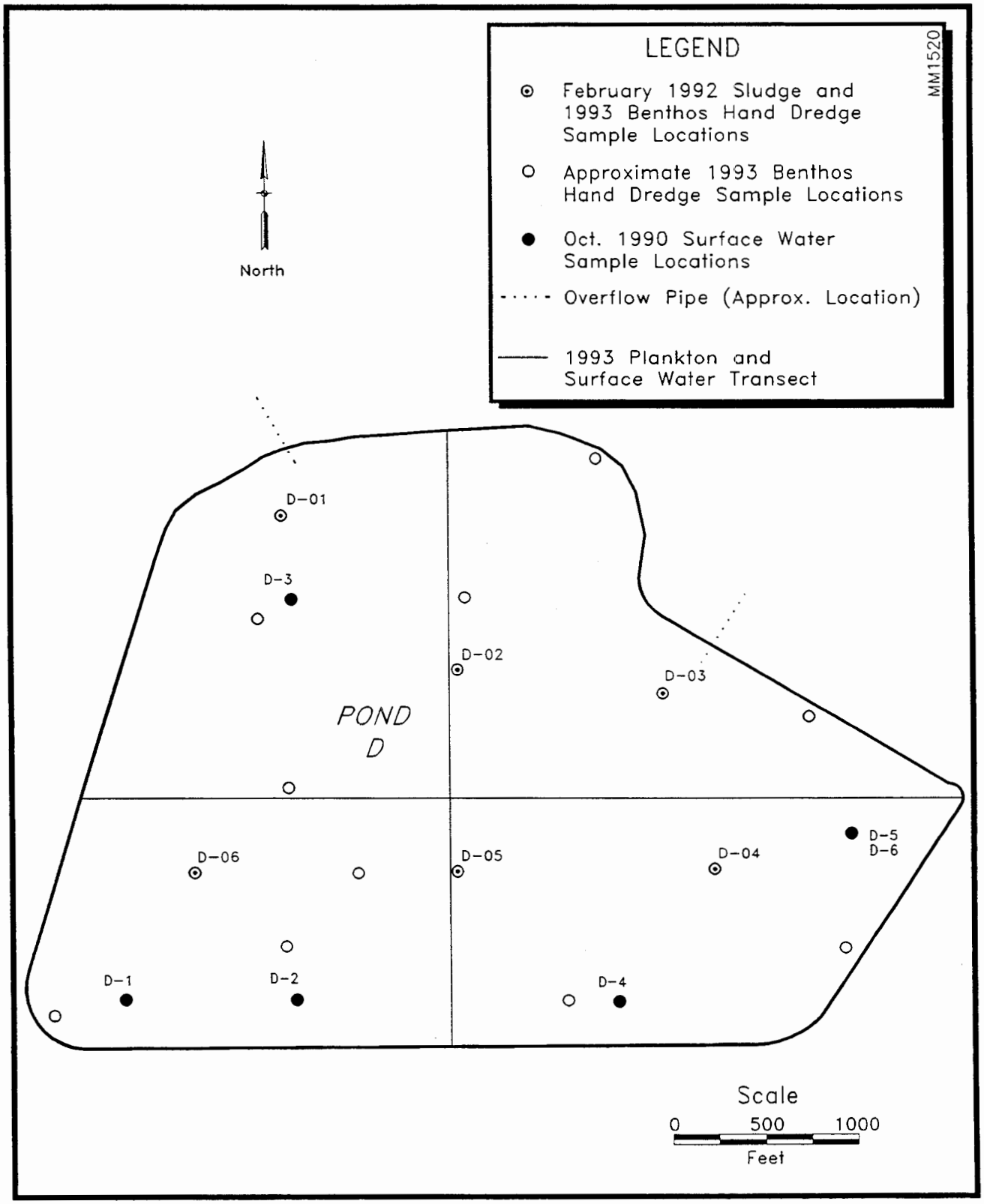

Figure M-4. Biota Sampling Locations in Pond D

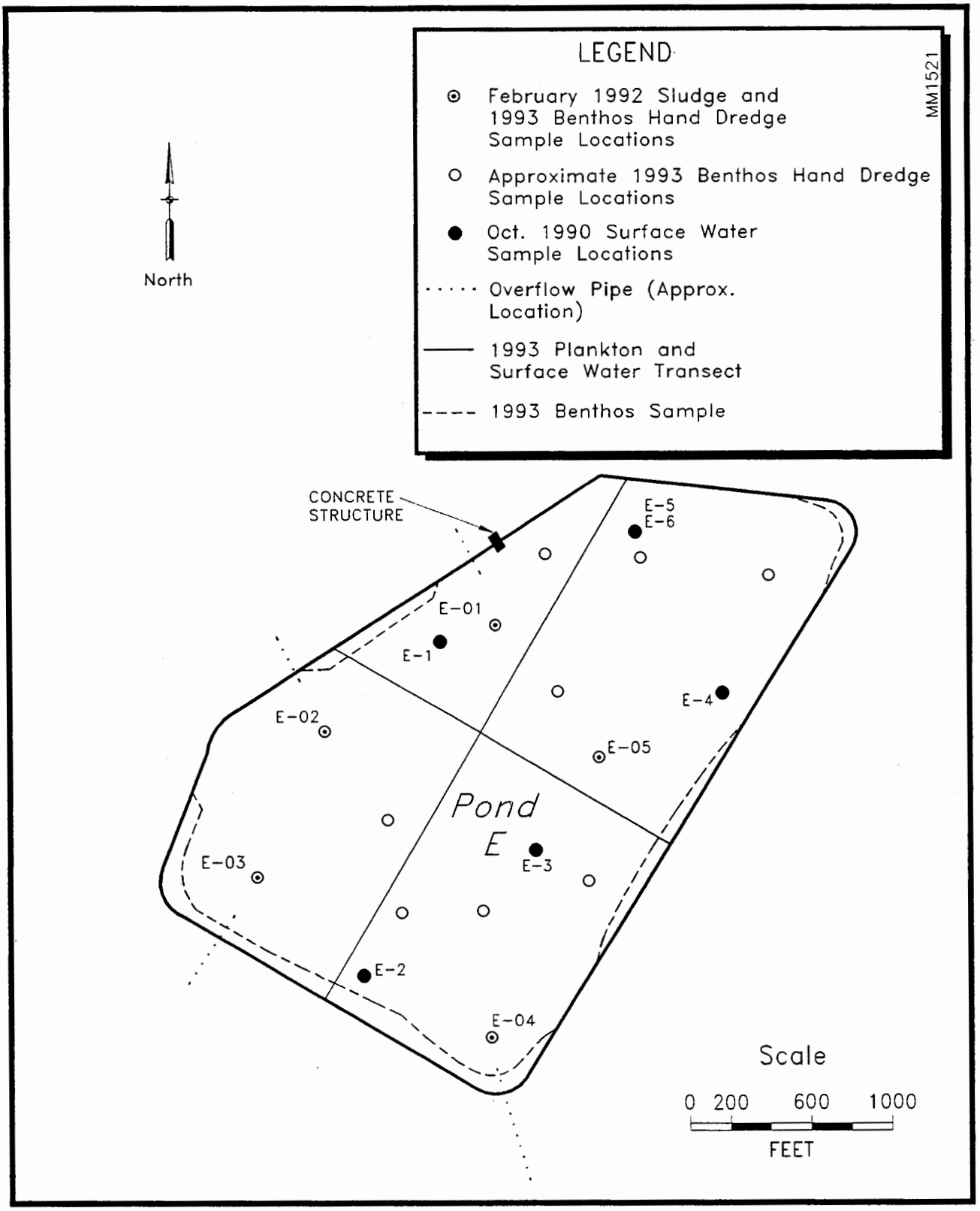

Figure M-5. Biota Sampling Locations in Pond E

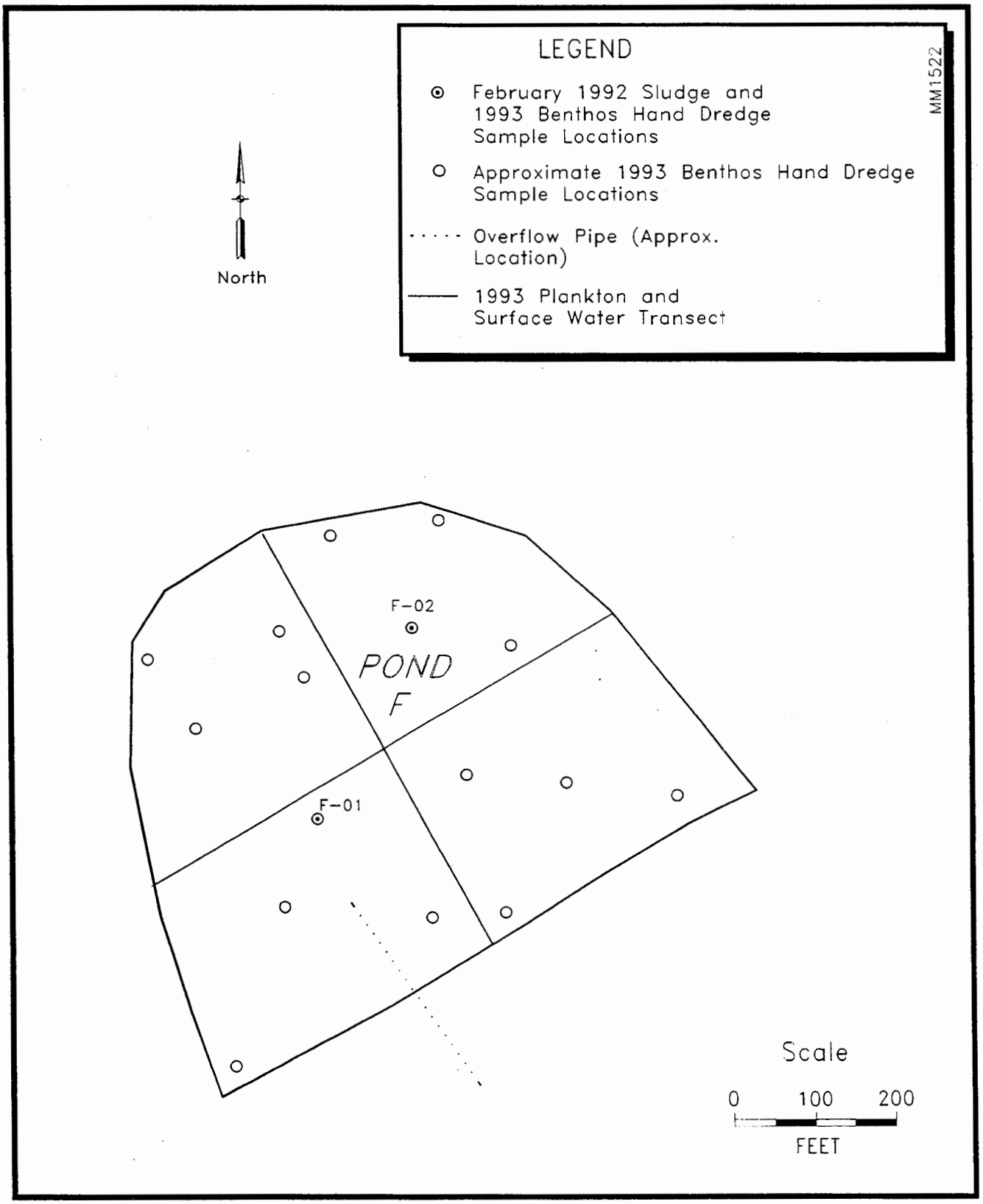

Figure M-6. Biota Sampling Locations in Pond F

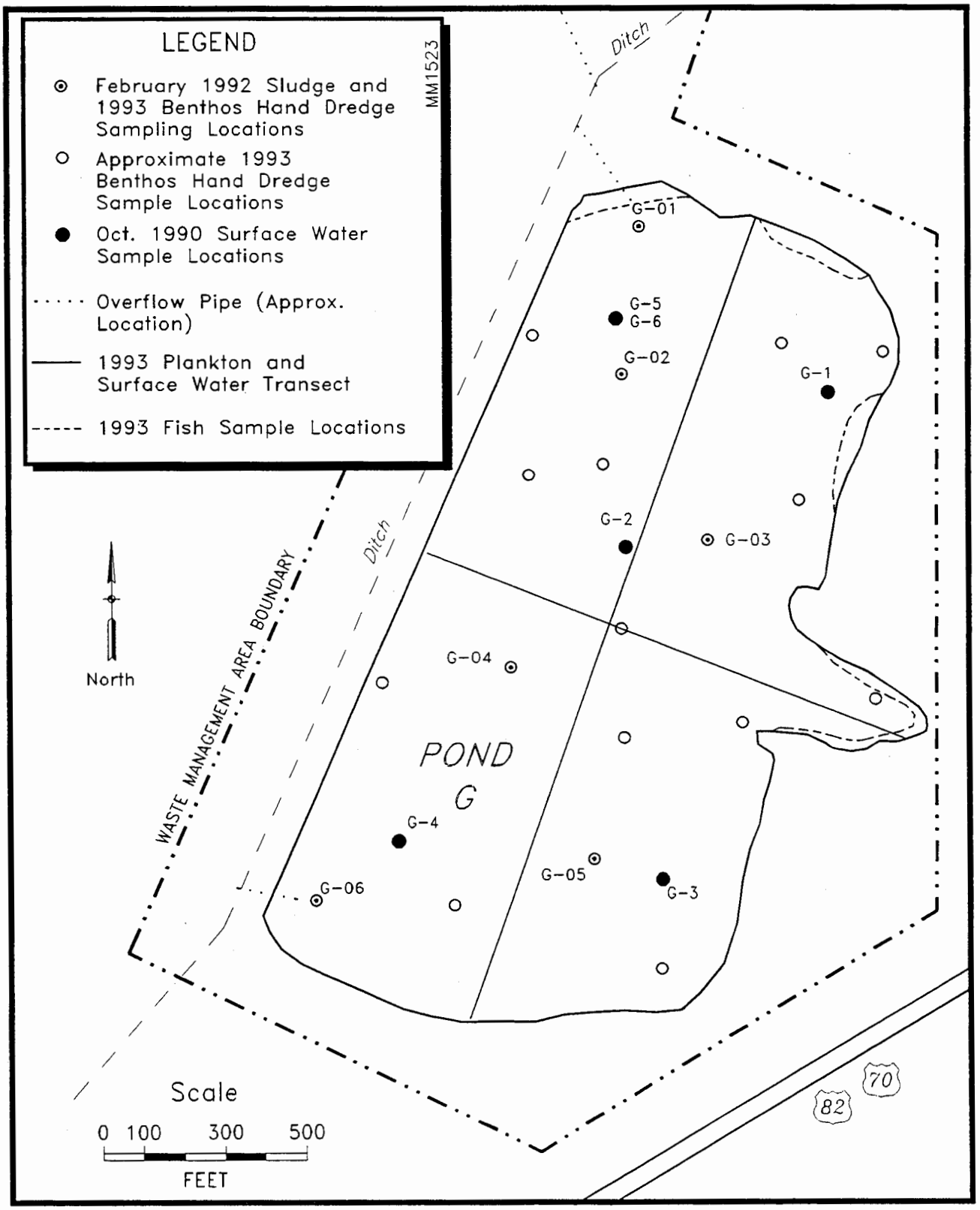

Figure M-7. Biota Sampling Locations in Pond G

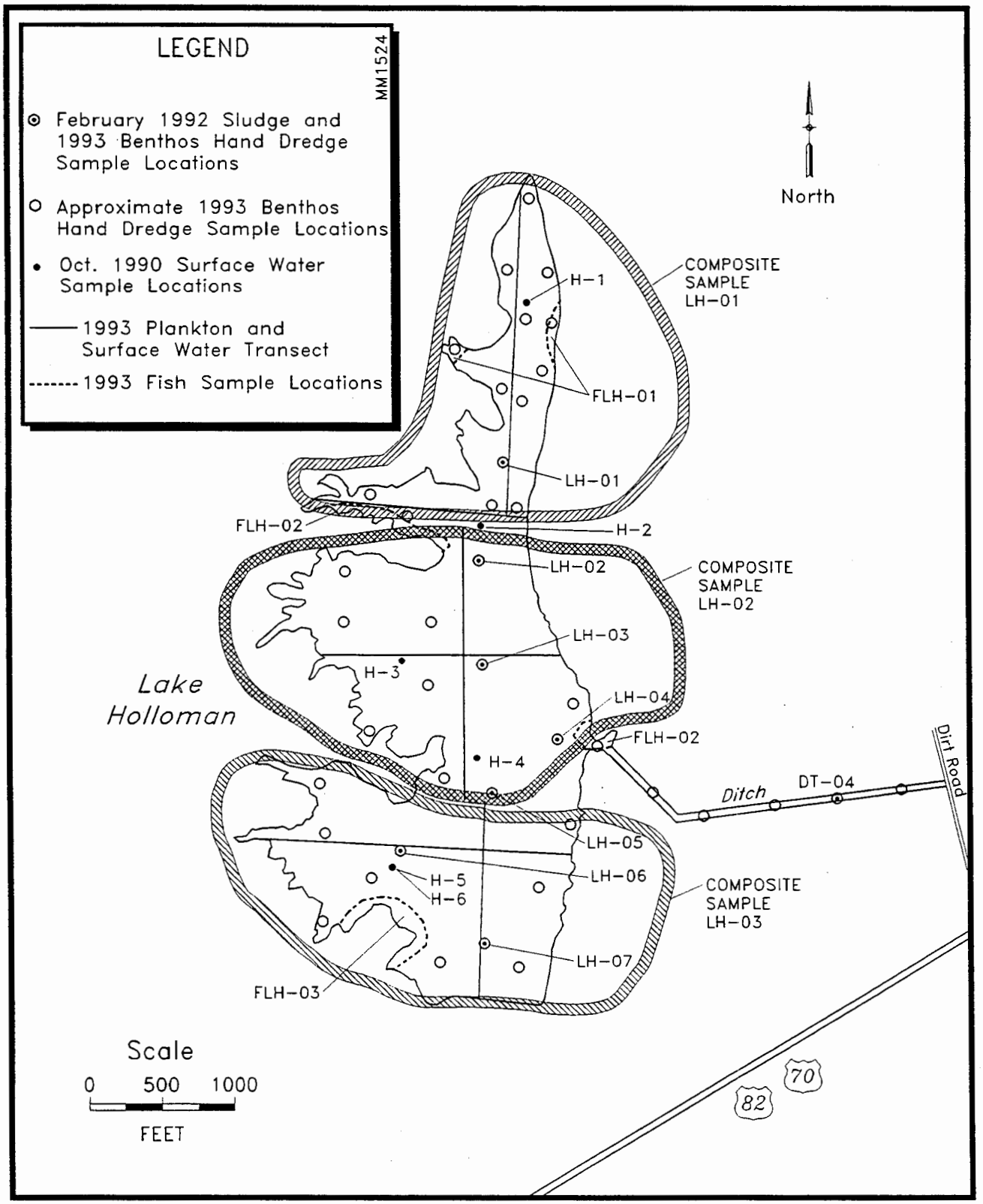

Figure M-8. Biota Sampling Locations in Lake Holloman

Two composite plankton samples were collected in Lake Stinky along transects shown in Figure M-9. One sample was collected north of U.S. Highway 70/82 and one sample was collected south of the highway.

One composite plankton sample was taken in the ditch that connects Pond G and Lake Holloman. This sample was collected at the culvert where the road crosses the ditch (Figure M-10). At this point, sufficient flow enabled the concentration of plankton in the plankton net. Grab samples to verify species composition were taken at the surface water profile stations shown in Figure M-10.

Sampling Procedures

Plankton samples were collected using a 28 μm horizontal plankton tow net (APHA Method 10200) towed in front of a boat in the lagoons and lakes. Since none of the lagoons or lakes is more than 2-3 m deep, subsurface samples should be adequate to characterize the plankton. All plankton samples for chemical analysis were collected in the euphotic zone. However, each lagoon or lake was tested for stratification by constructing temperature, conductivity, and dissolved oxygen profiles for it and a plankton sample was collected below the euphotic zone in each lagoon and lake to verify distribution. Collection of this sample was made with a teflon bailer.

2.1.2 Fish Samples

2.1.2.1 Sample Locations

A composite fish sample was collected from each lagoon where fish are present. The only fish known to inhabit Lake Holloman is the mosquito fish (Gambusia affinis); Gambusia was the only fish expected to be encountered in the lagoons. As the lagoons and lakes are highly eutrophic, the fish tend to concentrate close to the shore and are rarely seen more than 30 feet offshore (Cole, et al., 1981). Therefore, fish

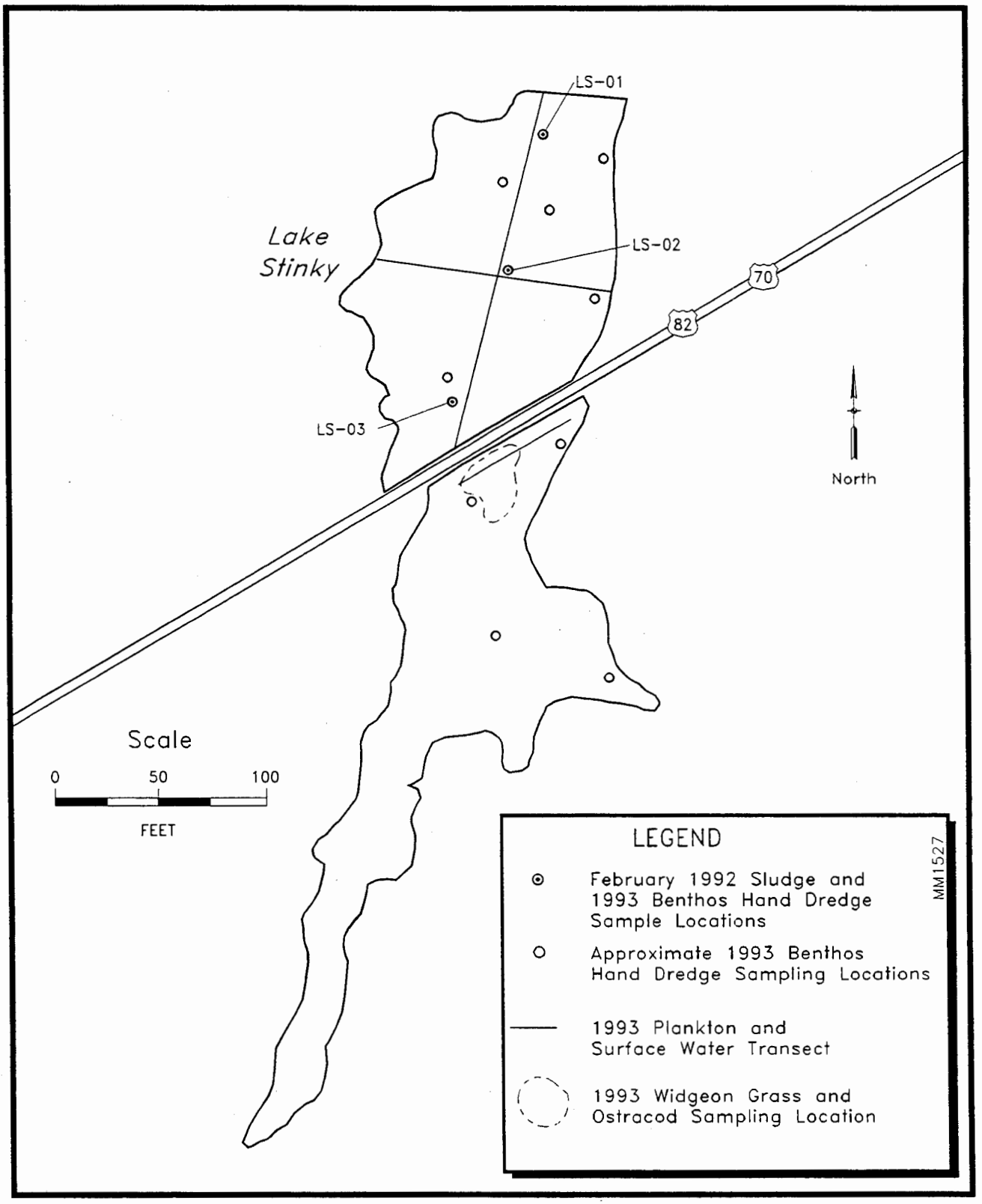

Figure M-9. Biota Sampling Locations in Lake Stinky

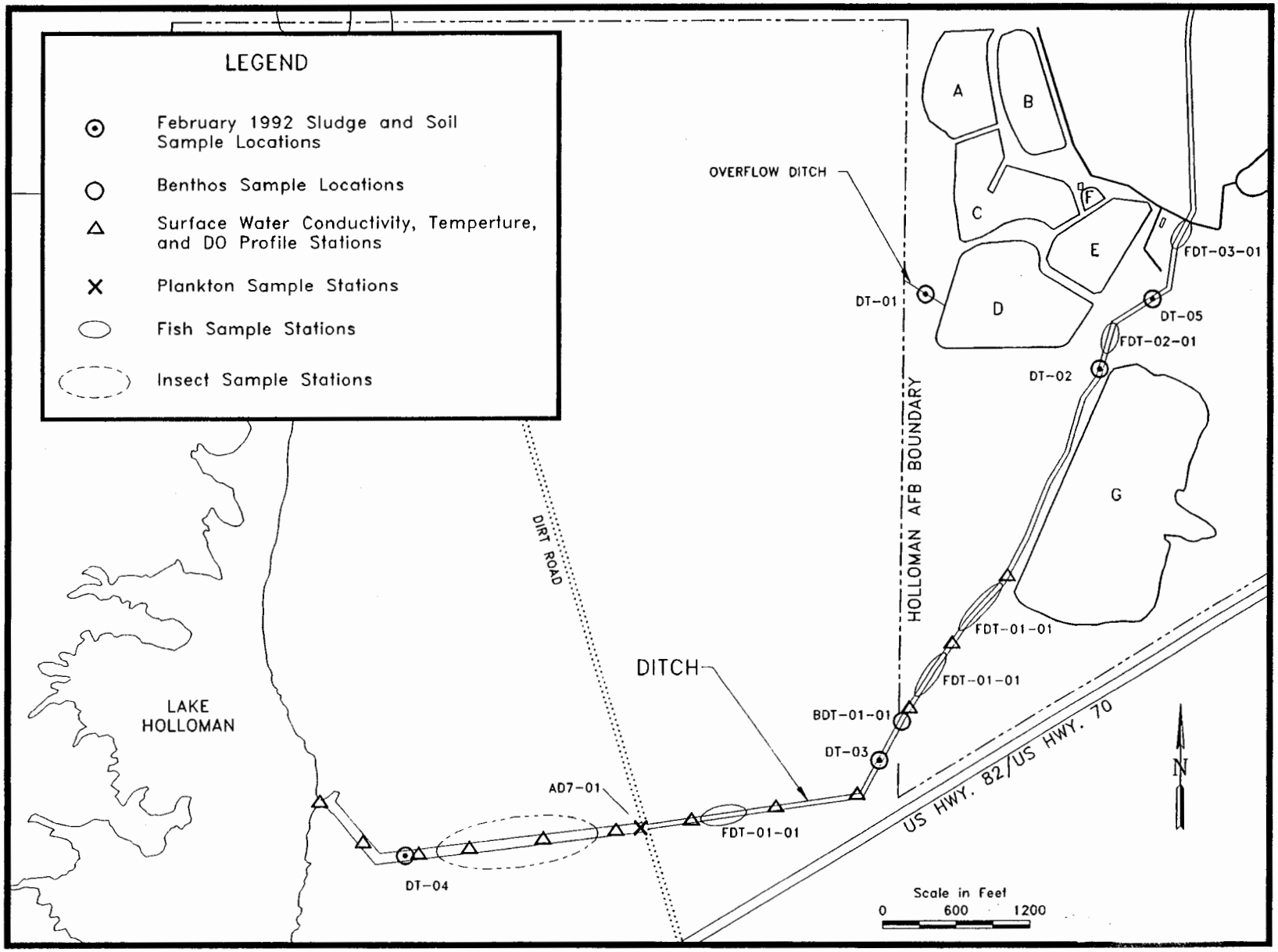

Figure M-10. Biota Sampling Locations in Ditch

sampling efforts were concentrated zone near the shore of each lagoon or lake. No fish were present in Ponds A through F, probably due to lack of suitable habitat. Fish were collected in Pond G, in 3 locations in Lake Holloman and at 3 locations along the ditch, as shown in figure M-7, M-8, and M-10. Fish were not present in the southern part of Lake Stinky; a few fish were present in the northern part of Lake Stinky but not in sufficient numbers to permit sampling.

2.2.2.2 Sampling Procedures

At the time of sampling, fish were present only in shallow, protected areas under overhanging salt grass in Lake Holloman, Pond G, and the ditch. Samples were collected by running a small mesh (1/2 in.) dip net up under the salt grass and catching the small Gambusia hiding there. A variety of skimming techniques were tried, but all were ineffective due to the preferred habitat of the fish (under overhanging salt grass) and pond bottom and shoreline irregularities.

2.1.3 Benthos Samples

2.1.3.1 Sample Locations

Benthic organisms were searched for in the vicinity of previous sludge sample sites and at other locations as shown in Figures M-1 through M-10. A hand dredge sample was collected at each location to access the feasibility of collecting benthos samples in each lagoon or lake. In general, a thick (2-6 in.) algae/bacterial layer, which was devoid of any microscopic life, extended to within 30 or 40 feet of the shore of each lagoon or lake, where the layer thinned gradually, and benthic organisms began to appear. Benthic organisms were present in this zone in all lagoons and lakes, but their scarcity and difficulty in separating them from the substrate precluded sample collection in all but 3 locations.

Composite benthos samples were collected in Pond A, Pond E, and in the ditch. Sample locations are shown in Figures M-1, M-5, and M-10, respectively.

2.1.3.2 Sampling Procedures

A hand dredge was used to collect one calibration sample at each sample location. Frequency per unit area was determined from this sample. If sufficient numbers of benthic organisms were available at the location, additional samples were collected with a skid dredge. If insufficient numbers were available, no further sampling was conducted at that location.

Sludge samples were washed with ambient water in a wash bucket or frame with 1000 micron screen on the bottom. After benthic organisms were separated from the sludge, they were rinsed with deionized water, placed in sample jars, and preserved by freezing.

2.1.4 Near-Surface Sediment Samples

2.1.4.1 Sample Locations

Near surface sediment samples were collected in Ponds A and E in the same areas that benthos samples were collected, as shown in Figures M-1 and M-5.

2.1.4.2 Sampling Procedures

A composite near-surface sediment sample was collected by hand-dredge from eight locations within the sample area. Each composite sample was homogenized in a stainless steel bowl and analyzed for the same parameters as the benthos samples.

2.2 Surface Water Samples

2.2.1 Sample Locations

The 1993 surface water samples were collected along the same transects used for sampling algae, shown in Figures M-1 through M-9. One composite sample was collected in each of the lagoons, three composite samples were collected in Lake Holloman, and two composite samples were collected in Lake Stinky. One sample was collected from the ditch downgradient of Pond G as shown in Figure M-10. The October 1990 samples were collected as outlined in the site-specific sampling plan (Radian, October 1990) at locations shown in Figures M-2 through M-8.

2.2.2 Sampling Procedures

Surface water was collected in a decontaminated Teflon bailer composited in sample bottles. All sample handling activities will be accomplished with minimum contact with decontaminated gloves. The 1993 samples were analyzed for organochlorine pesticides, pH, conductivity, hardness, alkalinity, and total dissolved solids. The October 1990 samples were analyzed for pesticides/PCBs, semivolatile organic compounds, and metals.

3.0 ANALYTICAL RESULTS

This section describes the biota samples collected, analytical anomalies and associated corrective actions taken, and data qualifier flags.

3.1 Chemical Analyses

The biota samples collected for chemical analyses were prepared and analyzed in accordance with the project Chemical Data Acquisition Plan (CDAP, 1993), laboratory standard operating procedures (SOPs), and the following guidance documents:

- SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, U.S. EPA, Office of Solid Waste and Emergency Response, November 1986, Third Edition, and
- U.S. EPA, *Methods for Chemical Analysis of Water and Wastes*, 600/4-79-020, March 1983.

Geochemical and Environmental Research Group (GERG) of College Station, Texas, conducted the chemical analyses of biota samples for this project. Summary tables of these results are presented in Attachment B. Samples were split by GERG following the freeze drying step and then prepared and analyzed (i.e., laboratory replicate analyses). Biota sample results are reported on a dry-weight basis.

3.2 Analytical Anomalies and Corrective Actions Taken

Each sample collected was scoped for a suite of analyses to be performed in replicate. At a minimum, one analysis per parameter was performed on each sample. However, in a few instances the laboratory replicate analysis was not performed because of laboratory difficulties.

Due to the high lipid content of the samples, numerous matrix interferences were detected in the semivolatile organic chromatograms. Detection limits were raised for most of the semivolatile organic analytes because of these interferences. The high content of lipid material also caused rapid deterioration of both the injection port liner and the pre column. Both the injection port sleeve and pre column were replaced after the mass spectrum tuning, calibration and system performance check analyses, and eight to ten sample analyses. Because of these analytical system problems, a few sample analyses were performed more than 12 hours from the time of injection of DFTPP (i.e., mass spectrum tuning); however, no more than ten samples were analyzed within an analytical sequence.

3.3 Data Qualifier Flags

Data qualifier flags have been added to some analytical results to note exceptions from the QC limits or to provide additional information. A summary of the data flags used for this biota data set is presented in Table M-1.

Table M-1

Summary of Data Flags and Definitions

Flag	Definition
*	Analyte concentration is suspect, refer to Section 4 for detailed explanation.
B	Analyte was also detected in the laboratory blank analysis.
C	Analyte concentration was confirmed by GC/MS analysis.
J	Estimated value because analyte detected at concentration less than the detection limit.
N/A	Not Available
Q	Quality control result or recovery is outside the established control limits.

4.0 SUMMARY OF QA/QC ACTIVITIES AND FINDINGS

This section presents a summary of analytical results for QC samples associated with the analysis of biota samples. Estimates of measurement precision and accuracy based on the analysis of these QC samples, and potential limitations in the use of the data, are presented by parameter. Detailed descriptions of the project QA/QC program are documented in the project Chemical Data Acquisition Plan (CDAP, January 1993).

Overall, QA/QC data associated with this program indicate that measurement data are acceptable and defensible. The QA/QC data indicate that the QC mechanisms were effective in ensuring measurement data reliability within the expected limits of sampling and analytical error.

Tabular listings of QC results are presented in Appendix B. These tables include detailed listings of blank results (Table B1), spike results (Table B2), and duplicate results (Table B3).

4.1 Chlorinated Pesticides and Polychlorinated Biphenyls

Biota samples were prepared and analyzed according to GERG standard operating procedures (SOPs) 9016 and 9017. Freeze dried biota samples were extracted with methylene chloride using a tissuemizer, followed by a solvent exchange to hexane. The chlorinated pesticides and PCB congeners were separated and quantified by gas chromatography using electron capture detection. A gas chromatography/mass spectrometry (GC/MS) confirmation analysis was performed for all detected concentrations greater than 50 ng/g. Measurement results that were confirmed by GC/MS are flagged with a "C".

4.1.1 Blanks

Two types of laboratory blanks (reagent and method blanks) were analyzed with each analytical batch to assess potential laboratory contamination. The method blanks were reagent sand samples processed through the entire extraction and analytical process using the same techniques and equipment used for the biota tissue sample analyses. The reagent blanks were aliquots of the solvent used for the analyses and were processed only through the analytical measurement system. A detailed listing of blank results is presented in Table B1.

A total of six reagent blank analyses were performed with the pesticide and PCB analyses. Dieldrin (0.18 ng/ml) was detected in one reagent blank analysis, total tetrachlorobiphenyls (0.05-0.18 ng/ml) were detected in three of the six analyses, total hexachlorobiphenyls (0.11-0.29 ng/ml) were detected in four of the six analyses, and total PCBs (0.13-0.53 ng/ml) were detected in five of the six analyses. In addition, results of several reagent blank analyses included pesticides and PCB measurements below the detection limits.

A total of six method blanks analyses were also performed with the pesticide and PCB analyses. Dieldrin (0.3756 ng/g), trichlorobiphenyls (0.1426 ng/g), and total heptachlorobiphenyls (0.0795 ng/g) were each detected in one method blank, total tetrachlorobiphenyls (0.0568-0.1884 ng/g) were detected in three method blanks, total dichlorobiphenyls (0.2217-0.7063 ng/g) were detected in five method blanks, and total hexachlorobiphenyls (0.1027-3.9013 ng/g) and total PCBs (0.2599-4.7472 ng/g) were detected in all six method blanks.

Results of the laboratory blank analyses indicate that low level biota sample results for total dichlorobiphenyls ($\leq$0.7 ng/g), total tetrachlorobiphenyls ($\leq$0.2 ng/g), total hexachlorobiphenyls ($\leq$4 ng/g), and total PCBs ($\leq$5 ng/g) may reflect laboratory system contamination rather than site conditions.

4.1.2 Spikes

Three types of spikes (laboratory control samples, matrix spike analyses, and surrogate spikes) were analyzed with biota tissue samples to assess pesticide and PCB method accuracy. A detailed listing of spike recoveries is presented in Table B2.

Recoveries of the three surrogate spikes added to each sample show acceptable extraction efficiency and measurement accuracy, with one exception. Surrogate recoveries (all 0%) for the laboratory replicate analysis of biota sample 9303-BE-01-01 indicate a potential for false negative or low biased measurement results.

Laboratory control sample (LCS) results show acceptable method accuracy with recoveries within the laboratory and project objectives (40-120%), with the exception of two target analytes. Recoveries for beta-BHC (17-25%) and HCB (6-39%) suggest that measurement results for these compounds may be biased low by approximately 75 percent.

Eight matrix spike analyses were performed. Results of these analyses show acceptable method accuracy, with the exception of five target compounds. Recoveries for 4,4'-DDD (6 of 8), 4,4'-DDE (3 of 8), and trans-nonachlor (2 of 8) show a potential for measurement results to be biased high for these compounds. A conservative approach will be taken when assessing the ecological risks; measurement results potentially biased high will not be adjusted. Recoveries for HCB (5 of 8) and beta-BHC (8 of 8) show a potential for measurement results for these compounds to be biased low by approximately 70% and 80%, respectively.

4.1.3 Duplicates

Three types of duplicate analyses (field duplicate sample pairs, laboratory replicate analyses, and duplicate matrix spikes) were performed to assess measurement

precision for pesticide and PCB analysis. A detailed listing of duplicate analysis results is presented in Table B3.

Three field duplicate pairs were analyzed, each sample collected was analyzed twice (i.e., laboratory replicates), and four matrix spike/matrix spike duplicate (MS/MSD) analyses were performed. Several of the calculated relative percent differences (RPDs) for the field duplicate pairs and the laboratory replicate analyses are larger than the project precision objective of RPD ≤ 50. Most of the MS/MSD RPDs are within the objective. Results of the duplicate analyses indicate that matrix and measurement variability associated with the sample results is outside the objective; however, MS/MSD results show that the imprecision decreased as the measured concentration increased.

4.2 Semivolatile Organics

Biota samples were prepared and analyzed according to GERG SOP 8903 and SW-846 Method 8270. Freeze-dried biota samples were extracted with methylene chloride using a tissuemizer, followed by a solvent exchange to hexane. The semivolatile organic compounds were separated and quantified by gas chromatography/mass spectrometry (GC/MS).

4.2.1 Blanks

Two types of laboratory blanks (reagent and method blanks) were analyzed with each analytical batch to assess potential laboratory contamination. The method blanks were reagent sand samples processed through the entire extraction and analytical process using the same techniques and equipment used for the biota tissue sample analyses. The reagent blanks were aliquots of the solvent used for the analyses and were processed only through the analytical measurement system. A detailed listing of blank results is presented in Table B1.

Six reagent and six method blank analyses were performed. Di-n-butyl phthalate was detected in two reagent blank analyses (53 and 58 μg/L) and two method blank analyses (63 and 91 μg/kg). Acetophenone was detected in one method blank analysis (59 μg/kg). Bis(2-ethylhexyl)phthalate was detected in five reagent blank analyses (71-4361 μg/L) and five method blank analyses (143-1902 μg/kg). Laboratory blank results indicate a potential for phthalate contamination within the extraction and analytical measurement systems.

In addition to laboratory system contamination, a review of the sample collection procedures used uncovered two other potential sources of phthalate contamination. The containers used to transport samples to the laboratory consisted of glass jars with Teflon® lined polyethylene lids. Some of the lids and Teflon liners were loose when the jar was received so there is a slight potential for the plastic lid to off-gas contaminants such as phthalates into the jar prior to collecting the sample. During sample collection, the contents in the nets were emptied into a plastic dishpan prior to placing the biota tissue of interest into the sample jar. The plastic dishpan was used for the intermediate compositing because a large-sized container was needed and the plastic container floated. No field blanks were analyzed to assess whether the sample collection equipment or the condition of the sample containers upon receipt contributed contamination to the measurement results.

4.2.2 Spikes

Three types of spikes (LCS, MS analyses, and surrogate spikes) were analyzed with biota tissue samples to assess semivolatile organic method accuracy. A detailed listing of spike recoveries is presented in Table B2.

Overall, spike recoveries indicate acceptable method performance. Surrogate spike recoveries show acceptable method accuracy with most recoveries within the project objectives. With the exception of one analyte, LCS recoveries indicate no biases or trends.

2,4-Dinitrotoluene LCS recoveries (149-1694%) were all above the objective and indicate that sample results for this analyte may be biased high. Matrix spike compounds were recovered within the objectives, with a few exceptions. Three of eight recoveries for 1,2,4-trichlorobenzene (168-191%), 1,4-dichlorobenzene (159-174%), and acenaphthalene (157-172%) were above the objectives. Based on the spike results, 2,4-dinitrotoluene results may be biased high.

4.2.3 Duplicates

Three types of duplicate analyses (field duplicate sample pairs, laboratory replicate analyses, and duplicate matrix spikes) were performed to assess measurement precision for semivolatile organic analysis. A detailed listing of duplicate analysis results is presented in Table B3.

Three field duplicate pairs were analyzed, each sample collected was analyzed twice (i.e., laboratory replicates), and three matrix spike/matrix spike duplicate (MS/MSD) analyses were performed. Insufficient target analytes were detected in the field duplicate and laboratory replicate analyses to reliably estimate measurement precision. Acceptable measurement precision is indicated from the MS/MSD RPDs, which were all within project objectives.

4.3 Polychlorinated Dioxins and Polychlorinated Furans

Biota samples were prepared and analyzed according to GERG SOP 8903 and SW-846 Method 8290. Freeze-dried biota samples were extracted with methylene chloride using a tissuemizer, followed by a solvent exchange to hexane. The chlorinated dioxins and furans were separated and quantified using high resolution gas chromatography along with high resolution mass spectrometry.

4.3.1 Blanks

Two types of laboratory blanks (reagent and method blanks) were analyzed with each analytical batch to assess potential laboratory contamination. The method blanks were reagent sand samples processed through the entire extraction and analytical process using the same techniques and equipment used for the biota tissue sample analyses. The reagent blanks were aliquots of the solvent used for the analyses and were processed only through the analytical measurement system. A detailed listing of blank results is presented in Table B1.

Results of the laboratory blank analyses suggest a potential for low level dioxin and furan contamination in the laboratory systems. Four reagent blank analyses and six method blank analyses were performed. 1,2,3,4,6,7,8-HpCDF (1.77 pg/ml) and 1,2,3,6,7,8-HxCDF (1.24 pg/ml) were each measured above the detection limits in one of the reagent blank analyses, and OCDD (0.11 pg/ml and 21.49 pg/ml) was measured above the detection limit in two reagent blank analyses. 1,2,3,4,7,8,9-HpCDF (0.22 pg/g), 1,2,3,6,7,8-HxCDF (0.34 pg/g), 1,2,3,7,8-PeCDF (0.9 pg/g), and 2,3,4,6,7,8-HxCDF (0.19 pg/g) were each detected in one of the method blank analyses above the detection limits. OCDD (1.07 and 2.1 pg/g) and OCDF (1.15 and 0.5 pg/g) were each measured above the detection limits in two method blank analyses. 1,2,3,4,6,7,8-HpCDF (0.09, 1.2, 0.46 pg/g) and 1,2,3,7,8,9-HxCDF (0.18, 0.19, 0.34 pg/g) were each measured above the detection limits in three method blank analyses. Similar concentrations reported as biota sample results for these analytes may represent laboratory contamination rather than site conditions.

4.3.2 Spikes

Three types of spikes (LCS, MS, and surrogate spikes) were analyzed with biota tissue samples to assess method accuracy for dioxin and furan analysis. A detailed listing of spike recoveries is presented in Table B2.

Reported LCS recoveries show no systematic biases or trends; however, three of the six 1,2,3,4,6,7,8-HpCDF LCS recoveries (129-133%) and three of the six 1,2,3,4,7,8,9-HpCDF LCS recoveries (127-131%) are above the accuracy objective of 40-120% recovery.

Generally, MS results show acceptable method accuracy. However, based on MS recoveries, reported results for a few target analytes may be biased high. Recoveries for seven of the ten 1,2,3,4,6,7,8-HpCDF (121-159%) and OCDF (122-159%) MS analyses, six of the ten 1,2,3,4,7,8,9-HpCDF (126-131%), and four of the ten 1,2,3,7,8-PeCDF (124-147%), 2,3,4,6,7,8-HxCDF (124-134%), and OCDD (121-140%) analyses are above the accuracy objective of 40-120 percent.

4.3.3 Duplicates

Three types of duplicate analyses (field duplicate sample pairs, laboratory replicate analyses, and duplicate matrix spikes) were performed to assess measurement precision for dioxin and furan analysis. A detailed listing of duplicate analysis results is presented as Table B3.

Three field duplicate pairs were analyzed, each sample collected was analyzed twice (i.e., laboratory replicates), and four matrix spike/matrix spike duplicate (MS/MSD) analyses were performed. Insufficient target analytes were detected in the field duplicate sample pairs to reliably calculate precision estimates. Using laboratory replicate results, precision estimates ranged from three to 196 RPD. Based on MS/MSD results, tighter precision (0-34 RPD) is estimated. The higher concentrations of MS/MSD analyses provided precision estimates within the project objective (RPD ≤ 50), while greater imprecision is estimated from the measured concentrations for laboratory replicate analyses of project samples.

4.4 Metals

Biota samples were prepared according to GERG SOP ST07 and analyzed according to SW-846 Methods 7040 (antimony), 7060 (arsenic), 7131 (cadmium), 7191 (chromium), 7421 (lead), 7450 (magnesium), 7471 (mercury), 7740 (selenium), 7841 (thallium), EPA Methods 249.2 (nickel), 272.2 (silver), and GERG SOP 9202 (barium and manganese). Freeze-dried biota samples were weighed into a closed teflon reaction vessel and heated with nitric acid until digestion was complete. The metallic analytes were measured using graphite furnace atomic absorption, direct current plasma atomic emission spectroscopy, or cold vapor atomic absorption.

4.4.1 Blanks

Laboratory method blanks were analyzed with each batch of samples to assess potential contamination associated with the analyses conducted for metallic analytes. No target metallic analytes were measured in the method blank analyses at concentrations greater than the reporting limits. This suggests that no substantial metallic contamination was present in the analytical systems.

4.4.2 Spikes

Three types of spikes (solid LCS, liquid LCS, and MS) were analyzed to assess method accuracy. Spike results show acceptable accuracy, with a few exceptions. Six of 12 solid arsenic LCS recoveries (65-74%) are below the objective and suggest that reported arsenic results may include a low bias; however, because six of the LCS recoveries and all of the arsenic MS recoveries are within the objective, no definite trend is indicated. Four of the eight magnesium matrix spike recoveries (131-186%) are above the objective (75-125%), and two of the eight recoveries (0%, 0%) are below. Because magnesium MS recoveries are above and below the objective, and all six associated laboratory control sample recoveries are within the objective, no trends are indicated. Three of the 12

selenium laboratory control sample recoveries (0-69%) are below the accuracy objective (75-125%). No trends or biases are indicated by the remaining liquid or solid LCS recoveries or by the MS recoveries. A detailed listing of spike results is presented in Table B2.

4.4.3 Duplicates

Three types of duplicate analyses (field duplicate sample pairs, laboratory replicate analyses, and duplicate matrix spikes) were performed to assess measurement precision for the metals analyses. A detailed listing of duplicate analysis results is presented in Table B3.

Calculated RPDs for several of the field duplicate and laboratory replicate results are outside the project precision objective of RPD ≤ 25. However, with the exception of magnesium, all MS/MSD RPDs are within the objective. Results of the duplicate analyses indicate that matrix and measurement variability associated with the sample results is outside the objective; however, MS/MSD results show that the imprecision decreased as the measured concentration increased.

ATTACHMENT A

Analytical Results Tables

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)								
2,4'-DDD	3.340726	(0.426421)	0.271402 J	(0.329231)	0.384018	(0.351246)	0.63344	(0.368025)
2,4'-DDE	ND	(0.195941)	ND	(0.151282)	ND	(0.161398)	ND	(0.169108)
2,4'-DDT	1.110897	(0.310849)	0.930259	(0.24)	0.237012 J	(0.256049)	1.178593	(0.26828)
4,4'-DDD	32.293316	(0.255055)	2.816429	(0.196923)	3.11369	(0.210091)	6.674516	(0.220127)
4,4'-DDE	7.178339	(0.50214)	2.458221	(0.387692)	2.799516	(0.413617)	2.395974	(0.433376)
4,4'-DDT	0.515453	(0.251734)	0.759881	(0.194359)	1.126126	(0.207356)	1.003376	(0.217261)
Aldrin	0.27119 J	(0.326125)	0.023062 J	(0.251795)	0.017352 J	(0.268632)	0.217584 J	(0.281465)
Dieldrin	2.144296	(0.440369)	ND	(0.34)	5.604506	(0.362736)	3.048506	(0.380064)
Endrin	1.44773	(0.324133)	ND	(0.250256)	0.988496	(0.266991)	ND	(0.279745)
HCB	0.19889 J	(0.356679)	ND	(0.275385)	0.046909 J	(0.293799)	0.038835 J	(0.307834)
Heptachlor	0.085959 J	(0.342066)	0.438195	(0.264103)	0.324915	(0.281763)	0.131142 J	(0.295223)
Heptachlor epoxide	ND	(0.38059)	ND	(0.293846)	ND J	(0.313495)	ND	(0.328471)
Mirex	ND	(0.360664)	ND	(0.278462)	ND	(0.297082)	ND	(0.311274)
Oxychlordane	0.172174 J	(0.472915)	0.54486	(0.365128)	0.328541 J	(0.389544)	0.152554 J	(0.408153)
Total BHCs	2.141926	(0.460129)	2.854796	(0.355256)	4.911425	(0.379012)	3.033914	(0.397118)
Total Chlordanes	4.836796	(0.47301)	2.92833	(0.365201)	2.61997	(0.389622)	1.717284	(0.408235)
Total DDTs	44.438731	(0.32369)	7.236192	(0.249915)	7.660362	(0.266626)	11.885899	(0.279363)
Total Decachlorobiphenyls	0.391553	(0.389889)	1.768474	(0.301026)	ND	(0.321155)	0.33394 J	(0.336497)
Total Dichlorobiphenyls	4.955979	(0.557269)	8.874968	(0.430256)	10.28828	(0.459027)	1.530916	(0.480955)
Total Heptachlorobiphenyls	15.750732	(0.237786)	10.060671	(0.18359)	11.220384	(0.195866)	10.585837	(0.205223)
Total Hexachlorobiphenyls	67.637263	(0.265683)	31.253426	(0.205128)	35.805951	(0.218845)	36.916477	(0.229299)
Total Nonachlorobiphenyls	ND	(0.392546)	0.040415 J	(0.303077)	ND	(0.323343)	0.06908 J	(0.33879)
Total Octachlorobiphenyls	2.607991	(0.588487)	0.211714 J	(0.454359)	0.234123 J	(0.484742)	0.815648	(0.507898)
Total PCBs	289.82769	(0.443785)	147.10848	(0.342637)	191.01066	(0.365549)	175.80084	(0.383012)
Total Pentachlorobiphenyls	135.62515	(0.340074)	60.658732	(0.262564)	83.399271	(0.280122)	81.026165	(0.293503)
Total Tetrachlorobiphenyls	57.632249	(0.160074)	30.012906	(0.12359)	43.254052	(0.131854)	39.693514	(0.138153)
Total Trichlorobiphenyls	5.226771	(0.346716)	4.227178	(0.267692)	6.8086	(0.285593)	4.829264	(0.299236)
Toxaphene	ND	(1.092841)	ND	(0.843761)	ND	(0.900182)	ND	(0.943185)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
alpha-BHC	0.562763	(0.346716)	ND	(0.267692)	0.524242	(0.285593)	0.29975	(0.299236)
alpha-Chlordane	1.175117	(0.499483)	0.679871	(0.385641)	0.539808	(0.411429)	0.508175	(0.431083)
beta-BHC	ND	(0.902657)	ND	(0.696923)	0.751252	(0.743526)	ND	(0.779045)
cis-Nonachlor	1.008368	(0.144133)	ND	(0.111282)	0.433705	(0.118723)	0.3144	(0.124395)
delta-BHC	ND	(0.371292)	1.540471	(0.286667)	1.118018	(0.305836)	1.29655	(0.320446)
gamma-BHC	1.579163	(0.219852)	1.314325	(0.169744)	2.517913	(0.181094)	1.437615	(0.189745)
gamma-Chlordane	1.939711	(0.237786)	0.916208	(0.18359)	0.697937	(0.195866)	0.36518	(0.205223)
trans-Nonachlor	0.455467 J	(1.234096)	0.349196 J	(0.952821)	0.290137 J	(1.016535)	D.245832 J	(1.065096)
SW8270 - Semivolatile Organics (ug/kg)								
1,2,4,5-Tetrachlorobenzene	ND	(167)	ND	(149)	ND	(114)	NO	(151)
1,2,4-Trichlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,2-Dichlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,3-Dichlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,3-Dinitrobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,4-Dichlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,4-Naphthoquinone	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1,4-Phenylenediamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
1-Naphthylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,3,4,6-Tetrachlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,4,5-Trichlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,4,6-Trichlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,4-Dichlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,4-Dimethylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,4-Dinitrophenol	ND	(334)	ND	(298)	ND	(228)	ND	(302)
2,4-Dinitrotoluene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,6-Dichlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2,6-Dinitrotoluene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Acetylaminofluorene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Chloronaphthalene	ND	(167)	ND	(149)	ND	(114)	ND	(151)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
2-Chlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Methylnaphthalene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Methylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Naphthylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Nitroaniline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Nitrophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
2-Picoline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
3,3-Dichlorobenzidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
3,3-Dimethoxybenzidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
3-Methylchloroanthrene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
3-Methylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
3-Nitroaniline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4,6-Dinitro-2-methylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Aminobiphenyl	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Bromophenyl-phenylether	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Chloro-3-methylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Chloroaniline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Chlorophenyl-phenylether	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Methylphenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Nitroaniline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Nitrophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
4-Nitroquinoline-1-oxide	ND	(167)	ND	(149)	ND	(114)	ND	(151)
5-Nitro-o-toluidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
7,12-Dimethylbenz(a)anthracene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Acenaphthene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Acenaphthylene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Acetophenone	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Aniline	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Anthracene	ND	(167)	NO	(149)	ND	(114)	ND	(151)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	A		C		C		D	
	A-01		C-01		C-01		D-01	
PARAMETER	9303-AA-01-01		9303-AC-01-01		9303-AC-01-02 Dup of 9303-AC-01-01		9303-AD-01-01	
Aramite (peak 1)	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Aramite (peak 2)	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzo(a)anthracene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzo(a)pyrene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzo(b)fluoranthene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzo(g,h,i)perylene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzo(k)fluoranthene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Benzyl alcohol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Butylbenzylphthalate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Chlorobenzilate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Chrysene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Di-n-butylphthalate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Di-n-octyphthalate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Diallate (peak 1)	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Diallate (peak 2)	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Dibenz(a,h)anthracene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Dibenzofuran	ND	(167)	79.1 J	(149)	64.8 J	(114)	ND	(151)
Diethylphthalate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Dimethylphenethyamine	ND	(2007)	ND	(1786)	ND	(1370)	ND	(1813)
Dimethylphthalate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Diphenylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Ethylmethanesulfonate	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Fluoranthene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Fluorene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Hexachlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Hexachlorobutadiene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Hexachlorocyclopentadiene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Hexachloroethane	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Hexachlorophene	ND	(33946)	ND	(30208)	ND	(23174)	ND	(30665)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
Hexachloropropene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Indeno(1,2,3-cd)pyrene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Isophorone	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Isosafrole	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Methapyrilene	ND	(836)	ND	(744)	ND	(571)	ND	(755)
Methylmethanesulfonate	ND	(836)	ND	(744)	ND	(571)	ND	(755)
Naphthalene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Nitrobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pentachlorobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pentachloroethane	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pentachloronitrobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pentachlorophenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Phenactin	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Phenanthrene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Phenol	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pronamide	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pyrene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Pyridine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
Safrole	ND	(167)	ND	(149)	ND	(114)	ND	(151)
bis(2-Chloroethoxy)methane	ND	(167)	ND	(149)	ND	(114)	ND	(151)
bis(2-Chloroethyl)ether	ND	(167)	ND	(149)	ND	(114)	ND	(151)
bis(2-Chloroisopropyl)ether	ND	(167)	ND	(149)	ND	(114)	ND	(151)
bis(2-Ethylhexyl)phthalate	ND	(167)	14514.9	(149)	6666.6	(114)	2018.6	(151)
n-Nitroso-di-n-butylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitroso-di-n-propylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosodiethylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosodimethylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosodiphenylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosomethylethylamine	ND	(167)	ND	(149)	ND	(114)	ND	(151)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
n-Nitrosomorpholine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosopiperidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
n-Nitrosopyrrolidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
o-Toluidine	ND	(167)	ND	(149)	ND	(114)	ND	(151)
p-Dimethylaminoazobenzene	ND	(167)	ND	(149)	ND	(114)	ND	(151)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(0.338376)	ND	(1.027)	ND	(0.317)	ND	(0.591)
1,2,3,4,6,7,8-HpCDF	ND	(0.616605)	ND	(2.571)	ND	(6.744)	ND	(1.855)
1,2,3,4,7,8,9-HpCDF	ND	(0.784502)	ND	(3.232)	ND	(9.255)	ND	(1.678)
1,2,3,4,7,8-HxCDD	ND	(0.263838)	ND	(4.135)	ND	(2.113)	ND	(0.672)
1,2,3,4,7,8-HxCDF	ND	(0.347601)	ND	(1.475)	15.16 J	(17.656)	ND	(2.858)
1,2,3,6,7,8-HxCDD	ND	(0.276015)	ND	(1.614)	ND	(4.447)	ND	(1.217)
1,2,3,6,7,8-HxCDF	ND	(0.355351)	ND	(1.393)	ND	(12.26)	ND	(2.468)
1,2,3,7,8,9-HxCDD	ND	(0.270849)	ND	(1.585)	ND	(1.6)	ND	(1.194)
1,2,3,7,8,9-HxCDF	ND	(0.315498)	ND	(1.087)	ND	(0.489)	ND	(0.34)
1,2,3,7,8-PeCDD	ND	(0.580812)	ND	(2.915)	ND	(7.822)	ND	(0.94)
1,2,3,7,8-PeCDF	ND	(0.431734)	ND	(1.893)	ND	(14.735)	ND	(0.977)
2,3,4,6,7,8-HxCDF	ND	(0.299631)	ND	(3.222)	ND	(2.785)	ND	(0.902)
2,3,4,7,8-PeCDF	ND	(0.489668)	ND	(1.216)	ND	(3.036)	ND	(0.626)
2,3,7,8-TCDD	ND	(0.762731)	ND	(1.512)	1.28 J	(1.859)	ND	(0.366)
2,3,7,8-TCDF	4.22	(0.32583)	ND	(1.963)	ND	(1.922)	ND	(1.14)
OCDD	4.33	(0.865683)	9.91	(1.928)	5.98	(2.741)	4.92	(1.036)
OCDF	ND	(0.743911)	2.74	(2.06)	ND	(0.813)	ND	(0.945)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01			E E-01 9303-AE-01-01			E E-01 9303-AE-01-02 Dup of 9303-AE-01-01			F F-01 9303-AF-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	1.153374		(0.791507)	1.919021		(0.592615)	1.940451		(0.614681)	37.98496		(0.351246)
2,4'-DDE	ND		(0.363699)	ND		(0.272308)	ND		(0.282447)	4.996698		(0.161398)
2,4'-DDT	ND		(0.576986)	2.914243		(0.432)	1.99152		(0.448085)	1.24333		(0.256049)
4,4'-DDD	16.303886		(0.473425)	29.350557		(0.354462)	25.900227		(0.36766)	329.15866	C	(0.210091)
4,4'-DDE	2.565035		(0.932055)	4.965366		(0.697846)	4.547487		(0.72383)	42.746298		(0.413617)
4,4'-DDT	ND		(0.46726)	0.934255		(0.349846)	0.829545		(0.362872)	3.747311		(0.207356)
Aldrin	0.641464		(0.605342)	ND		(0.453231)	0.539111		(0.470106)	0.289242		(0.268632)
Dieldrin	0.999535		(0.817397)	2.268351		(0.612)	1.632348		(0.634787)	1.583543		(0.362736)
Endrin	ND		(0.601644)	1.467973		(0.450462)	ND		(0.467234)	1.59373		(0.266991)
HCB	ND		(0.662055)	0.080605	J	(0.495692)	0.05064	J	(0.514149)	0.019743	J	(0.293799)
Heptachlor	0.01708	J	(0.634932)	0.092656	J	(0.475385)	0.299094	J	(0.493085)	0.101902	J	(0.281763)
Heptachlor epoxide	ND		(0.706438)	ND		(0.528923)	ND		(0.548617)	0.045089	J	(0.313495)
Mirex	ND		(0.669452)	ND		(0.501231)	ND		(0.519894)	0.131932	J	(0.297082)
Oxychlordane	0.411842	J	(0.877808)	0.21497	J	(0.657231)	0.22941	J	(0.681702)	0.686783		(0.389544)
Total BHCs	0.698875	J	(0.854075)	1.701133		(0.639462)	2.144751		(0.663271)	1.160114		(0.379012)
Total Chlordanes	6.867621		(0.877984)	2.95403		(0.657363)	3.148133		(0.681839)	44.38276		(0.389622)
Total DDTs	20.022296		(0.600822)	40.083443		(0.449846)	35.209229		(0.466596)	419.87726		(0.266626)
Total Decachlorobiphenyls	ND		(0.723699)	ND		(0.541846)	ND		(0.562021)	0.01139	J	(0.321155)
Total Dichlorobiphenyls	19.80811		(1.034384)	13.258124		(0.774462)	8.86405		(0.803298)	5.49628		(0.459027)
Total Heptachlorobiphenyls	1.638956		(0.44137)	15.783734		(0.330462)	11.448388		(0.342766)	5.044701		(0.195866)
Total Hexachlorobiphenyls	7.813313		(0.493151)	47.321439		(0.369231)	40.695581		(0.382979)	15.63914		(0.218845)
Total Nonachlorobiphenyls	ND		(0.72863)	ND		(0.545538)	ND		(0.565851)	ND		(0.323343)
Total Octachlorobiphenyls	0.120101	J	(1.092329)	1.257735		(0.817846)	ND		(0.848298)	0.016783	J	(0.484742)
Total PCBs	59.230273		(0.823738)	198.75213		(0.616747)	170.02043		(0.639711)	115.52878		(0.365549)
Total Pentachlorobiphenyls	10.349495		(0.631233)	83.95947		(0.472615)	72.986037		(0.490213)	44.957918		(0.280122)
Total Tetrachlorobiphenyls	8.077663		(0.297123)	27.595998		(0.222462)	26.895394		(0.230745)	33.340104		(0.131854)
Total Trichlorobiphenyls	11.422635		(0.643562)	9.575636		(0.481846)	9.130987		(0.499787)	11.022473		(0.285593)
Toxaphene	ND		(2.028493)	ND		(1.518769)	ND		(1.575319)	ND		(0.900182)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01			E E-01 9303-AE-01-01			E E-01 9303-AE-01-02 Dup of 9303-AE-01-01			F F-01 9303-AF-01-01		
alpha-BHC	ND		(0.643562)	ND		(0.481846)	ND		(0.499787)	0.175183	J	(0.285593)
alpha-Chlordane	1.85318		(0.927123)	1.046527		(0.694154)	1.058371		(0.72)	19.133919		(0.411429)
beta-BHC	ND		(1.675479)	ND		(1.254462)	ND		(1.30117)	ND		(0.743526)
cis-Nonachlor	0.84004		(0.267534)	0.40117		(0.200308)	0.443754		(0.207766)	1.877482		(0.118723)
delta-BHC	0.102725	J	(0.689178)	0.223661	J	(0.516)	0.984769		(0.535213)	ND		(0.305836)
gamma-BHC	0.596149		(0.408082)	1.477472		(0.305538)	1.159983		(0.316915)	0.984931		(0.181094)
gamma-Chlordane	2.455832		(0.44137)	0.735829		(0.330462)	0.653727		(0.342766)	15.696751		(0.195866)
trans-Nonachlor	1.289646	J	(2.290685)	0.462879	J	(1.715077)	0.463776	J	(1.778936)	6.840833		(1.016535)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,2,4-Trichlorobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,2-Dichlorobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,3-Dichlorobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,3-Dinitrobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,4-Dichlorobenzene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,4-Naphthoquinone	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1,4-Phenylenediamine	ND		(467)	ND		(260)	ND		(221)	ND		(158)
1-Naphthylamine	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,3,4,6-Tetrachlorophenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,4,5-Trichlorophenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,4,6-Trichlorophenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,4-Dichlorophenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,4-Dimethylphenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,4-Dinitrophenol	ND		(935)	ND		(521)	ND		(442)	ND		(316)
2,4-Dinitrotoluene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,6-Dichlorophenol	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2,6-Dinitrotoluene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2-Acetylaminofluorene	ND		(467)	ND		(260)	ND		(221)	ND		(158)
2-Chloronaphthalene	ND		(467)	ND		(260)	ND		(221)	ND		(158)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01		E E-01 9303-AE-01-01		E E-01 9303-AE-01-02 Dup of 9303-AE-01-01		F F-01 9303-AF-01-01	
2-Chlorophenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Methylnaphthalene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Methylphenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Naphthylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Nitroaniline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Nitrophenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
2-Picoline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
3,3-Dichlorobenzidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
3,3-Dimethoxybenzidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
3-Methylchloroanthrene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
3-Methylphenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
3-Nitroaniline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4,6-Dinitro-2-methylphenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Aminobiphenyl	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Bromophenyl-phenylether	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Chloro-3-methylphenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Chloroaniline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Chlorophenyl-phenylether	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Methylphenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Nitroaniline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Nitrophenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
4-Nitroquinoline-1-oxide	ND	(467)	ND	(260)	ND	(221)	ND	(158)
5-Nitro-o-toluidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
7,12-Dimethylbenz(a)anthracene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Acenaphthene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Acenaphthylene	NO	(467)	ND	(260)	ND	(221)	ND	(158)
Acetophenone	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Aniline	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Anthracene	ND	(467)	ND	(260)	ND	(221)	ND	(158)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLDMAN SEWAGE LAGDONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	DT		E		E		F	
	DT-01		E-01		E-01		F-01	
PARAMETER	9303-ADT-01-01		9303-AE-01-01		9303-AE-01-02 Dup of 9303-AE-01-01		9303-AF-01-01	
Aramite (peak 1)	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Aramite (peak 2)	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzo(a)anthracene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzo(a)pyrene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzo(b)fluoranthene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzo(g,h,i)perylene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzo(k)fluoranthene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Benzyl alcohol	ND	(467)	847.8	(260)	677.2	(221)	ND	(158)
Butylbenzylphthalate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Chlorobenzilate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Chrysene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Di-n-butylphthalate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Di-n-octyphthalate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Diallate (peak 1)	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Diallate (peak 2)	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Dibenz(a,h)anthracene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Dibenzofuran	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Diethylphthalate	859	(467)	ND	(260)	ND	(221)	ND	(158)
Dimethylphenethyamine	ND	(5607)	ND	(3125)	ND	(2655)	ND	(1899)
Dimethylphthalate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Diphenylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Ethylmethanesulfonate	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Fluoranthene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Fluorene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Hexachlorobenzene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Hexachlorobutadiene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Hexachlorocyclopentadiene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Hexachloroethane	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Hexachlorophene	ND	(94860)	ND	(52865)	ND	(44912)	ND	(32120)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01		E E-01 9303-AE-01-01		E E-01 9303-AE-01-02 Dup of 9303-AE-01-01		F F-01 9303-AF-01-01	
Hexachloropropene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Indeno(1,2,3-cd)pyrene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Isophorone	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Isosafrole	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Methapyrilene	ND	(2336)	ND	(1302)	ND	(1106)	ND	(791)
Methylmethanesulfonate	ND	(2336)	ND	(1302)	ND	(1106)	ND	(791)
Naphthalene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Nitrobenzene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pentachlorobenzene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pentachloroethane	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pentachloronitrobenzene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pentachlorophenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Phenactin	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Phenanthrene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Phenol	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pronamide	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pyrene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Pyridine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
Safrole	ND	(467)	ND	(260)	ND	(221)	ND	(158)
bis(2-Chloroethoxy)methane	ND	(467)	ND	(260)	ND	(221)	ND	(158)
bis(2-Chloroethyl)ether	ND	(467)	ND	(260)	ND	(221)	ND	(158)
bis(2-Chloroisopropyl)ether	NO	(467)	ND	(260)	ND	(221)	ND	(158)
bis(2-Ethylhexyl)phthalate	1679.2	(467)	1644.9	(260)	1752.1	(221)	ND	(158)
n-Nitroso-di-n-butylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
n-Nitroso-di-n-propylamine	ND	(467)	7071	(260)	8405.2	(221)	ND	(158)
n-Nitrosodiethylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
n-Nitrosodimethylamine	ND	(467)	96 J	(260)	149.1 J	(221)	ND	(158)
n-Nitrosodiphenylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
n-Nitrosomethylethylamine	ND	(467)	ND	(260)	ND	(221)	ND	(158)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01		E E-01 9303-AE-01-01		E E-01 9303-AE-01-02 Dup of 9303-AE-01-01		F F-01 9303-AF-01-01	
n-Nitrosomorpholine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
n-Nitrosopiperidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
n-Nitrosopyrrolidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
o-Toluidine	ND	(467)	ND	(260)	ND	(221)	ND	(158)
p-Dimethylaminoazobenzene	ND	(467)	ND	(260)	ND	(221)	ND	(158)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	15.9	(0.61371)	ND	(3.523)	6.81	(0.546277)	ND	(0.354)
1,2,3,4,6,7,8-HpCDF	ND	(1.409677)	ND	(2.427)	ND	(1.367553)	ND	(0.666)
1,2,3,4,7,8,9-HpCDF	ND	(2.141935)	ND	(3.382)	ND	(1.719149)	ND	(0.92)
1,2,3,4,7,8-HxCDD	ND	(1.942742)	ND	(2.909)	ND	(2.199468)	ND	(0.524)
1,2,3,4,7,8-HxCDF	ND	(0.349194)	ND	(2.217)	ND	(0.784574)	ND	(0.739)
1,2,3,6,7,8-HxCDD	ND	(1.887903)	ND	(2.958)	ND	(0.858511)	ND	(0.531)
1,2,3,6,7,8-HxCDF	0.63	(D.335484)	ND	(2.114)	ND	(0.740957)	ND	(0.339)
1,2,3,7,8,9-HxCDD	ND	(1.16371)	ND	(2.903)	ND	(0.843085)	ND	(0.522)
1,2,3,7,8,9-HxCDF	1.35	(0.35)	ND	(2.251)	ND	(0.578191)	ND	(0.366)
1,2,3,7,8-PeCDD	ND	(1.523387)	ND	(2.954)	ND	(1.550532)	ND	(0.684)
1,2,3,7,8-PeCDF	ND	(0.725)	ND	(1.244)	ND	(1.006915)	ND	(0.771)
2,3,4,6,7,8-HxCDF	ND	(1.699194)	ND	(2.702)	ND	(1.71383)	ND	(0.999)
2,3,4,7,8-PeCDF	ND	(0.624194)	ND	(1.308)	ND	(0.646809)	ND	(0.844)
2,3,7,8-TCDD	ND	(3.496774)	ND	(3.418)	ND	(0.804255)	ND	(0.462)
2,3,7,8-TCDF	ND	(0.734677)	4.92	(1.243)	ND	(1.044149)	ND	(0.701)
OCDD	103.23	(3.332258)	2.79 J	(4.629)	101.44	(2.467553)	2.21	(0.978)
OCDF	7.56	(3.541935)	ND	(5.316)	2.18 J	(2.286702)	0.6 J	(1.564)

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TABLE AI RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01			LH LH-01 9303-ALH-01-01			LH LH-02 9303-ALH-02-01			LH LH-03 9303-ALH-03-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	0.28125	J	(0.330171)	0.12465	J	(0.645587)	0.092012	J	(0.563707)	0.059696	J	(0.92448)
2,4'-DDE	ND		(0.151714)	ND		(0.296648)	ND		(0.259024)	ND		(0.4248)
2,4'-DDT	ND		(0.240686)	ND		(0.470615)	ND		(0.410927)	ND		(0.67392)
4,4'-DDD	4.87283		(0.197486)	0.297548	J	(0.386145)	0.591081		(0.337171)	0.691414		(0.55296)
4,4'-DDE	0.913892		(0.3888)	ND		(0.760223)	0.592613	J	(0.663805)	ND		(1.08864)
4,4'-DDT	0.578495		(0.194914)	0.164463	J	(0.381117)	ND		(0.33278)	ND		(0.54576)
Aldrin	0.007706	J	(0.252514)	0.085958	J	(0.493743)	0.180245	J	(0.431122)	ND		(0.70704)
Dieldrin	0.713578		(0.340971)	ND		(0.666704)	0.367975	J	(0.582146)	ND		(0.95472)
Endrin	0.309924		(0.250971)	ND		(0.490726)	ND		(0.428488)	ND		(0.70272)
HCB	ND		(0.276171)	0.026141	J	(0.54)	ND		(0.471512)	0.16799	J	(0.77328)
Heptachlor	0.186664	J	(0.264857)	0.188821	J	(0.517877)	0.558325		(0.452195)	0.254892	J	(0.7416)
Heptachlor epoxide	ND		(0.294686)	ND		(0.576201)	ND		(0.503122)	ND		(0.82512)
Mirex	ND		(0.279257)	ND		(0.546034)	ND		(0.47678)	ND		(0.78192)
Oxychlordane	0.12928	J	(0.366171)	ND		(0.715978)	0.226256	J	(0.625171)	ND		(1.02528)
Total BHCs	2.573256		(0.356271)	0.85087		(0.69662)	2.041676		(0.608268)	0.981855	J	(0.99756)
Total Chlordanes	0.923098		(0.366245)	0.255684	J	(0.716121)	1.797623		(0.625296)	0.568132	J	(1.025486)
Total DDTs	6.646466		(0.250629)	0.58666		(0.490056)	1.275705		(0.427902)	0.75111		(0.70176)
Total Decachlorobiphenyls	ND		(0.301886)	ND		(0.590279)	ND		(0.515415)	ND		(0.84528)
Total Dichlorobiphenyls	4.13976		(0.431486)	2.5867		(0.843687)	17.693739		(0.736683)	3.968221		(1.20816)
Total Heptachlorobiphenyls	2.940959		(0.184114)	1.444199		(0.36)	0.462999		(0.314341)	ND		(0.51552)
Total Hexachlorobiphenyls	7.921158		(0.205714)	1.721742		(0.402235)	1.379709		(0.35122)	1.981036		(0.576)
Total Nonachlorobiphenyls	ND		(0.303943)	ND		(0.594302)	ND		(0.518927)	ND		(0.85104)
Total Octachlorobiphenyls	ND		(0.455657)	ND		(0.89095)	0.613965	J	(0.777951)	ND		(1.27584)
Total PCBs	43.827891		(0.343616)	9.160166		(0.671875)	36.998881		(0.586662)	10.140579		(0.962126)
Total Pentachlorobiphenyls	17.088611		(0.263314)	0.717062		(0.51486)	2.15017		(0.449561)	0.899405		(0.73728)
Total Tetrachlorobiphenyls	8.226856		(0.123943)	1.523489		(0.242346)	5.145519		(0.21161)	0.626565		(0.34704)
Total Trichlorobiphenyls	3.510547		(0.268457)	1.166973		(0.524916)	9.552779		(0.458341)	2.665353		(0.75168)
Toxaphene	ND		(0.846171)	ND		(1.654525)	ND		(1.444683)	ND		(2.36928)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
PARAMETER	G G-01 9303-AG-01-01			LH LH-01 9303-ALH-01-01			LH LH-02 9303-ALH-02-01			LH LH-03 9303-ALH-03-01		
alpha-BHC	0.191458	J	(0.268457)	ND		(0.524916)	ND		(0.458341)	ND		(0.75168)
alpha-Chlordane	0.352427	J	(0.386743)	0.066862	J	(0.756201)	0.132596	J	(0.660293)	0.122579	J	(1.08288)
beta-BHC	ND		(0.698914)	ND		(1.366592)	ND		(1.193268)	ND		(1.95696)
cis-Nonachlor	ND		(0.1116)	ND		(0.218212)	0.145358	J	(0.190537)	ND		(0.31248)
delta-BHC	0.922402		(0.287486)	ND		(0.562123)	ND		(0.490829)	ND		(0.80496)
gamma-BHC	1.459396		(0.170229)	0.85087		(0.332849)	2.041676		(0.290634)	0.981855		(0.47664)
gamma-Chlordane	0.035487	J	(0.184114)	ND		(0.36)	0.407969		(0.314341)	0.033334	J	(0.51552)
trans-Nonachlor	0.219239	J	(0.955543)	ND		(1.86838)	0.327119	J	(1.631415)	0.157328	J	(2.67552)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,2,4-Trichlorobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,2-Dichlorobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,3-Dichlorobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,3-Dinitrobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,4-Dichlorobenzene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,4-Naphthoquinone	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1,4-Phenylenediamine	ND		(157)	ND		(227)	ND		(265)	ND		(340)
1-Naphthylamine	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,3,4,6-Tetrachlorophenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,4,5-Trichlorophenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,4,6-Trichlorophenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,4-Dichlorophenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,4-Dimethylphenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,4-Dinitrophenol	ND		(314)	ND		(455)	ND		(265)	ND		(680)
2,4-Dinitrotoluene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,6-Dichlorophenol	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2,6-Dinitrotoluene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2-Acetylaminofluorene	ND		(157)	ND		(227)	ND		(265)	ND		(340)
2-Chloronaphthalene	ND		(157)	ND		(227)	ND		(265)	ND		(340)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HDLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
2-Chlorophenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Methylnaphthalene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Methylphenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Naphthylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Nitroaniline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Nitrophenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
2-Picoline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
3,3-Dichlorobenzidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
3,3-Dimethoxybenzidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
3-Methylchloroanthrene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
3-Methylphenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
3-Nitroaniline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4,6-Dinitro-2-methylphenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Aminobiphenyl	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Bromophenyl-phenylether	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Chloro-3-methylphenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Chloroaniline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Chlorophenyl-phenylether	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Methylphenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Nitroaniline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Nitrophenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
4-Nitroquinoline-1-oxide	ND	(157)	ND	(227)	ND	(265)	ND	(340)
5-Nitro-o-toluidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
7,12-Dimethylbenz(a)anthracene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Acenaphthene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Acenaphthylene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Acetophenone	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Aniline	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Anthracene	ND	(157)	ND	(227)	ND	(265)	ND	(340)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	G		LH		LH		LH	
	G-01		LH-01		LH-02		LH-03	
PARAMETER	9303-AG-01-01		9303-ALH-01-01		9303-ALH-02-01		9303-ALH-03-01	
Aramite (peak 1)	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Aramite (peak 2)	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzo(a)anthracene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzo(a)pyrene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzo(b)fluoranthene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzo(g,h,i)perylene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzo(k)fluoranthene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Benzyl alcohol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Butylbenzylphthalate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Chlorobenzilate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Chrysene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Di-n-butylphthalate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Di-n-octyphthalate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Diallate (peak 1)	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Diallate (peak 2)	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Dibenz(a,h)anthracene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Dibenzofuran	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Diethylphthalate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Dimethylphenethyamine	ND	(1887)	ND	(2727)	ND	(3175)	ND	(4082)
Dimethylphthalate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Diphenylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Ethylmethanesulfonate	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Fluoranthene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Fluorene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Hexachlorobenzene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Hexachlorobutadiene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Hexachlorocyclopentadiene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Hexachloroethane	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Hexachlorophene	ND	(31918)	ND	(46136)	ND	(53704)	ND	(69048)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
Hexachloropropene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Indeno(1,2,3-cd)pyrene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Isophorone	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Isosafrole	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Methapyrilene	ND	(786)	ND	(1136)	ND	(1323)	ND	(1701)
Methylmethanesulfonate	ND	(786)	ND	(1136)	ND	(1323)	ND	(1701)
Naphthalene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Nitrobenzene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pentachlorobenzene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pentachloroethane	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pentachloronitrobenzene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pentachlorophenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Phenactin	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Phenanthrene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Phenol	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pronamide	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pyrene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
Pyridine	ND	(157)	ND	(227)	1370.7	(265)	ND	(340)
Safrole	ND	(157)	ND	(227)	ND	(265)	ND	(340)
bis(2-Chloroethoxy)methane	ND	(157)	ND	(227)	ND	(265)	ND	(340)
bis(2-Chloroethyl)ether	ND	(157)	ND	(227)	ND	(265)	ND	(340)
bis(2-Chloroisopropyl)ether	ND	(157)	ND	(227)	ND	(265)	ND	(340)
bis(2-Ethylhexyl)phthalate	ND	(157)	ND	(227)	ND	(265)	2317.1	(340)
n-Nitroso-di-n-butylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitroso-di-n-propylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosodiethylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosodimethylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosodiphenylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosomethylethylamine	ND	(157)	ND	(227)	ND	(265)	ND	(340)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
n-Nitrosomorpholine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosopiperidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
n-Nitrosopyrrolidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
o-Toluidine	ND	(157)	ND	(227)	ND	(265)	ND	(340)
p-Dimethylaminoazobenzene	ND	(157)	ND	(227)	ND	(265)	ND	(340)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	1.73	(0.112)	ND	(0.433)	ND	(1.628)	ND	(6.735)
1,2,3,4,6,7,8-HpCDF	ND	(0.206)	3.06	(0.636)	ND	(1.32)	ND	(4.305)
1,2,3,4,7,8,9-HpCDF	ND	(0.255)	ND	(1.132)	ND	(1.721)	ND	(9.733)
1,2,3,4,7,8-HxCDD	0.7	(0.12)	ND	(0.17)	ND	(0.957)	ND	(4.47)
1,2,3,4,7,8-HxCDF	0.96	(0.119)	ND	(0.23)	ND	(1.024)	ND	(4.451)
1,2,3,6,7,8-HxCDD	ND	(0.122)	ND	(0.165)	ND	(0.411)	ND	(3.659)
1,2,3,6,7,8-HxCDF	ND	(0.113)	ND	(0.215)	ND	(0.724)	ND	(4.23)
1,2,3,7,8,9-HxCDD	ND	(0.12)	ND	(0.162)	ND	(0.403)	ND	(3.591)
1,2,3,7,8,9-HxCDF	1.26	(0.101)	1.32	(0.277)	ND	(0.972)	ND	(5.398)
1,2,3,7,8-PeCDD	ND	(0.379)	ND	(0.634)	ND	(1.645)	ND	(8.622)
1,2,3,7,8-PeCDF	ND	(0.142)	ND	(0.437)	ND	(0.642)	ND	(3.086)
2,3,4,6,7,8-HxCDF	1.23	(0.118)	ND	(0.408)	ND	(2.179)	ND	(10.543)
2,3,4,7,8-PeCDF	ND	(0.156)	ND	(0.484)	ND	(0.688)	ND	(3.332)
2,3,7,8-TCDD	ND	(0.074)	ND	(0.373)	ND	(3.168)	ND	(10.507)
2,3,7,8-TCDF	ND	(0.115)	ND	(0.483)	ND	(1.355)	ND	(3.961)
OCDD	6.02	(0.303)	10.38	(1.61)	ND	(2.14)	18.69 J	(23.038)
OCDF	3.7	(0.253)	ND	(1.097)	ND	(5.378)	11.22 J	(23.911)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01			SITE ID LOCATION ID SAMPLE ID LS LS-02 9303-ALS-02-01			SITE ID LOCATION ID SAMPLE ID A A-01 9303-BA-01-01			SITE ID LOCATION ID SAMPLE ID DT DT-02 9303-BDT-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	ND		(1.5408)	0.040962	J	(0.642)	1.199736	J	(2.205344)	0.486852	J	(4.444615)
2,4'-DDE	ND		(0.708)	ND		(0.295)	ND		(1.013359)	0.077829	J	(2.042308)
2,4'-DDT	ND		(1.1232)	0.201028	J	(0.468)	1.310458	J	(1.607634)	ND		(3.24)
4,4'-DDD	ND		(0.9216)	1.105443		(0.384)	30.544514		(1.319084)	36.496438		(2.658462)
4,4'-DDE	ND		(1.8144)	0.433354	J	(0.756)	13.596911		(2.596947)	16.776146		(5.233846)
4,4'-DDT	ND		(0.9096)	ND		(0.379)	3.021062		(1.301908)	0.250845	J	(2.623846)
Aldrin	0.792769	J	(1.1784)	ND		(0.491)	ND		(1.686641)	ND		(3.399231)
Dieldrin	0.374118	J	(1.5912)	0.425118	J	(0.663)	ND		(2.277481)	5.606386		(4.59)
Endrin	ND		(1.1712)	ND		(0.488)	ND		(1.676336)	ND		(3.378462)
HCB	ND		(1.2888)	0.048664	J	(0.537)	1.362062	J	(1.844656)	0.34755	J	(3.717692)
Heptachlor	0.428346	J	(1.236)	0.736828		(0.515)	ND		(1.769084)	0.146688	J	(3.565385)
Heptachlor epoxide	ND		(1.3752)	ND		(0.573)	ND		(1.968321)	ND		(3.966923)
Mirex	ND		(1.3032)	ND		(0.543)	ND		(1.865267)	ND		(3.759231)
Oxychlordane	0.561723	J	(1.7088)	0.646152	J	(0.712)	0.82155	J	(2.445802)	4.814045	J	(4.929231)
Total BHCs	4.572014		(1.6626)	3.570403		(0.69275)	1.362062	J	(2.379676)	0.750344	J	(4.795962)
Total Chlordanes	4.305648		(1.709143)	2.363547		(0.712143)	4.583091		(2.446292)	13.495684		(4.93022)
Total DDTs	ND		(1.1696)	1.780787		(0.487333)	49.672681		(1.674046)	54.088109		(3.373846)
Total Decachlorobiphenyls	ND		(1.4088)	ND		(0.587)	ND		(2.016412)	ND		(4.063846)
Total Dichlorobiphenyls	30.658548		(2.0136)	26.114941		(0.839)	ND		(2.882061)	0.44	J	(5.808462)
Total Heptachlorobiphenyls	ND		(0.8592)	0.046659	J	(0.358)	59.85		(1.229771)	1.06	J	(2.478462)
Total Hexachlorobiphenyls	1.698597		(0.96)	0.988588		(0.4)	146.9		(1.374046)	13.69		(2.769231)
Total Nonachlorobiphenyls	ND		(1.4184)	ND		(0.591)	ND		(2.030153)	0.26	J	(4.091538)
Total Octachlorobiphenyls	ND		(2.1264)	ND		(0.886)	ND		(3.043511)	0.44	J	(6.133846)
Total PCBs	58.780414		(1.603543)	52.989777		(0.668143)	422.11888		(2.295147)	42.304707		(4.625604)
Total Pentachlorobiphenyls	2.292701		(1.2288)	2.778839		(0.512)	177.94		(1.758779)	9.1		(3.544615)
Total Tetrachlorobiphenyls	3.079107		(0.5784)	10.348213		(0.241)	34.87		(0.827863)	13.44		(1.668462)
Total Trichlorobiphenyls	21.051461		(1.2528)	12.712538		(0.522)	2.56		(1.79313)	3.86		(3.613846)
Toxaphene	ND		(3.9488)	ND		(1.645333)	ND		(5.651908)	ND		(11.390769)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID											
	LS LS-01 9303-ALS-01-01			LS LS-02 9303-ALS-02-01			A A-01 9303-BA-01-01			DT DT-02 9303-BDT-01-01		
alpha-BHC	ND		(1.2528)	1.092625		(0.522)	ND		(1.79313)	ND		(3.613846)
alpha-Chlordane	0.965408	J	(1.8048)	0.209174	J	(0.752)	ND		(2.583206)	2.492469	J	(5.206154)
beta-BHC	ND		(3.2616)	ND		(1.359)	ND		(4.668321)	0.750344	J	(9.408462)
cis-Nonachlor	ND		(0.5208)	0.119608	J	(0.217)	2.491196		(0.74542)	2.61465		(1.502308)
delta-BHC	ND		(1.3416)	ND		(0.559)	ND		(1.920229)	ND		(3.87)
gamma-BHC	4.572014		(0.7944)	2.477778		(0.331)	ND		(1.137023)	ND		(2.291538)
gamma-Chlordane	1.733695		(0.8592)	0.521984		(0.358)	ND		(1.229771)	ND		(2.478462)
trans-Nonachlor	0.616477	J	(4.4592)	0.129801	J	(1.858)	1.270345	J	(6.382443)	3.427832	J	(12.863077)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,2,4-Trichlorobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,2-Dichlorobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,3-Dichlorobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,3-Dinitrobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,4-Dichlorobenzene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,4-Naphthoquinone	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1,4-Phenylenediamine	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
1-Naphthylamine	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,3,4,6-Tetrachlorophenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,4,5-Trichlorophenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,4,6-Trichlorophenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,4-Dichlorophenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,4-Dimethylphenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,4-Dinitrophenol	ND		(1563)	ND		(633)	ND		(4292)	ND		(2128)
2,4-Dinitrotoluene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,6-Dichlorophenol	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2,6-Dinitrotoluene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2-Acetylaminofluorene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)
2-Chloronaphthalene	ND		(781)	ND		(316)	ND		(2146)	ND		(1064)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-D1 9303-ALS-01-01		LS LS-D2 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
2-Chlorophenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Methylnaphthalene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Methylphenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Naphthylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Nitroaniline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Nitrophenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
2-Picoline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
3,3-Dichlorobenzidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
3,3-Dimethoxybenzidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
3-Methylchloroanthrene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
3-Methylphenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
3-Nitroaniline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4,6-Dinitro-2-methylphenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Aminobiphenyl	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Bromophenyl-phenylether	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Chloro-3-methylphenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Chloroaniline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Chlorophenyl-phenylether	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Methylphenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Nitroaniline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Nitrophenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
4-Nitroquinoline-1-oxide	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
5-Nitro-o-toluidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
7,12-Dimethylbenz(a)anthracene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Acenaphthene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Acenaphthylene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Acetophenone	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Aniline	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Anthracene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
Aramite (peak 1)	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Aramite (peak 2)	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzo(a)anthracene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzo(a)pyrene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzo(b)fluoranthene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzo(g,h,i)perylene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzo(k)fluoranthene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Benzyl alcohol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Butylbenzylphthalate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Chlorobenzilate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Chrysene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Di-n-butylphthalate	1942.3	(781)	ND	(316)	ND	(2146)	ND	(1064)
Di-n-octyphthalate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Diallate (peak 1)	ND	(781)	ND	(316)	NO	(2146)	ND	(1064)
Diallate (peak 2)	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Dibenz(a,h)anthracene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Dibenzofuran	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Diethylphthalate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Dimethylphenethyamine	ND	(9375)	ND	(3797)	ND	(25751)	ND	(12766)
Dimethylphthalate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Diphenylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Ethylmethanesulfonate	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Fluoranthene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Fluorene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Hexachlorobenzene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Hexachlorobutadiene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Hexachlorocyclopentadiene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Hexachloroethane	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Hexachlorophene	ND	(158594)	ND	(64241)	ND	(435622)	ND	(215957)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-D1-01		DT DT-02 9303-BDT-01-01	
Hexachloropropene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Indeno(1,2,3-cd)pyrene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Isophorone	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Isosafrole	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Methapyrilene	ND	(3906)	ND	(1582)	ND	(10730)	ND	(5319)
Methylmethanesulfonate	ND	(3906)	ND	(1582)	ND	(10730)	ND	(5319)
Naphthalene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Nitrobenzene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pentachlorobenzene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pentachloroethane	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pentachloronitrobenzene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pentachlorophenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Phenactin	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Phenanthrene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Phenol	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pronamide	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pyrene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Pyridine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
Safrole	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
bis(2-Chloroethoxy)methane	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
bis(2-Chloroethyl)ether	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
bis(2-Chloroisopropyl)ether	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
bis(2-Ethylhexyl)phthalate	1669.2	(781)	1851.8	(316)	17411.9	(2146)	2996.4	(1064)
n-Nitroso-di-n-butylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitroso-di-n-propylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitrosodiethylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitrosodimethylamine	ND	(781)	ND	(316)	ND	(2146)	NO	(1064)
n-Nitrosodiphenylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitrosomethylethylamine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
n-Nitrosomorpholine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitrosopiperidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
n-Nitrosopyrrolidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
o-Toluidine	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
p-Dimethylaminoazobenzene	ND	(781)	ND	(316)	ND	(2146)	ND	(1064)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(3.697)	ND	(4.473)	12.76	(3.07)	ND	(1.459)
1,2,3,4,6,7,8-HpCDF	ND	(4.183)	ND	(2.871)	ND	(2.08)	ND	(1.539)
1,2,3,4,7,8,9-HpCDF	ND	(3.271)	ND	(4.205)	ND	(2.84)	ND	(4.462)
1,2,3,4,7,8-HxCDD	ND	(4.444)	ND	(4.37)	ND	(3.71)	ND	(1)
1,2,3,4,7,8-HxCDF	13.86	(7.747)	ND	(3.814)	ND	(2.72)	ND	(1.02)
1,2,3,6,7,8-HxCDD	ND	(3.521)	ND	(4.273)	ND	(3.87)	ND	(6.294)
1,2,3,6,7,8-HxCDF	ND	(19.683)	ND	(3.525)	ND	(2.6)	ND	(6.791)
1,2,3,7,8,9-HxCDD	ND	(3.456)	ND	(4.194)	ND	(1.97)	ND	(0.995)
1,2,3,7,8,9-HxCDF	8.4	(1.026)	ND	(2.546)	ND	(1.99)	ND	(0.883)
1,2,3,7,8-PeCDD	ND	(0.602)	ND	(4.994)	ND	(2.39)	ND	(3.716)
1,2,3,7,8-PeCDF	ND	(2.98)	ND	(2.544)	ND	(3.06)	ND	(1.367)
2,3,4,6,7,8-HxCDF	ND	(1.351)	ND	(4.756)	ND	(3.35)	ND	(1.209)
2,3,4,7,8-PeCDF	ND	(1.006)	ND	(2.639)	ND	(3.19)	ND	(1.473)
2,3,7,8-TCDD	ND	(0.99)	ND	(7.992)	ND	(3.96)	ND	(5.653)
2,3,7,8-TCDF	ND	(0.613)	ND	(5.801)	ND	(2.34)	ND	(4.252)
OCDD	ND	(6.629)	ND	(4.828)	100.01	(5.31)	31.26	(8.04)
OCDF	ND	(3.376)	ND	(4.345)	ND	(6.01)	ND	(6.902)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID											
	E E-01 9303-BE-01-01			DT DT-03 9303-FDT-02-01			DT DT-04 9303-FDT-03-01			G G-01 9303-FG-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	0.325484	J	(1.112223)	2.67132		(0.334957)	31.517338		(0.311482)	0.613033		(0.223953)
2,4'-DDE	ND		(0.511068)	0.443573		(0.153913)	3.388936		(0.143127)	ND		(0.102907)
2,4'-DDT	ND		(0.81078)	ND		(0.244174)	3.722155		(0.227062)	0.836387		(0.163256)
4,4'-DDD	15.056643		(0.665255)	127.32590	C	(0.200348)	1753.9943	C	(0.186307)	23.308038		(0.133953)
4,4'-DDE	2.960388		(1.309721)	143.11968	C	(0.394435)	556.95018	C	(0.366792)	11.439561		(0.263721)
4,4'-DDT	ND		(0.656593)	20.622559		(0.197739)	93.366797	C	(0.183881)	1.697564		(0.132209)
Aldrin	ND		(0.850626)	ND		(0.256174)	ND		(0.238221)	ND		(0.171279)
Dieldrin	ND		(1.148604)	1.774353		(0.345913)	4.219011		(0.321671)	1.611472		(0.231279)
Endrin	ND		(0.845428)	ND		(0.254609)	0.474753		(0.236765)	ND		(0.170233)
HCB	ND		(0.930318)	0.228539	J	(0.280174)	0.626663		(0.260539)	0.417477		(0.187326)
Heptachlor	0.041456	J	(0.892204)	ND		(0.268696)	0.127827	J	(0.249865)	0.039582	J	(0.179651)
Heptachlor epoxide	ND		(0.992685)	ND		(0.298957)	0.505842		(0.278005)	0.063493	J	(0.199884)
Mirex	ND		(0.940712)	ND		(0.283304)	ND		(0.26345)	ND	J	(0.189419)
Oxychlordane	ND		(1.233494)	17.297057		(0.371478)	9.633504		(0.345445)	0.626268		(0.248372)
Total BHCs	ND		(1.200144)	0.862106		(0.361435)	2.434638		(0.336105)	1.441619		(0.241657)
Total Chlordanes	0.151529	J	(1.233741)	133.31521		(0.371553)	56.046004		(0.345514)	3.773622		(0.248422)
Total DDTs	18.342515		(0.844273)	294.18303		(0.254261)	2442.9397		(0.236442)	37.894584		(0.17)
Total Decachlorobiphenyls	ND		(1.016939)	ND		(0.306261)	ND		(0.284798)	ND		(0.204767)
Total Dichlorobiphenyls	0.27	J	(1.453513)	0.04	J	(0.437739)	0.08	J	(0.407062)	0.32		(0.292674)
Total Heptachlorobiphenyls	3.02		(0.620212)	22.53		(0.186783)	38.22		(0.173693)	28.22		(0.124884)
Total Hexachlorobiphenyls	10.26		(0.692974)	34.93		(0.208696)	62.92		(0.19407)	41.36		(0.139535)
Total Nonachlorobiphenyls	ND		(1.023869)	0.14	J	(0.308348)	0.92		(0.286739)	ND		(0.206163)
Total Octachlorobiphenyls	ND		(1.534937)	5.21		(0.462261)	8.05		(0.429865)	0.32		(0.30907)
Total PCBs	31.975742		(1.157514)	124.82974		(0.348596)	201.26587		(0.324166)	177.91847		(0.233073)
Total Pentachlorobiphenyls	12.95		(0.887007)	25.42		(0.26713)	69.72		(0.24841)	72.94		(0.178605)
Total Tetrachlorobiphenyls	5.09		(0.417517)	13.36		(0.125739)	12.88		(0.116927)	29.49		(0.08407)
Total Trichlorobiphenyls	0.37	J	(0.904331)	23.18		(0.272348)	8.47		(0.253261)	5.26		(0.182093)
Toxaphene	ND		(2.850433)	ND		(0.858435)	ND		(0.798275)	ND		(0.573953)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01			DT DT-03 9303-FDT-02-01			DT DT-04 9303-FDT-03-01			G G-01 9303-FG-01-01		
alpha-BHC	ND		(0.904331)	ND		(0.272348)	ND		(0.253261)	0.336665		(0.182093)
alpha-Chlordane	ND		(1.302791)	13.653609		(0.392348)	9.37676		(0.364852)	0.655661		(0.262326)
beta-BHC	ND		(2.354379)	0.280343	J	(0.709043)	0.424632	J	(0.659353)	0.120172	J	(0.47407)
cis-Nonachlor	ND		(0.375938)	20.202623		(0.113217)	6.76955		(0.105283)	0.609345		(0.075698)
delta-BHC	ND		(0.968431)	0.194827	J	(0.291652)	0.407127		(0.271213)	ND		(0.195)
gamma-BHC	ND		(0.573436)	0.386936		(0.172696)	1.602879		(0.160593)	0.984782		(0.115465)
gamma-Chlordane	ND		(0.620212)	4.88883		(0.186783)	3.055722		(0.173693)	0.217855		(0.124884)
trans-Nonachlor	0.110073	J	(3.218864)	77.2731	C	(0.969391)	26.576798		(0.901456)	1.561417		(0.64814)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,2,4-Trichlorobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,2-Dichlorobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,3-Dichlorobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,3-Dinitrobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,4-Dichlorobenzene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,4-Naphthoquinone	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1,4-Phenylenediamine	ND		(775)	ND		(114)	ND		(95)	ND		(125)
1-Naphthylamine	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,3,4,6-Tetrachlorophenol	NO		(775)	ND		(114)	ND		(95)	ND		(125)
2,4,5-Trichlorophenol	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,4,6-Trichlorophenol	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,4-Dichlorophenol	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,4-Dimethylphenol	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,4-Dinitrophenol	ND		(1550)	ND		(228)	ND		(190)	ND		(249)
2,4-Dinitrotoluene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,6-Dichlorophenol	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2,6-Dinitrotoluene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2-Acetylaminofluorene	ND		(775)	ND		(114)	ND		(95)	ND		(125)
2-Chloronaphthalene	ND		(775)	ND		(114)	ND		(95)	ND		(125)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01			DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
2-Chlorophenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
2-Methylnaphthalene	ND		(775)	ND	(114)	ND	(95)	ND	(125)
2-Methylphenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
2-Naphthylamine	377.8	J	(775)	ND	(114)	ND	(95)	ND	(125)
2-Nitroaniline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
2-Nitrophenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
2-Picoline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
3,3-Dichlorobenzidine	ND		(775)	ND	(114)	ND	(95)	ND	(125)
3,3-Dimethoxybenzidine	ND		(775)	ND	(114)	ND	(95)	ND	(125)
3-Methylchloroanthrene	ND		(775)	ND	(114)	ND	(95)	ND	(125)
3-Methylphenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
3-Nitroaniline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4,6-Dinitro-2-methylphenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Aminobiphenyl	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Bromophenyl-phenylether	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Chloro-3-methylphenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Chloroaniline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Chlorophenyl-phenylether	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Methylphenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Nitroaniline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Nitrophenol	ND		(775)	ND	(114)	ND	(95)	ND	(125)
4-Nitroquinoline-1-oxide	ND		(775)	ND	(114)	ND	(95)	ND	(125)
5-Nitro-o-toluidine	ND		(775)	ND	(114)	ND	(95)	ND	(125)
7,12-Dimethylbenz(a)anthracene	ND		(775)	ND	(114)	ND	(95)	ND	(125)
Acenaphthene	ND		(775)	ND	(114)	ND	(95)	ND	(125)
Acenaphthylene	ND		(775)	ND	(114)	ND	(95)	ND	(125)
Acetophenone	ND		(775)	ND	(114)	ND	(95)	ND	(125)
Aniline	ND		(775)	ND	(114)	ND	(95)	ND	(125)
Anthracene	ND		(775)	ND	(114)	ND	(95)	ND	(125)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	E		DT		DT		G	
	E-01		DT-03		DT-04		G-01	
PARAMETER	9303-BE-01-01		9303-FDT-02-01		9303-FDT-03-01		9303-FG-01-01	
Aramite (peak 1)	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Aramite (peak 2)	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Benzo(a)anthracene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Benzo(a)pyrene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Benzo(b)fluoranthene	ND	(775)	ND	(114)	ND	(95)	NO	(125)
Benzo(g,h,i)perylene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Benzo(k)fluoranthene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Benzyl alcohol	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Butylbenzylphthalate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Chlorobenzilate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Chrysene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Di-n-butylphthalate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Di-n-octyphthalate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Diallate (peak 1)	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Diallate (peak 2)	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Dibenz(a,h)anthracene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Dibenzofuran	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Diethylphthalate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Dimethylphenethyamine	ND	(9302)	ND	(1367)	ND	(1141)	ND	(1496)
Dimethylphthalate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Diphenylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Ethylmethanesulfonate	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Fluoranthene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Fluorene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Hexachlorobenzene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Hexachlorobutadiene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Hexachlorocyclopentadiene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Hexachloroethane	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Hexachlorophene	ND	(157364)	ND	(23121)	ND	(19297)	ND	(25312)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
Hexachloropropene	ND	(775)	NO	(114)	ND	(95)	ND	(125)
Indeno(1,2,3-cd)pyrene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Isophorone	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Isosafrole	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Methapyrilene	ND	(3876)	ND	(569)	ND	(475)	ND	(623)
Methylmethanesulfonate	ND	(3876)	ND	(569)	ND	(475)	ND	(623)
Naphthalene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Nitrobenzene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pentachlorobenzene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pentachloroethane	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pentachloronitrobenzene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pentachlorophenol	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Phenactin	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Phenanthrene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Phenol	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pronamide	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pyrene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Pyridine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
Safrole	ND	(775)	ND	(114)	ND	(95)	ND	(125)
bis(2-Chloroethoxy)methane	ND	(775)	ND	(114)	ND	(95)	ND	(125)
bis(2-Chloroethyl)ether	ND	(775)	ND	(114)	ND	(95)	ND	(125)
bis(2-Chloroisopropyl)ether	ND	(775)	ND	(114)	ND	(95)	ND	(125)
bis(2-Ethylhexyl)phthalate	26009.9	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitroso-di-n-butylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitroso-di-n-propylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosodiethylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosodimethylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosodiphenylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosomethylethylamine	ND	(775)	ND	(114)	ND	(95)	ND	(125)

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TABLE AI RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
n-Nitrosomorpholine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosopiperidine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
n-Nitrosopyrrolidine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
o-Toluidine	ND	(775)	ND	(114)	ND	(95)	ND	(125)
p-Dimethylaminoazobenzene	ND	(775)	ND	(114)	ND	(95)	ND	(125)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(0.596)	ND	(0.215)	ND	(0.802)	ND	(0.057)
1,2,3,4,6,7,8-HpCDF	ND	(0.607)	ND	(0.381)	ND	(1.01)	ND	(0.151)
1,2,3,4,7,8,9-HpCDF	ND	(0.852)	ND	(0.516)	ND	(1.488)	ND	(0.215)
1,2,3,4,7,8-HxCDD	ND	(1.145)	ND	(0.723)	ND	(1.537)	ND	(0.34)
1,2,3,4,7,8-HxCDF	0.55	(0.544)	ND	(0.479)	ND	(1.004)	ND	(0.042)
1,2,3,6,7,8-HxCDD	ND	(0.725)	ND	(0.729)	ND	(0.521)	ND	(0.34)
1,2,3,6,7,8-HxCDF	ND	(0.486)	ND	(0.427)	ND	(0.962)	NO	(0.166)
1,2,3,7,8,9-HxCDD	ND	(0.711)	ND	(0.715)	ND	(0.511)	ND	(0.334)
1,2,3,7,8,9-HxCDF	ND	(0.52)	0.34	(0.234)	ND	(0.9)	ND	(0.043)
1,2,3,7,8-PeCDD	ND	(1.176)	ND	(0.492)	ND	(1.135)	ND	(0.182)
1,2,3,7,8-PeCDF	ND	(0.871)	ND	(0.347)	ND	(0.51)	ND	(0.104)
2,3,4,6,7,8-HxCDF	ND	(1.45)	ND	(0.623)	ND	(1.291)	ND	(0.262)
2,3,4,7,8-PeCDF	ND	(0.902)	ND	(0.358)	ND	(0.562)	ND	(0.109)
2,3,7,8-TCDD	ND	(0.267)	ND	(0.128)	ND	(0.599)	ND	(0.057)
2,3,7,8-TCDF	ND	(0.87)	ND	(0.655)	ND	(1.097)	ND	(0.241)
OCDD	30.28	(2.47)	4.39	(0.637)	48.67	(2.576)	ND	(0.344)
OCDF	ND	(2.84)	ND	(0.716)	ND	(3.25)	ND	(0.106)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-01 9303-FLH-01-01			LH LH-02 9303-FLH-02-01			LH LH-03 9303-FLH-03-01			LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	ND		(1.284)	0.027325	J	(2.358367)	0.199093	J	(0.515893)	0.096163	J	(0.446178)
2,4'-DDE	ND		(0.59)	ND		(1.083673)	ND		(0.237054)	ND		(0.205019)
2,4'-DDT	ND		(0.936)	ND		(1.719184)	ND		(0.376071)	ND		(0.325251)
4,4'-DDD	7.124441		(0.768)	4.701421		(1.410612)	10.023438		(0.308571)	5.506234		(0.266873)
4,4'-DDE	5.527991		(1.512)	5.673576		(2.777143)	7.617106		(0.6075)	3.86421		(0.525405)
4,4'-DDT	1.006567		(0.758)	ND		(1.392245)	1.306992		(0.304554)	0.023475	J	(0.263398)
Aldrin	ND		(0.982)	ND		(1.803673)	ND		(0.394554)	ND		(0.341236)
Dieldrin	1.711324		(1.326)	ND		(2.43551)	0.733496		(0.532768)	0.307391	J	(0.460772)
Endrin	ND		(0.976)	ND		(1.792653)	ND		(0.392143)	ND		(0.339151)
HCB	ND		(1.074)	0.018562	J	(1.972653)	0.347677	J	(0.431518)	ND		(0.373205)
Heptachlor	0.337084	J	(1.03)	0.130928	J	(1.891837)	0.134706	J	(0.413839)	ND	J	(0.357915)
Heptachlor epoxide	ND		(1.146)	ND		(2.104898)	ND		(0.460446)	ND		(0.398224)
Mirex	ND		(1.086)	ND		(1.994694)	ND		(0.436339)	ND		(0.377375)
Oxychlordane	0.554841	J	(1.424)	0.550607	J	(2.61551)	0.748158		(0.572143)	0.402058	J	(0.494826)
Total BHCs	ND		(1.3855)	0.961575	J	(2.544796)	1.054063		(0.556674)	0.572222		(0.481448)
Total Chlordanes	4.606033		(1.424286)	4.233249		(2.616035)	5.71428		(0.572258)	3.031069		(0.494926)
Total DDTs	13.658999		(0.974667)	10.402321		(1.790204)	19.146628		(0.391607)	9.490082		(0.338687)
Total Decachlorobiphenyls	ND		(1.174)	ND		(2.156327)	ND		(0.471696)	ND		(0.407954)
Total Dichlorobiphenyls	0.533698	J	(1.678)	0.252022	J	(3.082041)	1.502601		(0.674196)	0.62		(0.583089)
Total Heptachlorobiphenyls	0.194928	J	(0.716)	4.032405		(1.315102)	2.115553		(0.287679)	2.26		(0.248803)
Total Hexachlorobiphenyls	5.358026		(0.8)	3.154784		(1.469388)	10.124701		(0.321429)	3.87		(0.277992)
Total Nonachlorobiphenyls	ND		(1.182)	ND		(2.17102)	ND		(0.474911)	ND		(0.410734)
Total Octachlorobiphenyls	ND		(1.772)	0.207947		(3.254694)	0.300599	J	(0.711964)	ND		(0.615753)
Total PCBs	16.666198		(1.336286)	12.990991		(2.454402)	27.932653		(0.536901)	14.239688		(0.464346)
Total Pentachlorobiphenyls	4.666744		(1.024)	1.682852	J	(1.880816)	8.66748		(0.411429)	4.43		(0.35583)
Total Tetrachlorobiphenyls	3.67013		(0.482)	3.337493		(0.885306)	3.59914		(0.193661)	2.15		(0.16749)
Total Trichlorobiphenyls	2.242672		(1.044)	0.323489	J	(1.917551)	1.622579		(0.419464)	0.92		(0.36278)
Toxaphene	ND		(3.290667)	ND		(6.044082)	ND		(1.322143)	ND		(1.143475)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
alpha-BHC	ND	(1.044)	ND	(1.917551)	ND	(0.419464)	ND	(0.36278)
alpha-Chlordane	0.45402 J	(1.504)	0.442815 J	(2.762449)	0.661539	(0.604286)	0.491774 J	(0.522625)
beta-BHC	ND	(2.718)	0.961575 J	(4.992245)	ND	(1.092054)	ND	(0.944479)
cis-Nonachlor	0.761203	(0.434)	0.520437 J	(0.797143)	1.01979	(0.174375)	0.709764	(0.150811)
delta-BHC	ND	(1.118)	ND	(2.053469)	0.149954 J	(0.449196)	ND	(0.388494)
gamma-BHC	ND	(0.662)	ND	(1.215918)	0.904109	(0.265982)	0.572222	(0.230039)
gamma-Chlordane	ND	(0.716)	ND	(1.315102)	0.172268 J	(0.287679)	0.027399 J	(0.248803)
trans-Nonachlor	2.498885 J	(3.716)	2.588462 J	(6.825306)	2.977819	(1.493036)	1.39535	(1.291274)
SW8270 - Semivolatile Organics (ug/kg)								
1,2,4,5-Tetrachlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,2,4-Trichlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,2-Dichlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,3-Dichlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,3-Dinitrobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,4-Dichlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,4-Naphthoquinone	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1,4-Phenylenediamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
1-Naphthylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,3,4,6-Tetrachlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,4,5-Trichlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,4,6-Trichlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,4-Dichlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,4-Dimethylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,4-Dinitrophenol	ND	(266)	ND	(329)	ND	(585)	ND	(267)
2,4-Dinitrotoluene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,6-Dichlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2,6-Dinitrotoluene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Acetylaminofluorene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Chloronaphthalene	ND	(133)	ND	(164)	ND	(292)	ND	(134)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
2-Chlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Methylnaphthalene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Methylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Naphthylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Nitroaniline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Nitrophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
2-Picoline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
3,3-Dichlorobenzidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
3,3-Dimethoxybenzidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
3-Methylchloroanthrene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
3-Methylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
3-Nitroaniline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4,6-Dinitro-2-methylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Aminobiphenyl	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Bromophenyl-phenylether	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Chloro-3-methylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Chloroaniline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Chlorophenyl-phenylether	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Methylphenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Nitroaniline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Nitrophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
4-Nitroquinoline-1-oxide	ND	(133)	ND	(164)	ND	(292)	ND	(134)
5-Nitro-o-toluidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
7,12-Dimethylbenz(a)anthracene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Acenaphthene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Acenaphthylene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Acetophenone	767.5	(133)	ND	(164)	ND	(292)	ND	(134)
Aniline	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Anthracene	ND	(133)	ND	(164)	ND	(292)	ND	(134)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
Aramite (peak 1)	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Aramite (peak 2)	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzo(a)anthracene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzo(a)pyrene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzo(b)fluoranthene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzo(g,h,i)perylene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzo(k)fluoranthene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Benzyl alcohol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Butylbenzylphthalate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Chlorobenzilate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Chrysene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Di-n-butylphthalate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Di-n-octyphthalate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Diallate (peak 1)	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Diallate (peak 2)	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Dibenz(a,h)anthracene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Dibenzofuran	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Diethylphthalate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Dimethylphenethyamine	ND	(1596)	ND	(1974)	ND	(3509)	ND	(1604)
Dimethylphthalate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Diphenylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Ethylmethanesulfonate	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Fluoranthene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Fluorene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Hexachlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Hexachlorobutadiene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Hexachlorocyclopentadiene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Hexachloroethane	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Hexachlorophene	ND	(26995)	ND	(33388)	ND	(59357)	ND	(27139)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
Hexachloropropene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Indeno(1,2,3-cd)pyrene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Isophorone	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Isosafrole	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Methapyrilene	ND	(665)	ND	(822)	ND	(1462)	ND	(668)
Methylmethanesulfonate	ND	(665)	ND	(822)	ND	(1462)	ND	(668)
Naphthalene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Nitrobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pentachlorobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pentachloroethane	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pentachloronitrobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pentachlorophenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Phenactin	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Phenanthrene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Phenol	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pronamide	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pyrene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Pyridine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
Safrole	ND	(133)	ND	(164)	ND	(292)	ND	(134)
bis(2-Chloroethoxy)methane	ND	(133)	ND	(164)	ND	(292)	ND	(134)
bis(2-Chloroethyl)ether	ND	(133)	ND	(164)	ND	(292)	ND	(134)
bis(2-Chloroisopropyl)ether	ND	(133)	ND	(164)	ND	(292)	ND	(134)
bis(2-Ethylhexyl)phthalate	ND	(133)	3486.9	(164)	33620	(292)	14223.7	(134)
n-Nitroso-di-n-butylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitroso-di-n-propylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitrosodiethylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitrosodimethylamine	NO	(133)	ND	(164)	NO	(292)	ND	(134)
n-Nitrosodiphenylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitrosomethylethylamine	ND	(133)	ND	(164)	ND	(292)	ND	(134)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID							
	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
n-Nitrosomorpholine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitrosopiperidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
n-Nitrosopyrrolidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
o-Toluidine	ND	(133)	ND	(164)	ND	(292)	ND	(134)
p-Dimethylaminoazobenzene	ND	(133)	ND	(164)	ND	(292)	ND	(134)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(0.742)	ND	(0.687)	ND	(0.52)	ND	(0.479)
1,2,3,4,6,7,8-HpCDF	ND	(1.248)	ND	(2.738)	ND	(0.513)	ND	(0.506)
1,2,3,4,7,8,9-HpCDF	ND	(1.344)	ND	(5.608)	ND	(0.691)	ND	(0.594)
1,2,3,4,7,8-HxCDD	ND	(4.993)	ND	(3.835)	ND	(0.246)	ND	(1.079)
1,2,3,4,7,8-HxCDF	ND	(4.079)	ND	(0.769)	ND	(0.361)	ND	(0.381)
1,2,3,6,7,8-HxCDD	ND	(4.826)	ND	(4.161)	ND	(1.059)	ND	(1.097)
1,2,3,6,7,8-HxCDF	1.17 J	(3.263)	ND	(0.738)	0.28 J	(0.333)	ND	(0.349)
1,2,3,7,8,9-HxCDD	ND	(4.737)	ND	(4.084)	ND	(0.245)	0.19 J	(0.488)
1,2,3,7,8,9-HxCDF	ND	(1)	ND	(2.14)	ND	(0.363)	ND	(0.377)
1,2,3,7,8-PeCDD	ND	(2.368)	ND	(2.611)	ND	(0.508)	ND	(0.57)
1,2,3,7,8-PeCDF	ND	(1.178)	ND	(1.205)	ND	(0.321)	ND	(0.443)
2,3,4,6,7,8-HxCDF	ND	(1.258)	ND	(3.415)	ND	(0.482)	ND	(1.517)
2,3,4,7,8-PeCDF	ND	(1.728)	ND	(1.335)	ND	(0.349)	ND	(0.477)
2,3,7,8-TCDD	ND	(3.168)	ND	(3.755)	0.12	(0.109)	ND	(0.244)
2,3,7,8-TCDF	ND	(3.097)	ND	(2.889)	ND	(0.375)	ND	(0.492)
OCDD	7.41	(2.284)	17.41	(5.925)	3.91	(1.028)	3.26	(1.295)
OCDF	ND	(1.598)	ND	(4.073)	ND	(0.406)	ND	(0.614)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-GLS-01-01			DT DT-01 9303-IDT-01-01			LS LS-01 9303-NLS-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)									
2,4'-DDD	ND		(0.560971)	0.060816	J	(0.817256)	ND		(0.73699)
2,4'-DDE	ND		(0.257767)	ND		(0.37553)	0.26124	J	(0.338648)
2,4'-DDT	ND		(0.408932)	ND		(0.595757)	0.350651	J	(0.537245)
4,4'-DDD	ND		(0.335534)	3.002182		(0.488826)	0.814334		(0.440816)
4,4'-DDE	4.971588		(0.660583)	6.457382		(0.962376)	1.724799		(0.867857)
4,4'-DDT	ND		(0.331165)	0.675352		(0.482461)	0.872702		(0.435077)
Aldrin	ND		(0.429029)	ND		(0.625035)	ND		(0.563648)
Dieldrin	1.765755		(0.57932)	0.286018	J	(0.843989)	ND		(0.761097)
Endrin	1.630398		(0.426408)	ND		(0.621216)	ND		(0.560204)
HCB	ND		(0.469223)	0.344579	J	(0.683593)	0.039523	J	(0.616454)
Heptachlor	ND		(0.45)	0.196947	J	(0.655587)	0.065941	J	(0.591199)
Heptachlor epoxide	ND		(0.50068)	ND		(0.72942)	ND		(0.657781)
Mirex	ND		(0.474466)	ND		(0.691231)	ND		(0.623342)
Oxychlordane	ND		(0.622136)	0.94311		(0.906365)	ND		(0.817347)
Total BHCs	0.992009		(0.605316)	1.032472		(0.88186)	0.890786		(0.795249)
Total Chlordanes	ND		(0.622261)	7.132289		(0.906547)	0.817811		(0.817511)
Total DDTs	4.971588		(0.425825)	10.195732		(0.620368)	4.023726		(0.559439)
Total Decachlorobiphenyls	ND		(0.512913)	ND		(0.747242)	ND		(0.673852)
Total Dichlorobiphenyls	0.01	J	(0.733107)	0.11	J	(1.068034)	0.2	J	(0.963138)
Total Heptachlorobiphenyls	1		(0.312816)	4.75		(0.455728)	0.78		(0.410969)
Total Hexachlorobiphenyls	9.89		(0.349515)	6.49		(0.509194)	2.42		(0.459184)
Total Nonachlorobiphenyls	ND		(0.516408)	ND		(0.752334)	ND		(0.678444)
Total Octachlorobiphenyls	ND		(0.774175)	ND		(1.127864)	ND		(1.017092)
Total PCBs	17.127229		(0.583814)	33.941765		(0.850535)	8.082163		(0.767001)
Total Pentachlorobiphenyls	1.73		(0.447379)	17.12		(0.651768)	1.71		(0.587755)
Total Tetrachlorobiphenyls	3.52		(0.210583)	5.38		(0.306789)	2.46		(0.276658)
Total Trichlorobiphenyls	0.97		(0.456117)	0.1	J	(0.664498)	0.52	J	(0.599235)
Toxaphene	ND		(1.43767)	ND		(2.094484)	ND		(1.888776)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID								
	LOCATION ID								
	SAMPLE ID								
PARAMETER	LS			DT			LS		
	LS-01			DT-01			LS-01		
	9303-GLS-01-01			9303-IDT-01-01			9303-NLS-01-01		
alpha-BHC	ND	(0.456117)		0.31462	J	(0.664498)	0.679474		(0.599235)
alpha-Chlordane	ND	(0.657087)		3.253372		(0.957284)	ND		(0.863265)
beta-BHC	ND	(1.187476)		ND		(1.729986)	ND		(1.560077)
cis-Nonachlor	ND	(0.189612)		0.778972		(0.276238)	0.141239	J	(0.249107)
delta-BHC	ND	(0.488447)		ND		(0.711598)	ND		(0.641709)
gamma-BHC	0.992009	(0.289223)		0.373273	J	(0.421358)	0.171788	J	(0.379974)
gamma-Chlordane	ND	(0.312816)		ND		(0.455728)	ND		(0.410969)
trans-Nonachlor	ND	(1.623495)		1.959889	J	(2.365205)	0.61063	J	(2.132908)
SW8270 - Semivolatile Organics (ug/kg)									
1,2,4,5-Tetrachlorobenzene	ND	(329)		ND		(378)	ND		(536)
1,2,4-Trichlorobenzene	ND	(329)		ND		(378)	2104.3		(536)
1,2-Dichlorobenzene	ND	(329)		ND		(378)	ND		(536)
1,3-Dichlorobenzene	ND	(329)		ND		(378)	ND		(536)
1,3-Dinitrobenzene	ND	(329)		ND		(378)	ND		(536)
1,4-Dichlorobenzene	ND	(329)		ND		(378)	ND		(536)
1,4-Naphthoquinone	ND	(329)		ND		(378)	ND		(536)
1,4-Phenylenediamine	ND	(329)		ND		(378)	ND		(536)
1-Naphthylamine	ND	(329)		ND		(378)	ND		(536)
2,3,4,6-Tetrachlorophenol	ND	(329)		ND		(378)	ND		(536)
2,4,5-Trichlorophenol	ND	(329)		ND		(378)	ND		(536)
2,4,6-Trichlorophenol	ND	(329)		ND		(378)	ND		(536)
2,4-Dichlorophenol	ND	(329)		ND		(378)	ND		(536)
2,4-Dimethylphenol	ND	(329)		ND		(378)	ND		(536)
2,4-Dinitrophenol	ND	(658)		ND		(756)	ND		(1073)
2,4-Dinitrotoluene	ND	(329)		ND		(378)	ND		(536)
2,6-Dichlorophenol	ND	(329)		ND		(378)	ND		(536)
2,6-Dinitrotoluene	ND	(329)		ND		(378)	ND		(536)
2-Acetylaminofluorene	ND	(329)		ND		(378)	ND		(536)
2-Chloronaphthalene	ND	(329)		ND		(378)	ND		(536)

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TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-GLS-01-01		DT DT-01 9303-IDT-01-01		LS LS-01 9303-NLS-01-01	
2-Chlorophenol	ND	(329)	ND	(378)	ND	(536)
2-Methylnaphthalene	ND	(329)	ND	(378)	ND	(536)
2-Methylphenol	ND	(329)	ND	(378)	ND	(536)
2-Naphthylamine	ND	(329)	ND	(378)	ND	(536)
2-Nitroaniline	ND	(329)	ND	(378)	ND	(536)
2-Nitrophenol	ND	(329)	ND	(378)	ND	(536)
2-Picoline	ND	(329)	ND	(378)	ND	(536)
3,3-Dichlorobenzidine	ND	(329)	ND	(378)	ND	(536)
3,3-Dimethoxybenzidine	ND	(329)	ND	(378)	ND	(536)
3-Methylchloroanthrene	ND	(329)	ND	(378)	ND	(536)
3-Methylphenol	ND	(329)	ND	(378)	ND	(536)
3-Nitroaniline	ND	(329)	ND	(378)	ND	(536)
4,6-Dinitro-2-methylphenol	ND	(329)	ND	(378)	ND	(536)
4-Aminobiphenyl	ND	(329)	ND	(378)	ND	(536)
4-Bromophenyl-phenylether	ND	(329)	ND	(378)	ND	(536)
4-Chloro-3-methylphenol	ND	(329)	ND	(378)	ND	(536)
4-Chloroaniline	ND	(329)	ND	(378)	ND	(536)
4-Chlorophenyl-phenylether	ND	(329)	ND	(378)	ND	(536)
4-Methylphenol	ND	(329)	ND	(378)	ND	(536)
4-Nitroaniline	ND	(329)	ND	(378)	ND	(536)
4-Nitrophenol	ND	(329)	ND	(378)	ND	(536)
4-Nitroquinoline-1-oxide	ND	(329)	ND	(378)	ND	(536)
5-Nitro-o-toluidine	ND	(329)	ND	(378)	ND	(536)
7,12-Dimethylbenz(a)anthracene	ND	(329)	ND	(378)	ND	(536)
Acenaphthene	ND	(329)	ND	(378)	ND	(536)
Acenaphthylene	ND	(329)	ND	(378)	ND	(536)
Acetophenone	ND	(329)	ND	(378)	ND	(536)
Aniline	ND	(329)	ND	(378)	ND	(536)
Anthracene	ND	(329)	ND	(378)	ND	(536)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIDTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID					
	LOCATION ID					
	SAMPLE ID					
	LS		DT		LS	
	LS-01		DT-01		LS-01	
PARAMETER	9303-GLS-01-01		9303-IDT-01-01		9303-NLS-01-01	
Aramite (peak 1)	ND	(329)	ND	(378)	ND	(536)
Aramite (peak 2)	ND	(329)	ND	(378)	ND	(536)
Benzo(a)anthracene	ND	(329)	ND	(378)	ND	(536)
Benzo(a)pyrene	ND	(329)	ND	(378)	ND	(536)
Benzo(b)fluoranthene	ND	(329)	ND	(378)	ND	(536)
Benzo(g,h,i)perylene	ND	(329)	ND	(378)	ND	(536)
Benzo(k)fluoranthene	ND	(329)	ND	(378)	ND	(536)
Benzyl alcohol	ND	(329)	ND	(378)	ND	(536)
Butylbenzylphthalate	ND	(329)	ND	(378)	ND	(536)
Chlorobenzilate	ND	(329)	ND	(378)	ND	(536)
Chrysene	ND	(329)	ND	(378)	ND	(536)
Di-n-butylphthalate	832.7	(329)	ND	(378)	ND	(536)
Di-n-octyphthalate	ND	(329)	ND	(378)	ND	(536)
Diallate (peak 1)	ND	(329)	ND	(378)	ND	(536)
Diallate (peak 2)	ND	(329)	ND	(378)	ND	(536)
Dibenz(a,h)anthracene	ND	(329)	ND	(378)	ND	(536)
Dibenzofuran	ND	(329)	ND	(378)	ND	(536)
Diethylphthalate	ND	(329)	ND	(378)	ND	(536)
Dimethylphenethyamine	ND	(3947)	ND	(4539)	ND	(6438)
Dimethylphthalate	ND	(329)	ND	(378)	ND	(536)
Diphenylamine	ND	(329)	ND	(378)	ND	(536)
Ethylmethanesulfonate	ND	(329)	ND	(378)	ND	(536)
Fluoranthene	ND	(329)	ND	(378)	ND	(536)
Fluorene	ND	(329)	ND	(378)	ND	(536)
Hexachlorobenzene	ND	(329)	ND	(378)	ND	(536)
Hexachlorobutadiene	ND	(329)	ND	(378)	ND	(536)
Hexachlorocyclopentadiene	ND	(329)	ND	(378)	ND	(536)
Hexachloroethane	ND	(329)	ND	(378)	ND	(536)
Hexachlorophene	ND	(66776)	ND	(76778)	ND	(108906)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID					
	LOCATION ID					
	SAMPLE ID					
	LS		DT		LS	
	LS-01		DT-01		LS-01	
PARAMETER	9303-GLS-01-01		9303-IDT-01-01		9303-NLS-01-01	
Hexachloropropene	ND	(329)	ND	(378)	ND	(536)
Indeno(1,2,3-cd)pyrene	ND	(329)	ND	(378)	ND	(536)
Isophorone	ND	(329)	ND	(378)	ND	(536)
Isosafrole	ND	(329)	ND	(378)	ND	(536)
Methapyrilene	ND	(1645)	ND	(1891)	ND	(2682)
Methylmethanesulfonate	ND	(1645)	ND	(1891)	ND	(2682)
Naphthalene	ND	(329)	ND	(378)	ND	(536)
Nitrobenzene	ND	(329)	ND	(378)	ND	(536)
Pentachlorobenzene	ND	(329)	ND	(378)	ND	(536)
Pentachloroethane	ND	(329)	ND	(378)	ND	(536)
Pentachloronitrobenzene	ND	(329)	ND	(378)	ND	(536)
Pentachlorophenol	ND	(329)	ND	(378)	ND	(536)
Phenactin	ND	(329)	ND	(378)	ND	(536)
Phenanthrene	ND	(329)	ND	(378)	ND	(536)
Phenol	ND	(329)	ND	(378)	ND	(536)
Pronamide	ND	(329)	ND	(378)	ND	(536)
Pyrene	ND	(329)	ND	(378)	ND	(536)
Pyridine	ND	(329)	ND	(378)	ND	(536)
Safrole	ND	(329)	ND	(378)	ND	(536)
bis(2-Chloroethoxy)methane	ND	(329)	ND	(378)	ND	(536)
bis(2-Chloroethyl)ether	ND	(329)	ND	(378)	ND	(536)
bis(2-Chloroisopropyl)ether	ND	(329)	ND	(378)	ND	(536)
bis(2-Ethylhexyl)phthalate	ND	(329)	20413.8	(378)	12930.3	(536)
n-Nitroso-di-n-butylamine	ND	(329)	ND	(378)	ND	(536)
n-Nitroso-di-n-propylamine	ND	(329)	ND	(378)	ND	(536)
n-Nitrosodiethylamine	ND	(329)	ND	(378)	ND	(536)
n-Nitrosodimethylamine	ND	(329)	ND	(378)	ND	(536)
n-Nitrosodiphenylamine	ND	(329)	ND	(378)	ND	(536)
n-Nitrosomethylethylamine	ND	(329)	ND	(378)	ND	(536)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A1 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-GLS-01-01			DT DT-01 9303-IDT-01-01			LS LS-01 9303-NLS-01-01		
n-Nitrosomorpholine	ND		(329)	ND		(378)	ND		(536)
n-Nitrosopiperidine	ND		(329)	ND		(378)	ND		(536)
n-Nitrosopyrrolidine	ND		(329)	ND		(378)	ND		(536)
o-Toluidine	ND		(329)	ND		(378)	ND		(536)
p-Dimethylaminoazobenzene	ND		(329)	ND		(378)	ND		(536)
SW8290 - Dioxins and Furans (pg/g)									
1,2,3,4,6,7,8-HpCDD	ND		(0.33)	ND		(0.71)	ND		(0.563)
1,2,3,4,6,7,8-HpCDF	0.62		(0.32)	ND		(0.56)	1.24		(0.425)
1,2,3,4,7,8,9-HpCDF	ND		(0.44)	ND		(0.82)	ND		(0.64)
1,2,3,4,7,8-HxCDD	ND		(0.75)	ND		(0.82)	0.24	J	(0.522)
1,2,3,4,7,8-HxCDF	ND		(0.47)	ND		(0.54)	ND		(0.648)
1,2,3,6,7,8-HxCDD	ND		(0.79)	ND		(0.85)	ND		(0.541)
1,2,3,6,7,8-HxCDF	0.42		(0.23)	ND		(0.66)	ND		(0.44)
1,2,3,7,8,9-HxCDD	ND		(0.34)	ND		(0.84)	ND		(0.531)
1,2,3,7,8,9-HxCDF	ND		(0.25)	ND		(0.56)	ND		(0.477)
1,2,3,7,8-PeCDD	ND		(0.43)	ND		(1.01)	ND		(0.809)
1,2,3,7,8-PeCDF	ND		(0.51)	ND		(0.71)	ND		(0.815)
2,3,4,6,7,8-HxCDF	ND		(0.31)	ND		(0.89)	ND		(0.861)
2,3,4,7,8-PeCDF	ND		(0.52)	ND		(1.09)	ND		(0.9)
2,3,7,8-TCDD	ND		(0.11)	ND		(0.18)	ND		(0.188)
2,3,7,8-TCDF	ND		(0.36)	ND		(0.77)	ND		(0.797)
OCDD	ND		(0.76)	8.81		(1.06)	3.98		(1.267)
OCDF	ND		(0.53)	ND		(2.05)	1.52		(1.361)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
PARAMETER	A A-01 9303-AA-01-01			C C-01 9303-AC-01-01			C C-01 9303-AC-01-02 Dup of 9303-AC-01-01			D D-01 9303-AD-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	2.7969		(0.454961)	0.305479	J	(0.30816)	0.017996	J	(0.375195)	0.260716	J	(0.340885)
2,4'-DDE	ND		(0.209055)	ND		(0.1416)	ND		(0.172403)	ND		(0.156637)
2,4'-DDT	2.140704		(0.331654)	0.991781		(0.22464)	0.073932	J	(0.273506)	1.28495		(0.248496)
4,4'-DDD	29.260784		(0.272126)	3.194669		(0.18432)	0.236188		(0.224416)	5.327431		(0.203894)
4,4'-DDE	7.39011		(0.535748)	3.02155		(0.36288)	0.238699	J	(0.441818)	2.061627		(0.401416)
4,4'-DDT	0.77219		(0.268583)	0.874593		(0.18192)	0.05255	J	(0.221494)	0.508636		(0.201239)
Aldrin	0.257712	J	(0.347953)	0.156035	J	(0.23568)	0.008256	J	(0.286948)	0.131657	J	(0.260708)
Dieldrin	4.164671		(0.469843)	2.926609		(0.31824)	0.20119	J	(0.387468)	1.669676		(0.352035)
Endrin	ND		(0.345827)	0.973427		(0.23424)	0.061295	J	(0.285195)	0.93346		(0.259115)
HCB	0.122981	J	(0.380551)	0.028427	J	(0.25776)	ND	J	(0.313831)	0.036654	J	(0.285133)
Heptachlor	0.088796	J	(0.364961)	ND		(0.2472)	0.014742	J	(0.300974)	0.106904	J	(0.273451)
Heptachlor epoxide	ND		(0.406063)	0.048009	J	(0.27504)	ND	J	(0.33487)	ND		(0.304248)
Mirex	ND		(0.384803)	ND		(0.26064)	ND		(0.317338)	ND		(0.288319)
Oxychlordane	0.202309	J	(0.504567)	0.220735	J	(0.34176)	0.019695	J	(0.416104)	0.053083	J	(0.378053)
Total BHCs	ND		(0.490925)	4.534119		(0.33252)	0.214225	J	(0.404854)	2.181964		(0.367832)
Total Chlordanes	4.815583		(0.504668)	2.139453		(0.341829)	0.194242	J	(0.416187)	1.009311		(0.378129)
Total DDTs	42.360687		(0.345354)	8.388073		(0.23392)	0.619365		(0.284805)	9.44336		(0.258761)
Total Decachlorobiphenyls	ND		(0.415984)	ND		(0.28176)	ND		(0.343052)	ND		(0.311681)
Total Dichlorobiphenyls	4.143587		(0.594567)	5.432029		(0.40272)	1.215842		(0.490325)	3.839358		(0.445487)
Total Heptachlorobiphenyls	38.768924		(0.253701)	41.172813		(0.17184)	2.927386		(0.209221)	32.850501		(0.190088)
Total Hexachlorobiphenyls	67.263641		(0.283465)	32.254216		(0.192)	2.481774		(0.233766)	30.119054		(0.212389)
Total Nonachlorobiphenyls	ND		(0.418819)	0.103904	J	(0.28368)	ND		(0.34539)	ND		(0.313805)
Total Octachlorobiphenyls	1.479545		(0.627874)	0.352484	J	(0.42528)	0.016541	J	(0.517792)	0.812692		(0.470442)
Total PCBs	276.18497		(0.473487)	201.38154		(0.320709)	15.803436		(0.390473)	164.35227		(0.354766)
Total Pentachlorobiphenyls	120.73424		(0.362835)	76.188458		(0.24576)	5.750727		(0.299221)	62.338027		(0.271858)
Total Tetrachlorobiphenyls	38.39B966		(0.170787)	39.427046		(0.11568)	2.825918		(0.140844)	30.476311		(0.127965)
Total Trichlorobiphenyls	5.396063		(0.369921)	6.450598		(0.25056)	0.585247		(0.305065)	3.916328		(0.277168)
Toxaphene	ND		(1.165984)	ND		(0.78976)	ND		(0.961558)	ND		(0.873628)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGDONS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
PARAMETER	A			C			C			D		
	A-01			C-01			C-01			D-01		
	9303-AA-01-01			9303-AC-01-01			9303-AC-01-02 Dup of 9303-AC-01-01			9303-AD-01-01		
alpha-BHC	ND		(0.369921)	0.49576		(0.25056)	0.031997	J	(0.305065)	0.228807	J	(0.277168)
alpha-Chlordane	1.347462		(0.532913)	0.454752		(0.36096)	0.049011	J	(0.439481)	0.419032		(0.399292)
beta-BHC	ND		(0.963071)	0.424894	J	(0.65232)	0.023733	J	(0.794221)	ND		(0.721593)
cis-Nonachlor	0.97874		(0.15378)	0.38227		(0.10416)	0.028621	J	(0.126818)	0.244781		(0.115221)
delta-BHC	ND		(0.396142)	1.282869		(0.26832)	ND		(0.326688)	0.7943		(0.296814)
gamma-BHC	ND		(0.234567)	2.330596		(0.15888)	0.158496	J	(0.193442)	1.158857		(0.175752)
gamma-Chlordane	1.710056		(0.253701)	0.735785		(0.17184)	0.057614	J	(0.209221)	ND		(0.190088)
trans-Nonachlor	0.488219	J	(1.316693)	0.297901	J	(0.89184)	0.02255	J	(1.085844)	0.185512	J	(0.986549)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,2,4-Trichlorobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,2-Dichlorobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,3-Dichlorobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,3-Dinitrobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,4-Dichlorobenzene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,4-Naphthoquinone	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1,4-Phenylenediamine	ND		(164)	ND		(182)	ND		(163)	ND		(167)
1-Naphthylamine	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,3,4,6-Tetrachlorophenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,4,5-Trichlorophenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,4,6-Trichlorophenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,4-Dichlorophenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,4-Dimethylphenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,4-Dinitrophenol	ND		(329)	ND		(364)	ND		(326)	ND		(333)
2,4-Dinitrotoluene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,6-Dichlorophenol	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2,6-Dinitrotoluene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2-Acetylaminofluorene	ND		(164)	ND		(182)	ND		(163)	ND		(167)
2-Chloronaphthalene	ND		(164)	ND		(182)	ND		(163)	ND		(167)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLDMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	A		C		C		D	
	A-01		C-01		C-01		D-01	
PARAMETER	9303-AA-01-01		9303-AC-01-01		9303-AC-01-02 Dup of 9303-AC-01-01		9303-AD-01-01	
2-Chlorophenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Methylnaphthalene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Methylphenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Naphthylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Nitroaniline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Nitrophenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
2-Picoline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
3,3-Dichlorobenzidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
3,3-Dimethoxybenzidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
3-Methylchloroanthrene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
3-Methylphenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
3-Nitroaniline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4,6-Dinitro-2-methylphenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Aminobiphenyl	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Bromophenyl-phenylether	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Chloro-3-methylphenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Chloroaniline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Chlorophenyl-phenylether	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Methylphenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Nitroaniline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Nitrophenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
4-Nitroquinoline-1-oxide	ND	(164)	ND	(182)	ND	(163)	ND	(167)
5-Nitro-o-toluidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
7,12-Dimethylbenz(a)anthracene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Acenaphthene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Acenaphthylene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Acetophenone	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Aniline	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Anthracene	ND	(164)	ND	(182)	ND	(163)	ND	(167)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	A		C		C		D	
	A-01		C-01		C-01		D-01	
PARAMETER	9303-AA-01-01		9303-AC-01-01		9303-AC-01-02 Dup of 9303-AC-01-01		9303-AD-01-01	
Aramite (peak 1)	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Aramite (peak 2)	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Benzo(a)anthracene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Benzo(a)pyrene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Benzo(b)fluoranthene	ND	(164)	NO	(182)	ND	(163)	ND	(167)
Benzo(g,h,i)perylene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Benzo(k)fluoranthene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Benzyl alcohol	694.6	(164)	ND	(182)	ND	(163)	ND	(167)
Butylbenzylphthalate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Chlorobenzilate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Chrysene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Di-n-butylphthalate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Di-n-octyphthalate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Diallate (peak 1)	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Diallate (peak 2)	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Dibenz(a,h)anthracene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Dibenzofuran	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Diethylphthalate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Dimethylphenethyamine	ND	(1974)	ND	(2182)	ND	(1954)	ND	(2000)
Dimethylphthalate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Diphenylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Ethylmethanesulfonate	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Fluoranthene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Fluorene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Hexachlorobenzene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Hexachlorobutadiene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Hexachlorocyclopentadiene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Hexachloroethane	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Hexachlorophene	ND	(33388)	ND	(36909)	ND	(33062)	ND	(33833)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIDTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
Hexachloropropene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Indeno(1,2,3-cd)pyrene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Isophorone	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Isosafrole	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Methapyrilene	ND	(822)	ND	(909)	ND	(814)	ND	(833)
Methylmethanesulfonate	ND	(822)	ND	(909)	ND	(814)	ND	(833)
Naphthalene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Nitrobenzene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pentachlorobenzene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pentachloroethane	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pentachloronitrobenzene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pentachlorophenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Phenactin	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Phenanthrene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Phenol	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pronamide	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pyrene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Pyridine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
Safrole	ND	(164)	ND	(182)	ND	(163)	ND	(167)
bis(2-Chloroethoxy)methane	ND	(164)	ND	(182)	ND	(163)	ND	(167)
bis(2-Chloroethyl)ether	ND	(164)	ND	(182)	ND	(163)	ND	(167)
bis(2-Chloroisopropyl)ether	ND	(164)	ND	(182)	ND	(163)	ND	(167)
bis(2-Ethylhexyl)phthalate	ND	(164)	4941	(182)	5022.2	(163)	ND	(167)
n-Nitroso-di-n-butylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitroso-di-n-propylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosodiethylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosodimethylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosodiphenylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosomethylethylamine	ND	(164)	ND	(182)	ND	(163)	ND	(167)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
n-Nitrosomorpholine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosopiperidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
n-Nitrosopyrrolidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
o-Toluidine	ND	(164)	ND	(182)	ND	(163)	ND	(167)
p-Dimethylaminoazobenzene	ND	(164)	ND	(182)	ND	(163)	ND	(167)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(0.92874)	ND	(0.11)	ND	(0.836039)	ND	(2.303835)
1,2,3,4,6,7,8-HpCDF	ND	(0.675197)	ND	(0.604)	ND	(0.597727)	ND	(1.161652)
1,2,3,4,7,8,9-HpCDF	ND	(1.051181)	ND	(0.509)	ND	(0.944805)	ND	(1.815929)
1,2,3,4,7,8-HxCDD	ND	(1.214567)	ND	(0.407)	ND	(1.581818)	ND	(1.917699)
1,2,3,4,7,8-HxCDF	ND	(0.805906)	ND	(0.527)	0.15 J	(0.4)	ND	(1.619764)
1,2,3,6,7,8-HxCDD	ND	(1.245669)	ND	(0.379)	ND	(1.592532)	ND	(2.153097)
1,2,3,6,7,8-HxCDF	ND	(0.712992)	ND	(0.472)	ND	(0.646429)	ND	(1.530973)
1,2,3,7,8,9-HxCDD	ND	(1.222441)	ND	(0.113)	ND	(1.563312)	ND	(2.113274)
1,2,3,7,8,9-HxCDF	ND	(0.438583)	ND	(0.199)	ND	(0.394481)	ND	(1.718879)
1,2,3,7,8-PeCDD	ND	(1.637008)	ND	(0.316)	ND	(2.099351)	ND	(2.310619)
1,2,3,7,8-PeCDF	ND	(0.855118)	ND	(0.116)	ND	(0.969156)	ND	(0.90118)
2,3,4,6,7,8-HxCDF	ND	(1.057087)	ND	(0.127)	ND	(0.892532)	ND	(2.342183)
2,3,4,7,8-PeCDF	ND	(0.937008)	ND	(0.105)	ND	(1.005519)	ND	(0.956047)
2,3,7,8-TCDD	ND	(2.107087)	ND	(0.127)	ND	(2.472403)	ND	(3.379351)
2,3,7,8-TCDF	4.38	(0.735039)	ND	(0.078)	ND	(1.249675)	3.68	(1.143068)
OCDD	9.28	(2.935039)	6.95	(0.142)	8.45	(2.603247)	9.6	(4.721534)
OCDF	ND	(2.527165)	ND	(0.243)	ND	(1.135714)	ND	(4.016224)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
PARAMETER	DT DT-01 9303-ADT-01-01			E E-01 9303-AE-01-01			E E-01 9303-AE-01-02 Dup of 9303-AE-01-01			F F-01 9303-AF-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	1.156537		(0.931935)	1.717851		(0.634945)	2.368326		(0.700364)	50.884794		(0.444462)
2,4'-DDE	ND		(0.428226)	ND		(0.291758)	ND		(0.321818)	5.3266		(0.204231)
2,4'-DDT	0.02932	J	(0.679355)	2.412293		(0.462857)	3.141666		(0.510545)	0.944094		(0.324)
4,4'-DDD	15.490322		(0.557419)	28.01613		(0.37978)	35.314812		(0.418909)	561.56581	C	(0.265846)
4,4'-DDE	2.941145		(1.097419)	5.328569		(0.747692)	6.338097		(0.824727)	54.86545		(0.523385)
4,4'-DDT	0.514662	J	(0.550161)	1.276546		(0.374835)	2.402921		(0.413455)	6.298061		(0.262385)
Aldrin	ND		(0.712742)	0.715967		(0.485604)	0.124014	J	(0.535636)	0.141847	J	(0.339923)
Dieldrin	1.034913		(0.962419)	1.777125		(0.655714)	3.31271		(0.723273)	3.750817		(0.459)
Endrin	ND		(0.708387)	1.307459		(0.482637)	2.335451		(0.532364)	ND		(0.337846)
HCB	0.04200B	J	(0.779516)	0.068448	J	(0.531099)	0.19562	J	(0.585818)	0.090643	J	(0.371769)
Heptachlor	0.118469	J	(0.747581)	0.068522	J	(0.509341)	0.16432	J	(0.561818)	0.275924	J	(0.356538)
Heptachlor epoxide	ND		(0.831774)	ND		(0.566703)	ND		(0.625091)	ND		(0.396692)
Mirex	ND		(0.788226)	ND		(0.537033)	ND		(0.592364)	ND		(0.375923)
Oxychlordane	0.64748	J	(1.033548)	0.174855	J	(0.704176)	0.243484	J	(0.776727)	1.350379		(0.492923)
Total BHCs	1.471471		(1.005605)	1.902814		(0.685137)	3.050719		(0.755727)	1.433311		(0.479596)
Total Chlordanes	7.063438		(1.033756)	3.168305		(0.704317)	3.996865		(0.776883)	55.623442		(0.493022)
Total DDTs	20.131985		(0.707419)	38.751389		(0.481978)	49.565823		(0.531636)	679.88480		(0.337385)
Total Decachlorobiphenyls	ND		(0.852097)	0.065332	J	(0.580549)	ND		(0.640364)	ND		(0.406385)
Total Dichlorobiphenyls	18.265217		(1.217903)	20.568153		(0.82978)	8.596032		(0.915273)	11.922054		(0.580846)
Total Heptachlorobiphenyls	8.164247		(0.519677)	41.379425		(0.354066)	53.443539		(0.390545)	13.889853		(0.247846)
Total Hexachlorobiphenyls	8.891505		(0.580645)	46.458093		(0.395604)	60.871438		(0.436364)	19.50975		(0.276923)
Total Nonachlorobiphenyls	ND		(0.857903)	ND		(0.584505)	0.080694	J	(0.644727)	ND		(0.409154)
Total Octachlorobiphenyls	0.061541	J	(1.286129)	0.339708	J	(0.876264)	1.008917		(0.966545)	0.371103	J	(0.613385)
Total PCBs	104.11866		(0.969885)	244.56164		(0.660801)	311.28081		(0.728883)	159.79071		(0.46256)
Total Pentachlorobiphenyls	12.59409		(0.743226)	88.011993		(0.506374)	127.74357		(0.558545)	61.220262		(0.354462)
Total Tetrachlorobiphenyls	9.672515		(0.349839)	35.236811		(0.238352)	54.275781		(0.262909)	50.021191		(0.166846)
Total Trichlorobiphenyls	46.469546		(0.757742)	12.502133		(0.516264)	5.260845		(0.569455)	2.856504		(0.361385)
Toxaphene	ND		(2.388387)	ND		(1.627253)	ND		(1.794909)	ND		(1.139077)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGODNS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
	DT			E			E			F		
	DT-01			E-01			E-01			F-01		
PARAMETER	9303-ADT-01-01			9303-AE-01-01			9303-AE-01-02 Dup of 9303-AE-01-01			9303-AF-01-01		
alpha-BHC	ND		(0.757742)	ND		(0.516264)	0.527851	J	(0.569455)	0.242922	J	(0.361385)
alpha-Chlordane	1.879428		(1.091613)	1.257778		(0.743736)	1.712398		(0.820364)	25.955253		(0.520615)
beta-BHC	ND		(1.972742)	ND		(1.344066)	ND		(1.482545)	ND		(0.940846)
cis-Nonachlor	0.250466	J	(0.315)	0.252575		(0.214615)	0.25165		(0.236727)	2.612713		(0.150231)
delta-BHC	0.393328	J	(0.811452)	ND		(0.552857)	0.375265	J	(0.609818)	1.190389		(0.387)
gamma-BHC	1.078144		(0.480484)	1.902814		(0.327363)	2.147603		(0.361091)	ND		(0.229154)
gamma-Chlordane	2.520658		(0.519677)	0.844296		(0.354066)	0.968264		(0.390545)	16.531644		(0.247846)
trans-Nonachlor	1.646937	J	(2.697097)	0.570279	J	(1.837582)	0.656749	J	(2.026909)	8.89753		(1.286308)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,2,4-Trichlorobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,2-Dichlorobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,3-Dichlorobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,3-Dinitrobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,4-Dichlorobenzene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,4-Naphthoquinone	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1,4-Phenylenediamine	ND		(382)	ND		(235)	ND		(273)	ND		(131)
1-Naphthylamine	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,3,4,6-Tetrachlorophenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,4,5-Trichlorophenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,4,6-Trichlorophenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,4-Dichlorophenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,4-Dimethylphenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,4-Dinitrophenol	ND		(763)	ND		(469)	ND		(546)	ND		(262)
2,4-Dinitrotoluene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,6-Dichlorophenol	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2,6-Dinitrotoluene	ND		(382)	ND		(235)	ND		(273)	ND		(131)
2-Acetylaminofluorene	NO		(382)	ND		(235)	ND		(273)	ND		(131)
2-Chloronaphthalene	ND		(382)	ND		(235)	ND		(273)	ND		(131)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	DT DT-01 9303-ADT-01-01		E E-01 9303-AE-01-01		E E-01 9303-AE-01-02 Dup of 9303-AE-01-01		F F-01 9303-AF-01-01	
2-Chlorophenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Methylnaphthalene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Methylphenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Naphthylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Nitroaniline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Nitrophenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
2-Picoline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
3,3-Dichlorobenzidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
3,3-Dimethoxybenzidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
3-Methylchloroanthrene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
3-Methylphenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
3-Nitroaniline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4,6-Dinitro-2-methylphenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Aminobiphenyl	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Bromophenyl-phenylether	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Chloro-3-methylphenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Chloroaniline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Chlorophenyl-phenylether	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Methylphenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Nitroaniline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Nitrophenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
4-Nitroquinoline-1-oxide	ND	(382)	ND	(235)	ND	(273)	ND	(131)
5-Nitro-o-toluidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
7,12-Dimethylbenz(a)anthracene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Acenaphthene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Acenaphthylene	NO	(382)	ND	(235)	ND	(273)	ND	(131)
Acetophenone	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Aniline	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Anthracene	ND	(382)	ND	(235)	ND	(273)	ND	(131)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	DT		E		E		F	
	DT-01		E-01		E-01		F-01	
PARAMETER	9303-ADT-01-01		9303-AE-01-01		9303-AE-01-02 Dup of 9303-AE-01-01		9303-AF-01-01	
Aramite (peak 1)	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Aramite (peak 2)	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzo(a)anthracene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzo(a)pyrene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzo(b)fluoranthene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzo(g,h,i)perylene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzo(k)fluoranthene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Benzyl alcohol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Butylbenzylphthalate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Chlorobenzilate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Chrysene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Di-n-butylphthalate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Di-n-octyphthalate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Diallate (peak 1)	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Diallate (peak 2)	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Dibenz(a,h)anthracene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Dibenzofuran	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Diethylphthalate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Dimethylphenethyamine	ND	(4580)	ND	(2817)	ND	(3279)	ND	(1571)
Dimethylphthalate	NO	(382)	ND	(235)	ND	(273)	ND	(131)
Diphenylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Ethylmethanesulfonate	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Fluoranthene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Fluorene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Hexachlorobenzene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Hexachlorobutadiene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Hexachlorocyclopentadiene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Hexachloroethane	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Hexachlorophene	ND	(77481)	ND	(47653)	ND	(55464)	ND	(26571)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	DT		E		E		F	
	DT-01		E-D1		E-01		F-01	
PARAMETER	9303-ADT-01-01		9303-AE-01-01		9303-AE-01-02 Dup of 9303-AE-01-01		9303-AF-01-01	
Hexachloropropene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Indeno(1,2,3-cd)pyrene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Isophorone	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Isosafrole	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Methapyrilene	ND	(1908)	ND	(1174)	ND	(1366)	ND	(654)
Methylmethanesulfonate	ND	(1908)	ND	(1174)	ND	(1366)	ND	(654)
Naphthalene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Nitrobenzene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pentachlorobenzene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pentachloroethane	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pentachloronitrobenzene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pentachlorophenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Phenactin	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Phenanthrene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Phenol	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pronamide	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pyrene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Pyridine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
Safrole	ND	(382)	ND	(235)	ND	(273)	ND	(131)
bis(2-Chloroethoxy)methane	ND	(382)	ND	(235)	ND	(273)	ND	(131)
bis(2-Chloroethyl)ether	ND	(382)	ND	(235)	ND	(273)	ND	(131)
bis(2-Chloroisopropyl)ether	ND	(382)	ND	(235)	ND	(273)	ND	(131)
bis(2-Ethylhexyl)phthalate	ND	(382)	1723.1	(235)	ND	(273)	ND	(131)
n-Nitroso-di-n-butylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitroso-di-n-propylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosodiethylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosodimethylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosodiphenylamine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosomethylethylamine	ND	(382)	ND	(235)	NO	(273)	ND	(131)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	DT		E		E		F	
	DT-01		E-01		E-01		F-01	
PARAMETER	9303-ADT-01-01		9303-AE-01-01		9303-AE-01-02 Dup of 9303-AE-01-01		9303-AF-01-01	
n-Nitrosomorpholine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosopiperidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
n-Nitrosopyrrolidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
o-Toluidine	ND	(382)	ND	(235)	ND	(273)	ND	(131)
p-Dimethylaminoazobenzene	ND	(382)	ND	(235)	ND	(273)	ND	(131)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	NA		ND	(0.579121)	ND	(2.111515)	ND	(0.716154)
1,2,3,4,6,7,8-HpCDF	NA		ND	(0.65989)	ND	(1.76303)	ND	(0.457308)
1,2,3,4,7,8,9-HpCDF	NA		ND	(0.931319)	ND	(2.606061)	ND	(0.683846)
1,2,3,4,7,8-HxCDD	NA		ND	(0.928571)	ND	(1.826667)	ND	(0.829615)
1,2,3,4,7,8-HxCDF	NA		ND	(0.55)	ND	(1.748485)	ND	(0.250385)
1,2,3,6,7,8-HxCDD	NA		ND	(0.952198)	ND	(1.807273)	ND	(0.832308)
1,2,3,6,7,8-HxCDF	NA		ND	(0.533516)	ND	(1.674545)	ND	(0.233462)
1,2,3,7,8,9-HxCDD	NA		ND	(0.934615)	ND	(1.773939)	ND	(0.816923)
1,2,3,7,8,9-HxCDF	NA		ND	(0.20989)	0.93 J	(1.039394)	ND	(0.213462)
1,2,3,7,8-PeCDD	NA		ND	(0.68956)	ND	(3.941818)	ND	(0.71)
1,2,3,7,8-PeCDF	NA		ND	(0.367582)	ND	(1.835758)	ND	(0.448846)
2,3,4,6,7,8-HxCDF	NA		ND	(0.624176)	ND	(2.245455)	ND	(0.417308)
2,3,4,7,8-PeCDF	NA		ND	(0.389011)	ND	(1.810303)	ND	(0.403846)
2,3,7,8-TCDD	NA		ND	(1.346154)	ND	(8.586061)	ND	(2.223462)
2,3,7,8-TCDF	NA		4.19	(0.521429)	ND	(4.904242)	ND	(1.573462)
OCDD	NA		4.74	(1.142857)	5.47	(3.259394)	2.78	(0.657692)
OCDF	NA		ND	(0.575824)	ND	(2.594545)	1.35	(1.172308)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID			
	LOCATION ID			
	SAMPLE ID			
PARAMETER	G G-01 9303-AG-01-01	LH LH-01 9303-ALH-01-01	LH LH-02 9303-ALH-02-01	LH LH-03 9303-ALH-03-01
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)				
2,4'-DDD	0.312187 J (0.451406)	0.144033 J (0.679765)	0.226615 J (0.545094)	0.666247 J (0.849706)
2,4'-DDE	ND (0.207422)	ND (0.312353)	ND (0.250472)	ND (0.390441)
2,4'-DDT	0.020378 J (0.329063)	0.019149 J (0.495529)	0.348423 J (0.397358)	ND (0.619412)
4,4'-DDD	6.655707 (0.27)	0.896118 (0.406588)	3.052177 (0.326038)	7.214862 (0.508235)
4,4'-DDE	1.131304 (0.531563)	ND (0.800471)	1.285579 (0.641887)	1.846145 (1.000588)
4,4'-DDT	0.237913 J (0.266484)	0.050891 J (0.401294)	ND (0.321792)	0.471263 J (0.501618)
Aldrin	0.177181 J (0.345234)	ND (0.519882)	ND (0.416887)	1.21638 (0.649853)
Dieldrin	0.839076 (0.466172)	ND (0.702)	0.820929 (0.562925)	0.546203 J (0.8775)
Endrin	0.506586 (0.343125)	ND (0.516706)	ND (0.41434)	ND (0.645882)
HCB	0.073091 J (0.377578)	0.058194 J (0.568588)	0.028485 J (0.455943)	0.04345 J (0.710735)
Heptachlor	0.10619 J (0.362109)	0.219896 J (0.545294)	0.696628 (0.437264)	0.526131 J (0.681618)
Heptachlor epoxide	ND (0.402891)	ND (0.606706)	ND (0.486509)	ND (0.758382)
Mirex	ND (0.381797)	ND (0.574941)	ND (0.461038)	ND (0.718676)
Oxychlordane	0.082222 J (0.500625)	ND (0.753882)	0.962778 (0.604528)	0.967725 (0.942353)
Total BHCs	2.63214 (0.48709)	1.662595 (0.7335)	0.591088 (0.588184)	2.243991 (0.916875)
Total Chlordanes	0.810065 (0.500725)	0.716219 J (0.754034)	2.841726 (0.60465)	3.709747 (0.942542)
Total DDTs	8.35749 (0.342656)	1.110192 (0.516)	4.912794 (0.413774)	10.198517 (0.645)
Total Decachlorobiphenyls	ND (0.412734)	ND (0.621529)	ND (0.498396)	ND (0.776912)
Total Dichlorobiphenyls	5.462958 (0.589922)	10.922936 (0.888353)	20.321595 (0.712358)	46.711958 (1.110441)
Total Heptachlorobiphenyls	3.357587 (0.251719)	0.703671 (0.379059)	1.446679 (0.303962)	1.735234 (0.473824)
Total Hexachlorobiphenyls	11.234991 (0.28125)	1.72305 (0.423529)	4.175976 (0.339623)	3.491397 (0.529412)
Total Nonachlorobiphenyls	ND (0.415547)	ND (0.625765)	ND (0.501792)	ND (0.782206)
Total Octachlorobiphenyls	ND (0.622969)	0.283838 J (0.938118)	0.053419 J (0.752264)	ND (1.172647)
Total PCBs	59.95751 (0.469788)	23.391983 (0.707445)	51.652604 (0.567291)	98.653864 (0.884307)
Total Pentachlorobiphenyls	20.004088 (0.36)	0.877648 (0.542118)	3.944059 (0.434717)	5.588318 (0.677647)
Total Tetrachlorobiphenyls	14.169301 (0.169453)	2.3916 (0.255176)	9.357732 (0.204623)	15.478187 (0.318971)
Total Trichlorobiphenyls	5.728584 (0.367031)	6.48924 (0.552706)	12.353144 (0.443208)	25.64877 (0.690882)
Toxaphene	ND (1.156875)	ND (1.742118)	ND (1.396981)	ND (2.177647)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID											
	LOCATION ID											
	SAMPLE ID											
PARAMETER	G G-01 9303-AG-01-01			LH LH-01 9303-ALH-01-01			LH LH-02 9303-ALH-02-01			LH LH-03 9303-ALH-03-01		
alpha-BHC	0.738444		(0.367031)	ND		(0.552706)	ND		(0.443208)	ND		(0.690882)
alpha-Chlordane	0.358558	J	(0.52875)	0.151972	J	(0.796235)	0.458816	J	(0.638491)	0.844909	J	(0.995294)
beta-BHC	ND		(0.955547)	ND		(1.438941)	ND		(1.153868)	ND		(1.798676)
cis-Nonachlor	ND		(0.152578)	0.120965	J	(0.229765)	ND		(0.184245)	ND		(0.287206)
delta-BHC	0.278264	J	(0.393047)	0.732883		(0.591882)	0.591088		(0.474623)	ND		(0.739853)
gamma-BHC	1.615432		(0.232734)	0.929712		(0.350471)	ND		(0.281038)	2.243991		(0.438088)
gamma-Chlordane	ND		(0.251719)	ND		(0.379059)	0.324045		(0.303962)	0.910322		(0.473824)
trans-Nonachlor	0.263095	J	(1.306406)	0.223385	J	(1.967294)	0.399458	J	(1.577547)	0.460661	J	(2.459118)
SW8270 - Semivolatile Organics (ug/kg)												
1,2,4,5-Tetrachlorobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,2,4-Trichlorobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,2-Dichlorobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,3-Dichlorobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,3-Dinitrobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,4-Dichlorobenzene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,4-Naphthoquinone	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1,4-Phenylenediamine	ND		(168)	ND		(305)	ND		(299)	ND		(313)
1-Naphthylamine	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,3,4,6-Tetrachlorophenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,4,5-Trichlorophenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,4,6-Trichlorophenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,4-Dichlorophenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,4-Dimethylphenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,4-Dinitrophenol	ND		(337)	ND		(610)	ND		(299)	ND		(625)
2,4-Dinitrotoluene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,6-Dichlorophenol	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2,6-Dinitrotoluene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2-Acetylaminofluorene	ND		(168)	ND		(305)	ND		(299)	ND		(313)
2-Chloronaphthalene	ND		(168)	ND		(305)	ND		(299)	ND		(313)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
2-Chlorophenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Methylnaphthalene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Methylphenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Naphthylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Nitroaniline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Nitrophenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
2-Picoline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
3,3-Dichlorobenzidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
3,3-Dimethoxybenzidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
3-Methylchloroanthrene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
3-Methylphenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
3-Nitroaniline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4,6-Dinitro-2-methylphenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Aminobiphenyl	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Bromophenyl-phenylether	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Chloro-3-methylphenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Chloroaniline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Chlorophenyl-phenylether	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Methylphenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Nitroaniline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Nitrophenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
4-Nitroquinoline-1-oxide	ND	(168)	ND	(305)	ND	(299)	ND	(313)
5-Nitro-o-toluidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
7,12-Dimethylbenz(a)anthracene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Acenaphthene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Acenaphthylene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Acetophenone	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Aniline	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Anthracene	NO	(168)	ND	(305)	ND	(299)	ND	(313)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	G		LH		LH		LH	
	G-01		LH-01		LH-02		LH-03	
PARAMETER	9303-AG-01-01		9303-ALH-01-01		9303-ALH-02-01		9303-ALH-03-01	
Aramite (peak 1)	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Aramite (peak 2)	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzo(a)anthracene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzo(a)pyrene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzo(b)fluoranthene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzo(g,h,i)perylene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzo(k)fluoranthene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Benzyl alcohol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Butylbenzylphthalate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Chlorobenzilate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Chrysene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Di-n-butylphthalate	170.3	(168)	ND	(305)	ND	(299)	ND	(313)
Di-n-octyphthalate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Diallate (peak 1)	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Diallate (peak 2)	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Dibenz(a,h)anthracene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Dibenzofuran	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Diethylphthalate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Dimethylphenethyamine	ND	(2020)	ND	(3659)	ND	(3593)	ND	(3750)
Dimethylphthalate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Diphenylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Ethylmethanesulfonate	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Fluoranthene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Fluorene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Hexachlorobenzene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Hexachlorobutadiene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Hexachlorocyclopentadiene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Hexachloroethane	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Hexachlorophene	ND	(34175)	ND	(61890)	ND	(60778)	ND	(63438)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATIDN.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 93D3-ALH-02-01		LH LH-03 9303-ALH-03-01	
Hexachloropropene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Indeno(1,2,3-cd)pyrene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Isophorone	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Isosafrole	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Methapyrilene	ND	(842)	ND	(1524)	ND	(1497)	ND	(1563)
Methylmethanesulfonate	ND	(842)	ND	(1524)	ND	(1497)	ND	(1563)
Naphthalene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Nitrobenzene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pentachlorobenzene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pentachloroethane	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pentachloronitrobenzene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pentachlorophenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Phenactin	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Phenanthrene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Phenol	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pronamide	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pyrene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Pyridine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
Safrole	ND	(168)	ND	(305)	ND	(299)	ND	(313)
bis(2-Chloroethoxy)methane	ND	(168)	ND	(305)	ND	(299)	ND	(313)
bis(2-Chloroethyl)ether	ND	(168)	ND	(305)	ND	(299)	ND	(313)
bis(2-Chloroisopropyl)ether	ND	(168)	ND	(305)	ND	(299)	ND	(313)
bis(2-Ethylhexyl)phthalate	866.1	(168)	1534.7	(305)	ND	(299)	ND	(313)
n-Nitroso-di-n-butylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitroso-di-n-propylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosodiethylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosodimethylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosodiphenylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosomethylethylamine	ND	(168)	ND	(305)	ND	(299)	ND	(313)

Compiled: 29 September 1993 () = Reporting Limit NO = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
n-Nitrosomorpholine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosopiperidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
n-Nitrosopyrrolidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
o-Toluidine	ND	(168)	ND	(305)	ND	(299)	ND	(313)
p-Dimethylaminoazobenzene	ND	(168)	ND	(305)	ND	(299)	ND	(313)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	0.85	(0.328906)	0.69	(0.680588)	0.74	(0.42)	ND	(0.598529)
1,2,3,4,6,7,8-HpCDF	ND	(0.5)	1.07	(0.335294)	ND	(0.376)	ND	(0.401471)
1,2,3,4,7,8,9-HpCDF	ND	(0.703516)	ND	(1.088824)	ND	(0.533)	ND	(0.561765)
1,2,3,4,7,8-HxCDD	ND	(0.722656)	ND	(1.193529)	ND	(0.676)	ND	(1.316176)
1,2,3,4,7,8-HxCDF	0.93	(0.332422)	ND	(0.238824)	ND	(0.772)	ND	(0.173529)
1,2,3,6,7,8-HxCDD	ND	(0.707813)	ND	(1.092353)	ND	(0.693)	ND	(1.345588)
1,2,3,6,7,8-HxCDF	0.83	(0.30625)	ND	(0.647647)	ND	(0.178)	0.62	(0.160294)
1,2,3,7,8,9-HxCDD	ND	(0.694922)	ND	(1.072353)	ND	(0.68)	ND	(0.552941)
1,2,3,7,8,9-HxCDF	1.86	(0.314063)	ND	(0.239412)	ND	(0.171)	ND	(0.166923)
1,2,3,7,8-PeCDD	ND	(0.7)	ND	(1.078235)	ND	(0.732)	ND	(1.384559)
1,2,3,7,8-PeCDF	ND	(0.546875)	ND	(0.698824)	ND	(0.318)	ND	(0.769118)
2,3,4,6,7,8-HxCDF	1.68	(0.33125)	ND	(0.866471)	ND	(0.219)	ND	(0.666912)
2,3,4,7,8-PeCDF	ND	(0.541016)	ND	(0.789412)	ND	(0.632)	ND	(0.805882)
2,3,7,8-TCDD	ND	(1.708594)	ND	(2.011176)	ND	(1.261)	ND	(0.722794)
2,3,7,8-TCDF	0.62	(0.591406)	ND	(1.661176)	ND	(1.084)	ND	(1.800735)
OCDD	3.37	(0.699609)	5.06	(1.071176)	6.03	(0.64)	4.97	(1.339706)
OCDF	ND	(0.425)	ND	(0.870588)	ND	(0.665)	ND	(0.802206)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID								
	LOCATION ID								
	SAMPLE ID								
PARAMETER	LS LS-01 9303-ALS-01-01			LS LS-02 9303-ALS-02-01	A A-01 9303-BA-01-01			DT DT-02 9303-BDT-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)										
2,4'-DDD	0.1499	J	(1.426667)	NA	1.483453	J	(2.353564)	ND		(3.301714)
2,4'-DDE	ND		(0.655556)	NA	ND		(1.081466)	0.090359	J	(1.517143)
2,4'-DDT	ND		(1.04)	NA	0.644985	J	(1.715682)	ND		(2.406857)
4,4'-DDD	1.884888		(0.853333)	NA	18.333475		(1.407739)	29.519877		(1.974857)
4,4'-DDE	0.565901	J	(1.68)	NA	14.308533		(2.771487)	11.073192		(3.888)
4,4'-DDT	ND		(0.842222)	NA	3.843121		(1.389409)	ND		(1.949143)
Aldrin	0.230817	J	(1.091111)	NA	ND		(1.8)	ND		(2.525143)
Dieldrin	ND		(1.473333)	NA	ND		(2.43055)	6.285767		(3.409714)
Endrin	ND		(1.084444)	NA	ND		(1.789002)	ND		(2.509714)
HCB	ND		(1.193333)	NA	0.760337	J	(1.968635)	0.279346	J	(2.761714)
Heptachlor	0.303511	J	(1.144444)	NA	ND		(1.887984)	ND		(2.648571)
Heptachlor epoxide	ND		(1.273333)	NA	ND		(2.100611)	ND		(2.946857)
Mirex	ND		(1.206667)	NA	ND		(1.990631)	ND		(2.792571)
Oxychlordane	ND		(1.582222)	NA	1.349[illegible]09	J	(2.610183)	3.608666	J	(3.661714)
Total BHCs	0.666882	J	(1.539444)	NA	0.760337	J	(2.539613)	1.54796	J	(3.562714)
Total Chlordanes	0.449212	J	(1.58254)	NA	4.199452		(2.610707)	9.568066		(3.662449)
Total DDTs	2.600689		(1.082963)	NA	38.613568		(1.786558)	40.683428		(2.506286)
Total Decachlorobiphenyls	ND		(1.304444)	NA	ND		(2.151935)	ND		(3.018857)
Total Dichlorobiphenyls	ND		(1.864444)	NA	ND		(3.075764)	6.02		(4.314857)
Total Heptachlorobiphenyls	1.124451		(0.795556)	NA	48.65		(1.312424)	1.43	J	(1.841143)
Total Hexachlorobiphenyls	ND		(0.888889)	NA	97.8		(1.466395)	11.75		(2.057143)
Total Nonachlorobiphenyls	ND		(1.313333)	NA	ND		(2.166599)	0.72	J	(3.039429)
Total Octachlorobiphenyls	ND		(1.968889)	NA	0.4	J	(3.248065)	ND		(4.556571)
Total PCBs	4.622453		(1.484762)	NA	290.28048		(2.449404)	33.056561		(3.436163)
Total Pentachlorobiphenyls	0.467005	J	(1.137778)	NA	120.8		(1.876986)	4.73		(2.633143)
Total Tetrachlorobiphenyls	2.099941		(0.535556)	NA	20.54		(0.883503)	5.28		(1.239429)
Total Trichlorobiphenyls	0.931056	J	(1.16)	NA	2.09		(1.913646)	3.13		(2.684571)
Toxaphene	ND		(3.656296)	NA	ND		(6.031772)	ND		(8.461714)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
alpha-BHC	ND	(1.16)	NA		ND	(1.913646)	ND	(2.684571)
alpha-Chlordane	0.145701 J	(1.671111)	NA		ND	(2.756823)	1.631357 J	(3.867429)
beta-BHC	ND	(3.02)	NA		ND	(4.982077)	1.54796 J	(6.989143)
cis-Nonachlor	ND	(0.482222)	NA		1.770739	(0.795519)	1.469415	(1.116)
delta-BHC	0.666882 J	(1.242222)	NA		ND	(2.049287)	ND	(2.874857)
gamma-BHC	ND	(0.735556)	NA		ND	(1.213442)	ND	(1.702286)
gamma-Chlordane	ND	(0.795556)	NA		ND	(1.312424)	ND	(1.841143)
trans-Nonachlor	ND	(4.128889)	NA		1.079503 J	(6.811405)	2.858627 J	(9.555429)
SW8270 - Semivolatile Organics (ug/kg)								
1,2,4,5-Tetrachlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,2,4-Trichlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,2-Dichlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,3-Dichlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,3-Dinitrobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,4-Dichlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,4-Naphthoquinone	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1,4-Phenylenediamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
1-Naphthylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,3,4,6-Tetrachlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,4,5-Trichlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,4,6-Trichlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,4-Dichlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,4-Dimethylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,4-Dinitrophenol	ND	(1316)	ND	(541)	ND	(4587)	ND	(2941)
2,4-Dinitrotoluene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,6-Dichlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2,6-Dinitrotoluene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Acetylaminofluorene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Chloronaphthalene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
2-Chlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Methylnaphthalene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Methylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Naphthylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Nitroaniline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Nitrophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
2-Picoline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
3,3-Dichlorobenzidine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
3,3-Dimethoxybenzidine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
3-Methylchloroanthrene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
3-Methylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
3-Nitroaniline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4,6-Dinitro-2-methylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Aminobiphenyl	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Bromophenyl-phenylether	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Chloro-3-methylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Chloroaniline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Chlorophenyl-phenylether	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Methylphenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Nitroaniline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Nitrophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
4-Nitroquinoline-1-oxide	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
5-Nitro-o-toluidine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
7,12-Dimethylbenz(a)anthracene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Acenaphthene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Acenaphthylene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Acetophenone	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Aniline	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Anthracene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
Aramite (peak 1)	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Aramite (peak 2)	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzo(a)anthracene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzo(a)pyrene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzo(b)fluoranthene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzo(g,h,i)perylene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzo(k)fluoranthene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Benzyl alcohol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Butylbenzylphthalate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Chlorobenzilate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Chrysene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Di-n-butylphthalate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Di-n-octyphthalate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Diallate (peak 1)	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Diallate (peak 2)	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Dibenz(a,h)anthracene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Dibenzofuran	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Diethylphthalate	1193.2	(658)	1947	(270)	ND	(2294)	ND	(1471)
Dimethylphenethyamine	ND	(7895)	ND	(3243)	ND	(27523)	ND	(17647)
Dimethylphthalate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Diphenylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Ethylmethanesulfonate	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Fluoranthene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Fluorene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Hexachlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Hexachlorobutadiene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Hexachlorocyclopentadiene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Hexachloroethane	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Hexachlorophene	ND	(133553)	ND	(54865)	ND	(465596)	ND	(298529)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
Hexachloropropene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Indeno(1,2,3-cd)pyrene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Isophorone	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Isosafrole	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Methapyrilene	ND	(3289)	ND	(1351)	ND	(11468)	ND	(7353)
Methylmethanesulfonate	ND	(3289)	ND	(1351)	ND	(11468)	ND	(7353)
Naphthalene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Nitrobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pentachlorobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pentachloroethane	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pentachloronitrobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pentachlorophenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Phenactin	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Phenanthrene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Phenol	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pronamide	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pyrene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Pyridine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
Safrole	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
bis(2-Chloroethoxy)methane	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
bis(2-Chloroethyl)ether	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
bis(2-Chloroisopropyl)ether	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
bis(2-Ethylhexyl)phthalate	2120.8	(658)	ND	(270)	53309.6	(2294)	ND	(1471)
n-Nitroso-di-n-butylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitroso-di-n-propylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosodiethylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosodimethylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosodiphenylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosomethylethylamine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01		LS LS-02 9303-ALS-02-01		A A-01 9303-BA-01-01		DT DT-02 9303-BDT-01-01	
n-Nitrosomorpholine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosopiperidine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
n-Nitrosopyrrolidine	ND	(658)	ND	(270)	ND	(2294)	NO	(1471)
o-Toluidine	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
p-Dimethylaminoazobenzene	ND	(658)	ND	(270)	ND	(2294)	ND	(1471)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(4.726)	NA		17.22	(1.47)	ND	(3.028)
1,2,3,4,6,7,8-HpCOF	ND	(10.08)	NA		ND	(2.91)	ND	(4.858)
1,2,3,4,7,8,9-HpCDF	ND	(3.944)	NA		ND	(4.16)	ND	(6.145)
1,2,3,4,7,8-HxCDD	ND	(4.394)	NA		ND	(2.9)	ND	(9.206)
1,2,3,4,7,8-HxCDF	ND	(15.645)	NA		ND	(2.76)	2.45 J	(2.74)
1,2,3,6,7,8-HxCDD	ND	(4.33)	NA		2.49	(1.68)	ND	(9.579)
1,2,3,6,7,8-HxCDF	ND	(6.918)	NA		ND	(1.71)	ND	(6.992)
1,2,3,7,8,9-HxCDD	ND	(4.155)	NA		ND	(1.65)	NO	(9.402)
1,2,3,7,8,9-HxCDF	3.15	(2.453)	NA		2.69	(1.8)	ND	(2.836)
1,2,3,7,8-PeCDD	ND	(5.148)	NA		ND	(2.65)	ND	(6.837)
1,2,3,7,8-PeCDF	2.36 J	(3.941)	NA		ND	(3.1)	ND	(4.198)
2,3,4,6,7,8-HxCDF	ND	(3.271)	NA		ND	(3.48)	ND	(9.962)
2,3,4,7,8-PeCDF	ND	(3.829)	NA		ND	(3.09)	NO	(6.52)
2,3,7,8-TCDD	ND	(7.744)	NA		ND	(3.04)	NO	(2.92)
2,3,7,8-TCDF	ND	(6.979)	NA		ND	(1.7)	ND	(8.206)
OCDD	ND	(6.143)	NA		166.07	(4.54)	39.28	(8.784)
OCDF	ND	(5.218)	NA		ND	(4.98)	ND	(7.329)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01			DT DT-03 9303-FDT-02-01			DT DT-04 9303-FDT-03-01			G G-01 9303-FG-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)												
2,4'-DDD	ND		(1.837202)	2.401955		(0.265046)	26.96712		(0.195203)	0.568366		(0.197201)
2,4'-DDE	ND		(0.844197)	1.0529		(0.121789)	2.952307		(0.089696)	ND		(0.090614)
2,4'-DDT	ND		(1.339269)	ND		(0.193211)	4.059266		(0.142297)	0.609891		(0.143754)
4,4'-DDD	ND		(1.098887)	281.83009	C	(0.158532)	2050.9332	C	(0.116757)	22.717728		(0.117952)
4,4'-DDE	ND		(2.163434)	124.09584	C	(0.31211)	596.16690	C	(0.229865)	11.672535		(0.232218)
4,4'-DDT	ND		(1.084579)	18.955055		(0.156468)	88.187754	C	(0.115236)	1.76137		(0.116416)
Aldrin	ND		(1.405087)	ND		(0.202706)	ND		(0.149291)	0.105471	J	(0.150819)
Dieldrin	NO		(1.897297)	1.835475		(0.273716)	3.678445		(0.201588)	1.462229		(0.203652)
Endrin	ND		(1.396502)	ND		(0.201468)	0.477062		(0.148378)	ND		(0.149898)
HCB	0.307995	J	(1.536725)	0.119732	J	(0.221697)	0.346493		(0.163277)	0.279443		(0.164949)
Heptachlor	ND		(1.473768)	0.076746	J	(0.212615)	0.07716	J	(0.156588)	0.037203	J	(0.158191)
Heptachlor epoxide	ND		(1.639746)	ND		(0.23656)	0.502735		(0.174223)	0.050721	J	(0.176007)
Mirex	ND		(1.553895)	ND		(0.224174)	ND		(0.165101)	ND		(0.166792)
Oxychlordane	ND		(2.03752)	17.245122		(0.293945)	7.488974		(0.216486)	0.718235		(0.218703)
Total BHCs	0.307995	J	(1.982432)	0.780961		(0.285998)	2.021581		(0.210633)	1.284182		(0.21279)
Total Chlordanes	ND		(2.037929)	119.26456		(0.294004)	43.164573		(0.21653)	4.201155		(0.218747)
Total DDTs	ND		(1.394595)	428.33584		(0.201193)	2769.2665		(0.148176)	37.32989		(0.149693)
Total Decachlorobiphenyls	ND		(1.679809)	NO		(0.242339)	0.01	J	(0.17848)	ND		(0.180307)
Total Dichlorobiphenyls	ND		(2.400954)	0.37		(0.346376)	0.23	J	(0.255101)	0.17	J	(0.257713)
Total Heptachlorobiphenyls	ND		(1.024483)	16.46		(0.147798)	37.55		(0.108851)	25.34		(0.109966)
Total Hexachlorobiphenyls	2.94		(1.144674)	24.77		(0.165138)	57.25		(0.121622)	39.57		(0.122867)
Total Nonachlorobiphenyls	ND		(1.691256)	0.2	J	(0.243991)	0.95		(0.179696)	ND		(0.181536)
Total Octachlorobiphenyls	ND		(2.535453)	3.12		(0.36578)	7.28		(0.269392)	0.06	J	(0.27215)
Total PCBs	2.940922		(1.912015)	99.161626		(0.275839)	175.20528		(0.203152)	168.23125		(0.205232)
Total Pentachlorobiphenyls	ND		(1.465183)	20.36		(0.211376)	54.61		(0.155676)	74.56		(0.15727)
Total Tetrachlorobiphenyls	ND		(0.689666)	10.11		(0.099495)	10.45		(0.073277)	27.38		(0.074027)
Total Trichlorobiphenyls	ND		(1.4938)	23.77		(0.215505)	6.88		(0.158716)	1.16		(0.160341)
Toxaphene	ND		(4.708426)	ND		(0.679266)	ND		(0.50027)	ND		(0.505392)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
alpha-BHC	ND	(1.4938)	ND	(0.215505)	ND	(0.158716)	0.293801	(0.160341)
alpha-Chlordane	ND	(2.151987)	11.833332	(0.310459)	7.352278	(0.228649)	0.829742	(0.23099)
beta-BHC	ND	(3.88903)	0.255779 J	(0.561055)	0.746861	(0.413209)	0.149438 J	(0.41744)
cis-Nonachlor	ND	(0.620986)	17.851056	(0.089587)	4.413096	(0.06598)	0.718027	(0.066655)
delta-BHC	ND	(1.599682)	0.059362 J	(0.23078)	0.063992 J	(0.169966)	ND	(0.171706)
gamma-BHC	ND	(0.947218)	0.465821	(0.136651)	1.210729	(0.100642)	0.840943	(0.101672)
gamma-Chlordane	ND	(1.024483)	4.65125	(0.147798)	2.70567	(0.108851)	0.162548	(0.109966)
trans-Nonachlor	ND	(5.317011)	67.607058 C	(0.767064)	20.624658	(0.564932)	1.68468	(0.570717)
SW8270 - Semivolatile Organics (ug/kg)								
1,2,4,5-Tetrachlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,2,4-Trichlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,2-Dichlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,3-Dichlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,3-Dinitrobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,4-Dichlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,4-Naphthoquinone	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1,4-Phenylenediamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
1-Naphthylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,3,4,6-Tetrachlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,4,5-Trichlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,4,6-Trichlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,4-Dichlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,4-Dimethylphenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,4-Dinitrophenol	ND	(2660)	ND	(212)	ND	(178)	ND	(246)
2,4-Dinitrotoluene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,6-Dichlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2,6-Dinitrotoluene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Acetylaminofluorene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Chloronaphthalene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
2-Chlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Methylnaphthalene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Methylphenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Naphthylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Nitroaniline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Nitrophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
2-Picoline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
3,3-Dichlorobenzidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
3,3-Dimethoxybenzidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
3-Methylchloroanthrene	ND	(1330)	ND	(106)	ND	(89)	NO	(123)
3-Methylphenol	ND	(1330)	ND	(106)	ND	(89)	NO	(123)
3-Nitroaniline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4,6-Dinitro-2-methylphenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Aminobiphenyl	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Bromophenyl-phenylether	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Chloro-3-methylphenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Chloroaniline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Chlorophenyl-phenylether	ND	(1330)	ND	(106)	NO	(89)	ND	(123)
4-Methylphenol	ND	(1330)	ND	(106)	NO	(89)	ND	(123)
4-Nitroaniline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Nitrophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
4-Nitroquinoline-1-oxide	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
5-Nitro-o-toluidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
7,12-Dimethylbenz(a)anthracene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Acenaphthene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Acenaphthylene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Acetophenone	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Aniline	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Anthracene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
	E		DT		DT		G	
	E-01		DT-03		DT-04		G-01	
PARAMETER	9303-BE-01-01		9303-FDT-02-01		93D3-FDT-03-01		9303-FG-01-01	
Aramite (peak 1)	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Aramite (peak 2)	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzo(a)anthracene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzo(a)pyrene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzo(b)fluoranthene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzo(g,h,i)perylene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzo(k)fluoranthene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Benzyl alcohol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Butylbenzylphthalate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Chlorobenzilate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Chrysene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Di-n-butylphthalate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Di-n-octyphthalate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Diallate (peak 1)	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Diallate (peak 2)	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Dibenz(a,h)anthracene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Dibenzofuran	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Diethylphthalate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Dimethylphenethyamine	ND	(15957)	ND	(1271)	ND	(1068)	ND	(1478)
Dimethylphthalate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Diphenylamine	NO	(1330)	ND	(106)	ND	(89)	ND	(123)
Ethylmethanesulfonate	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Fluoranthene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Fluorene	ND	(1330)	NO	(106)	ND	(89)	ND	(123)
Hexachlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Hexachlorobutadiene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Hexachlorocyclopentadiene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Hexachloroethane	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Hexachlorophene	ND	(269947)	ND	(21504)	ND	(1806D)	ND	(25000)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 93D3-FDT-03-01		G G-01 9303-FG-01-01	
Hexachloropropene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Indeno(1,2,3-cd)pyrene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Isophorone	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Isosafrole	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Methapyrilene	ND	(6649)	ND	(530)	ND	(445)	ND	(616)
Methylmethanesulfonate	ND	(6649)	ND	(530)	ND	(445)	ND	(616)
Naphthalene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Nitrobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pentachlorobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pentachloroethane	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pentachloronitrobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pentachlorophenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Phenactin	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Phenanthrene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Phenol	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pronamide	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pyrene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Pyridine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
Safrole	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
bis(2-Chloroethoxy)methane	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
bis(2-Chloroethyl)ether	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
bis(2-Chloroisopropyl)ether	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
bis(2-Ethylhexyl)phthalate	15693.4	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitroso-di-n-butylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitroso-di-n-propylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosodiethylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosodimethylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosodiphenylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosomethylethylamine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	E E-01 9303-BE-01-01		DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01	
n-Nitrosomorpholine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosopiperidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
n-Nitrosopyrrolidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
o-Toluidine	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
p-Dimethylaminoazobenzene	ND	(1330)	ND	(106)	ND	(89)	ND	(123)
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	NA		ND	(0.111)	ND	(0.155)	ND	(0.11)
1,2,3,4,6,7,8-HpCDF	NA		ND	(0.506)	ND	(0.351)	ND	(1.052)
1,2,3,4,7,8,9-HpCDF	NA		ND	(0.625)	ND	(0.31)	ND	(0.307)
1,2,3,4,7,8-HxCDD	NA		ND	(0.496)	ND	(0.385)	ND	(0.142)
1,2,3,4,7,8-HxCDF	NA		ND	(0.197)	ND	(0.093)	ND	(0.143)
1,2,3,6,7,8-HxCDD	NA		ND	(0.503)	ND	(0.117)	ND	(0.351)
1,2,3,6,7,8-HxCDF	NA		ND	(0.453)	ND	(0.083)	ND	(0.18)
1,2,3,7,8,9-HxCDD	NA		ND	(0.257)	0.21	(0.114)	ND	(0.344)
1,2,3,7,8,9-HxCDF	NA		ND	(0.194)	ND	(0.093)	ND	(0.182)
1,2,3,7,8-PeCDD	NA		ND	(0.513)	ND	(0.158)	ND	(0.257)
1,2,3,7,8-PeCDF	NA		ND	(0.27)	ND	(0.196)	ND	(0.168)
2,3,4,6,7,8-HxCDF	NA		ND	(0.702)	ND	(0.182)	ND	(0.176)
2,3,4,7,8-PeCDF	NA		ND	(0.32)	ND	(0.208)	ND	(0.179)
2,3,7,8-TCDD	NA		ND	(0.175)	ND	(0.084)	ND	(0.074)
2,3,7,8-TCDF	NA		ND	(0.618)	ND	(0.28)	ND	(0.242)
OCDD	NA		6.06	(0.768)	10.23	(0.325)	ND	(0.465)
OCDF	NA		1.22	(1.013)	ND	(0.563)	ND	(0.482)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-01 9303-FLH-01-01			LH LH-02 9303-FLH-02-01	LH LH-03 9303-FLH-03-01			LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)										
2,4'-DDD	0.025197	J	(1.561622)	NA	0.183423	J	(0.50026)	1.445246		(0.316603)
2,4'-DDE	ND		(0.717568)	NA	ND		(0.22987)	0.45498		(0.145479)
2,4'-DDT	ND		(1.138378)	NA	ND		(0.364675)	ND		(0.230795)
4,4'-DDD	1.826132		(0.934054)	NA	13.667393		(0.299221)	44.787881		(0.18937)
4,4'-DDE	1.491005	J	(1.838919)	NA	11.127913		(0.589091)	20.491939		(0.372822)
4,4'-DDT	0.15645	J	(0.921892)	NA	0.91636		(0.295325)	3.025458		(0.186904)
Aldrin	ND		(1.194324)	NA	ND		(0.382597)	ND		(0.242137)
Dieldrin	0.230354	J	(1.612703)	NA	0.800991		(0.516623)	1.608389		(0.326959)
Endrin	ND		(1.187027)	NA	ND		(0.38026)	ND		(0.240658)
HCB	0.007436	J	(1.306216)	NA	0.390241	J	(0.418442)	0.057326	J	(0.264822)
Heptachlor	0.053036	J	(1.252703)	NA	0.233937	J	(0.401299)	ND		(0.253973)
Heptachlor epoxide	ND		(1.393784)	NA	ND		(0.446494)	ND		(0.282575)
Mirex	ND		(1.320811)	NA	ND		(0.423117)	ND		(0.267781)
Oxychlordane	0.112523	J	(1.731892)	NA	1.038937		(0.554805)	2.54165		(0.351123)
Total BHCs	0.28407	J	(1.685068)	NA	0.88		(0.539805)	1.174588		(0.34163)
Total Chlordanes	1.010453	J	(1.732239)	NA	8.744045		(0.554917)	19.608656		(0.351194)
Total DDTs	3.498784		(1.185405)	NA	25.895088		(0.37974)	70.205504		(0.240329)
Total Decachlorobiphenyls	ND		(1.427838)	NA	ND		(0.457403)	ND		(0.289479)
Total Dichlorobiphenyls	0.057506	J	(2.040811)	NA	0.771619		(0.653766)	0.4	J	(0.413753)
Total Heptachlorobiphenyls	1.60108		(0.870811)	NA	1.574039		(0.278961)	20.87		(0.176548)
Total Hexachlorobiphenyls	1.960739		(0.972973)	NA	7.804797		(0.311688)	34.67		(0.19726)
Total Nonachlorobiphenyls	ND		(1.437568)	NA	ND		(0.460519)	ND		(0.291452)
Total Octachlorobiphenyls	0.142862	J	(2.155135)	NA	0.403421	J	(0.69039)	0.34	J	(0.436932)
Total PCBs	6.113788		(1.625212)	NA	20.790237		(0.520631)	148.45055		(0.329495)
Total Pentachlorobiphenyls	0.985771	J	(1.245405)	NA	6.255911		(0.398961)	63.3		(0.252493)
Total Tetrachlorobiphenyls	1.116546		(0.586216)	NA	2.789571		(0.187792)	23.2		(0.118849)
Total Trichlorobiphenyls	0.249284	J	(1.26973)	NA	1.190879		(0.406753)	5.67		(0.257425)
Toxaphene	ND		(4.002162)	NA	ND		(1.282078)	ND		(0.811397)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID			
	LOCATION ID			
	SAMPLE ID			
PARAMETER	LH LH-01 9303-FLH-01-01	LH LH-02 9303-FLH-02-01	LH LH-03 9303-FLH-03-01	LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01
alpha-BHC	ND (1.26973)	NA	ND (0.406753)	0.560247 (0.257425)
alpha-Chlordane	0.095186 J (1.829189)	NA	0.909602 (0.585974)	4.368782 (0.370849)
beta-BHC	ND (3.305676)	NA	ND (1.058961)	ND (0.670192)
cis-Nonachlor	0.126599 J (0.527838)	NA	1.825457 (0.169091)	3.068311 (0.107014)
delta-BHC	0.0254 J (1.35973)	NA	ND (0.435584)	ND (0.275671)
gamma-BHC	0.25867 J (0.805135)	NA	0.877377 (0.257922)	0.614341 (0.163233)
gamma-Chlordane	0.053777 J (0.870811)	NA	0.19763 J (0.278961)	1.937988 (0.176548)
trans-Nonachlor	0.569331 J (4.519459)	NA	4.538482 (1.447792)	7.691925 (0.916274)
SW8270 - Semivolatile Organics (ug/kg)				
1,2,4,5-Tetrachlorobenzene	ND (166)	ND (220)	ND (350)	NA
1,2,4-Trichlorobenzene	ND (166)	ND (220)	ND (350)	NA
1,2-Dichlorobenzene	ND (166)	ND (220)	ND (350)	NA
1,3-Dichlorobenzene	ND (166)	ND (220)	ND (350)	NA
1,3-Dinitrobenzene	ND (166)	ND (220)	ND (350)	NA
1,4-Dichlorobenzene	ND (166)	ND (220)	ND (350)	NA
1,4-Naphthoquinone	ND (166)	ND (220)	ND (350)	NA
1,4-Phenylenediamine	ND (166)	ND (220)	ND (350)	NA
1-Naphthylamine	ND (166)	ND (220)	ND (350)	NA
2,3,4,6-Tetrachlorophenol	ND (166)	ND (220)	ND (350)	NA
2,4,5-Trichlorophenol	ND (166)	ND (220)	ND (350)	NA
2,4,6-Trichlorophenol	ND (166)	ND (220)	ND (350)	NA
2,4-Dichlorophenol	ND (166)	ND (220)	ND (350)	NA
2,4-Dimethylphenol	ND (166)	ND (220)	ND (350)	NA
2,4-Dinitrophenol	ND (332)	ND (441)	ND (699)	NA
2,4-Dinitrotoluene	ND (166)	ND (220)	ND (350)	NA
2,6-Dichlorophenol	ND (166)	ND (220)	ND (350)	NA
2,6-Dinitrotoluene	ND (166)	ND (220)	ND (350)	NA
2-Acetylaminofluorene	ND (166)	ND (220)	ND (350)	NA
2-Chloronaphthalene	ND (166)	ND (220)	ND (350)	NA

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID						
	LOCATION ID						
	SAMPLE ID						
PARAMETER	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01
2-Chlorophenol	ND	(166)	ND	(220)	ND	(350)	NA
2-Methylnaphthalene	ND	(166)	ND	(220)	ND	(350)	NA
2-Methylphenol	ND	(166)	ND	(220)	ND	(350)	NA
2-Naphthylamine	ND	(166)	ND	(220)	ND	(350)	NA
2-Nitroaniline	ND	(166)	ND	(220)	ND	(350)	NA
2-Nitrophenol	ND	(166)	ND	(220)	ND	(350)	NA
2-Picoline	ND	(166)	ND	(220)	ND	(350)	NA
3,3-Dichlorobenzidine	ND	(166)	ND	(220)	ND	(350)	NA
3,3-Dimethoxybenzidine	ND	(166)	ND	(220)	ND	(350)	NA
3-Methylchloroanthrene	ND	(166)	ND	(220)	ND	(350)	NA
3-Methylphenol	ND	(166)	ND	(220)	ND	(350)	NA
3-Nitroaniline	ND	(166)	ND	(220)	ND	(350)	NA
4,6-Dinitro-2-methylphenol	ND	(166)	ND	(220)	ND	(350)	NA
4-Aminobiphenyl	ND	(166)	ND	(220)	ND	(350)	NA
4-Bromophenyl-phenylether	ND	(166)	ND	(220)	ND	(350)	NA
4-Chloro-3-methylphenol	ND	(166)	ND	(220)	ND	(350)	NA
4-Chloroaniline	ND	(166)	ND	(220)	ND	(350)	NA
4-Chlorophenyl-phenylether	ND	(166)	ND	(220)	ND	(350)	NA
4-Methylphenol	ND	(166)	ND	(220)	ND	(350)	NA
4-Nitroaniline	ND	(166)	ND	(220)	ND	(350)	NA
4-Nitrophenol	ND	(166)	ND	(220)	ND	(350)	NA
4-Nitroquinoline-1-oxide	ND	(166)	ND	(220)	ND	(350)	NA
5-Nitro-o-toluidine	ND	(166)	ND	(220)	ND	(350)	NA
7,12-Dimethylbenz(a)anthracene	ND	(166)	ND	(220)	ND	(350)	NA
Acenaphthene	ND	(166)	ND	(220)	ND	(350)	NA
Acenaphthylene	ND	(166)	ND	(220)	ND	(350)	NA
Acetophenone	ND	(166)	ND	(220)	ND	(350)	NA
Aniline	ND	(166)	ND	(220)	ND	(350)	NA
Anthracene	ND	(166)	ND	(220)	ND	(350)	NA

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID						
	LOCATION ID						
	SAMPLE ID						
PARAMETER	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01
Aramite (peak 1)	ND	(166)	ND	(220)	ND	(350)	NA
Aramite (peak 2)	ND	(166)	ND	(220)	ND	(350)	NA
Benzo(a)anthracene	ND	(166)	ND	(220)	ND	(350)	NA
Benzo(a)pyrene	ND	(166)	ND	(220)	ND	(350)	NA
Benzo(b)fluoranthene	ND	(166)	ND	(220)	ND	(350)	NA
Benzo(g,h,i)perylene	ND	(166)	ND	(220)	ND	(350)	NA
Benzo(k)fluoranthene	ND	(166)	ND	(220)	ND	(350)	NA
Benzyl alcohol	ND	(166)	ND	(220)	ND	(350)	NA
Butylbenzylphthalate	ND	(166)	ND	(220)	ND	(350)	NA
Chlorobenzilate	ND	(166)	ND	(220)	ND	(350)	NA
Chrysene	ND	(166)	ND	(220)	ND	(350)	NA
Di-n-butylphthalate	ND	(166)	ND	(220)	ND	(350)	NA
Di-n-octyphthalate	ND	(166)	ND	(220)	ND	(350)	NA
Diallate (peak 1)	ND	(166)	ND	(220)	ND	(350)	NA
Diallate (peak 2)	ND	(166)	ND	(220)	ND	(350)	NA
Dibenz(a,h)anthracene	ND	(166)	ND	(220)	ND	(350)	NA
Dibenzofuran	ND	(166)	ND	(220)	ND	(350)	NA
Diethylphthalate	ND	(166)	ND	(220)	ND	(350)	NA
Dimethylphenethyamine	ND	(1993)	ND	(2643)	ND	(4196)	NA
Dimethylphthalate	ND	(166)	ND	(220)	ND	(350)	NA
Diphenylamine	ND	(166)	ND	(220)	ND	(350)	NA
Ethylmethanesulfonate	ND	(166)	ND	(220)	ND	(350)	NA
Fluoranthene	ND	(166)	ND	(220)	ND	(350)	NA
Fluorene	ND	(166)	ND	(220)	ND	(350)	NA
Hexachlorobenzene	ND	(166)	ND	(220)	ND	(350)	NA
Hexachlorobutadiene	ND	(166)	ND	(220)	ND	(350)	NA
Hexachlorocyclopentadiene	ND	(166)	ND	(220)	ND	(350)	NA
Hexachloroethane	ND	(166)	ND	(220)	ND	(350)	NA
Hexachlorophene	ND	(33721)	ND	(44714)	ND	(70979)	NA

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLDMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID LOCATION ID SAMPLE ID						
PARAMETER	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01
Hexachloropropene	ND	(166)	ND	(220)	ND	(350)	NA
Indeno(1,2,3-cd)pyrene	ND	(166)	ND	(220)	ND	(350)	NA
Isophorone	ND	(166)	ND	(220)	ND	(350)	NA
Isosafrole	ND	(166)	ND	(220)	ND	(350)	NA
Methapyrilene	ND	(831)	ND	(1101)	ND	(1748)	NA
Methylmethanesulfonate	ND	(831)	ND	(1101)	ND	(1748)	NA
Naphthalene	ND	(166)	ND	(220)	ND	(350)	NA
Nitrobenzene	ND	(166)	ND	(220)	ND	(350)	NA
Pentachlorobenzene	ND	(166)	ND	(220)	ND	(350)	NA
Pentachloroethane	ND	(166)	ND	(220)	ND	(350)	NA
Pentachloronitrobenzene	ND	(166)	ND	(220)	ND	(350)	NA
Pentachlorophenol	ND	(166)	ND	(220)	ND	(350)	NA
Phenactin	ND	(166)	ND	(220)	ND	(350)	NA
Phenanthrene	ND	(166)	ND	(220)	ND	(350)	NA
Phenol	ND	(166)	ND	(220)	ND	(350)	NA
Pronamide	ND	(166)	ND	(220)	ND	(350)	NA
Pyrene	ND	(166)	ND	(220)	ND	(350)	NA
Pyridine	ND	(166)	ND	(220)	ND	(350)	NA
Safrole	ND	(166)	ND	(220)	ND	(350)	NA
bis(2-Chloroethoxy)methane	ND	(166)	ND	(220)	ND	(350)	NA
bis(2-Chloroethyl)ether	ND	(166)	ND	(220)	ND	(350)	NA
bis(2-Chloroisopropyl)ether	ND	(166)	ND	(220)	ND	(350)	NA
bis(2-Ethylhexyl)phthalate	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitroso-di-n-butylamine	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitroso-di-n-propylamine	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitrosodiethylamine	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitrosodimethylamine	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitrosodiphenylamine	ND	(166)	ND	(220)	ND	(350)	NA
n-Nitrosomethylethylamine	ND	(166)	ND	(220)	ND	(350)	NA

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LH LH-01 9303-FLH-01-01		LH LH-02 9303-FLH-02-01		LH LH-03 9303-FLH-03-01		LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01	
n-Nitrosomorpholine	ND	(166)	ND	(220)	ND	(350)	NA	
n-Nitrosopiperidine	ND	(166)	ND	(220)	ND	(350)	NA	
n-Nitrosopyrrolidine	ND	(166)	ND	(220)	ND	(350)	NA	
o-Toluidine	ND	(166)	ND	(220)	ND	(350)	NA	
p-Dimethylaminoazobenzene	ND	(166)	ND	(220)	ND	(350)	NA	
SW8290 - Dioxins and Furans (pg/g)								
1,2,3,4,6,7,8-HpCDD	ND	(3.52027)	NA		ND	(1.107)	ND	(0.263)
1,2,3,4,6,7,8-HpCDF	ND	(3.759459)	NA		ND	(2.013)	ND	(0.391)
1,2,3,4,7,8,9-HpCDF	ND	(5.571622)	NA		ND	(2.711)	ND	(0.627)
1,2,3,4,7,8-HxCDD	ND	(4.268919)	NA		ND	(1.539)	ND	(0.526)
1,2,3,4,7,8-HxCDF	ND	(5.27027)	NA		ND	(0.889)	ND	(0.327)
1,2,3,6,7,8-HxCDD	ND	(4.181081)	NA		ND	(2.176)	ND	(0.527)
1,2,3,6,7,8-HxCDF	ND	(4.936486)	NA		ND	(0.81)	ND	(0.304)
1,2,3,7,8,9-HxCDD	ND	(4.104054)	NA		0.55 J	(1.482)	ND	(0.517)
1,2,3,7,8,9-HxCDF	ND	(4.225676)	NA		ND	(0.913)	ND	(0.152)
1,2,3,7,8-PeCDD	ND	(6.07973)	NA		ND	(1.539)	ND	(0.315)
1,2,3,7,8-PeCDF	ND	(2.787838)	NA		ND	(0.98)	ND	(0.447)
2,3,4,6,7,8-HxCDF	ND	(5.477027)	NA		ND	(1.208)	ND	(0.422)
2,3,4,7,8-PeCDF	ND	(3.031081)	NA		ND	(1.081)	ND	(0.481)
2,3,7,8-TCDD	ND	(7.960811)	NA		ND	(2.62)	ND	(0.156)
2,3,7,8-TCDF	ND	(5.618919)	NA		ND	(1.238)	0.09 J	(0.171)
OCDD	13.8	(5.616216)	NA		7.01	(2.068)	ND	(1.21)
DCDF	ND	(3.451351)	NA		ND	(5.83)	ND	(0.674)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID								
	LOCATION ID								
	SAMPLE ID								
PARAMETER	LS LS-01 9303-GLS-01-01			DT DT-01 9303-IDT-01-01			LS LS-01 9303-NLS-01-01		
SOP-9017 - Chlorinated Pesticides and PCBs (ng/g)									
2,4'-DDD	0.008079	J	(0.649578)	0.229598	J	(0.779757)	0.303924	J	(0.749416)
2,4'-DDE	ND		(0.298482)	ND		(0.3583)	ND		(0.344358)
2,4'-DDT	ND		(0.473524)	ND		(0.568421)	ND		(0.546304)
4,4'-DDD	ND		(0.388533)	4.072549		(0.466397)	ND		(0.448249)
4,4'-DDE	ND		(0.764924)	7.192354		(0.918219)	ND		(0.88249)
4,4'-DDT	0.037402	J	(0.383474)	0.764013		(0.460324)	2.21672		(0.442412)
Aldrin	ND		(0.496796)	ND		(0.596356)	ND		(0.573152)
Dieldrin	ND		(0.670826)	0.424097	J	(0.805263)	0.115181	J	(0.77393)
Endrin	ND		(0.493761)	ND		(0.592713)	ND		(0.56965)
HCB	0.751627		(0.543339)	0.074067	J	(0.652227)	0.277904	J	(0.626848)
Heptachlor	1.16507		(0.521079)	0.103133	J	(0.625506)	ND		(0.601167)
Heptachlor epoxide	ND		(0.579764)	ND		(0.695951)	ND		(0.668872)
Mirex	0.013437	J	(0.54941)	ND		(0.659514)	ND		(0.633852)
Oxychlordane	ND		(0.720405)	0.716282	J	(0.864777)	0.130999	J	(0.831128)
Total BHCs	3.15		(0.700927)	0.49495	J	(0.841397)	0.853711		(0.808658)
Total Chlordanes	1.17		(0.720549)	5.716545		(0.864951)	0.782112	J	(0.831295)
Total DDTs	0.05	J	(0.493086)	12.258513		(0.591903)	2.520644		(0.568872)
Total Decachlorobiphenyls	ND		(0.593929)	ND		(0.712955)	ND		(0.685214)
Total Dichlorobiphenyls	3.38		(0.848904)	0.32	J	(1.019028)	0.49	J	(0.979377)
Total Heptachlorobiphenyls	0.11	J	(0.362226)	5.72		(0.434818)	3.44		(0.417899)
Total Hexachlorobiphenyls	1.01		(0.404722)	6.49		(0.48583)	3.81		(0.466926)
Total Nonachlorobiphenyls	ND		(0.597976)	ND		(0.717814)	ND		(0.689883)
Total Octachlorobiphenyls	ND		(0.896459)	ND		(1.076113)	ND		(1.034241)
Total PCBs	27.98		(0.67603)	32.869505		(0.81151)	10.66844		(0.779933)
Total Pentachlorobiphenyls	0.08	J	(0.518044)	14.79		(0.621862)	1.13		(0.597665)
Total Tetrachlorobiphenyls	8.95		(0.243845)	4.89		(0.292713)	1.43		(0.281323)
Total Trichlorobiphenyls	14.46		(0.528162)	0.66		(0.634008)	0.37	J	(0.609339)
Toxaphene	ND		(1.664755)	ND		(1.998381)	ND		(1.920623)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	LS LS-01 9303-GLS-01-01		DT DT-01 9303-IDT-01-01			LS LS-01 9303-NLS-0I-01		
alpha-BHC	ND	(0.528162)	0.335845	J	(0.634008)	ND		(0.609339)
alpha-Chlordane	ND	(0.760877)	1.672389		(0.91336)	ND		(0.877821)
beta-BHC	2.400753	(1.375042)	ND		(1.650607)	ND		(1.586381)
cis-Nonachlor	ND	(0.219562)	0.837315		(0.263563)	0.121123	J	(0.253307)
delta-BHC	ND	(0.565599)	0.085038	J	(0.678947)	0.575807	J	(0.652529)
gamma-BHC	ND	(0.334907)	ND		(0.402024)	ND		(0.386381)
gamma-Chlordane	ND	(0.362226)	ND		(0.434818)	ND		(0.417899)
trans-Nonachlor	ND	(1.879933)	2.387426		(2.25668)	0.52999	J	(2.168872)
SW8270 - Semivolatile Organics (ug/kg)								
1,2,4,5-Tetrachlorobenzene	ND	(328)	ND		(277)	ND		(336)
1,2,4-Trichlorobenzene	ND	(328)	ND		(277)	ND		(336)
1,2-Dichlorobenzene	ND	(328)	ND		(277)	ND		(336)
1,3-Dichlorobenzene	ND	(328)	ND		(277)	ND		(336)
1,3-Dinitrobenzene	ND	(328)	ND		(277)	ND		(336)
1,4-Dichlorobenzene	ND	(328)	ND		(277)	ND		(336)
1,4-Naphthoquinone	ND	(328)	ND		(277)	ND		(336)
1,4-Phenylenediamine	ND	(328)	ND		(277)	ND		(336)
1-Naphthylamine	ND	(328)	ND		(277)	ND		(336)
2,3,4,6-Tetrachlorophenol	ND	(328)	ND		(277)	ND		(336)
2,4,5-Trichlorophenol	ND	(328)	ND		(277)	ND		(336)
2,4,6-Trichlorophenol	ND	(328)	ND		(277)	ND		(336)
2,4-Dichlorophenol	ND	(328)	ND		(277)	ND		(336)
2,4-Dimethylphenol	ND	(328)	ND		(277)	ND		(336)
2,4-Dinitrophenol	ND	(657)	ND		(555)	ND		(672)
2,4-Dinitrotoluene	ND	(328)	ND		(277)	ND		(336)
2,6-Dichlorophenol	ND	(328)	ND		(277)	ND		(336)
2,6-Dinitrotoluene	ND	(328)	ND		(277)	ND		(336)
2-Acetylaminofluorene	ND	(328)	ND		(277)	ND		(336)
2-Chloronaphthalene	ND	(328)	ND		(277)	ND		(336)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-GLS-01-01		DT DT-01 9303-IDT-01-01		LS LS-01 9303-NLS-01-01	
2-Chlorophenol	ND	(328)	ND	(277)	ND	(336)
2-Methylnaphthalene	ND	(328)	ND	(277)	ND	(336)
2-Methylphenol	ND	(328)	ND	(277)	ND	(336)
2-Naphthylamine	ND	(328)	ND	(277)	ND	(336)
2-Nitroaniline	ND	(328)	ND	(277)	ND	(336)
2-Nitrophenol	ND	(328)	ND	(277)	ND	(336)
2-Picoline	ND	(328)	ND	(277)	ND	(336)
3,3-Dichlorobenzidine	ND	(328)	ND	(277)	ND	(336)
3,3-Dimethoxybenzidine	ND	(328)	ND	(277)	ND	(336)
3-Methylchloroanthrene	ND	(328)	ND	(277)	ND	(336)
3-Methylphenol	ND	(328)	ND	(277)	ND	(336)
3-Nitroaniline	ND	(328)	ND	(277)	ND	(336)
4,6-Dinitro-2-methylphenol	ND	(328)	ND	(277)	ND	(336)
4-Aminobiphenyl	ND	(328)	ND	(277)	ND	(336)
4-Bromophenyl-phenylether	ND	(328)	ND	(277)	ND	(336)
4-Chloro-3-methylphenol	ND	(328)	ND	(277)	ND	(336)
4-Chloroaniline	ND	(328)	ND	(277)	ND	(336)
4-Chlorophenyl-phenylether	ND	(328)	ND	(277)	ND	(336)
4-Methylphenol	ND	(328)	ND	(277)	ND	(336)
4-Nitroaniline	ND	(328)	ND	(277)	ND	(336)
4-Nitrophenol	ND	(328)	ND	(277)	ND	(336)
4-Nitroquinoline-1-oxide	ND	(328)	ND	(277)	ND	(336)
5-Nitro-o-toluidine	ND	(328)	ND	(277)	ND	(336)
7,12-Dimethylbenz(a)anthracene	ND	(328)	ND	(277)	ND	(336)
Acenaphthene	ND	(328)	ND	(277)	ND	(336)
Acenaphthylene	ND	(328)	ND	(277)	ND	(336)
Acetophenone	ND	(328)	ND	(277)	ND	(336)
Aniline	ND	(328)	ND	(277)	ND	(336)
Anthracene	ND	(328)	ND	(277)	ND	(336)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID					
	LOCATION ID					
	SAMPLE ID					
PARAMETER	LS LS-01 9303-GLS-01-01		DT DT-01 9303-IDT-01-01		LS LS-01 9303-NLS-01-01	
Aramite (peak 1)	ND	(328)	ND	(277)	ND	(336)
Aramite (peak 2)	ND	(328)	ND	(277)	ND	(336)
Benzo(a)anthracene	ND	(328)	ND	(277)	ND	(336)
Benzo(a)pyrene	ND	(328)	ND	(277)	ND	(336)
Benzo(b)fluoranthene	ND	(328)	ND	(277)	ND	(336)
Benzo(g,h,i)perylene	ND	(328)	ND	(277)	ND	(336)
Benzo(k)fluoranthene	ND	(328)	ND	(277)	ND	(336)
Benzyl alcohol	ND	(328)	ND	(277)	ND	(336)
Butylbenzylphthalate	ND	(328)	ND	(277)	ND	(336)
Chlorobenzilate	ND	(328)	ND	(277)	ND	(336)
Chrysene	ND	(328)	ND	(277)	ND	(336)
Di-n-butylphthalate	2515.2	(328)	ND	(277)	ND	(336)
Di-n-octyphthalate	ND	(328)	ND	(277)	ND	(336)
Diallate (peak 1)	ND	(328)	ND	(277)	ND	(336)
Diallate (peak 2)	ND	(328)	ND	(277)	ND	(336)
Dibenz(a,h)anthracene	ND	(328)	ND	(277)	ND	(336)
Dibenzofuran	ND	(328)	ND	(277)	ND	(336)
Diethylphthalate	ND	(328)	ND	(277)	ND	(336)
Dimethylphenethyamine	ND	(3940)	ND	(3328)	ND	(4032)
Dimethylphthalate	ND	(328)	ND	(277)	ND	(336)
Diphenylamine	ND	(328)	ND	(277)	ND	(336)
Ethylmethanesulfonate	ND	(328)	ND	(277)	ND	(336)
Fluoranthene	ND	(328)	ND	(277)	ND	(336)
Fluorene	ND	(328)	ND	(277)	ND	(336)
Hexachlorobenzene	ND	(328)	ND	(277)	ND	(336)
Hexachlorobutadiene	ND	(328)	ND	(277)	ND	(336)
Hexachlorocyclopentadiene	ND	(328)	ND	(277)	ND	(336)
Hexachloroethane	ND	(328)	ND	(277)	ND	(336)
Hexachlorophene	ND	(66645)	ND	(56295)	ND	(68212)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID					
	LOCATION ID					
	SAMPLE ID					
	LS		DT		LS	
	LS-01		DT-01		LS-01	
PARAMETER	9303-GLS-01-01		9303-IDT-01-01		9303-NLS-01-01	
Hexachloropropene	ND	(328)	ND	(277)	ND	(336)
Indeno(1,2,3-cd)pyrene	ND	(328)	ND	(277)	ND	(336)
Isophorone	ND	(328)	ND	(277)	ND	(336)
Isosafrole	ND	(328)	ND	(277)	ND	(336)
Methapyrilene	ND	(1641)	ND	(1387)	ND	(1680)
Methylmethanesulfonate	ND	(1641)	ND	(1387)	ND	(1680)
Naphthalene	ND	(328)	ND	(277)	ND	(336)
Nitrobenzene	ND	(328)	ND	(277)	ND	(336)
Pentachlorobenzene	ND	(328)	ND	(277)	ND	(336)
Pentachloroethane	ND	(328)	ND	(277)	ND	(336)
Pentachloronitrobenzene	ND	(328)	ND	(277)	ND	(336)
Pentachlorophenol	ND	(328)	ND	(277)	ND	(336)
Phenactin	ND	(328)	ND	(277)	ND	(336)
Phenanthrene	ND	(328)	ND	(277)	ND	(336)
Phenol	ND	(328)	ND	(277)	ND	(336)
Pronamide	ND	(328)	ND	(277)	ND	(336)
Pyrene	ND	(328)	ND	(277)	ND	(336)
Pyridine	ND	(328)	ND	(277)	ND	(336)
Safrole	ND	(328)	ND	(277)	ND	(336)
bis(2-Chloroethoxy)methane	ND	(328)	ND	(277)	ND	(336)
bis(2-Chloroethyl)ether	ND	(328)	ND	(277)	ND	(336)
bis(2-Chloroisopropyl)ether	ND	(328)	ND	(277)	ND	(336)
bis(2-Ethylhexyl)phthalate	8879.3	(328)	7938.2	(277)	12854.8	(336)
n-Nitroso-di-n-butylamine	ND	(328)	ND	(277)	ND	(336)
n-Nitroso-di-n-propylamine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosodiethylamine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosodimethylamine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosodiphenylamine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosomethylethylamine	ND	(328)	ND	(277)	ND	(336)

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TABLE A2 RESULTS OF ORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

	SITE ID					
	LOCATION ID					
	SAMPLE ID					
PARAMETER	LS LS-01 9303-GLS-01-01		DT DT-01 9303-IDT-01-01		LS LS-01 9303-NLS-01-01	
n-Nitrosomorpholine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosopiperidine	ND	(328)	ND	(277)	ND	(336)
n-Nitrosopyrrolidine	ND	(328)	ND	(277)	ND	(336)
o-Toluidine	ND	(328)	ND	(277)	ND	(336)
p-Dimethylaminoazobenzene	ND	(328)	ND	(277)	ND	(336)
SW8290 - Dioxins and Furans (pg/g)						
1,2,3,4,6,7,8-HpCDD	ND	(0.66)	ND	(0.73)	ND	(1.236)
1,2,3,4,6,7,8-HpCDF	ND	(0.41)	ND	(0.53)	2.02	(1.594)
1,2,3,4,7,8,9-HpCDF	ND	(1.82)	ND	(0.73)	ND	(2.474)
1,2,3,4,7,8-HxCDD	ND	(0.41)	ND	(0.53)	ND	(1.241)
1,2,3,4,7,8-HxCDF	0.36	(0.36)	ND	(0.49)	ND	(0.827)
1,2,3,6,7,8-HxCDD	ND	(0.5)	ND	(0.53)	ND	(0.986)
1,2,3,6,7,8-HxCDF	ND	(0.34)	ND	(0.43)	0.58 J	(0.806)
1,2,3,7,8,9-HxCDD	ND	(0.4)	ND	(0.52)	ND	(0.968)
1,2,3,7,8,9-HxCDF	ND	(0.37)	ND	(0.56)	ND	(0.853)
1,2,3,7,8-PeCDD	ND	(0.91)	ND	(0.56)	0.27 J	(1.235)
1,2,3,7,8-PeCDF	ND	(0.63)	ND	(1.03)	ND	(1.013)
2,3,4,6,7,8-HxCDF	ND	(1.21)	ND	(0.57)	ND	(1.013)
2,3,4,7,8-PeCDF	ND	(0.71)	ND	(0.92)	ND	(1.036)
2,3,7,8-TCDD	ND	(0.16)	ND	(0.16)	ND	(1.363)
2,3,7,8-TCDF	ND	(0.67)	ND	(0.73)	ND	(1.225)
OCDD	ND	(0.93)	8.44	(1.33)	7.38	(2.226)
OCDF	ND	(0.78)	ND	(1.14)	ND	(1.96)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		C C-01 9303-AC-01-01		C C-01 9303-AC-01-02		C C-01 Dup of 9303-AC-01-01		D D-01 9303-AD-01-01	
E249.2 - Nickel (mg/kg)										
Nickel	0.080911	J (0.174112)	0.191385	(0.165154)	0.188492	(0.162658)			0.363072	(0.169566)
E272.2 - Silver (mg/kg)										
Silver	0.608367	(0.035847)	0.223444	(0.034002)	0.218153	(0.033488)			0.389005	(0.034911)
SOP-9202 - Metals By DCP (mg/kg)										
Barium	1.941859	(0.020484)	2.095516	(0.01943)	2.271474	(0.019136)			1.747531	(0.019949)
Manganese	139.08465	(2.048375)	22.497899	(1.942992)	24.345153	(1.913626)			114.20794	(1.994899)
SW7040 - Antimony (mg/kg)										
Antimony	ND	(0.307256)	ND	(0.291449)	ND	(0.287044)			ND	(0.299235)
SW7060 - Arsenic (mg/kg)										
Arsenic	1.526039	(0.174112)	1.569937	(0.165154)	1.693559	(0.162658)			1.490189	(0.169566)
SW7131 - Cadmium (mg/kg)										
Cadmium	0.244781	(0.008193)	0.101036	(0.007772)	0.099509	(0.007655)			0.265322	(0.00798)
SW7191 - Chromium (mg/kg)										
Chromium	ND	(0.122902)	0.076748	J (0.116579)	0.142565	(0.114818)			0.328161	(0.119694)
SW7421 - Lead (mg/kg)										
Lead	0.345151	(0.122902)	0.271047	(0.116579)	0.274605	(0.114818)			0.309209	(0.119694)
SW7450 - Magnesium (mg/kg)										
Magnesium	5729.3683	(0.307256)	3437.2734	(0.291449)	4025.7911	(0.287044)			3242.9571	(0.299235)
SW7471 - Mercury (mg/kg)										
Mercury	0.08011	(0.029851)	0.047525	(0.029969)	0.043259	(0.029552)			0.065091	(0.03335)
SW7740 - Selenium (mg/kg)										
Selenium	1.71449	(0.501852)	1.930362	(0.476033)	1.792111	(0.468838)			3.020277	(0.48875)
SW7841 - Thallium (mg/kg)										
Thallium	0.011266	J (0.409675)	0.082577	J (0.388598)	0.026791	J (0.382725)			ND	(0.39898)
SW846 - Percent Moisture (%)										
Percent moisture (metals)	96.5	(NA)	94.6	(NA)		NA			95.2	(NA)
Percent moisture (organics)	95.68	(NA)	94.15	(NA)	94.22	(NA)			94.44	(NA)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01		E E-01 9303-AE-01-01		E E-01 9303-AE-01-02 Dup of 9303-AE-01-01		F F-01 9303-AF-01-01	
E249.2 - Nickel (mg/kg)								
Nickel	3.683253	(0.170475)	0.144035 J	(0.166571)	0.308415	(0.169678)	0.136836 J	(0.166159)
E272.2 - Silver (mg/kg)								
Silver	0.734043	(0.035098)	0.282191	(0.034294)	0.291447	(0.034934)	0.525843	(0.034209)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	29.052872	(0.020056)	2.29378	(0.019597)	2.409432	(0.019962)	1.924507	(0.019548)
Manganese	113.61626	(2.005583)	74.130919	(1.959658)	80.002321	(1.996215)	80.896744	(1.954807)
SW7040 - Antimony (mg/kg)								
Antimony	ND	(0.300837)	ND	(0.293949)	ND	(0.299432)	ND	(0.293221)
SW7060 - Arsenic (mg/kg)								
Arsenic	1.977505	(0.170475)	1.211069	(0.166571)	1.155809	(0.169678)	2.670266	(0.166159)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.539502	(0.008022)	0.199885	(0.007839)	0.208604	(0.007985)	0.197435	(0.007819)
SW7191 - Chromium (mg/kg)								
Chromium	5.165378	(0.120335)	0.096023 J	(0.117579)	0.080847 J	(0.119773)	0.18082	(0.117288)
SW7421 - Lead (mg/kg)								
Lead	5.938531	(0.120335)	0.147954	(0.117579)	0.145724	(0.119773)	0.141723	(0.117288)
SW7450 - Magnesium (mg/kg)								
Magnesium	15438.600	(0.300837)	8690.3173	(0.293949)	8852.4351	(0.299432)	3598.3715	(0.293221)
SW7471 - Mercury (mg/kg)								
Mercury	0.086578	(0.033797)	0.042714	(0.035015)	0.042779	(0.033399)	0.035754	(0.032567)
SW7740 - Selenium (mg/kg)								
Selenium	2.221183	(0.491368)	2.041964	(0.480116)	2.013183	(0.489073)	2.500198	(0.478928)
SW7841 - Thallium (mg/kg)								
Thallium	0.002006 J	(0.401117)	ND	(0.391932)	ND	(0.399243)	ND	(0.390961)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	NA		97.7	(NA)	97.7	(NA)	94.9	(NA)
Percent moisture (organics)	97.8	(NA)	97.75	(NA)	97.66	(NA)	94.48	(NA)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
E249.2 - Nickel (mg/kg)								
Nickel	0.050547 J	(0.179022)	0.579613	(0.174089)	0.700074	(0.173488)	0.245451	(0.182213)
E272.2 - Silver (mg/kg)								
Silver	0.461244	(0.036857)	0.088068	(0.035842)	0.13879	(0.035718)	0.102897	(0.037514)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	0.971982	(0.021061)	5.589269	(0.020481)	5.561813	(0.02041)	5.566065	(0.021437)
Manganese	65.79467	(2.106137)	39.821238	(2.048102)	45.897713	(2.041032)	33.029818	(2.14368)
SW7040 - Antimony (mg/kg)								
Antimony	ND	(0.315921)	ND	(0.307215)	ND	(0.306155)	0.258313 J	(0.321552)
SW7060 - Arsenic (mg/kg)								
Arsenic	1.625938	(0.179022)	1.572942	(0.174089)	2.316572	(0.173488)	1.530587	(0.182213)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.175862	(0.008425)	0.176137	(0.008192)	0.269416	(0.008164)	0.228302	(0.008575)
SW7191 - Chromium (mg/kg)								
Chromium	ND	(0.126368)	0.200714	(0.122886)	0.179611	(0.122462)	0.316193	(0.128621)
SW7421 - Lead (mg/kg)								
Lead	0.117944	(0.126368)	0.142343	(0.122886)	0.155118	(0.122462)	0.169351	(0.128621)
SW7450 - Magnesium (mg/kg)								
Magnesium	3272.7395	(0.315921)	21935.167	(0.307215)	13662.159	(0.306155)	19730.227	(0.321552)
SW7471 - Mercury (mg/kg)								
Mercury	0.055046	(0.034712)	0.061964	(0.033865)	0.069844	(0.03368)	0.074394	(0.033881)
SW7740 - Selenium (mg/kg)								
Selenium	2.153525	(0.516004)	0.88478	(0.501785)	1.81856	(0.500053)	1.413757	(0.525202)
SW7841 - Thallium (mg/kg)								
Thallium	ND	(0.421227)	ND	(0.40962)	ND	(0.408206)	0.035371 J	(0.428736)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	94.2	(NA)	97.9	(NA)	97.1	(NA)	97.7	(NA)
Percent moisture (organics)	93.94	(NA)	97.67	(NA)	97.21	(NA)	98.03	(NA)

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TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01			SITE ID LOCATION ID SAMPLE ID LS LS-02 9303-ALS-02-01			SITE ID LOCATION ID SAMPLE ID A A-01 9303-BA-01-01		SITE ID LOCATION ID SAMPLE ID DT DT-02 9303-BOT-01-01	
E249.2 - Nickel (mg/kg)										
Nickel	1.747243		(0.165569)	0.240615		(0.175556)	NA		NA	
E272.2 - Silver (mg/kg)										
Silver	0.029218	J	(0.034088)	0.043373		(0.036144)	NA		NA	
SOP-9202 - Metals By DCP (mg/kg)										
Barium	3.76232		(0.019479)	4.60266		(0.020654)	NA		NA	
Manganese	49.132214		(1.947875)	89.066686		(2.065362)	NA		NA	
SW7040 - Antimony (mg/kg)										
Antimony	0.013635		(0.292181)	0.085713		(0.309804)	NA		NA	
SW7060 - Arsenic (mg/kg)										
Arsenic	2.232264		(0.165569)	2.296683		(0.175556)	NA		NA	
SW7131 - Cadmium (mg/kg)										
Cadmium	0.257119		(0.007791)	0.162131		(0.008261)	NA		NA	
SW7191 - Chromium (mg/kg)										
Chromium	5.341072		(0.116872)	0.452314		(0.123922)	NA		NA	
SW7421 - Lead (mg/kg)										
Lead	0.626242		(0.116872)	0.602053		(0.123922)	NA		NA	
SW7450 - Magnesium (mg/kg)										
Magnesium	31292.605		(0.292181)	28341.289		(0.309804)	NA		NA	
SW7471 - Mercury (mg/kg)										
Mercury	0.067853		(0.034765)	0.04408		(0.03285)	NA		NA	
SW7740 - Selenium (mg/kg)										
Selenium	0.658382		(0.477229)	0.225124	J	(0.506014)	NA		NA	
SW7841 - Thallium (mg/kg)										
Thallium	0.164595	J	(0.389575)	0.089843	J	(0.413072)	NA		NA	
SW846 - Percent Moisture (%)										
Percent moisture (metals)	97.8		(NA)	97.9		(NA)	NA		NA	
Percent moisture (organics)	98.68		(NA)	97.5		(NA)	94	(NA)	87.95	(NA)

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TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01		DT DT-02 9303-FDT-01-01		DT DT-02 9303-FDT-01-01.1		DT DT-02 9303-FDT-01-01.2	
E249.2 - Nickel (mg/kg)								
Nickel	0.497058	(0.195602)	ND	(0.166639)	ND	(0.169076)	ND	(0.169682)
E272.2 - Silver (mg/kg)								
Silver	3.378154	(0.040271)	0.25878	(0.034308)	0.282457	(0.03481)	0.259514	(0.034935)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	7.131403	(0.023012)	8.336849	(0.019605)	7.237464	(0.019891)	7.400143	(0.019963)
Manganese	30.749716	(2.301195)	18.558678	(1.960458)	18.437282	(1.989134)	20.137293	(1.996262)
SW7040 - Antimony (mg/kg)								
Antimony	0.121963 J	(0.345179)	ND	(0.294069)	0.015913 J	(0.29837)	0.024953 J	(0.299439)
SW7060 - Arsenic (mg/kg)								
Arsenic	0.2324	(0.195602)	0.143113 J	(0.166639)	0.224772 .	(0.169076)	0.141735 J	(0.169682)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.060982	(0.009205)	0.018624	(0.007842)	0.018897	(0.007957)	0.016968	(0.007985)
SW7191 - Chromium (mg/kg)								
Chromium	0.705316	(0.138072)	ND	(0.117627)	ND	(0.119348)	0.062882 J	(0.119776)
SW7421 - Lead (mg/kg)								
Lead	0.507413	(0.138072)	0.035288 J	(0.117627)	0.015913 J	(0.119348)	0.040923 J	(0.119776)
SW7450 - Magnesium (mg/kg)								
Magnesium	1861.2711	(0.345179)	1663.7858	(0.294069)	1656.4201	(0.29837)	2529.3263	(0.299439)
SW7471 - Mercury (mg/kg)								
Mercury	0.02603	(0.035565)	0.106084	(0.033448)	0.097405	(0.03194)	0.089896	(0.035251)
SW7740 - Selenium (mg/kg)								
Selenium	1.31053	(0.563793)	2.919122	(0.480312)	2.671407	(0.487338)	2.431447	(0.489084)
SW7841 - Thallium (mg/kg)								
Thallium	ND	(0.460239)	0.012743 J	(0.392092)	ND	(0.397827)	ND	(0.399252)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	89.8	(NA)	21.8	(NA)	21.8	(NA)	21.8	(NA)
Percent moisture (organics)	91.6	(NA)	NA		NA		NA	

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TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-03 9303-FDT-02-01			DT DT-04 9303-FDT-03-01			G G-01 9303-FG-01-01			LH LH-01 9303-FLH-01-01		
E249.2 - Nickel (mg/kg)												
Nickel	0.127014		(0.205642)	0.195076		(0.174542)	ND		(0.186222)	ND		(0.174911)
E272.2 - Silver (mg/kg)												
Silver	0.902406		(0.042338)	0.48461		(0.035935)	0.236611		(0.03834)	0.117293		(0.036011)
SOP-9202 - Metals By DCP (mg/kg)												
Barium	7.536182		(0.024193)	6.30609		(0.020534)	7.043563		(0.021908)	5.18354		(0.020578)
Manganese	58.949157		(2.41932)	85.171232		(2.053432)	15.596617		(2.190844)	18.368747		(2.057777)
SW7040 - Antimony (mg/kg)												
Antimony	0.002419	J	(0.362898)	ND		(0.308015)	ND		(0.328627)	0.014404	J	(0.308667)
SW7060 - Arsenic (mg/kg)												
Arsenic	1.064501		(0.205642)	0.306		(0.174542)	0.131451	J	(0.186222)	ND		(0.174911)
SW7131 - Cadmium (mg/kg)												
Cadmium	0.111289		(0.009677)	0.126286		(0.008214)	0.087634		(0.008763)	0.013376		(0.008231)
SW7191 - Chromium (mg/kg)												
Chromium	0.117337		(0.145159)	0.390152		(0.123206)	0.007668	J	(0.131451)	0.042184	J	(0.123467)
SW7421 - Lead (mg/kg)												
Lead	0.367737		(0.145159)	0.399393		(0.123206)	0.007668	J	(0.131451)	0.024693	J	(0.123467)
SW7450 - Magnesium (mg/kg)												
Magnesium	1210.0381		(0.362898)	2064.6618		(0.308015)	1623.6206		(0.328627)	1598.7963		(0.308667)
SW7471 - Mercury (mg/kg)												
Mercury	0.936788		(0.032819)	0.199378		(0.034051)	0.033313		(0.030344)	0.097721		(0.030811)
SW7740 - Selenium (mg/kg)												
Selenium	3.387048		(0.592733)	2.677676		(0.503091)	2.188653		(0.536757)	1.818046		(0.504155)
SW7841 - Thallium (mg/kg)												
Thallium	0.185078	J	(0.483864)	0.020534	J	(0.410686)	ND		(0.438169)	ND		(0.411555)
SW846 - Percent Moisture (%)												
Percent moisture (metals)	21		(NA)	22.1		(NA)	22.3		(NA)	18.3		(NA)
Percent moisture (organics)	79.05		(NA)	77.93		(NA)	77.69		(NA)	80.67		(NA)

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TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID											
	LH LH-02 9303-FLH-02-01			LH LH-03 9303-FLH-03-01			LH LH-03 9303-FLH-03-02 Dup of 9303-FLH-03-01			LS LS-01 9303-GLS-01-01		
E249.2 - Nickel (mg/kg)												
Nickel	0.051991	J	(0.184136)	ND		(0.169646)	0.073739	J	(0.176558)	0.535442		(0.18205)
E272.2 - Silver (mg/kg)												
Silver	0.151641		(0.03791)	0.115759		(0.034927)	0.105935		(0.03635)	0.047119		(0.037481)
SOP-9202 - Metals By DCP (mg/kg)												
Barium	6.164222		(0.021663)	5.094378		(0.019958)	6.393468		(0.020772)	3.630295		(0.021418)
Manganese	17.108398		(2.166306)	17.661177		(1.995839)	21.287672		(2.07715)	136.10929		(2.141767)
SW7040 - Antimony (mg/kg)												
Antimony	0.064989	J	(0.324946)	0.001996	J	(0.299376)	ND		(0.311573)	0.83636		(0.321265)
SW7060 - Arsenic (mg/kg)												
Arsenic	0.060657	J	(0.184136)	0.039917	J	(0.169646)	0.0499	J	(0.176558)	3.1591		(0.18205)
SW7131 - Cadmium (mg/kg)												
Cadmium	0.011915		(0.008665)	0.011975		(0.007983)	0.017656		(0.008309)	0.10923		(0.008567)
SW7191 - Chromium (mg/kg)												
Chromium	0.122396	J	(0.129978)	ND		(0.11975)	0.03635	J	(0.124629)	0.488323		(0.128506)
SW7421 - Lead (mg/kg)												
Lead	0.030328	J	(0.129978)	0.188607		(0.11975)	0.042582	J	(0.124629)	0.455125		(0.128506)
SW7450 - Magnesium (mg/kg)												
Magnesium	1648.5923		(0.324946)	1582.4817		(0.299376)	1589.0197		(0.311573)	18995.799		(0.321265)
SW7471 - Mercury (mg/kg)												
Mercury	0.067926		(0.032755)	0.047108		(0.032182)	0.062752		(0.032151)	0.036639		(0.030035)
SW7740 - Selenium (mg/kg)												
Selenium	2.076404		(0.530745)	1.936961		(0.48898)	1.424925		(0.508902)	0.027843		(0.524733)
SW7841 - Thallium (mg/kg)												
Thallium	ND		(0.433261)	ND		(0.399168)	0.02181	J	(0.41543)	0.261296	J	(0.428353)
SW846 - Percent Moisture (%)												
Percent moisture (metals)	19.8		(NA)	20.7		(NA)	20		(NA)	93.2		(NA)
Percent moisture (organics)	79.37		(NA)	79.29		(NA)	80		(NA)	88.36		(NA)

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TABLE A3 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-IDT-01-01			SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-NLS-01-01		
E249.2 - Nickel (mg/kg)						
Nickel	0.109377		(0.167514)	0.515526		(0.169188)
E272.2 - Silver (mg/kg)						
Silver	0.92B225		(0.034488)	0.119427		(0.034833)
SOP-9202 - Metals By DCP (mg/kg)						
Barium	0.754799		(0.019708)	3.603706		(0.019904)
Manganese	23.089349		(1.970754)	107.28514		(1.990448)
SW7040 - Antimony (mg/kg)						
Antimony	0.0404	J	(0.295613)	0.203026	J	(0.298567)
SW7060 - Arsenic (mg/kg)						
Arsenic	0.404		(0.167514)	3.0135		(0.169188)
SW7131 - Cadmium (mg/kg)						
Cadmium	0.105435		(0.007883)	0.359276		(0.007962)
SW7191 - Chromium (mg/kg)						
Chromium	0.127114		(0.118245)	0.22094		(0.119427)
SW7421 - Lead (mg/kg)						
Lead	0.076859	J	(0.118245)	0.204021		(0.119427)
SW7450 - Magnesium (mg/kg)						
Magnesium	1248.5031		(0.295613)	10492.304		(0.298567)
SW7471 - Mercury (mg/kg)						
Mercury	0.073377		(0.027342)	0.065164		(0.031423)
SW7740 - Selenium (mg/kg)						
Selenium	1.847581		(0.482835)	2.22134		(0.48766)
SW7841 - Thallium (mg/kg)						
Thallium	ND		(0.394151)	ND		(0.39809)
SW846 - Percent Moisture (%)						
Percent moisture (metals)	80.3		(NA)	92.9		(NA)
Percent moisture (organics)	71.96		(NA)	90.86		(NA)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID A A-01 9303-AA-01-01		SITE ID LOCATION ID SAMPLE ID C C-01 9303-AC-01-01		SITE ID LOCATION ID SAMPLE ID C C-01 9303-AC-01-02 Dup of 9303-AC-01-01		SITE ID LOCATION ID SAMPLE ID D D-01 9303-AD-01-01	
E249.2 - Nickel (mg/kg)								
Nickel	0.011558 J	(0.178623)	0.232588	(0.1697)	0.102493 J	(0.170822)	0.542961	(0.16813)
E272.2 - Silver (mg/kg)								
Silver	0.65145	(0.036775)	0.223604	(0.034938)	0.204986	(0.035169)	0.377798	(0.034615)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	1.873445	(0.021015)	2.252012	(0.019965)	2.150342	(0.020097)	1.770309	(0.01978)
Manganese	145.10528	(2.101452)	25.237312	(1.996465)	23.237765	(2.009666)	108.59213	(1.977999)
SW7040 - Antimony (mg/kg)								
Antimony	ND	(0.315218)	ND	(0.29947)	ND	(0.30145)	0.011868 J	(0.2967)
SW7060 - Arsenic (mg/kg)								
Arsenic	1.441596	(0.178623)	1.152	(0.1697)	1.0149	(0.170822)	1.1967	(0.16813)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.205942	(0.008406)	0.099823	(0.007986)	0.225083	(0.008039)	0.260107	(0.007912)
SW7191 - Chromium (mg/kg)								
Chromium	0.107174 J	(0.126087)	0.178684	(0.119788)	0.15173	(0.12058)	0.150328	(0.11868)
SW7421 - Lead (mg/kg)								
Lead	0.342537	(0.126087)	0.353374	(0.119788)	0.288387	(0.12058)	0.391644	(0.11868)
SW7450 - Magnesium (mg/kg)								
Magnesium	5224.7358	(0.315218)	4009.1509	(0.29947)	3747.3985	(0.30145)	3262.7708	(0.2967)
SW7471 - Mercury (mg/kg)								
Mercury	0.082235	(0.035472)	0.046683	(0.030979)	0.047483	(0.034137)	0.065481	(0.035306)
SW7740 - Selenium (mg/kg)								
Selenium	1.391161	(0.514856)	1.769866	(0.489134)	1.721279	(0.492368)	2.656452	(0.48461)
SW7841 - Thallium (mg/kg)								
Thallium	ND	(0.42029)	0.323427 J	(0.399293)	ND	(0.401933)	ND	(0.3956)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	96.5	(NA)	94.6	(NA)	NA		95.2	(NA)
Percent moisture (organics)	95.98	(NA)	94.41	(NA)	94.2	(NA)	94.64	(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-ADT-01-01			E E-01 9303-AE-01-01			E E-01 9303-AE-01-02 Dup of 9303-AE-01-01			F F-01 9303-AF-01-01		
E249.2 - Nickel (mg/kg)												
Nickel	3.448866		(0.172545)	0.162584	J	(0.178318)	0.376253		(0.165707)	0.009992	J	(0.169868)
E272.2 - Silver (mg/kg)												
Silver	0.66988		(0.035524)	0.268525		(0.036712)	0.261232		(0.034116)	0.515598		(0.034973)
SOP-9202 - Metals By DCP (mg/kg)												
Barium	28.558192		(0.020299)	2.244703		(0.020979)	2.144446		(0.019495)	1.47685		(0.019984)
Manganese	110.32716		(2.029939)	72.112647		(2.097853)	73.232821		(1.949496)	86.510631		(1.998444)
SW7040 - Antimony (mg/kg)												
Antimony	0.024359	J	(0.304491)	0.046153	J	(0.314678)	ND		(0.292424)	ND		(0.299767)
SW7060 - Arsenic (mg/kg)												
Arsenic	1.4839		(0.172545)	0.9944		(0.178318)	1.002		(0.165707)	2.4901		(0.169868)
SW7131 - Cadmium (mg/kg)												
Cadmium	0.658715		(0.00812)	0.196149		(0.008391)	0.193		(0.007798)	0.202842		(0.007994)
SW7191 - Chromium (mg/kg)												
Chromium	5.282915		(0.121796)	0.100697	J	(0.125871)	0.147187		(0.11697)	0.124903		(0.119907)
SW7421 - Lead (mg/kg)												
Lead	6.312094		(0.121796)	0.160486		(0.125871)	0.150111		(0.11697)	0.158876		(0.119907)
SW7450 - Magnesium (mg/kg)												
Magnesium	15302.565		(0.304491)	7823.6804		(0.314678)	8621.9511		(0.292424)	3678.6977		(0.299767)
SW7471 - Mercury (mg/kg)												
Mercury	0.087053		(0.034137)	0.051752		(0.034343)	0.052147		(0.034606)	0.038244		(0.034729)
SW7740 - Selenium (mg/kg)												
Selenium	1.675714		(D.497335)	1.780028		(0.513974)	1.756496		(0.477627)	2.357164		(0.489619)
SW7841 - Thallium (mg/kg)												
Thallium	0.041614	J	(0.405988)	ND		(0.419571)	0.012672	J	(0.389899)	ND		(0.399689)
SW846 - Percent Moisture (%)												
Percent moisture (metals)	NA			97.7		(NA)	97.7		(NA)	94.9		(NA)
Percent moisture (organics)	98.25		(NA)	97.32		(NA)	97.61		(NA)	95.19		(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID G G-01 9303-AG-01-01		LH LH-01 9303-ALH-01-01		LH LH-02 9303-ALH-02-01		LH LH-03 9303-ALH-03-01	
E249.2 - Nickel (mg/kg)								
Nickel	0.140858 J	(0.166291)	0.458639	(0.173264)	0.628073	(0.168677)	0.477444	(0.143402)
E272.2 - Silver (mg/kg)								
Silver	0.426486	(0.034236)	0.071344	(0.035672)	0.128988	(0.034728)	0.086041	(0.029524)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	0.844169	(0.019564)	5.267217	(0.020384)	5.623885	(0.019844)	5.262011	(0.016871)
Manganese	56.15339	(1.95636)	38.881396	(2.038397)	44.428491	(1.984434)	31.766923	(1.687083)
SW7040 - Antimony (mg/kg)								
Antimony	ND	(0.293454)	0.132496 J	(0.305759)	0.277821 J	(0.297665)	0.23113 J	(0.253062)
SW7060 - Arsenic (mg/kg)								
Arsenic	1.3245	(0.166291)	1.2597	(0.173264)	1.784	(0.168677)	1.0764	(0.143402)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.165312	(0.007825)	0.170206	(0.008154)	0.241109	(0.007938)	0.212572	(0.006748)
SW7191 - Chromium (mg/kg)								
Chromium	0.057713 J	(0.117382)	0.108035	(0.122304)	0.168677	(0.119066)	0.277525	(0.101225)
SW7421 - Lead (mg/kg)								
Lead	0.125207	(0.117382)	0.305759	(0.122304)	0.126012	(0.119066)	0.129905	(0.101225)
SW7450 - Magnesium (mg/kg)								
Magnesium	4139.0761	(0.293454)	22513.453	(0.305759)	13781.426	(0.297665)	17362.848	(0.253062)
SW7471 - Mercury (mg/kg)								
Mercury	0.060726	(0.034926)	0.052414	(0.034783)	0.069	(0.035015)	0.075257	(0.034171)
SW7740 - Selenium (mg/kg)								
Selenium	1.939731	(0.479308)	0.983526	(0.499407)	1.408948	(0.486186)	1.057801	(0.413335)
SW7841 - Thallium (mg/kg)								
Thallium	0.01076 J	(0.391272)	ND	(0.407679)	0.034728 J	(0.396887)	0.124001 J	(0.337417)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	94.2	(NA)	97.9	(NA)	97.1	(NA)	97.7	(NA)
Percent moisture (organics)	93.96	(NA)	97.79	(NA)	97.09	(NA)	97.89	(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-ALS-01-01			SITE ID LOCATION ID SAMPLE ID LS LS-02 9303-ALS-02-01			SITE ID LOCATION ID SAMPLE ID A A-01 9303-BA-01-01		SITE ID LOCATION ID SAMPLE ID DT DT-02 9303-BDT-01-01	
E249.2 - Nickel (mg/kg)										
Nickel	1.144165		(0.174603)	0.380819		(0.173564)	NA		NA	
E272.2 - Silver (mg/kg)										
Silver	0.036975		(0.035948)	0.032671	J	(0.035734)	NA		NA	
SOP-9202 - Metals By DCP (mg/kg)										
Barium	3.484875		(0.020542)	4.816898		(0.020419)	NA		NA	
Manganese	45.871345		(2.054155)	99.255866		(2.041924)	NA		NA	
SW7040 - Antimony (mg/kg)										
Antimony	0.032866		(0.308123)	0.261366	J	(0.306289)	NA		NA	
SW7060 - Arsenic (mg/kg)										
Arsenic	1.7994		(0.174603)	2.34		(0.173564)	NA		NA	
SW7131 - Cadmium (mg/kg)										
Cadmium	0.248553		(0.008217)	0.154165		(0.008168)	NA		NA	
SW7191 - Chromium (mg/kg)										
Chromium	3.10691		(0.123249)	0.257282		(0.122515)	NA		NA	
SW7421 - Lead (mg/kg)										
Lead	0.566947		(0.123249)	0.493125		(0.122515)	NA		NA	
SW7450 - Magnesium (mg/kg)										
Magnesium	29046.881		(0.308123)	29557.323		(0.306289)	NA		NA	
SW7471 - Mercury (mg/kg)										
Mercury	0.049264		(0.035417)	0.044261		(0.03182)	NA		NA	
SW7740 - Selenium (mg/kg)										
Selenium	0.42521	J	(0.503268)	0.554382		(0.500271)	NA		NA	
SW7841 - Thallium (mg/kg)										
Thallium	0.103735	J	(0.410831)	0.173564	J	(0.408385)	NA		NA	
SW846 - Percent Moisture (%)										
Percent moisture (metals)	97.8		(NA)	97.9		(NA)	NA		NA	
Percent moisture (organics)	98.43		(NA)	NA			93.98	(NA)	87.2	(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLDMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID E E-01 9303-BE-01-01		DT DT-02 9303-FDT-01-01		DT DT-02 9303-FDT-01-01.1		DT DT-02 9303-FDT-01-01.2	
E249.2 - Nickel (mg/kg)								
Nickel	0.552723	(0.171779)	ND	(0.178093)	ND	(0.177834)	ND	(0.174418)
E272.2 - Silver (mg/kg)								
Silver	2.966719	(0.035366)	0.247234	(0.036666)	0.244783	(0.036613)	0.274965	(0.03591)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	9.531698	(0.020209)	8.425875	(0.020952)	8.29228	(0.020922)	6.595054	(0.02052)
Manganese	37.84184	(2.020926)	19.034955	(2.095207)	17.613902	(2.092161)	18.022513	(2.051977)
SW7040 - Antimony (mg/kg)								
Antimony	0.098015 J	(0.303139)	ND	(0.314281)	0.098332 J	(0.313824)	ND	(0.307797)
SW7060 - Arsenic (mg/kg)								
Arsenic	0.32739	(0.171779)	0.00419 J	(0.178093)	ND	(0.177834)	0.133378 J	(0.174418)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.053555	(0.008084)	0.013619	(0.008381)	0.016737	(0.008369)	0.01539	(0.008208)
SW7191 - Chromium (mg/kg)								
Chromium	0.627498	(0.121256)	0.02619 J	(0.125712)	ND	(0.12553)	0.057455 J	(0.123119)
SW7421 - Lead (mg/kg)								
Lead	0.394081	(0.121256)	0.047142 J	(0.125712)	0.036613 J	(0.12553)	0.050273 J	(0.123119)
SW7450 - Magnesium (mg/kg)								
Magnesium	3212.7987	(0.303139)	2379.2056	(0.314281)	1700.5345	(0.313824)	2550.8637	(0.307797)
SW7471 - Mercury (mg/kg)								
Mercury	0.043645	(0.075305)	0.102961	(0.032898)	0.095698	(0.028018)		(0.034712)
SW7740 - Selenium (mg/kg)								
Selenium	1.198409	(0.495127)	2.639961	(0.513326)	2.840108	(0.512579)	2.249993	(0.502734)
SW7841 - Thallium (mg/kg)								
Thallium	0.023241 J	(0.404185)	ND	(0.419041)	0.161096 J	(0.418432)	0.111833 J	(0.410395)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	89.8	(NA)	21.8	(NA)	21.8	(NA)	21.8	(NA)
Percent moisture (organics)	93.55	(NA)	NA		NA		NA	

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGODNS AND LAKES INVESTIGATION.

	SITE ID							
	LOCATION ID							
	SAMPLE ID							
PARAMETER	DT DT-03 9303-FDT-02-01		DT DT-04 9303-FDT-03-01		G G-01 9303-FG-01-01		LH LH-01 9303-FLH-01-01	
E249.2 - Nickel (mg/kg)								
Nickel	0.02622 J	(0.171435)	0.264083	(0.180297)	ND	(0.18308)	ND	(0.172456)
E272.2 - Silver (mg/kg)								
Silver	0.677674	(0.035296)	0.413623	(0.03712)	0.22185	(0.037693)	0.111589	(0.035506)
SOP-9202 - Metals By DCP (mg/kg)								
Barium	5.989144	(0.020169)	5.411041	(0.021211)	8.73939	(0.021539)	4.932235	(0.020289)
Manganese	51.766411	(2.016886)	69.051754	(2.121145)	22.561949	(2.153885)	19.903425	(2.028891)
SW7040 - Antimony (mg/kg)								
Antimony	ND	(0.302533)	ND	(0.318172)	ND	(0.323083)	ND	(0.304334)
SW7060 - Arsenic (mg/kg)								
Arsenic	1.01046	(0.171435)	0.721189	(0.180297)	0.112002 J	(0.18308)	0.20086	(0.172456)
SW7131 - Cadmium (mg/kg)								
Cadmium	0.083701	(0.008068)	0.096512	(0.008485)	0.007539	(0.008616)	0.012173	(0.008116)
SW7191 - Chromium (mg/kg)								
Chromium	0.277322	(0.121013)	0.356352	(0.127269)	0.045232 J	(0.129233)	0.077098 J	(0.121733)
SW7421 - Lead (mg/kg)								
Lead	0.362031	(0.121013)	0.411502	(0.127269)	0.032308 J	(0.129233)	0.049708 J	(0.121733)
SW7450 - Magnesium (mg/kg)								
Magnesium	3134.0521	(0.302533)	2966.4544	(0.318172)	2394.3464	(0.323083)	2255.3981	(0.304334)
SW7471 - Mercury (mg/kg)								
Mercury	0.904195	(0.033915)	0.181158	(0.031895)	0.028441 J	(0.035052)	0.100387	(0.032075)
SW7740 - Selenium (mg/kg)								
Selenium	0.431614 J	(0.494137)	2.75961	(0.519681)	2.181886	(0.527702)	1.495293	(0.497078)
SW7841 - Thallium (mg/kg)								
Thallium	0.129081 J	(0.403377)	0.041362 J	(0.424229)	0.005385 J	(0.430777)	ND	(0.405778)
SW846 - Percent Moisture (%)								
Percent moisture (metals)	21	(NA)	22.1	(NA)	22.3	(NA)	18.3	(NA)
Percent moisture (organics)	77.48	(NA)	75.81	(NA)	78.02	(NA)	80.67	(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID LH LH-02 9303-FLH-02-01			LH LH-03 9303-FLH-03-01			LH LH-03 9303-FLH-03-02			LS LS-01 Dup of 9303-FLH-03-01 9303-GLS-01-01		
E249.2 - Nickel (mg/kg)												
Nickel	ND		(0.166391)	0.146351	J	(0.168106)	ND		(0.178429)	0.644878		(0.172644)
E272.2 - Silver (mg/kg)												
Silver	0.140943		(0.034257)	0.110752		(0.03461)	0.111256		(0.036735)	0.05484		(0.035544)
SOP-9202 - Metals By DCP (mg/kg)												
Barium	6.027284		(0.019575)	5.376432		(0.019777)	5.153451		(0.020992)	4.115032		(0.020311)
Manganese	18.63388		(1.957546)	20.362607		(1.97772)	18.844209		(2.099166)	154.46604		(2.031112)
SW7040 - Antimony (mg/kg)												
Antimony	ND		(0.293632)	ND		(0.296658)	0.018892	J	(0.314875)	0.736278		(0.304667)
SW7060 - Arsenic (mg/kg)												
Arsenic	0.029363	J	(0.166391)	0.041532	J	(0.168106)	0.130148		(0.178429)	3.111663		(0.172644)
SW7131 - Cadmium (mg/kg)												
Cadmium	0.008809		(0.00783)	0.013844		(0.007911)	0.011545		(0.008397)	0.086322		(0.008124)
SW7191 - Chromium (mg/kg)												
Chromium	0.153667		(0.117453)	0.046476	J	(0.118663)	0.040934	J	(0.12595)	0.376771		(0.121867)
SW7421 - Lead (mg/kg)												
Lead	0.031321	J	(0.117453)	0.035599	J	(0.118663)	0.054578	J	(0.12595)	0.448876		(0.121867)
SW7450 - Magnesium (mg/kg)												
Magnesium	2386.6767		(0.293632)	2434.9134		(0.296658)	2433.8840		(0.314875)	21073.418		(0.304667)
SW7471 - Mercury (mg/kg)												
Mercury	0.064083		(0.034553)	0.051311		(0.034051)	0.065109		(0.035106)	0.038905		(0.033564)
SW7740 - Selenium (mg/kg)												
Selenium	1.815624		(0.479599)	1.746327		(0.484541)	1.619506		(0.514296)	0.066011		(0.497622)
SW7841 - Thallium (mg/kg)												
Thallium	ND		(0.391509)	ND		(0.395544)	0.019942	J	(0.419833)	0.047731	J	(0.406222)
SW846 - Percent Moisture (%)												
Percent moisture (metals)	19.8		(NA)	20.7		(NA)	20		(NA)	93.2		(NA)
Percent moisture (organics)			NA	77.5		(NA)	79.82		(NA)	88		(NA)

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TABLE A4 RESULTS OF INORGANIC ANALYSES FOR BIOTA SAMPLES, LABORATORY REPLICATE ANALYSES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION.

PARAMETER	SITE ID LOCATION ID SAMPLE ID DT DT-01 9303-IDT-01-01				SITE ID LOCATION ID SAMPLE ID LS LS-01 9303-NLS-01-01		
E249.2 - Nickel (mg/kg)							
Nickel	0.255504		(0.175853)		0.295638		(0.168653)
E272.2 - Silver (mg/kg)							
Silver	0.858575		(0.036205)		0.138891		(0.034723)
SOP-9202 - Metals By DCP (mg/kg)							
Barium	0.9765		(0.020689)		4.043698		(0.019842)
Manganese	28.481948		(2.068857)		130.55709		(1.98415)
SW7040 - Antimony (mg/kg)							
Antimony	0.080685	J	(0.310328)		0.086311	J	(0.297623)
SW7060 - Arsenic (mg/kg)							
Arsenic	0.531696		(0.175853)		5.06752		(0.168653)
SW7131 - Cadmium (mg/kg)							
Cadmium	0.104477		(0.008275)		0.347226		(0.007937)
SW7191 - Chromium (mg/kg)							
Chromium	0.187232		(0.124131)		0.243058		(0.119049)
SW7421 - Lead (mg/kg)							
Lead	0.058962	J	(0.124131)		0.237106		(0.119049)
SW7450 - Magnesium (mg/kg)							
Magnesium	1829.9682		(0.310328)		10957.160		(0.297623)
SW7471 - Mercury (mg/kg)							
Mercury	0.071802		(0.034413)		0.061166		(0.035178)
SW7740 - Selenium (mg/kg)							
Selenium	1.825766		(0.50687)		2.00796		(0.486117)
SW7841 - Thallium (mg/kg)							
Thallium	0.016551	J	(0.413771)		0.082342	J	(0.39683)
SW846 - Percent Moisture (%)							
Percent moisture (metals)	80.3		(NA)		92.9		(NA)
Percent moisture (organics)	77.87		(NA)		90.53		(NA)

Compiled: 29 September 1993 () = Reporting Limit ND = Not Detected NA = Not Applicable * - Value considered suspect, Refer to QC Report

ATTACHMENT B

Quality Control Sample Results Tables

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : E249.2 - Nickel
Analyte : Nickel

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 May 1993	METHD-BLK-T	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-R	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-B	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-G	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-L	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-M	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-A	TRACE_015	0	0.170	mg/kg	
14 May 1993	METHD-BLK-L2	TRACE_015	0.0155	0.170	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.016
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.17

Method : E272.2 - Silver
Analyte : Silver

Type of Blank : Method Blank

23 May 1993	METHD-BLK-R	TRACE_017	0.001	0.035	mg/kg	
23 May 1993	METHD-BLK-G	TRACE_017	0.0012	0.035	mg/kg	
23 May 1993	METHD-BLK-B	TRACE_017	0.0006	0.035	mg/kg	
23 May 1993	METHD-BLK-M	TRACE_017	0	0.035	mg/kg	
23 May 1993	METHD-BLK-L2	TRACE_017	0.0026	0.035	mg/kg	
23 May 1993	METHD-BLK-T	TRACE_017	0.0008	0.035	mg/kg	
23 May 1993	METHD-BLK-L	TRACE_017	0.0012	0.035	mg/kg	
23 May 1993	METHD-BLK-A	TRACE_017	0.0012	0.035	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.0026
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.035

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDD

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.112	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.111	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.151	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.114	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.109	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.109	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.151

Compiled: 29 September 1993 ND = Not Detected NC = Not Calculable NA = Not Applicable

* - Value considered suspect, Refer to QC Report () = Data Flag

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDD

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.115	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.115	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.115	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.115	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.115	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.115	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.115

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDE

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.051	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.051	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.069	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.052	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.050	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.050	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.069

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDE

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.053	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.053	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.053	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0226 (J)	0.053	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.053	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.053	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.023 - 0.023
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.053

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDT

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.081	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.081	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.110	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.083	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.080	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.080	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.11

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 2,4'-DDT

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.084	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.084	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.084	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.084	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.084	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.084	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.084

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDD

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.067	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.066	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.090	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.068	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.065	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.065	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.09

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDD

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.069	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.069	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.069	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.069	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.069	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.069	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.069

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDE

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.132	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.131	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.178	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.134	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.129	ng/g	
2 July 1993	SAND BLANK	M690	0.0248 (J)	0.129	ng/g	

Total Number of Blanks = 6 Concentration Range 0.025 - 0.025
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.178

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDE

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.136	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.136	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.136	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.136	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.136	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.136	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.136

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDT

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.066	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.066	ng/g	
4 June 1993	SAND BLANK	M680	0.0252 (J)	0.089	ng/g	
4 June 1993	SAND 8LANK	M680	0.0113 (J)	0.067	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.064	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.064	ng/g	

Total Number of Blanks = 6 Concentration Range 0.011 - 0.025
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.089

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : 4,4'-DDT

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.068	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.068	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.068	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.068	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.068	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.068	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.068

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Aldrin

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.085	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.085	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.087	ng/g	
4 June 1993	SANO BLANK	M680	ND	0.115	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.084	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.084	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.115

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Aldrin

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.088	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.088	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.088	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.088	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.088	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.088	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.088

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Dieldrin

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.115	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.115	ng/g	
4 June 1993	SAND BLANK	M680	0.04 (J)	0.117	ng/g	
4 June 1993	SAND BLANK	M680	0.3756	0.156	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.113	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.113	ng/g	

Total Number of Blanks = 6 Concentration Range 0.040 - 0.38
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.156

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Dieldrin

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.119	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0783 (J)	0.119	ng/mL	
4 June 1993	PROC. BLANK	M680	0.1762	0.119	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0922 (J)	0.119	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.119	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0:119	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.078 - 0.18
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.119

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Endrin

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.085	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.085	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.086	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.114	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.083	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.083	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.114

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Endrin

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.087	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.087	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.087	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0092 (J)	0.087	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.087	ng/mL	
2 July 1993	PROC. BLANK	M690	0.0356 (J)	0.087	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.0092 - 0.036
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.087

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : HCB

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.093	ng/g	
26 May 1993	SAND BLANK	M660	0.0088 (J)	0.093	ng/g	
4 June 1993	SAND BLANK	M680	0.0264 (J)	0.095	ng/g	
4 June 1993	SAND BLANK	M680	0.0277 (J)	0.126	ng/g	
2 July 1993	SAND BLANK	M690	0.0148 (J)	0.091	ng/g	
2 July 1993	SAND BLANK	M690	0.0401 (J)	0.091	ng/g	

Total Number of Blanks = 6 Concentration Range 0.0088 - 0.040
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.126

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : HCB

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.0077 (J)	0.096	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0077 (J)	0.096	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0137 (J)	0.096	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0057 (J)	0.096	ng/mL	
2 July 1993	PROC. BLANK	M690	0.0244 (J)	0.096	ng/mL	
2 July 1993	PROC. BLANK	M690	0.0266 (J)	0.096	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.0057 - 0.027
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.096

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Heptachlor

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.090	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.089	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.121	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.091	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.088	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.088	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.121

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Heptachlor

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.092	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.092	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.092	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.092	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.092	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.092	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.092

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : Heptachlor epoxide						
Type of Blank : Method Blank						
21 May 1993	SAND BLANK	M661	ND	0.100	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.099	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.135	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.101	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.098	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.098	ng/g	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.135			
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : Heptachlor epoxide						
Type of Blank : Reagent Blank						
21 May 1993	PROC. BLANK	M661	ND	0.103	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.103	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0151 (J)	0.103	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0108 (J)	0.103	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.103	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.103	ng/mL	
Total Number of Blanks = 6			Concentration Range 0.011 - 0.015			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.103			
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : Mirex						
Type of Blank : Method Blank						
21 May 1993	SAND BLANK	M661	ND	0.094	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.094	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.127	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.096	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.092	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.092	ng/g	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.127			

Compiled: 29 September 1993 ND = Not Detected NC = Not Calculable NA = Not Applicable

* - Value considered suspect, Refer to QC Report () = Data Flag

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Mirex

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.097	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.097	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.097	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.097	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.097	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.097	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.097

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Oxychlordane

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.124	ng/g	
26 May 1993	SAND BLANK	M660	0.0101 (J)	0.124	ng/g	
4 June 1993	SAND BLANK	M680	0.0222 (J)	0.167	ng/g	
4 June 1993	SAND BLANK	M680	0.0379 (J)	0.126	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.121	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.121	ng/g	

Total Number of Blanks = 6 Concentration Range 0.010 - 0.038
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.167

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Oxychlordane

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.128	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.128	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.128	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.128	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.128	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.128	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.128

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total BHCs

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	0.0493 (J)	0.121	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.120	ng/g	
4 June 1993	SAND BLANK	M680	0.1031 (J)	0.163	ng/g	
4 June 1993	SAND BLANK	M680	0.0497 (J)	0.123	ng/g	
2 July 1993	SAND BLANK	M690	0.0401 (J)	0.118	ng/g	
2 July 1993	SAND BLANK	M690	0.0148 (J)	0.118	ng/g	

Total Number of Blanks = 6 Concentration Range 0.015 - 0.10
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.163

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total BHCs

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	0.0183 (J)	0.124	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0199 (J)	0.124	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0161 (J)	0.124	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0957 (J)	0.124	ng/mL	
2 July 1993	PROC. BLANK	M690	0.0244 (J)	0.124	ng/mL	
2 July 1993	PROC. BLANK	M690	0.0266 (J)	0.124	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.016 - 0.096
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.124

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Chlordanes

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.124	ng/g	
26 May 1993	SAND BLANK	M660	0.0101 (J)	0.124	ng/g	
4 June 1993	SAND BLANK	M680	0.048 (J)	0.126	ng/g	
4 June 1993	SAND BLANK	M680	0.0278 (J)	0.167	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.121	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.121	ng/g	

Total Number of Blanks = 6 Concentration Range 0.010 - 0.048
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.167

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Chlordanes

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.128	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.128	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0151 (J)	0.128	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0165 (J)	0.128	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.128	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.128	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.015 - 0.017
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.128

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total DDTs

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.085	ng/g	
26 May 1993	SAND BLANK	M660	0	0.084	ng/g	
4 June 1993	SAND BLANK	M680	0.0113 (J)	0.086	ng/g	
4 June 1993	SAND BLANK	M680	0.0286 (J)	0.114	ng/g	
2 July 1993	SAND BLANK	M690	0.0248 (J)	0.083	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.083	ng/g	

Total Number of Blanks = 6 Concentration Range 0.00 - 0.029
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.114

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total DDTs

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.087	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.087	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0226 (J)	0.087	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.087	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.087	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.087	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.023 - 0.023
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.087

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Decachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.102	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.102	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.104	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.138	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.100	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.100	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.138

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Decachlorobiphenyls

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.105	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.105	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.105	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.105	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.105	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.105	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.105

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Dichlorobiphenyls

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.146	ng/g	
26 May 1993	SAND BLANK	M660	0.2217	0.146	ng/g	
4 June 1993	SAND BLANK	M680	0.3247	0.149	ng/g	
4 June 1993	SAND BLANK	M680	0.2302	0.197	ng/g	
2 July 1993	SAND BLANK	M690	0.7063	0.143	ng/g	
2 July 1993	SAND BLANK	M690	0.3304	0.143	ng/g	

Total Number of Blanks = 6 Concentration Range 0.22 - 0.71
Total Number above Detection Limit = 5 Maximum Detection Limit = 0.197

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Dichlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.151	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.151	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.151	ng/mL	
4 June 1993	PROC. BLANK	M680	0.013 (J)	0.151	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.151	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.151	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.013 - 0.013
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.151

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Heptachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.062	ng/g	
26 May 1993	SAND BLANK	M660	0.0116 (J)	0.062	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.063	ng/g	
4 June 1993	SAND BLANK	M680	0.0557 (J)	0.084	ng/g	
2 July 1993	SAND BLANK	M690	0.0795	0.061	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.061	ng/g	

Total Number of Blanks = 6 Concentration Range 0.012 - 0.080
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.084

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Heptachlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.064	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.064	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.064	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.064	ng/mL	
2 July 1993	PROC. BLANK	M690	0.016 (J)	0.064	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.064	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.016 - 0.016
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.064

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Hexachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	0.1173	0.069	ng/g	
26 May 1993	SAND BLANK	M660	0.1027	0.069	ng/g	
4 June 1993	SAND BLANK	M680	0.2283	0.071	ng/g	
4 June 1993	SAND BLANK	M680	0.2327	0.094	ng/g	
2 July 1993	SAND BLANK	M690	3.9013	0.068	ng/g	
2 July 1993	SAND BLANK	M690	0.1071	0.068	ng/g	

Total Number of Blanks = 6 Concentration Range 0.10 - 3.9
Total Number above Detection Limit = 6 Maximum Detection Limit = 0.094

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Hexachlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.1171	0.072	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0672 (J)	0.072	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.072	ng/mL	
4 June 1993	PROC. BLANK	M680	0.2579	0.072	ng/mL	
2 July 1993	PROC. BLANK	M690	0.1112	0.072	ng/mL	
2 July 1993	PROC. BLANK	M690	0.2851	0.072	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.067 - 0.29
Total Number above Detection Limit = 4 Maximum Detection Limit = 0.072

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Nonachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.103	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.102	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.139	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.105	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.101	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.101	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.139

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Nonachlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.106	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.106	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.106	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.106	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.106	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.106	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.106

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Octachlorobiphenyls

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.154	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.154	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.208	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.157	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.151	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.151	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.208

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Octachlorobiphenyls

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.159	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.159	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.159	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0059 (J)	0.159	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.159	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.159	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.0059 - 0.0059
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.159

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total PCBs

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	0.2599	0.116	ng/g	
26 May 1993	SAND BLANK	M660	0.4219	0.116	ng/g	
4 June 1993	SAND BLANK	M680	0.6571	0.118	ng/g	
4 June 1993	SAND BLANK	M680	0.7071	0.157	ng/g	
2 July 1993	SAND BLANK	M690	4.7472	0.114	ng/g	
2 July 1993	SAND BLANK	M690	0.4425	0.114	ng/g	

Total Number of Blanks = 6 Concentration Range 0.26 - 4.7
Total Number above Detection Limit = 6 Maximum Detection Limit = 0.157

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total PCBs

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.1995	0.120	ng/mL	
26 May 1993	PROC. BLANK	M660	0.1654	0.120	ng/mL	
4 June 1993	PROC. BLANK	M680	0.1303	0.120	ng/mL	
4 June 1993	PROC. BLANK	M680	0.5277	0.120	ng/mL	
2 July 1993	PROC. BLANK	M690	0.3011	0.120	ng/mL	
2 July 1993	PROC. BLANK	M690	0.1112 (J)	0.120	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.11 - 0.53
Total Number above Detection Limit = 5 Maximum Detection Limit = 0.12

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Pentachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.089	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.089	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.120	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.090	ng/g	
2 July 1993	SAND BLANK	M690	0.057 (J)	0.087	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.087	ng/g	

Total Number of Blanks = 6 Concentration Range 0.057 - 0.057
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.12

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Pentachlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.092	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.092	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.092	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0272 (J)	0.092	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.092	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.092	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.027 - 0.027
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.092

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Tetrachlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.042	ng/g	
26 May 1993	SAND BLANK	M660	0.0755	0.041	ng/g	
4 June 1993	SAND BLANK	M680	0.1884	0.056	ng/g	
4 June 1993	SAND BLANK	M680	0.0568	0.042	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.041	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.041	ng/g	

Total Number of Blanks = 6 Concentration Range 0.057 - 0.19
Total Number above Detection Limit = 3 Maximum Detection Limit = 0.056

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Tetrachlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.0669	0.043	ng/mL *	
26 May 1993	PROC. BLANK	M660	0.052	0.043	ng/mL	
4 June 1993	PROC. BLANK	M680	0.1809	0.043	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0402 (J)	0.043	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.043	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.043	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.040 - 0.18
Total Number above Detection Limit = 3 Maximum Detection Limit = 0.043

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Trichlorobiphenyls

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	0.1426	0.091	ng/g	
26 May 1993	SAND BLANK	M660	0.0103 (J)	0.090	ng/g	
4 June 1993	SAND BLANK	M680	0.0472 (J)	0.092	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.122	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.089	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.089	ng/g	

Total Number of Blanks = 6 Concentration Range 0.010 - 0.14
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.122

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Total Trichlorobiphenyls

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.0154 (J)	0.093	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0423 (J)	0.093	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0901 (J)	0.093	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0426 (J)	0.093	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.093	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.093	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.015 - 0.090
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.093

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Toxaphene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.287	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.286	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.387	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.292	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.281	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.281	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.387

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : Toxaphene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.296	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.296	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.296	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.296	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.296	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.296	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.296

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : alpha-BHC

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.091	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.090	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.122	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.092	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.089	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.089	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.122

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : alpha-BHC

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.093	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.093	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.093	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0745 (J)	0.093	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.093	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.093	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.075 - 0.075
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.093

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : alpha-Chlordane

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.131	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.131	ng/g	
4 June 1993	SAND BLANK	M680	0.0101 (J)	0.133	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.177	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.128	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.128	ng/g	

Total Number of Blanks = 6 Concentration Range 0.010 - 0.010
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.177

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : alpha-Chlordane

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.135	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.135	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0056 (J)	0.135	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.135	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.135	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.135	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.0056 - 0.0056
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.135

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : beta-BHC

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	0.0493 (J)	0.237	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.236	ng/g	
4 June 1993	SAND BLANK	M680	0.1031 (J)	0.320	ng/g	
4 June 1993	SAND BLANK	M680	0.0497 (J)	0.241	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.232	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.232	ng/g	

Total Number of Blanks = 6 Concentration Range 0.049 - 0.10
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.32

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : beta-BHC

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.244	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0095 (J)	0.244	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0211 (J)	0.244	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.244	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.244	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.244	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.0095 - 0.021
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.244

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : cis-Nonachlor

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.037	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.037	ng/g	
4 June 1993	SAND BLANK	M680	0.0056 (J)	0.051	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.038	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.037	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.037	ng/g	

Total Number of Blanks = 6 Concentration Range 0.0056 - 0.0056
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.051

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : cis-Nonachlor

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	ND	0.039	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.039	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.039	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.039	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.039	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.039	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.039

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : delta-BHC						
Type of Blank : Method Blank						
21 May 1993	SAND BLANK	M661	ND	0.097	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.097	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.099	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.131	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.095	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.095	ng/g	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.131			
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : delta-BHC						
Type of Blank : Reagent Blank						
21 May 1993	PROC. BLANK	M661	ND	0.100	ng/mL	
26 May 1993	PROC. BLANK	M660	0.0104 (J)	0.100	ng/mL	
4 June 1993	PROC. BLANK	M680	0.0161 (J)	0.100	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.100	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.100	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.100	ng/mL	
Total Number of Blanks = 6			Concentration Range 0.010 - 0.016			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.1			
Method : SOP-9017 - Chlorinated Pesticides and PCBs						
Analyte : gamma-BHC						
Type of Blank : Method Blank						
21 May 1993	SAND BLANK	M661	ND	0.057	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.057	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.077	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.058	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.056	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.056	ng/g	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.077			

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : gamma-BHC

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	PROC. BLANK	M661	0.0183 (J)	0.059	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.059	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.059	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.059	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.059	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.059	ng/mL	

Total Number of Blanks = 6 Concentration Range 0.018 - 0.018
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.059

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : gamma-Chlordane

Type of Blank : Method Blank

21 May 1993	SAND BLANK	M661	ND	0.062	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.062	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.084	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.063	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.061	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.061	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.084

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : gamma-Chlordane

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.064	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.064	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.064	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.064	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.064	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.064	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.064

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : trans-Nonachlor

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
21 May 1993	SAND BLANK	M661	ND	0.325	ng/g	
26 May 1993	SAND BLANK	M660	ND	0.323	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.330	ng/g	
4 June 1993	SAND BLANK	M680	ND	0.437	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.318	ng/g	
2 July 1993	SAND BLANK	M690	ND	0.318	ng/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.437

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Analyte : trans-Nonachlor

Type of Blank : Reagent Blank

21 May 1993	PROC. BLANK	M661	ND	0.334	ng/mL	
26 May 1993	PROC. BLANK	M660	ND	0.334	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.334	ng/mL	
4 June 1993	PROC. BLANK	M680	ND	0.334	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.334	ng/mL	
2 July 1993	PROC. BLANK	M690	ND	0.334	ng/mL	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.334

Method : SOP-9202 - Metals By DCP
Analyte : Barium

Type of Blank : Method Blank

19 May 1993	METHD-BLK-R	TRACE_006	0.0353	0.020	mg/kg	
19 May 1993	METHD-BLK-M	TRACE_006	0.0082	0.020	mg/kg	
19 May 1993	METHD-BLK-G	TRACE_006	0.0062	0.020	mg/kg	
19 May 1993	METHD-BLK-B	TRACE_006	0.0145	0.020	mg/kg	
19 May 1993	METHD-BLK-L	TRACE_006	0.0146	0.020	mg/kg	
19 May 1993	METHD-BLK-A	TRACE_006	0.0227	0.020	mg/kg	
19 May 1993	METHD-BLK-L2	TRACE_006	0.0142	0.020	mg/kg	
19 May 1993	METHD-BLK-T	TRACE_006	0.0277	0.020	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.0062 - 0.035
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.02

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9202 - Metals By DCP
Analyte : Manganese

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
13 May 1993	METHD-BLK-B	TRACE_011	0.069	2.000	mg/kg	
13 May 1993	METHD-BLK-M	TRACE_011	0.0026	2.000	mg/kg	
13 May 1993	METHD-BLK-G	TRACE_011	0.0873	2.000	mg/kg	
13 May 1993	METHD-BLK-L2	TRACE_011	0.004	2.000	mg/kg	
13 May 1993	METHD-BLK-R	TRACE_011	0	2.000	mg/kg	
13 May 1993	METHD-BLK-L	TRACE_011	0.0314	2.000	mg/kg	
13 May 1993	METHD-BLK-A	TRACE_011	0.1358	2.000	mg/kg	
13 May 1993	METHD-BLK-T	TRACE_011	-0.0021	2.000	mg/kg	

Total Number of Blanks = 8 Concentration Range -0.0021 - 0.14
Total Number above Detection Limit = 0 Maximum Detection Limit = 2

Method : SW7040 - Antimony
Analyte : Antimony

Type of Blank : Method Blank

18 May 1993	METHD-BLK-A	TRACE_001	0	0.300	mg/kg	
18 May 1993	METHD-BLK-B	TRACE_001	0.0053	0.300	mg/kg	
19 May 1993	METHD-BLK-T	TRACE_002	0.0166	0.300	mg/kg	
19 May 1993	METHD-BLK-R	TRACE_002	0.0146	0.300	mg/kg	
19 May 1993	METHD-BLK-L2	TRACE_002	0.0087	0.300	mg/kg	
19 May 1993	METHD-BLK-M	TRACE_002	0.0193	0.300	mg/kg	
19 May 1993	METHD-BLK-G	TRACE_002	0.0122	0.300	mg/kg	
19 May 1993	METHD-BLK-L	TRACE_002	0.0165	0.300	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.019
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.3

Method : SW7060 - Arsenic
Analyte : Arsenic

Type of Blank : Method Blank

18 May 1993	METHD-BLK-A	TRACE_003	0.0128	0.170	mg/kg	
18 May 1993	METHD-BLK-G	TRACE_003	0.0182	0.170	mg/kg	
18 May 1993	METHD-BLK-B	TRACE_003	0	0.170	mg/kg	
19 May 1993	METHD-BLK-L2	TRACE_004	0	0.170	mg/kg	
19 May 1993	METHD-BLK-R	TRACE_004	0	0.170	mg/kg	
19 May 1993	METHD-BLK-T	TRACE_004	0	0.170	mg/kg	
24 May 1993	METHD-BLK-M	TRACE_005	0.0228	0.170	mg/kg	
24 May 1993	METHD-BLK-L	TRACE_005	0.0042	0.170	mg/kg	

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7060 - Arsenic
Analyte : Arsenic, continued

Total Number of Blanks = 8 Concentration Range 0.00 - 0.023
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.17

Method : SW7131 - Cadmium
Analyte : Cadmium

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
13 May 1993	METHD-BLK-G	TRACE_007	0.0004	0.008	mg/kg	
13 May 1993	METHD-BLK-A	TRACE_007	0.0002	0.008	mg/kg	
13 May 1993	METHD-BLK-T	TRACE_007	0.0006	0.008	mg/kg	
13 May 1993	METHD-BLK-M	TRACE_007	0.0002	0.008	mg/kg	
13 May 1993	METHD-BLK-R	TRACE_007	0.0001	0.008	mg/kg	
13 May 1993	METHD-BLK-L	TRACE_007	0	0.008	mg/kg	
13 May 1993	METHD-BLK-L2	TRACE_007	0	0.008	mg/kg	
13 May 1993	METHD-BLK-B	TRACE_007	0	0.008	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.00060
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.008

Method : SW7191 - Chromium
Analyte : Chromium

Type of Blank : Method Blank

17 May 1993	METHD-BLK-B	TRACE_008	0	0.120	mg/kg	
17 May 1993	METHD-BLK-M	TRACE_008	0.0074	0.120	mg/kg	
17 May 1993	METHD-BLK-L	TRACE_008	0.0075	0.120	mg/kg	
17 May 1993	METHD-BLK-L2	TRACE_008	0	0.120	mg/kg	
17 May 1993	METHD-BLK-G	TRACE_008	0	0.120	mg/kg	
17 May 1993	METHD-BLK-R	TRACE_008	0.0052	0.120	mg/kg	
17 May 1993	METHD-BLK-T	TRACE_008	0.0074	0.120	mg/kg	
17 May 1993	METHD-BLK-A	TRACE_008	0	0.120	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.0075
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.12

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7421 - Lead
Analyte : Lead

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
13 May 1993	METHD-BLK-G	TRACE_009	0.0006	0.120	mg/kg	
13 May 1993	METHD-BLK-R	TRACE_009	0.0028	0.120	mg/kg	
13 May 1993	METHD-BLK-L2	TRACE_009	0	0.120	mg/kg	
13 May 1993	METHD-BLK-T	TRACE_009	0.0029	0.120	mg/kg	
13 May 1993	METHD-BLK-L	TRACE_009	0.0079	0.120	mg/kg	
13 May 1993	METHD-BLK-M	TRACE_009	0.0008	0.120	mg/kg	
13 May 1993	METHD-BLK-A	TRACE_009	0.0016	0.120	mg/kg	
13 May 1993	METHD-BLK-B	TRACE_009	0.0008	0.120	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.0079
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.12

Method : SW7450 - Magnesium
Analyte : Magnesium

Type of Blank : Method Blank

14 May 1993	METHD-BLK-A	TRACE_010	0.1941	0.300	mg/kg	
14 May 1993	METHD-BLK-G	TRACE_010	0.0972	0.300	mg/kg	
14 May 1993	METHD-BLK-T	TRACE_010	0	0.300	mg/kg	
14 May 1993	METHD-BLK-R	TRACE_010	0	0.300	mg/kg	
14 May 1993	METHD-BLK-M	TRACE_010	0.0321	0.300	mg/kg	
14 May 1993	METHD-BLK-L2	TRACE_010	0.0318	0.300	mg/kg	
14 May 1993	METHD-BLK-L	TRACE_010	0.1638	0.300	mg/kg	
14 May 1993	METHD-BLK-B	TRACE_010	0.0972	0.300	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.19
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.3

Method : SW7471 - Mercury
Analyte : Mercury

Type of Blank : Method Blank

27 April 1993	METHD-BLK-B	TRACE_013	0.0041	0.030	mg/kg	
27 April 1993	METHD-BLK-A	TRACE_013	0	0.030	mg/kg	
27 April 1993	METHD-BLK-G	TRACE_013	0.0008	0.030	mg/kg	
29 April 1993	METHD-BLK-L	TRACE_014	0.0086	0.030	mg/kg	
29 April 1993	METHD-BLK-T	TRACE_014	0	0.030	mg/kg	
29 April 1993	METHD-BLK-M	TRACE_014	0	0.030	mg/kg	

Total Number of Blanks = 6 Concentration Range 0.00 - 0.0086
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.03

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7740 - Selenium
Analyte : Selenium

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
24 May 1993	METHD-BLK-L	TRACE_016	0	0.500	mg/kg	
24 May 1993	METHD-BLK-B	TRACE_016	0.0342	0.500	mg/kg	
24 May 1993	METHD-BLK-T	TRACE_016	0	0.500	mg/kg	
24 May 1993	METHD-BLK-R	TRACE_016	0.0058	0.500	mg/kg	
24 May 1993	METHD-BLK-A	TRACE_016	0.0184	0.500	mg/kg	
24 May 1993	METHD-BLK-L2	TRACE_016	0	0.500	mg/kg	
24 May 1993	METHD-BLK-M	TRACE_D16	0	0.500	mg/kg	
24 May 1993	METHD-BLK-G	TRACE_016	0	0.500	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.034
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.5

Method : SW7841 - Thallium
Analyte : Thallium

Type of Blank : Method Blank

17 May 1993	METHD-BLK-G	TRACE_018	0	0.400	mg/kg	
17 May 1993	METHD-BLK-M	TRACE_018	0.0002	0.400	mg/kg	
17 May 1993	METHD-BLK-L	TRACE_018	0.0002	0.400	mg/kg	
17 May 1993	METHD-BLK-B	TRACE_018	0.013	0.400	mg/kg	
17 May 1993	METHD-BLK-A	TRACE_018	0.0196	0.400	mg/kg	
18 May 1993	METHD-BLK-T	TRACE_019	0.0198	0.400	mg/kg	
18 May 1993	METHD-BLK-R	TRACE_019	0.0077	0.400	mg/kg	
18 May 1993	METHD-BLK-L2	TRACE_019	0.0102	0.400	mg/kg	

Total Number of Blanks = 8 Concentration Range 0.00 - 0.020
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.4

Method : SW8270 - Semivolatile Organics
Analyte : 1,2,4,5-Tetrachlorobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M6B9	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1,2,4,5-Tetrachlorobenzene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 1,2,4-Trichlorobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1,2,4-Trichlorobenzene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1,2-Dichlorobenzene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1,2-Dichlorobenzene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 1,3-Dichlorobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1,3-Dichlorobenzene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 1,3-Dinitrobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1,3-Dinitrobenzene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Dichlorobenzene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Dichlorobenzene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Naphthoquinone

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Naphthoquinone

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Phenylenediamine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1,4-Phenylenediamine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 1-Naphthylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 1-Naphthylamine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2,3,4,6-Tetrachlorophenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,3,4,6-Tetrachlorophenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2,4,5-Trichlorophenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. 8LANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2,4,5-Trichlorophenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,4,6-Trichlorophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2,4,6-Trichlorophenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dichlorophenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dichlorophenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dimethylphenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dimethylphenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dinitrophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	100.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	100.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	100.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	100.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	100.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	100.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 100

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dinitrophenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	99.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	96.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	99.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	114.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	117.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	96.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 117

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dinitrotoluene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,4-Dinitrotoluene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2,6-Dichlorophenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2,6-Dichlorophenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2,6-Dinitrotoluene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2,6-Dinitrotoluene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Acetylaminofluorene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Acetylaminofluorene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Chloronaphthalene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Chloronaphthalene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Chlorophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Chlorophenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Methylnaphthalene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Methylnaphthalene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Methylphenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Methylphenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	NO	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	NO	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Naphthylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Naphthylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Nitroaniline

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Nitroaniline

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 2-Nitrophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Nitrophenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 2-Picoline

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 2-Picoline

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 3,3-Dichlorobenzidine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 3,3-Dichlorobenzidine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 3,3-Dimethoxybenzidine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 3,3-Dimethoxybenzidine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 3-Methylchloroanthrene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 3-Methylchloroanthrene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 3-Methylphenol

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 3-Methylphenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 3-Nitroaniline

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 3-Nitroaniline

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4,6-Dinitro-2-methylphenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4,6-Dinitro-2-methylphenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Aminobiphenyl

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Aminobiphenyl

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Bromophenyl-phenylether

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Bromophenyl-phenylether

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chloro-3-methylphenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chloro-3-methylphenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chloroaniline

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chloroaniline

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chlorophenyl-phenylether

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Chlorophenyl-phenylether

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Methylphenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Methylphenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitroaniline

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitroaniline

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitrophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitrophenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitroquinoline-1-oxide

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : 4-Nitroquinoline-1-oxide

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : 5-Nitro-o-toluidine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SW8270 - Semivolatile Organics						
Analyte : 5-Nitro-o-toluidine						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			
Method : SW8270 - Semivolatile Organics						
Analyte : 7,12-Dimethylbenz(a)anthracene						
Type of Blank : Reagent Blank						
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 50			
Method : SW8270 - Semivolatile Organics						
Analyte : 7,12-Dimethylbenz(a)anthracene						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Acenaphthene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PRDC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Acenaphthene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Acenaphthylene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Acenaphthylene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Acetophenone

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	40.1 (J)	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range 40.1 - 40.1
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Acetophenone

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	59.4	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range 59.4 - 59.4
Total Number above Detection Limit = 1 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Aniline

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Aniline

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Anthracene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Anthracene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Aramite (peak 1)

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Aramite (peak 1)

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Aramite (peak 2)

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Aramite (peak 2)

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(a)anthracene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(a)anthracene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(a)pyrene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(a)pyrene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(b)fluoranthene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(b)fluoranthene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(g,h,i)perylene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(g,h,i)perylene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(k)fluoranthene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Benzo(k)fluoranthene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Benzyl alcohol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Benzyl alcohol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Butylbenzylphthalate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	14.1 (J)	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range 14.1 - 14.1
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SW8270 - Semivolatile Organics						
Analyte : Butylbenzylphthalate						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			
Method : SW8270 - Semivolatile Organics						
Analyte : Chlorobenzilate						
Type of Blank : Reagent Blank						
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 50			
Method : SW8270 - Semivolatile Organics						
Analyte : Chlorobenzilate						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Chrysene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Chrysene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Di-n-butylphthalate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	44.3 (J)	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	52.9	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	39.7 (J)	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	57.9	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range 39.7 - 57.9
Total Number above Detection Limit = 2 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Di-n-butylphthalate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	42.7 (J)	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	91	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	62.9	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range 42.7 - 91.0
Total Number above Detection Limit = 2 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Di-n-octyphthalate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Di-n-octyphthalate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Diallate (peak 1)

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Diallate (peak 1)

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Diallate (peak 2)

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Diallate (peak 2)

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Dibenz(a,h)anthracene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Dibenz(a,h)anthracene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Dibenzofuran

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Dibenzofuran

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Diethylphthalate

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Diethylphthalate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Dimethylphenethyamine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	600.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	600.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	600.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	600.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	600.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	600.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 600

Method : SW8270 - Semivolatile Organics
Analyte : Dimethylphenethyamine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	596.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	576.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	593.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	686.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	701.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	575.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 701

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Dimethylphthalate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Dimethylphthalate

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Diphenylamine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Diphenylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Ethylmethanesulfonate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Ethylmethanesulfonate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Fluoranthene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Fluoranthene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Fluorene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Fluorene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorobenzene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorobutadiene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorobutadiene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorocyclopentadiene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorocyclopentadiene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Hexachloroethane

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Hexachloroethane

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorophene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	10150.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	10150.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	10150.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	10150.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	10150.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	10150.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 10150

Method : SW8270 - Semivolatile Organics
Analyte : Hexachlorophene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	10089.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	9750.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	10040.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	11860.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	11600.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	9732.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 11860

Method : SW8270 - Semivolatile Organics
Analyte : Hexachloropropene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Hexachloropropene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Indeno(1,2,3-cd)pyrene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Indeno(1,2,3-cd)pyrene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Isophorone

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Isophorone

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Isosafrole

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Isosafrole

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Methapyrilene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	250.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	250.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	250.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	250.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	250.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	250.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 250

Method : SW8270 - Semivolatile Organics
Analyte : Methapyrilene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	249.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	240.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	247.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	286.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	292.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	240.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 292

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Methylmethanesulfonate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	250.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	250.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	250.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	250.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	250.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	250.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 250

Method : SW8270 - Semivolatile Organics
Analyte : Methylmethanesulfonate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	249.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	240.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	247.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	292.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	286.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	240.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 292

Method : SW8270 - Semivolatile Organics
Analyte : Naphthalene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SW8270 - Semivolatile Organics						
Analyte : Naphthalene						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			
Method : SW8270 - Semivolatile Organics						
Analyte : Nitrobenzene						
Type of Blank : Reagent Blank						
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 50			
Method : SW8270 - Semivolatile Organics						
Analyte : Nitrobenzene						
Type of Blank : Method Blank						
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 58			

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Pentachlorobenzene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Pentachlorobenzene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Pentachloroethane

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Pentachloroethane

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Pentachloronitrobenzene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Pentachloronitrobenzene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Pentachlorophenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Pentachlorophenol

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Phenactin

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Phenactin

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Phenanthrene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Phenanthrene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Phenol

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Phenol

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Pronamide

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Pronamide

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Pyrene

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Pyrene

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Pyridine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : Pyridine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : Safrole

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : Safrole

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroethoxy)methane

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroethoxy)methane

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroethyl)ether

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroethyl)ether

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroisopropyl)ether

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Chloroisopropyl)ether

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Ethylhexyl)phthalate

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	343.1	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	4361.1	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	97.3	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	182.5	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	71.4	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range 71.4 - 4361.1
Total Number above Detection Limit = 5 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : bis(2-Ethylhexyl)phthalate

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	221.1	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	143.3	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	398.2	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	556.7	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	1901.7	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range 143.3 - 1901.7
Total Number above Detection Limit = 5 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitroso-di-n-butylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitroso-di-n-butylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitroso-di-n-propylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SWB270 - Semivolatile Organics
Analyte : n-Nitroso-di-n-propylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodiethylamine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodiethylamine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodimethylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodimethylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodiphenylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
1B May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosodiphenylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosomethylethylamine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosomethylethylamine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosomorpholine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosomorpholine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosopiperidine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PRDC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosopiperidine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosopyrrolidine

Type of Blank : Reagent Blank

18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : n-Nitrosopyrrolidine

Type of Blank : Method Blank

18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : o-Toluidine

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

Method : SW8270 - Semivolatile Organics
Analyte : o-Toluidine

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8270 - Semivolatile Organics
Analyte : p-Dimethylaminoazobenzene

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	PROC. BLANK	M654	ND	50.000	ug/L	
24 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
26 May 1993	PROC. BLANK	M679	ND	50.000	ug/L	
27 May 1993	PROC. BLANK	M655	ND	50.000	ug/L	
1 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	
2 June 1993	PROC. BLANK	M689	ND	50.000	ug/L	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 50

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Analyte : p-Dimethylaminoazobenzene

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 May 1993	SAND BLANK	M654	ND	50.000	ug/kg	
26 May 1993	SAND BLANK	M679	ND	48.000	ug/kg	
27 May 1993	SAND BLANK	M655	ND	49.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	57.000	ug/kg	
1 June 1993	SAND BLANK	M689	ND	58.000	ug/kg	
3 June 1993	SAND BLANK	M679	ND	48.000	ug/kg	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 58

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,4,6,7,8-HpCDD

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.160	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.200	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.180	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.090	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.090	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.260	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.26

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.050	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.060	pg/g	
2 July 1993	PROC. BLANK	M680	ND	1.290	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.160	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.440	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.260	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 1.29

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,4,6,7,8-HpCDF

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	0.09	0.080	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.640	pg/g	
2 July 1993	SAND BLANK	M680	0.46	0.050	pg/g	
2 July 1993	SAND BLANK	M680	1.2	0.070	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.100	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.230	pg/g	

Total Number of Blanks = 6 Concentration Range 0.090 - 1.2
Total Number above Detection Limit = 3 Maximum Detection Limit = 0.64

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.050	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.120	pg/g	
2 July 1993	PROC. BLANK	M680	1.77	0.190	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.130	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.100	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.180	pg/g	

Total Number of Blanks = 6 Concentration Range 1.8 - 1.8
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.19

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,4,7,8,9-HpCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.100	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.270	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.260	pg/g	
2 July 1993	SAND BLANK	M680	0.22	0.080	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.130	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.310	pg/g	

Total Number of Blanks = 6 Concentration Range 0.22 - 0.22
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.31

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.050	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.120	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.480	pg/g	

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
Method : SW8290 - Dioxins and Furans						
Analyte : 1,2,3,4,7,8,9-HpCDF, continued						
Type of Blank : Reagent Blank						
3 July 1993	PROC. BLANK	M690	ND	0.250	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.450	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.260	pg/g	
Total Number of Blanks = 6			Concentration Range NC			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.48			
Method : SW8290 - Dioxins and Furans						
Analyte : 1,2,3,4,7,8-HxCDD						
Type of Blank : Method Blank						
18 June 1993	SAND BLANK	M661	ND	0.090	pg/g	
28 June 1993	SAND BLANK	M660	0.2 (J)	0.220	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.290	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.120	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.060	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.470	pg/g	
Total Number of Blanks = 6			Concentration Range 0.20 - 0.20			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.47			
Type of Blank : Reagent Blank						
14 June 1993	PROC. BLANK	M660	0.09 (J)	0.150	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.230	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.270	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.180	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.320	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.430	pg/g	
Total Number of Blanks = 6			Concentration Range 0.090 - 0.090			
Total Number above Detection Limit = 0			Maximum Detection Limit = 0.43			
Method : SW8290 - Dioxins and Furans						
Analyte : 1,2,3,4,7,8-HxCDF						
Type of Blank : Method Blank						
18 June 1993	SAND BLANK	M661	ND	0.310	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.350	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.060	pg/g	

Compiled: 29 September 1993 ND = Not Detected NC = Not Calculable NA = Not Applicable

* - Value considered suspect, Refer to QC Report () = Data Flag

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,4,7,8-HxCDF, continued

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
2 July 1993	SAND BLANK	M680	ND	0.090	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.080	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.350	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.35

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.600	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.090	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.300	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.160	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.410	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.070	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.6

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,6,7,8-HxCDD

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.230	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.630	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.080	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.120	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.060	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.420	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.63

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.590	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.220	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.270	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.200	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.350	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.210	pg/g	

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,6,7,8-HxCDD, continued

Total Number of Blanks = 6 — Concentration Range NC
Total Number above Detection Limit = 0 — Maximum Detection Limit = 0.59

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,6,7,8-HxCDF

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	ND	0.120	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.290	pg/g	
2 July 1993	SAND BLANK	M680	0.34	0.050	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.090	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.120	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.340	pg/g	

Total Number of Blanks = 6 — Concentration Range 0.34 - 0.34
Total Number above Detection Limit = 1 — Maximum Detection Limit = 0.34

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 June 1993	PROC. BLANK	M660	ND	0.320	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.060	pg/g	
2 July 1993	PROC. BLANK	M680	1.24	0.300	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.150	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.400	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.060	pg/g	

Total Number of Blanks = 6 — Concentration Range 1.2 - 1.2
Total Number above Detection Limit = 1 — Maximum Detection Limit = 0.4

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8,9-HxCDD

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	ND	0.090	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.620	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.120	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.080	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.060	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.410	pg/g	

Total Number of Blanks = 6 — Concentration Range NC
Total Number above Detection Limit = 0 — Maximum Detection Limit = 0.62

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8,9-HxCDD, continued

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 June 1993	PROC. BLANK	M660	ND	0.580	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.080	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.260	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.190	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.200	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.340	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.58

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8,9-HxCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	0.18	0.070	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.110	pg/g	
2 July 1993	SAND BLANK	M680	0.34	0.060	pg/g	
2 July 1993	SAND BLANK	M680	0.19	0.080	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.130	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.150	pg/g	

Total Number of Blanks = 6 Concentration Range 0.18 - 0.34
Total Number above Detection Limit = 3 Maximum Detection Limit = 0.15

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.120	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.070	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.550	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.170	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.400	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.440	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.55

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8-PeCDD

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	ND	0.180	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.370	pg/g	
2 July 1993	SAND BLANK	M680	0.08 (J)	0.120	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.130	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.100	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.480	pg/g	

Total Number of Blanks = 6 Concentration Range 0.080 - 0.080
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.48

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.260	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.130	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.540	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.180	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.340	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.350	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.54

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8-PeCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.100	pg/g	
28 June 1993	SAND BLANK	M660	0.9	0.430	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.160	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.090	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.130	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.100	pg/g	

Total Number of Blanks = 6 Concentration Range 0.90 - 0.90
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.43

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.190	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.090	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.550	pg/g	

Compiled: 29 September 1993 ND = Not Detected NC = Not Calculable NA = Not Applicable

* - Value considered suspect, Refer to QC Report () = Data Flag

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 1,2,3,7,8-PeCDF, continued

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
3 July 1993	PROC. BLANK	M690	ND	0.130	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.090	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.020	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.55

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,4,6,7,8-HxCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.090	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.180	pg/g	
2 July 1993	SAND BLANK	M680	0.19	0.080	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.250	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.160	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.460	pg/g	

Total Number of Blanks = 6 Concentration Range 0.19 - 0.19
Total Number above Detection Limit = 1 Maximum Detection Limit = 0.46

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.260	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.140	pg/g	
2 July 1993	PROC. BLANK	M680	ND	1.100	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.290	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.550	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.560	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 1.1

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,4,7,8-PeCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.140	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.280	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.160	pg/g	

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,4,7,8-PeCDF, continued

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
2 July 1993	SAND BLANK	M680	ND	0.100	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.090	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.110	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.28

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 June 1993	PROC. BLANK	M660	ND	0.190	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.100	pg/g	
2 July 1993	PROC. BLANK	M680	0.41 (J)	0.670	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.130	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.020	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.100	pg/g	

Total Number of Blanks = 6 Concentration Range 0.41 - 0.41
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.67

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,7,8-TCDD

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	ND	0.380	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.120	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.030	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.030	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.160	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.500	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.5

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 June 1993	PROC. BLANK	M660	ND	0.690	pg/g	
29 June 1993	PROC. BLANK	M661	0.04 (J)	0.040	pg/g	
2 July 1993	PROC. BLANK	M680	ND	1.360	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.170	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.070	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.690	pg/g	

Compiled: 29 September 1993 ND = Not Detected NC = Not Calculable NA = Not Applicable
* - Value considered suspect, Refer to QC Report () = Data Flag

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,7,8-TCDD, continued

Total Number of Blanks = 6 Concentration Range 0.040 - 0.040
Total Number above Detection Limit = 1 Maximum Detection Limit = 1.36

Method : SW8290 - Dioxins and Furans
Analyte : 2,3,7,8-TCDF

Type of Blank : Method Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
18 June 1993	SAND BLANK	M661	ND	0.290	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.410	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.180	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.180	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.110	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.250	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.41

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.040	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.180	pg/g	
2 July 1993	PROC. BLANK	M680	ND	0.820	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.200	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.210	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.200	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 0.82

Method : SW8290 - Dioxins and Furans
Analyte : OCDD

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	1.07	0.270	pg/g	
28 June 1993	SAND BLANK	M660	2.1	1.200	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.120	pg/g	
2 July 1993	SAND BLANK	M680	ND	0.590	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.240	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.700	pg/g	

Total Number of Blanks = 6 Concentration Range 1.1 - 2.1
Total Number above Detection Limit = 2 Maximum Detection Limit = 1.2

TABLE B1 DETAILED LISTING OF BLANK RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Analyte : OCDD, continued

Type of Blank : Reagent Blank

DATE ANALYZED	SAMPLE ID	BATCH ID	RESULT	DETECTION LIMIT	UNITS	FACTOR
14 June 1993	PROC. BLANK	M660	ND	0.440	pg/g	
29 June 1993	PROC. BLANK	M661	1.11	0.320	pg/g	
2 July 1993	PROC. BLANK	M680	21.49	8.760	pg/g	
3 July 1993	PROC. BLANK	M690	0.75	0.740	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.910	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.420	pg/g	

Total Number of Blanks = 6 Concentration Range 0.75 - 21.5
Total Number above Detection Limit = 3 Maximum Detection Limit = 8.76

Method : SW8290 - Dioxins and Furans
Analyte : OCDF

Type of Blank : Method Blank

18 June 1993	SAND BLANK	M661	ND	0.390	pg/g	
28 June 1993	SAND BLANK	M660	ND	0.490	pg/g	
2 July 1993	SAND BLANK	M680	1.15	0.690	pg/g	
2 July 1993	SAND BLANK	M680	0.5	0.320	pg/g	
3 July 1993	SAND BLANK	M690	ND	0.200	pg/g	
7 July 1993	SAND BLANK	M690	ND	0.620	pg/g	

Total Number of Blanks = 6 Concentration Range 0.50 - 1.2
Total Number above Detection Limit = 2 Maximum Detection Limit = 0.69

Type of Blank : Reagent Blank

14 June 1993	PROC. BLANK	M660	ND	0.040	pg/g	
29 June 1993	PROC. BLANK	M661	ND	0.370	pg/g	
2 July 1993	PROC. BLANK	M680	ND	14.160	pg/g	
3 July 1993	PROC. BLANK	M690	ND	0.520	pg/g	
7 July 1993	PROC. BLANK	M680	ND	0.510	pg/g	
7 July 1993	PROC. BLANK	M690	ND	0.810	pg/g	

Total Number of Blanks = 6 Concentration Range NC
Total Number above Detection Limit = 0 Maximum Detection Limit = 14.16

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : E249.2 - Nickel
Spiked Analyte : Nickel

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/14/93	SPIKED BLANK	TRACE_015	103.16
05/14/93	SPIKED BLANK	TRACE_015	102.05
05/14/93	SPIKED BLANK	TRACE_015	104.18
05/14/93	SPIKED BLANK	TRACE_015	87.50
05/14/93	SPIKED BLANK	TRACE_015	91.61
05/14/93	SPIKED BLANK	TRACE_015	92.78
05/14/93	SPIKED BLANK	TRACE_015	105.06
05/14/93	SPIKED BLANK	TRACE_015	98.20

Number of Samples : 8
Mean % Recovery : 98.1
Standard Deviation : 6.65
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : 75-125

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/14/93	NIST-1566a	TRACE_015	129.35 (Q)
05/14/93	NIST-1566a	TRACE_015	78.19
05/14/93	NIST-1566a	TRACE_015	76.26
05/14/93	NIST-1566a	TRACE_015	95.14
05/14/93	NIST-1566a	TRACE_015	92.15
05/14/93	NIST-1566a	TRACE_015	105.45
05/14/93	NRCC DOLT-2	TRACE_015	75.23
05/14/93	NRCC DOLT-2	TRACE_015	111.08
05/14/93	NRCC DOLT-2	TRACE_015	119.69
05/14/93	NRCC DOLT-2	TRACE_015	89.23
05/14/93	NRCC DOLT-2	TRACE_015	76.19
05/14/93	NRCC DOLT-2	TRACE_015	128.74 (Q)

Number of Samples : 12
Mean % Recovery : 98.1
Standard Deviation : 20.46
Below acceptance : 0
Above acceptance : 2
Acceptance Criteria : 75-125

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/14/93	9303-AE-01-01 MS	TRACE_015	113.30
05/14/93	9303-AE-01-01 MS	TRACE_015	96.00
05/14/93	9303-AE-01-01 MSD	TRACE_015	114.50
05/14/93	9303-AE-01-01 MSD	TRACE_015	112.80
05/14/93	9303-FDT-01-01.1 MS	TRACE_015	93.10
05/14/93	9303-FDT-01-01.1 MSD	TRACE_015	98.30
05/14/93	9303-FDT-01-01.2 MS	TRACE_015	84.70
05/14/93	9303-FDT-01-01.2 MSD	TRACE_015	91.30

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY

Method : E249.2 - Nickel
Spiked Analyte : Nickel, continued

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 100.5	Above acceptance :	0
Standard Deviation	: 11.50	Acceptance Criteria :	75-125

Method : E272.2 - Silver
Spiked Analyte : Silver

Type of Spike : Laboratory Control

05/23/93	SPIKED BLANK	TRACE_017	96.22
05/23/93	SPIKED BLANK	TRACE_017	96.35
05/23/93	SPIKED BLANK	TRACE_017	97.52
05/23/93	SPIKED BLANK	TRACE_017	96.86
05/23/93	SPIKED BLANK	TRACE_017	102.80
05/23/93	SPIKED BLANK	TRACE_017	97.36
05/23/93	SPIKED BLANK	TRACE_017	100.30
05/23/93	SPIKED BLANK	TRACE_017	100.02

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 98.4	Above acceptance :	0
Standard Deviation	: 2.36	Acceptance Criteria :	75-125

Type of Spike : Laboratory Control

05/23/93	NIST-1566a	TRACE_017	86.57
05/23/93	NIST-1566a	TRACE_017	83.85
05/23/93	NIST-1566a	TRACE_017	89.25
05/23/93	NIST-1566a	TRACE_017	86.81
05/23/93	NIST-1566a	TRACE_017	86.55
05/23/93	NIST-1566a	TRACE_017	94.26

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 87.9	Above acceptance :	0
Standard Deviation	: 3.56	Acceptance Criteria :	80-120

Type of Spike : Matrix Spike

05/23/93	9303-AE-01-01 MS	TRACE_017	91.40
05/23/93	9303-AE-01-01 MS	TRACE_017	84.50
05/23/93	9303-AE-01-01 MSD	TRACE_017	90.00
05/23/93	9303-AE-01-01 MSD	TRACE_017	87.40
05/23/93	9303-FDT-01-01.1 MS	TRACE_017	86.30
05/23/93	9303-FDT-01-01.1 MSD	TRACE_017	83.20
05/23/93	9303-FDT-01-01.2 MS	TRACE_017	88.70

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY

Method : E272.2 - Silver
Spiked Analyte : Silver, continued

Type of Spike : Matrix Spike

05/23/93	9303-FDT-01-01.2 MSD	TRACE_017	90.60

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 87.8	Above acceptance :	0
Standard Deviation	: 2.95	Acceptance Criteria :	75-125

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 2,4'-DDD

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	66.00	
05/21/93	SPIKED BLANK	M661	76.00	
06/04/93	SPIKED BLANK	M680	71.00	
06/04/93	SPIKED BLANK	M680	54.00	
07/02/93	SPIKED BLANK	M690	32.00	(Q)

Number of Samples	: 5	Below acceptance :	1
Mean % Recovery	: 59.8	Above acceptance :	0
Standard Deviation	: 17.56	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	78.00
05/26/93	9303-AE-01-01 MSD	M660	76.00
05/21/93	9303-AE-01-01 MS	M661	98.00
05/21/93	9303-AE-01-01 MSD	M661	70.00
06/04/93	9303-FDT-01-01 MS	M680	71.00
06/04/93	9303-FDT-01-01 MS	M680	59.00
06/04/93	9303-FDT-01-01 MSD	M680	71.00
06/04/93	9303-FDT-01-01 MSD	M680	61.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 73.0	Above acceptance :	0
Standard Deviation	: 12.05	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
Method : SOP-9017 - Chlorinated Pesticides and PCBs			
Spiked Analyte : 2,4'-DDE			
Type of Spike : Laboratory Control			
05/26/93	SPIKED BLANK	M660	64.00
05/21/93	SPIKED BLANK	M661	91.00
06/04/93	SPIKED BLANK	M680	72.00
06/04/93	SPIKED BLANK	M680	74.00
07/02/93	SPIKED BLANK	M690	53.00

Number of Samples : 5 Below acceptance : 0
Mean % Recovery : 70.8 Above acceptance : 0
Standard Deviation : 13.99 Acceptance Criteria : 40-120

Type of Spike : Matrix Spike			
05/26/93	9303-AE-01-01 MS	M660	59.00
05/26/93	9303-AE-01-01 MSD	M660	65.00
05/21/93	9303-AE-01-01 MS	M661	73.00
05/21/93	9303-AE-01-01 MSD	M661	60.00
06/04/93	9303-FDT-01-01 MS	M680	55.00
06/04/93	9303-FDT-01-01 MS	M680	60.00
06/04/93	9303-FDT-01-01 MSD	M680	47.00
06/04/93	9303-FDT-01-01 MSD	M680	49.00

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 58.5 Above acceptance : 0
Standard Deviation : 8.38 Acceptance Criteria : 40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs			
Spiked Analyte : 2,4'-DDT			
Type of Spike : Laboratory Control			
05/26/93	SPIKED BLANK	M660	61.00
05/21/93	SPIKED BLANK	M661	94.00
06/04/93	SPIKED BLANK	M680	77.00
06/04/93	SPIKED BLANK	M680	70.00
07/02/93	SPIKED BLANK	M690	54.00

Number of Samples : 5 Below acceptance : 0
Mean % Recovery : 71.2 Above acceptance : 0
Standard Deviation : 15.45 Acceptance Criteria : 40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 2,4'-DDT, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	71.00
05/26/93	9303-AE-01-01 MSD	M660	75.00
05/21/93	9303-AE-01-01 MS	M661	96.00
05/21/93	9303-AE-01-01 MSD	M661	72.00
06/04/93	9303-FDT-01-01 MS	M680	59.00
06/04/93	9303-FDT-01-01 MS	M680	71.00
06/04/93	9303-FDT-01-01 MSD	M680	52.00
06/04/93	9303-FDT-01-01 MSD	M680	61.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 69.6	Above acceptance :	0
Standard Deviation	: 13.27	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 4,4'-DDD

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	72.00
05/21/93	SPIKED BLANK	M661	108.00
06/04/93	SPIKED BLANK	M680	86.00
06/04/93	SPIKED BLANK	M680	77.00
07/02/93	SPIKED BLANK	M690	47.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 78.0	Above acceptance :	0
Standard Deviation	: 22.15	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	126.00	(Q)
05/26/93	9303-AE-01-01 MSD	M660	111.00	
05/21/93	9303-AE-01-01 MS	M661	126.00	(Q)
05/21/93	9303-AE-01-01 MSD	M661	86.00	
06/04/93	9303-FDT-01-01 MS	M680	124.00	(Q)
06/04/93	9303-FDT-01-01 MS	M680	466.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	476.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	294.00	(Q)

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 226.1	Above acceptance :	6
Standard Deviation	: 163.86	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGODNS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 4,4'-DDE

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	71.00
05/21/93	SPIKED BLANK	M661	102.00
06/04/93	SPIKED BLANK	M680	78.00
06/04/93	SPIKED BLANK	M680	73.00
07/02/93	SPIKED BLANK	M690	51.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 75.0	Above acceptance :	0
Standard Deviation	: 18.26	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	90.00	
05/26/93	9303-AE-01-01 MSD	M660	81.00	
05/21/93	9303-AE-01-01 MS	M661	104.00	
05/21/93	9303-AE-01-01 MSD	M661	78.00	
06/04/93	9303-FDT-01-01 MS	M680	106.00	
06/04/93	9303-FDT-01-01 MS	M680	293.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	180.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	256.00	(Q)

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 148.5	Above acceptance :	3
Standard Deviation	: 84.65	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 4,4'-DDT

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	71.00
05/21/93	SPIKED BLANK	M661	107.00
06/04/93	SPIKED BLANK	M680	68.00
06/04/93	SPIKED BLANK	M680	75.00
07/02/93	SPIKED BLANK	M690	53.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 74.8	Above acceptance :	0
Standard Deviation	: 19.83	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : 4,4'-DDT, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	83.00
05/26/93	9303-AE-01-01 MSD	M660	84.00
05/21/93	9303-AE-01-01 MS	M661	113.00
05/21/93	9303-AE-01-01 MSD	M661	88.00
06/04/93	9303-FDT-01-01 MS	M680	87.00
06/04/93	9303-FDT-01-01 MS	M680	85.00
06/04/93	9303-FDT-01-01 MSD	M680	95.00
06/04/93	9303-FDT-01-01 MSD	M680	75.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 88.8	Above acceptance :	0
Standard Deviation	: 11.27	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Aldrin

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	57.00
05/21/93	SPIKED BLANK	M661	76.00
06/04/93	SPIKED BLANK	M680	66.00
06/04/93	SPIKED BLANK	M680	72.00
07/02/93	SPIKED BLANK	M690	44.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 63.0	Above acceptance :	0
Standard Deviation	: 12.81	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	58.00
05/26/93	9303-AE-01-01 MSD	M660	56.00
05/21/93	9303-AE-01-01 MS	M661	73.00
05/21/93	9303-AE-01-01 MSD	M661	55.00
06/04/93	9303-FDT-01-01 MS	M680	61.00
06/04/93	9303-FDT-01-01 MS	M680	75.00
06/04/93	9303-FDT-01-01 MSD	M680	67.00
06/04/93	9303-FDT-01-01 MSD	M680	66.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 63.9	Above acceptance :	0
Standard Deviation	: 7.61	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : DBOFB

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/21/93	9303-AA-01-01	M660	49.00	
05/21/93	9303-AC-01-01	M660	53.00	
05/21/93	9303-AD-01-01	M660	47.50	
05/21/93	9303-ADT-01-01	M660	58.50	
05/21/93	9303-AE-01-02	M660	52.70	
05/21/93	9303-AF-01-01	M660	47.60	
05/21/93	9303-ALH-01-01	M660	50.90	
05/21/93	9303-ALH-02-01	M660	60.90	
05/26/93	9303-AC-01-02	M660	51.00	
05/26/93	9303-AE-01-01	M660	59.20	
05/26/93	9303-AG-01-01	M660	54.40	
05/26/93	9303-ALH-03-01	M660	50.40	
05/26/93	9303-ALS-01-01	M660	57.10	
05/26/93	9303-FLH-01-01	M660	51.80	
05/26/93	9303-FLH-02-01	M660	54.20	
05/21/93	9303-AA-01-01	M661	64.80	
05/21/93	9303-AC-01-01	M661	54.60	
05/21/93	9303-AC-01-02	M661	53.20	
05/21/93	9303-ADT-01-01	M661	64.00	
05/21/93	9303-AE-01-01	M661	65.20	
05/21/93	9303-AG-01-01	M661	52.50	
05/21/93	9303-ALH-01-01	M661	56.40	
05/21/93	9303-ALH-03-01	M661	64.30	
05/21/93	9303-ALS-01-01	M661	67.80	
05/21/93	9303-ALS-02-01	M661	59.50	
05/21/93	9303-FLH-01-01	M661	76.10	
05/26/93	9303-AD-01-01	M661	40.50	
05/26/93	9303-AE-01-02	M661	64.80	
05/26/93	9303-AF-01-01	M661	61.00	
05/26/93	9303-ALH-02-01	M661	63.90	
06/04/93	9303-BDT-01-01	M680	61.10	
06/04/93	9303-BDT-01-01	M680	69.20	
06/04/93	9303-FDT-02-01	M680	55.30	
06/04/93	9303-FDT-02-01	M680	69.60	
06/04/93	9303-FDT-03-01	M680	65.50	
06/04/93	9303-FDT-03-01	M680	47.20	
06/04/93	9303-FG-01-01	M680	65.30	
06/04/93	9303-FG-01-01	M680	70.80	
06/04/93	9303-FLH-03-01	M680	70.20	
06/04/93	9303-FLH-03-01	M680	72.40	
06/04/93	9303-FLH-03-02	M680	64.90	
06/04/93	9303-FLH-03-02	M680	70.50	
06/16/93	9303-GLS-01-01	M690	79.40	
07/02/93	9303-BA-01-01	M690	68.00	
07/02/93	9303-BA-01-01	M690	55.80	
07/02/93	9303-BE-01-01	M690	0.00	(Q)

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : DBOFB, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	9303-BE-01-01	M690	78.20
07/02/93	9303-GLS-01-01	M690	71.00
07/02/93	9303-IDT-01-01	M690	58.60
07/02/93	9303-IDT-01-01	M690	59.70
07/02/93	9303-NLS-01-01	M690	46.20
07/02/93	9303-NLS-01-01	M690	60.70

Number of Samples : 52 Below acceptance : 1
Mean % Recovery : 59.0 Above acceptance : 0
Standard Deviation : 12.11 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Blank Sample

05/26/93	PROC. BLANK	M660	49.90
05/21/93	PROC. BLANK	M661	57.20
06/04/93	PROC. BLANK	M680	70.30
06/04/93	PROC. BLANK	M680	74.90
07/02/93	PROC. BLANK	M690	60.40
07/02/93	PROC. BLANK	M690	67.50

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 63.4 Above acceptance : 0
Standard Deviation : 9.23 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Blank Sample

05/26/93	SAND BLANK	M660	49.40
05/21/93	SAND BLANK	M661	64.70
06/04/93	SAND BLANK	M680	68.80
06/04/93	SAND BLANK	M680	74.10
07/02/93	SAND BLANK	M690	77.70
07/02/93	SAND BLANK	M690	69.50

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 67.4 Above acceptance : 0
Standard Deviation : 9.89 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Laboratory Control

05/26/93	SPIKED BLANK	M660	53.90
05/21/93	SPIKED BLANK	M661	60.50
06/04/93	SPIKED BLANK	M680	54.20
06/04/93	SPIKED BLANK	M680	63.60

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : DBOFB, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SPIKED BLANK	M690	40.60

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 54.6	Above acceptance :	0
Standard Deviation	: 8.84	Acceptance Criteria :	20-150

Type of Spike : Surrogate - Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	55.60
05/26/93	9303-AE-01-01 MSD	M660	53.80
05/21/93	9303-AE-01-01 MS	M661	68.80
05/21/93	9303-AE-01-01 MSD	M661	53.70
06/04/93	9303-FDT-01-01 MS	M680	52.50
06/04/93	9303-FDT-01-01 MS	M680	69.10
06/04/93	9303-FDT-01-01 MSD	M680	70.80
06/04/93	9303-FDT-01-01 MSD	M680	64.80

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 61.1	Above acceptance :	0
Standard Deviation	: 7.96	Acceptance Criteria :	20-150

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Dieldrin

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	64.00
05/21/93	SPIKED BLANK	M661	79.00
06/04/93	SPIKED BLANK	M680	71.00
06/04/93	SPIKED BLANK	M680	65.00
07/02/93	SPIKED BLANK	M690	47.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 65.2	Above acceptance :	0
Standard Deviation	: 11.80	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	71.00
05/26/93	9303-AE-01-01 MSD	M660	66.00
05/21/93	9303-AE-01-01 MS	M661	86.00
05/21/93	9303-AE-01-01 MSD	M661	69.00
06/04/93	9303-FDT-01-01 MS	M680	66.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Dieldrin, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/04/93	9303-FDT-01-01 MS	M680	77.00
06/04/93	9303-FDT-01-01 MSD	M680	71.00
06/04/93	9303-FDT-01-01 MSD	M680	64.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 71.3	Above acceptance :	0
Standard Deviation	: 7.21	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Endrin

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	61.00	
05/21/93	SPIKED BLANK	M661	87.00	
06/04/93	SPIKED BLANK	M680	57.00	
06/04/93	SPIKED BLANK	M680	65.00	
07/02/93	SPIKED BLANK	M690	36.00	(Q)

Number of Samples	: 5	Below acceptance :	1
Mean % Recovery	: 61.2	Above acceptance :	0
Standard Deviation	: 18.25	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	75.00
05/26/93	9303-AE-01-01 MSD	M660	72.00
05/21/93	9303-AE-01-01 MS	M661	101.00
05/21/93	9303-AE-01-01 MSD	M661	78.00
06/04/93	9303-FDT-01-01 MS	M680	64.00
06/04/93	9303-FDT-01-01 MS	M680	77.00
06/04/93	9303-FDT-01-01 MSD	M680	70.00
06/04/93	9303-FDT-01-01 MSD	M680	61.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 74.8	Above acceptance :	0
Standard Deviation	: 12.19	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : HCB

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/26/93	SPIKED BLANK	M660	27.00	(Q)
05/21/93	SPIKED BLANK	M661	39.00	(Q)
06/04/93	SPIKED BLANK	M680	60.00	(Q)
06/04/93	SPIKED BLANK	M680	21.00	
07/02/93	SPIKED BLANK	M690	6.00	(Q)

Number of Samples : 5 Below acceptance : 4
Mean % Recovery : 30.6 Above acceptance : 0
Standard Deviation : 20.28 Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/26/93	9303-AE-01-01 MS	M660	36.00	(Q)
05/26/93	9303-AE-01-01 MSD	M660	45.00	
05/21/93	9303-AE-01-01 MS	M661	75.00	
05/21/93	9303-AE-01-01 MSD	M661	45.00	
06/04/93	9303-FDT-01-01 MS	M680	27.00	(Q)
06/04/93	9303-FDT-01-01 MS	M680	23.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	35.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	20.00	(Q)

Number of Samples : 8 Below acceptance : 5
Mean % Recovery : 38.3 Above acceptance : 0
Standard Deviation : 17.52 Acceptance Criteria : 40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Heptachlor

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	55.00
05/21/93	SPIKED BLANK	M661	78.00
06/04/93	SPIKED BLANK	M680	71.00
06/04/93	SPIKED BLANK	M680	70.00
07/02/93	SPIKED BLANK	M690	48.00

Number of Samples : 5 Below acceptance : 0
Mean % Recovery : 64.4 Above acceptance : 0
Standard Deviation : 12.42 Acceptance Criteria : 40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Heptachlor, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	58.00
05/26/93	9303-AE-01-01 MSD	M660	57.00
05/21/93	9303-AE-01-01 MS	M661	74.00
05/21/93	9303-AE-01-01 MSD	M661	59.00
06/04/93	9303-FDT-01-01 MS	M680	74.00
06/04/93	9303-FDT-01-01 MS	M680	65.00
06/04/93	9303-FDT-01-01 MSD	M680	65.00
06/04/93	9303-FDT-01-01 MSD	M6B0	69.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 65.1	Above acceptance :	0
Standard Deviation	: 6.83	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Heptachlor epoxide

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	60.00
05/21/93	SPIKED BLANK	M661	79.00
06/04/93	SPIKED BLANK	M680	72.00
06/04/93	SPIKED BLANK	M680	69.00
07/02/93	SPIKED BLANK	M690	49.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 65.8	Above acceptance :	0
Standard Deviation	: 11.61	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	51.00
05/26/93	9303-AE-01-01 MSD	M660	50.00
05/21/93	9303-AE-01-01 MS	M661	76.00
05/21/93	9303-AE-01-01 MSD	M661	59.00
06/04/93	9303-FDT-01-01 MS	M680	72.00
06/04/93	9303-FDT-01-01 MS	M680	56.00
06/04/93	9303-FDT-01-01 MSD	M680	65.00
06/04/93	9303-FDT-01-01 MSD	M680	60.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 61.1	Above acceptance :	0
Standard Deviation	: 9.36	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : Mirex

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/26/93	SPIKED BLANK	M660	65.00	
05/21/93	SPIKED BLANK	M661	83.00	
06/04/93	SPIKED BLANK	M680	46.00	
06/04/93	SPIKED BLANK	M680	73.00	
07/02/93	SPIKED BLANK	M690	37.00	(Q)

Number of Samples	: 5	Below acceptance :	1
Mean % Recovery	: 60.8	Above acceptance :	0
Standard Deviation	: 19.01	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	71.00
05/26/93	9303-AE-01-01 MSD	M660	71.00
05/21/93	9303-AE-01-01 MS	M661	96.00
05/21/93	9303-AE-01-01 MSD	M661	73.00
06/04/93	9303-FDT-01-01 MS	M680	76.00
06/04/93	9303-FDT-01-01 MS	M680	41.00
06/04/93	9303-FDT-01-01 MSD	M680	51.00
06/04/93	9303-FDT-01-01 MSD	M680	55.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 66.8	Above acceptance :	0
Standard Deviation	: 17.18	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#103

Type of Spike : Surrogate

05/21/93	9303-AA-01-01	M660	52.80
05/21/93	9303-AC-01-01	M660	54.30
05/21/93	9303-AD-01-01	M660	55.10
05/21/93	9303-ADT-01-01	M660	59.70
05/21/93	9303-AE-01-02	M660	57.00
05/21/93	9303-AF-01-01	M660	48.10
05/21/93	9303-ALH-01-01	M660	54.70
05/21/93	9303-ALH-02-01	M660	61.50
05/26/93	9303-AC-01-02	M660	53.90
05/26/93	9303-AE-01-01	M660	62.30
05/26/93	9303-AG-01-01	M660	60.20
05/26/93	9303-ALH-03-01	M660	54.20
05/26/93	9303-ALS-01-01	M660	59.30
05/26/93	9303-FLH-01-01	M660	55.70

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#103, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/26/93	9303-FLH-02-01	M660	56.80	
05/21/93	9303-AA-01-01	M661	60.90	
05/21/93	9303-AC-01-01	M661	57.10	
05/21/93	9303-AC-01-02	M661	58.70	
05/21/93	9303-ADT-01-01	M661	60.80	
05/21/93	9303-AE-01-01	M661	64.20	
05/21/93	9303-AG-01-01	M661	63.40	
05/21/93	9303-ALH-01-01	M661	65.20	
05/21/93	9303-ALH-03-01	M661	75.00	
05/21/93	9303-ALS-01-01	M661	79.70	
05/21/93	9303-ALS-02-01	M661	63.60	
05/21/93	9303-FLH-01-01	M661	81.00	
05/26/93	9303-AD-01-01	M661	46.70	
05/26/93	9303-AE-01-02	M661	70.30	
05/26/93	9303-AF-01-01	M661	67.30	
05/26/93	9303-ALH-02-01	M661	73.00	
06/04/93	9303-BDT-01-01	M680	69.60	
06/04/93	9303-BDT-01-01	M680	66.90	
06/04/93	9303-FDT-02-01	M680	65.90	
06/04/93	9303-FDT-02-01	M680	49.90	
06/04/93	9303-FDT-03-01	M680	47.00	
06/04/93	9303-FDT-03-01	M680	60.40	
06/04/93	9303-FG-01-01	M680	67.10	
06/04/93	9303-FG-01-01	M680	60.00	
06/04/93	9303-FLH-03-01	M680	63.60	
06/04/93	9303-FLH-03-01	M680	71.40	
06/04/93	9303-FLH-03-02	M680	66.20	
06/04/93	9303-FLH-03-02	M680	59.70	
06/16/93	9303-GLS-01-01	M690	103.60	
07/02/93	9303-BA-01-01	M690	56.10	
07/02/93	9303-BA-01-01	M690	82.00	
07/02/93	9303-BE-01-01	M690	0.00	(Q)
07/02/93	9303-BE-01-01	M690	81.50	
07/02/93	9303-GLS-01-01	M690	60.30	
07/02/93	9303-IDT-01-01	M690	75.50	
07/02/93	9303-IDT-01-01	M690	67.80	
07/02/93	9303-NLS-01-01	M690	80.60	
07/02/93	9303-NLS-01-01	M690	54.10	

Number of Samples	: 52	Below acceptance :	1
Mean % Recovery	: 62.3	Above acceptance :	0
Standard Deviation	: 13.76	Acceptance Criteria :	20-150

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#103, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	PROC. BLANK	M660	57.40
05/21/93	PROC. BLANK	M661	71.50
06/04/93	PROC. BLANK	M680	81.10
06/04/93	PROC. BLANK	M680	81.40
07/02/93	PROC. BLANK	M690	79.40
07/02/93	PROC. BLANK	M690	76.40

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 74.5 Above acceptance : 0
Standard Deviation : 9.17 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SAND BLANK	M660	54.50
05/21/93	SAND BLANK	M661	76.00
06/04/93	SAND BLANK	M680	76.50
06/04/93	SAND BLANK	M680	75.00
07/02/93	SAND BLANK	M690	73.70
07/02/93	SAND BLANK	M690	89.70

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 74.2 Above acceptance : 0
Standard Deviation : 11.29 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	62.60
05/21/93	SPIKED BLANK	M661	77.30
06/04/93	SPIKED BLANK	M680	59.60
06/04/93	SPIKED BLANK	M680	68.30
07/02/93	SPIKED BLANK	M690	54.50

Number of Samples : 5 Below acceptance : 0
Mean % Recovery : 64.5 Above acceptance : 0
Standard Deviation : 8.74 Acceptance Criteria : 20-150

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	64.80
05/26/93	9303-AE-01-01 MSD	M660	61.70
05/21/93	9303-AE-01-01 MS	M661	77.10
05/21/93	9303-AE-01-01 MSD	M661	61.80
06/04/93	9303-FDT-01-01 MS	M680	47.20

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#103, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/04/93	9303-FDT-01-01 MS	M680	66.70
06/04/93	9303-FDT-01-01 MSD	M680	61.40
06/04/93	9303-FDT-01-01 MSD	M680	54.80

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 61.9	Above acceptance :	0
Standard Deviation	: 8.70	Acceptance Criteria :	20-150

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#198

Type of Spike : Surrogate

05/21/93	9303-AA-01-01	M660	62.60
05/21/93	9303-AC-01-01	M660	64.20
05/21/93	9303-AD-01-01	M660	72.10
05/21/93	9303-ADT-01-01	M660	79.50
05/21/93	9303-AE-01-02	M660	61.80
05/21/93	9303-AF-01-01	M660	57.40
05/21/93	9303-ALH-01-01	M660	59.70
05/21/93	9303-ALH-02-01	M660	73.60
05/26/93	9303-AC-01-02	M660	58.70
05/26/93	9303-AE-01-01	M660	82.20
05/26/93	9303-AG-01-01	M660	74.20
05/26/93	9303-ALH-03-01	M660	45.20
05/26/93	9303-ALS-01-01	M660	55.60
05/26/93	9303-FLH-01-01	M660	51.10
05/26/93	9303-FLH-02-01	M660	49.90
05/21/93	9303-AA-01-01	M661	79.70
05/21/93	9303-AC-01-01	M661	73.00
05/21/93	9303-AC-01-02	M661	67.90
05/21/93	9303-ADT-01-01	M661	95.00
05/21/93	9303-AE-01-01	M661	74.40
05/21/93	9303-AG-01-01	M661	79.30
05/21/93	9303-ALH-01-01	M661	68.60
05/21/93	9303-ALH-03-01	M661	114.70
05/21/93	9303-ALS-01-01	M661	82.50
05/21/93	9303-ALS-02-01	M661	89.80
05/21/93	9303-FLH-01-01	M661	97.60
05/26/93	9303-AD-01-01	M661	59.40
05/26/93	9303-AE-01-02	M661	88.40
05/26/93	9303-AF-01-01	M661	83.40
05/26/93	9303-ALH-02-01	M661	94.80
06/04/93	9303-BDT-01-01	M680	69.60
06/04/93	9303-BDT-01-01	M680	67.50

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#198, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/04/93	9303-FDT-02-01	M680	76.30	
06/04/93	9303-FDT-02-01	M680	41.00	
06/04/93	9303-FDT-03-01	M680	67.80	
06/04/93	9303-FDT-03-01	M680	49.80	
06/04/93	9303-FG-01-01	M680	74.30	
06/04/93	9303-FG-01-01	M680	52.30	
06/04/93	9303-FLH-03-01	M680	54.20	
06/04/93	9303-FLH-03-01	M680	99.70	
06/04/93	9303-FLH-03-02	M680	60.90	
06/04/93	9303-FLH-03-02	M680	62.60	
06/16/93	9303-GLS-01-01	M690	86.40	
07/02/93	9303-BA-01-01	M690	62.50	
07/02/93	9303-BA-01-01	M690	39.30	
07/02/93	9303-BE-01-01	M690	55.20	
07/02/93	9303-BE-01-01	M690	0.00	(Q)
07/02/93	9303-GLS-01-01	M690	65.80	
07/02/93	9303-IDT-01-01	M690	47.70	
07/02/93	9303-IDT-01-01	M690	49.80	
07/02/93	9303-NLS-01-01	M690	68.90	
07/02/93	9303-NLS-01-01	M690	42.00	

Number of Samples	: 52	Below acceptance :	1
Mean % Recovery	: 67.1	Above acceptance :	0
Standard Deviation	: 18.97	Acceptance Criteria :	20-150

Type of Spike : Surrogate - Blank Sample

05/26/93	PROC. BLANK	M660	49.80
05/21/93	PROC. BLANK	M661	62.30
06/04/93	PROC. BLANK	M680	96.20
06/04/93	PROC. BLANK	M680	84.10
07/02/93	PROC. BLANK	M690	64.30
07/02/93	PROC. BLANK	M690	48.60

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 67.6	Above acceptance :	0
Standard Deviation	: 19.01	Acceptance Criteria :	20-150

Type of Spike : Surrogate - Blank Sample

05/26/93	SAND BLANK	M660	43.50
05/21/93	SAND BLANK	M661	61.60
06/04/93	SAND BLANK	M680	79.30
06/04/93	SAND BLANK	M680	70.40

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : PCB#198, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SAND BLANK	M690	47.10
07/02/93	SAND BLANK	M690	94.90

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 66.1	Above acceptance :	0
Standard Deviation	: 19.57	Acceptance Criteria :	20-150

Type of Spike : Surrogate - Laboratory Control

05/26/93	SPIKED BLANK	M660	54.30
05/21/93	SPIKED BLANK	M661	71.70
06/04/93	SPIKED BLANK	M680	33.60
06/04/93	SPIKED BLANK	M680	63.50
07/02/93	SPIKED BLANK	M690	22.40

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 49.1	Above acceptance :	0
Standard Deviation	: 20.61	Acceptance Criteria :	20-150

Type of Spike : Surrogate - Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	72.50
05/26/93	9303-AE-01-01 MSD	M660	68.30
05/21/93	9303-AE-01-01 MS	M661	110.10
05/21/93	9303-AE-01-01 MSD	M661	75.30
06/04/93	9303-FDT-01-01 MS	M680	30.50
06/04/93	9303-FDT-01-01 MS	M680	74.70
06/04/93	9303-FDT-01-01 MSD	M680	55.40
06/04/93	9303-FDT-01-01 MSD	M680	41.70

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 66.1	Above acceptance :	0
Standard Deviation	: 24.25	Acceptance Criteria :	20-150

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : alpha-BHC

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	50.00
05/21/93	SPIKED BLANK	M661	73.00
06/04/93	SPIKED BLANK	M680	71.00
06/04/93	SPIKED BLANK	M680	67.00

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : alpha-BHC, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SPIKED BLANK	M690	49.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 62.0	Above acceptance :	0
Standard Deviation	: 11.62	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	48.00
05/26/93	9303-AE-01-01 MSD	M660	47.00
05/21/93	9303-AE-01-01 MS	M661	69.00
05/21/93	9303-AE-01-01 MSD	M661	51.00
06/04/93	9303-FDT-01-01 MS	M680	71.00
06/04/93	9303-FDT-01-01 MS	M680	61.00
06/04/93	9303-FDT-01-01 MSD	M680	71.00
06/04/93	9303-FDT-01-01 MSD	M680	68.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 60.8	Above acceptance :	0
Standard Deviation	: 10.54	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : alpha-Chlordane

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	61.00
05/21/93	SPIKED BLANK	M661	86.00
06/04/93	SPIKED BLANK	M680	74.00
06/04/93	SPIKED BLANK	M680	77.00
07/02/93	SPIKED BLANK	M690	54.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 70.4	Above acceptance :	0
Standard Deviation	: 12.82	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	57.00
05/26/93	9303-AE-01-01 MSD	M660	55.00
05/21/93	9303-AE-01-01 MS	M661	71.00
05/21/93	9303-AE-01-01 MSD	M661	56.00
06/04/93	9303-FDT-01-01 MS	M680	101.00

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : alpha-Chlordane, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/04/93	9303-FDT-01-01 MS	M680	75.00
06/04/93	9303-FDT-01-01 MSD	M680	79.00
06/04/93	9303-FDT-01-01 MSD	M680	100.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 74.3	Above acceptance :	0
Standard Deviation	: 18.57	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : beta-BHC

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	17.00	(Q)
05/21/93	SPIKED BLANK	M661	25.00	(Q)
06/04/93	SPIKED BLANK	M680	21.00	(Q)
06/04/93	SPIKED BLANK	M680	22.00	(Q)
07/02/93	SPIKED BLANK	M690	17.00	(Q)

Number of Samples	: 5	Below acceptance :	5
Mean % Recovery	: 20.4	Above acceptance :	0
Standard Deviation	: 3.44	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	5.00	(Q)
05/26/93	9303-AE-01-01 MSD	M660	6.00	(Q)
05/21/93	9303-AE-01-01 MS	M661	19.00	(Q)
05/21/93	9303-AE-01-01 MSD	M661	12.00	(Q)
06/04/93	9303-FDT-01-01 MS	M680	13.00	(Q)
06/04/93	9303-FDT-01-01 MS	M680	27.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	13.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	24.00	(Q)

Number of Samples	: 8	Below acceptance :	8
Mean % Recovery	: 14.9	Above acceptance :	0
Standard Deviation	: 7.92	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : delta-BHC

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	66.00
05/21/93	SPIKED BLANK	M661	82.00
06/04/93	SPIKED BLANK	M680	70.00
D6/04/93	SPIKED BLANK	M680	62.00
07/02/93	SPIKED BLANK	M690	49.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 65.8	Above acceptance :	0
Standard Deviation	: 12.01	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	55.00
05/26/93	9303-AE-01-01 MSD	M660	60.00
05/21/93	9303-AE-01-01 MS	M661	69.00
05/21/93	9303-AE-01-01 MSD	M661	57.00
06/04/93	9303-FDT-01-01 MS	M680	78.00
06/04/93	9303-FDT-01-01 MS	M680	54.00
06/04/93	9303-FDT-01-01 MSD	M680	61.00
06/04/93	9303-FDT-01-01 MSD	M680	52.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 60.8	Above acceptance :	0
Standard Deviation	: 8.75	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : gamma-BHC

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	58.00
05/21/93	SPIKED BLANK	M661	78.00
06/04/93	SPIKED BLANK	M680	69.00
06/04/93	SPIKED BLANK	M680	75.00
07/02/93	SPIKED BLANK	M690	49.00

Number of Samples	: 5	Below acceptance :	0
Mean % Recovery	: 65.8	Above acceptance :	0
Standard Deviation	: 12.11	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : gamma-BHC, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	9303-AE-01-01 MS	M660	54.00
05/26/93	9303-AE-01-01 MSD	M660	52.00
05/21/93	9303-AE-01-01 MS	M661	68.00
05/21/93	9303-AE-01-01 MSD	M661	53.00
06/04/93	9303-FDT-01-01 MS	M680	77.00
06/04/93	9303-FDT-01-01 MS	M680	67.00
06/04/93	9303-FDT-01-01 MSD	M680	72.00
06/04/93	9303-FDT-01-01 MSD	M680	70.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 64.1	Above acceptance :	0
Standard Deviation	: 9.70	Acceptance Criteria :	40-120

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : gamma-Chlordane

Type of Spike : Laboratory Control

05/26/93	SPIKED BLANK	M660	56.00	
05/21/93	SPIKED BLANK	M661	78.00	
06/04/93	SPIKED BLANK	M680	72.00	
06/04/93	SPIKED BLANK	M680	71.00	
07/02/93	SPIKED BLANK	M690	32.00	(Q)

Number of Samples	: 5	Below acceptance :	1
Mean % Recovery	: 61.8	Above acceptance :	0
Standard Deviation	: 18.53	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

05/26/93	9303-AE-01-01 MS	M660	58.00
05/26/93	9303-AE-01-01 MSD	M660	57.00
05/21/93	9303-AE-01-01 MS	M661	74.00
05/21/93	9303-AE-01-01 MSD	M661	60.00
06/04/93	9303-FDT-01-01 MS	M680	92.00
06/04/93	9303-FDT-01-01 MS	M680	75.00
06/04/93	9303-FDT-01-01 MSD	M680	76.00
06/04/93	9303-FDT-01-01 MSD	M680	90.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 72.8	Above acceptance :	0
Standard Deviation	: 13.70	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9017 - Chlorinated Pesticides and PCBs
Spiked Analyte : trans-Nonachlor

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/26/93	SPIKED BLANK	M660	59.00
05/21/93	SPIKED BLANK	M661	83.00
06/04/93	SPIKED BLANK	M680	69.00
06/04/93	SPIKED BLANK	M680	71.00
07/02/93	SPIKED BLANK	M690	47.00

Number of Samples : 5 Below acceptance : 0
Mean % Recovery : 65.8 Above acceptance : 0
Standard Deviation : 13.54 Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/26/93	9303-AE-01-01 MS	M660	58.00	
05/26/93	9303-AE-01-01 MSD	M660	57.00	
05/21/93	9303-AE-01-01 MS	M661	74.00	
05/21/93	9303-AE-01-01 MSD	M661	59.00	
06/04/93	9303-FDT-01-01 MS	M680	81.00	
06/04/93	9303-FDT-01-01 MS	M680	143.00	(Q)
06/04/93	9303-FDT-01-01 MSD	M680	114.00	
06/04/93	9303-FDT-01-01 MSD	M680	139.00	(Q)

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 90.6 Above acceptance : 2
Standard Deviation : 36.24 Acceptance Criteria : 40-120

Method : SOP-9202 - Metals By DCP
Spiked Analyte : Barium

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/19/93	SPIKED BLANK	TRACE_006	100.93
05/19/93	SPIKED BLANK	TRACE_006	107.10
05/19/93	SPIKED BLANK	TRACE_006	113.39
05/19/93	SPIKED BLANK	TRACE_006	105.54
05/19/93	SPIKED BLANK	TRACE_006	103.87
05/19/93	SPIKED BLANK	TRACE_006	119.29
05/19/93	SPIKED BLANK	TRACE_006	101.82
05/19/93	SPIKED BLANK	TRACE_006	102.71

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 106.8 Above acceptance : 0
Standard Deviation : 6.39 Acceptance Criteria : 75-125

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9202 - Metals By DCP
Spiked Analyte : Barium, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/19/93	9303-AE-01-01 MS	TRACE_006	108.50
05/19/93	9303-AE-01-01 MS	TRACE_006	103.50
05/19/93	9303-AE-01-01 MSD	TRACE_006	109.90
05/19/93	9303-AE-01-01 MSD	TRACE_006	105.10
05/19/93	9303-FDT-01-01.1 MS	TRACE_006	114.80
05/19/93	9303-FDT-01-01.1 MSD	TRACE_006	103.90
05/19/93	9303-FDT-01-01.2 MS	TRACE_006	83.00
05/19/93	9303-FDT-01-01.2 MSD	TRACE_006	85.90

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 101.8 Above acceptance : 0
Standard Deviation : 11.36 Acceptance Criteria : 75-125

Method : SOP-9202 - Metals By DCP
Spiked Analyte : Manganese

Type of Spike : Laboratory Control

05/13/93	SPIKED BLANK	TRACE_011	111.13
05/13/93	SPIKED BLANK	TRACE_011	100.81
05/13/93	SPIKED BLANK	TRACE_011	101.48
05/13/93	SPIKED BLANK	TRACE_011	102.87
05/13/93	SPIKED BLANK	TRACE_011	104.53
05/13/93	SPIKED BLANK	TRACE_011	104.77
05/13/93	SPIKED BLANK	TRACE_011	110.58
05/21/93	SPIKED BLANK	TRACE_012	100.84

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 104.6 Above acceptance : 0
Standard Deviation : 4.14 Acceptance Criteria : 75-125

Type of Spike : Laboratory Control

05/13/93	NIST-1566a	TRACE_011	100.46
05/13/93	NIST-1566a	TRACE_011	95.92
05/13/93	NIST-1566a	TRACE_011	110.24
05/13/93	NIST-1566a	TRACE_011	103.27
05/13/93	NIST-1566a	TRACE_011	100.52
05/13/93	NRCC DOLT-2	TRACE_011	104.48
05/13/93	NRCC DOLT-2	TRACE_011	115.79
05/13/93	NRCC DOLT-2	TRACE_011	96.65
05/13/93	NRCC DOLT-2	TRACE_011	119.29
05/13/93	NRCC DOLT-2	TRACE_011	108.55
05/21/93	NIST-1566a	TRACE_012	97.24

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SOP-9202 - Metals By DCP
Spiked Analyte : Manganese, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/21/93	NRCC DOLT-2	TRACE_012	565.22	(Q)

Number of Samples	: 12	Below acceptance :	0
Mean % Recovery	: 143.1	Above acceptance :	1
Standard Deviation	: 133.13	Acceptance Criteria :	80-120

Type of Spike : Matrix Spike

05/13/93	9303-AE-01-01 MS	TRACE_011	130.20	(Q)
05/13/93	9303-AE-01-01 MS	TRACE_011	170.00	(Q)
05/13/93	9303-AE-01-01 MSD	TRACE_011	150.90	(Q)
05/13/93	9303-AE-01-01 MSD	TRACE_011	107.30	
05/13/93	9303-FDT-01-01.1 MS	TRACE_011	102.80	
05/13/93	9303-FDT-01-01.1 MSD	TRACE_011	85.60	
05/13/93	9303-FDT-01-01.2 MS	TRACE_011	76.50	
05/13/93	9303-FDT-01-01.2 MSD	TRACE_011	77.20	

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 112.6	Above acceptance :	3
Standard Deviation	: 34.81	Acceptance Criteria :	75-125

Method : SW7040 - Antimony
Spiked Analyte : Antimony

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	TRACE_001	102.45
05/18/93	SPIKED BLANK	TRACE_001	99.85
05/19/93	SPIKED BLANK	TRACE_002	94.59
05/19/93	SPIKED BLANK	TRACE_002	95.20
05/19/93	SPIKED BLANK	TRACE_002	98.04
05/19/93	SPIKED BLANK	TRACE_002	92.74
05/19/93	SPIKED BLANK	TRACE_002	95.09
05/19/93	SPIKED BLANK	TRACE_002	95.92

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 96.7	Above acceptance :	0
Standard Deviation	: 3.17	Acceptance Criteria :	75-125

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7040 - Antimony
Spiked Analyte : Antimony, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	9303-AE-01-01 MS	TRACE_001	96.60
05/18/93	9303-AE-01-01 MSD	TRACE_001	101.80
05/18/93	9303-FDT-01-01.1 MS	TRACE_001	95.60
05/18/93	9303-FDT-01-01.1 MSD	TRACE_001	98.90
05/19/93	9303-AE-01-01 MS	TRACE_002	97.60
05/19/93	9303-AE-01-01 MSD	TRACE_002	94.80
05/19/93	9303-FDT-01-01.2 MS	TRACE_002	86.80
05/19/93	9303-FDT-01-01.2 MSD	TRACE_002	88.30

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 95.1 Above acceptance : 0
Standard Deviation : 5.12 Acceptance Criteria : 75-125

Method : SW7060 - Arsenic
Spiked Analyte : Arsenic

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	TRACE_003	92.54
05/18/93	SPIKED BLANK	TRACE_003	92.69
05/19/93	SPIKED BLANK	TRACE_004	95.29
05/19/93	SPIKED BLANK	TRACE_004	92.97
05/19/93	SPIKED BLANK	TRACE_004	87.86
05/24/93	SPIKED BLANK	TRACE_005	95.15
05/24/93	SPIKED BLANK	TRACE_005	96.65
05/24/93	SPIKED BLANK	TRACE_005	97.64

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 93.8 Above acceptance : 0
Standard Deviation : 3.06 Acceptance Criteria : 75-125

Type of Spike : Laboratory Control

05/18/93	NIST-1566a	TRACE_003	84.64	
05/18/93	NRCC DOLT-2	TRACE_003	74.06	(Q)
05/19/93	NIST-1566a	TRACE_004	79.76	
05/19/93	NIST-1566a	TRACE_004	83.53	
05/19/93	NIST-1566a	TRACE_004	83.11	
05/19/93	NRCC DOLT-2	TRACE_004	72.04	(Q)
05/19/93	NRCC DOLT-2	TRACE_004	73.53	(Q)
05/19/93	NRCC DOLT-2	TRACE_004	69.60	(Q)
05/24/93	NIST-1566a	TRACE_005	77.44	
05/24/93	NIST-1566a	TRACE_005	78.70	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7060 - Arsenic
Spiked Analyte : Arsenic, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/24/93	NRCC DOLT-2	TRACE_005	64.94	(Q)
05/24/93	NRCC DOLT-2	TRACE_005	66.84	(Q)

Number of Samples	: 12	Below acceptance :	6
Mean % Recovery	: 75.7	Above acceptance :	0
Standard Deviation	: 6.59	Acceptance Criteria :	75-125

Type of Spike : Matrix Spike

05/18/93	9303-AE-01-01 MS	TRACE_003	90.20	
05/18/93	9303-AE-01-01 MSD	TRACE_003	90.30	
05/18/93	9303-FDT-01-01.1 MS	TRACE_003	75.10	
05/18/93	9303-FDT-01-01.1 MSD	TRACE_003	78.90	
05/19/93	9303-FDT-01-01.2 MS	TRACE_004	74.90	
05/19/93	9303-FDT-01-01.2 MSD	TRACE_004	71.70	(Q)
05/24/93	9303-AE-01-01 MS	TRACE_005	82.00	
05/24/93	9303-AE-01-01 MSD	TRACE_005	81.70	

Number of Samples	: 8	Below acceptance :	2
Mean % Recovery	: 80.6	Above acceptance :	0
Standard Deviation	: 6.91	Acceptance Criteria :	75-125

Method : SW7131 - Cadmium
Spiked Analyte : Cadmium

Type of Spike : Laboratory Control

05/13/93	SPIKED BLANK	TRACE_007	92.38
05/13/93	SPIKED BLANK	TRACE_007	97.03
05/13/93	SPIKED BLANK	TRACE_007	96.96
05/13/93	SPIKED BLANK	TRACE_007	93.35
05/13/93	SPIKED BLANK	TRACE_007	99.92
05/13/93	SPIKED BLANK	TRACE_007	92.52
05/13/93	SPIKED BLANK	TRACE_007	95.75
05/13/93	SPIKED BLANK	TRACE_007	94.78

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 95.3	Above acceptance :	0
Standard Deviation	: 2.61	Acceptance Criteria :	75-125

Method : SW7131 - Cadmium
Spiked Analyte : Cadmium, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/13/93	NIST-1566a	TRACE_007	96.25
05/13/93	NIST-1566a	TRACE_007	96.77
05/13/93	NIST-1566a	TRACE_007	85.97
05/13/93	NIST-1566a	TRACE_007	96.35
05/13/93	NIST-1566a	TRACE_007	86.40
05/13/93	NIST-1566a	TRACE_007	83.16
05/13/93	NRCC DOLT-2	TRACE_007	86.72
05/13/93	NRCC DOLT-2	TRACE_007	82.82
05/13/93	NRCC DOLT-2	TRACE_007	83.56
05/13/93	NRCC DOLT-2	TRACE_007	92.81
05/13/93	NRCC DOLT-2	TRACE_007	81.87
05/13/93	NRCC DOLT-2	TRACE_007	83.84

Number of Samples : 12 Below acceptance : 0
Mean % Recovery : 88.0 Above acceptance : 0
Standard Deviation : 5.81 Acceptance Criteria : 75-125

Type of Spike : Matrix Spike

05/13/93	9303-AE-01-01 MS	TRACE_007	95.00
05/13/93	9303-AE-01-01 MS	TRACE_007	89.80
05/13/93	9303-AE-01-01 MSD	TRACE_007	88.60
05/13/93	9303-AE-01-01 MSD	TRACE_007	93.80
05/13/93	9303-FDT-01-01.1 MS	TRACE_007	82.70
05/13/93	9303-FDT-01-01.1 MSD	TRACE_007	83.90
05/13/93	9303-FDT-01-01.2 MS	TRACE_007	89.00
05/13/93	9303-FDT-01-01.2 MSD	TRACE_007	86.00

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 88.6 Above acceptance : 0
Standard Deviation : 4.36 Acceptance Criteria : 75-125

Method : SW7191 - Chromium
Spiked Analyte : Chromium

Type of Spike : Laboratory Control

05/17/93	SPIKED BLANK	TRACE_008	95.34
05/17/93	SPIKED BLANK	TRACE_008	85.50
05/17/93	SPIKED BLANK	TRACE_008	83.35
05/17/93	SPIKED BLANK	TRACE_008	91.30
05/17/93	SPIKED BLANK	TRACE_008	91.47
05/17/93	SPIKED BLANK	TRACE_008	82.63

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
Method : SW7191 - Chromium				
Spiked Analyte : Chromium, continued				
Type of Spike : Laboratory Control				
05/17/93	SPIKED BLANK	TRACE_008	96.65	
05/17/93	SPIKED BLANK	TRACE_008	102.12	
Number of Samples	: 8		Below acceptance :	0
Mean % Recovery	: 91.0		Above acceptance :	0
Standard Deviation	: 6.90		Acceptance Criteria :	75-125
Type of Spike : Laboratory Control				
05/17/93	NIST-1566a	TRACE_008	77.72	
05/17/93	NIST-1566a	TRACE_008	86.57	
05/17/93	NIST-1566a	TRACE_008	96.14	
05/17/93	NIST-1566a	TRACE_008	79.58	
05/17/93	NIST-1566a	TRACE_008	95.80	
05/17/93	NIST-1566a	TRACE_008	92.08	
05/17/93	NRCC DOLT-2	TRACE_008	81.94	
05/17/93	NRCC DOLT-2	TRACE_008	120.91	
05/17/93	NRCC DOLT-2	TRACE_008	125.02	
05/17/93	NRCC DOLT-2	TRACE_008	59.38	(Q)
05/17/93	NRCC DOLT-2	TRACE_008	97.17	
05/17/93	NRCC DOLT-2	TRACE_008	84.83	
Number of Samples	: 12		Below acceptance :	1
Mean % Recovery	: 91.4		Above acceptance :	1
Standard Deviation	: 18.05		Acceptance Criteria :	75-125
Type of Spike : Matrix Spike				
05/17/93	9303-AE-01-01 MS	TRACE_008	102.90	
05/17/93	9303-AE-01-01 MS	TRACE_008	100.30	
05/17/93	9303-AE-01-01 MSD	TRACE_008	101.80	
05/17/93	9303-AE-01-01 MSD	TRACE_008	102.80	
05/17/93	9303-FDT-01-01.1 MS	TRACE_008	95.70	
05/17/93	9303-FDT-01-01.1 MSD	TRACE_008	95.80	
05/17/93	9303-FDT-01-01.2 MS	TRACE_008	100.80	
05/17/93	9303-FDT-01-01.2 MSD	TRACE_008	99.50	
Number of Samples	: 8		Below acceptance :	0
Mean % Recovery	: 100.0		Above acceptance :	0
Standard Deviation	: 2.84		Acceptance Criteria :	75-125

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	

Method : SW7191 - Chromium
Spiked Analyte : Chromium, continued

Method : SW7421 - Lead
Spiked Analyte : Lead

Type of Spike : Laboratory Control

05/13/93	SPIKED BLANK	TRACE_009	96.91	
05/13/93	SPIKED BLANK	TRACE_009	94.13	
05/13/93	SPIKED BLANK	TRACE_009	95.76	
05/13/93	SPIKED BLANK	TRACE_009	99.29	
05/13/93	SPIKED BLANK	TRACE_009	96.88	
05/13/93	SPIKED BLANK	TRACE_009	96.38	
05/13/93	SPIKED BLANK	TRACE_009	101.76	
05/13/93	SPIKED BLANK	TRACE_009	100.39	

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 97.7 Above acceptance : 0
Standard Deviation : 2.56 Acceptance Criteria : 75-125

Type of Spike : Laboratory Control

05/13/93	NIST-1566a	TRACE_009	93.61	
05/13/93	NIST-1566a	TRACE_009	88.59	
05/13/93	NIST-1566a	TRACE_009	84.10	
05/13/93	NIST-1566a	TRACE_009	101.89	
05/13/93	NIST-1566a	TRACE_009	88.04	
05/13/93	NIST-1566a	TRACE_009	94.89	
05/13/93	NRCC DOLT-2	TRACE_009	72.6B	(Q)
05/13/93	NRCC DOLT-2	TRACE_009	88.29	
05/13/93	NRCC DOLT-2	TRACE_009	88.29	
05/13/93	NRCC DOLT-2	TRACE_009	95.42	
05/13/93	NRCC DOLT-2	TRACE_009	75.51	
05/13/93	NRCC DOLT-2	TRACE_009	130.83	(Q)

Number of Samples : 12 Below acceptance : 1
Mean % Recovery : 91.8 Above acceptance : 1
Standard Deviation : 14.74 Acceptance Criteria : 75-125

Type of Spike : Matrix Spike

05/13/93	9303-AE-01-01 MS	TRACE_009	99.40
05/13/93	9303-AE-01-01 MS	TRACE_009	98.50
05/13/93	9303-AE-01-01 MSD	TRACE_009	100.30
05/13/93	9303-AE-01-01 MSD	TRACE_009	98.60
05/13/93	9303-FDT-01-01.1 MS	TRACE_009	101.70
05/13/93	9303-FDT-01-01.1 MSD	TRACE_009	100.50

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SW7421 - Lead
Spiked Analyte : Lead, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/13/93	9303-FDT-01-01.2 MS	TRACE_009	98.40
05/13/93	9303-FDT-01-01.2 MSD	TRACE_009	99.60

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 99.6	Above acceptance :	0
Standard Deviation	: 1.16	Acceptance Criteria :	75-125

Method : SW7450 - Magnesium
Spiked Analyte : Magnesium

Type of Spike : Laboratory Control

05/14/93	SPIKED BLANK	TRACE_010	100.54
05/14/93	SPIKED BLANK	TRACE_010	93.42
05/14/93	SPIKED BLANK	TRACE_010	102.56
05/14/93	SPIKED BLANK	TRACE_010	103.61
05/14/93	SPIKED BLANK	TRACE_010	91.66
05/14/93	SPIKED BLANK	TRACE_010	95.62
05/14/93	SPIKED BLANK	TRACE_010	96.66
05/14/93	SPIKED BLANK	TRACE_010	97.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 97.6	Above acceptance :	0
Standard Deviation	: 4.26	Acceptance Criteria :	75-125

Type of Spike : Laboratory Control

05/14/93	NIST-1566a	TRACE_010	90.60
05/14/93	NIST-1566a	TRACE_010	90.63
05/14/93	NIST-1566a	TRACE_010	88.65
05/14/93	NIST-1566a	TRACE_010	89.85
05/14/93	NIST-1566a	TRACE_010	85.86
05/14/93	NIST-1566a	TRACE_010	87.85

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 88.9	Above acceptance :	0
Standard Deviation	: 1.85	Acceptance Criteria :	75-125

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7450 - Magnesium
Spiked Analyte : Magnesium, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/14/93	9303-AE-01-01 MS	TRACE_010	130.80	(Q)
05/14/93	9303-AE-01-01 MS	TRACE_010	186.50	(Q)
05/14/93	9303-AE-01-01 MSD	TRACE_010	98.10	(Q)
05/14/93	9303-AE-01-01 MSD	TRACE_010	113.80	
05/14/93	9303-FDT-01-01.1 MS	TRACE_010	0.00	(Q)
05/14/93	9303-FDT-01-01.1 MSD	TRACE_010	0.00	(Q)
05/14/93	9303-FDT-01-01.2 MS	TRACE_010	136.90	(Q)
05/14/93	9303-FDT-01-01.2 MSD	TRACE_010	157.10	(Q)

Number of Samples	: 8	Below acceptance :	2
Mean % Recovery	: 102.9	Above acceptance :	4
Standard Deviation	: 68.85	Acceptance Criteria :	75-125

Method : SW7471 - Mercury
Spiked Analyte : Mercury

Type of Spike : Laboratory Control

04/27/93	SPIKED BLANK	TRACE_013	88.28	
04/27/93	SPIKED BLANK	TRACE_013	92.90	
04/27/93	SPIKED BLANK	TRACE_013	95.40	
04/29/93	SPIKED BLANK	TRACE_014	121.38	(Q)
04/29/93	SPIKED BLANK	TRACE_014	130.00	(Q)
04/29/93	SPIKED BLANK	TRACE_014	94.59	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 103.8	Above acceptance :	2
Standard Deviation	: 17.38	Acceptance Criteria :	80-120

Type of Spike : Laboratory Control

04/27/93	NIST-1566a	TRACE_013	109.67	
04/27/93	NIST-1566a	TRACE_013	95.01	
04/27/93	NRCC DOLT-2	TRACE_013	111.39	
04/27/93	NRCC DOLT-2	TRACE_013	104.69	
04/29/93	NIST-1566a	TRACE_014	104.42	
04/29/93	NIST-1566a	TRACE_014	102.28	
04/29/93	NRCC DOLT-2	TRACE_014	122.76	(Q)
04/29/93	NRCC DOLT-2	TRACE_014	97.68	

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 106.0	Above acceptance :	1
Standard Deviation	: 8.72	Acceptance Criteria :	80-120

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7471 - Mercury
Spiked Analyte : Mercury, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
04/27/93	9303-AE-01-01 MS	TRACE_013	88.40	
04/27/93	9303-AE-01-01 MSD	TRACE_013	89.70	
04/27/93	9303-FDT-01-01.1 MS	TRACE_013	90.90	
04/27/93	9303-FDT-01-01.1 MSD	TRACE_013	84.60	
04/29/93	9303-AE-01-01 MS	TRACE_014	81.40	
04/29/93	9303-AE-01-01 MSD	TRACE_014	82.10	
04/29/93	9303-FDT-01-01.2 MS	TRACE_014	82.50	
04/29/93	9303-FDT-01-01.2 MSD	TRACE_014	79.70	

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 84.9 Above acceptance : 0
Standard Deviation : 4.21 Acceptance Criteria : 75-125

Method : SW7740 - Selenium
Spiked Analyte : Selenium

Type of Spike : Laboratory Control

05/24/93	SPIKED BLANK	TRACE_016	100.64	
05/24/93	SPIKED BLANK	TRACE_016	105.49	
05/24/93	SPIKED BLANK	TRACE_016	106.25	
05/24/93	SPIKED BLANK	TRACE_016	105.14	
05/24/93	SPIKED BLANK	TRACE_016	100.83	
05/24/93	SPIKED BLANK	TRACE_016	96.90	
05/24/93	SPIKED BLANK	TRACE_016	96.30	
05/24/93	SPIKED BLANK	TRACE_016	95.45	

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 100.9 Above acceptance : 0
Standard Deviation : 4.38 Acceptance Criteria : 75-125

Type of Spike : Laboratory Control

05/24/93	NIST-1566a	TRACE_016	78.74	
05/24/93	NIST-1566a	TRACE_016	76.21	
05/24/93	NIST-1566a	TRACE_016	82.47	
05/24/93	NIST-1566a	TRACE_016	80.53	
05/24/93	NIST-1566a	TRACE_016	103.98	
05/24/93	NIST-1566a	TRACE_016	86.25	
05/24/93	NRCC DOLT-2	TRACE_016	64.83	(Q)
05/24/93	NRCC DOLT-2	TRACE_016	78.21	
05/24/93	NRCC DOLT-2	TRACE_016	68.75	(Q)
05/24/93	NRCC DOLT-2	TRACE_016	86.27	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SW7740 - Selenium
Spiked Analyte : Selenium, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/24/93	NRCC DOLT-2	TRACE_016	75.17	
05/24/93	NRCC DOLT-2	TRACE_016	0.00	(Q)

Number of Samples	: 12	Below acceptance :	3
Mean % Recovery	: 73.5	Above acceptance :	0
Standard Deviation	: 25.13	Acceptance Criteria :	75-125

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/24/93	9303-AE-01-01 MS	TRACE_016	104.30
05/24/93	9303-AE-01-01 MS	TRACE_016	104.10
05/24/93	9303-AE-01-01 MSD	TRACE_016	101.80
05/24/93	9303-AE-01-01 MSD	TRACE_016	105.80
05/24/93	9303-FDT-01-01.1 MS	TRACE_016	103.80
05/24/93	9303-FDT-01-01.1 MSD	TRACE_016	110.80
05/24/93	9303-FDT-01-01.2 MS	TRACE_016	102.30
05/24/93	9303-FDT-01-01.2 MSD	TRACE_016	105.00

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 104.7	Above acceptance :	0
Standard Deviation	: 2.78	Acceptance Criteria :	75-125

Method : SW7841 - Thallium
Spiked Analyte : Thallium

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/17/93	SPIKED BLANK	TRACE_018	249.09	(Q)
05/17/93	SPIKED BLANK	TRACE_018	271.03	(Q)
05/17/93	SPIKED BLANK	TRACE_018	270.81	(Q)
05/17/93	SPIKED BLANK	TRACE_018	274.10	(Q)
05/18/93	SPIKED BLANK	TRACE_019	264.41	(Q)
05/18/93	SPIKED BLANK	TRACE_019	268.08	(Q)
05/18/93	SPIKED BLANK	TRACE_019	261.22	(Q)
05/18/93	SPIKED BLANK	TRACE_019	262.38	(Q)

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 265.1	Above acceptance :	8
Standard Deviation	: 7.90	Acceptance Criteria :	75-125

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW7841 - Thallium
Spiked Analyte : Thallium, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/17/93	9303-AE-01-01 MS	TRACE_018	0.00	(Q)
05/17/93	9303-AE-01-01 MS	TRACE_018	97.10	
05/17/93	9303-AE-01-01 MSD	TRACE_018	97.90	
05/17/93	9303-AE-01-01 MSD	TRACE_018	0.00	(Q)
05/17/93	9303-FDT-01-01.1 MS	TRACE_018	100.30	
05/17/93	9303-FDT-01-01.1 MSD	TRACE_018	100.50	
05/18/93	9303-FDT-01-01.2 MS	TRACE_019	94.90	
05/18/93	9303-FDT-01-01.2 MSD	TRACE_019	91.60	

Number of Samples : 8
Mean % Recovery : 72.8
Standard Deviation : 45.02
Below acceptance : 2
Above acceptance : 0
Acceptance Criteria : 75-125

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 1,2,4-Trichlorobenzene

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	M654	85.90	
05/27/93	SPIKED BLANK	M655	97.50	
06/01/93	SPIKED BLANK	M689	25.50	(Q)
06/02/93	SPIKED BLANK	M689	81.00	
05/24/93	SPIKED BLANK	M769	71.80	
05/26/93	SPIKED BLANK	M769	84.70	

Number of Samples : 6
Mean % Recovery : 74.4
Standard Deviation : 25.35
Below acceptance : 1
Above acceptance : 0
Acceptance Criteria : 44-142

Type of Spike : Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	107.80	
05/19/93	9303-AE-01-01 MSD	M654	118.60	
05/19/93	9303-AE-01-01 MSD	M655	191.00	(Q)
05/28/93	9303-AE-01-01 MS	M655	88.70	
05/24/93	9303-FDT-01-01 MSD	M679	175.70	(Q)
05/25/93	9303-FDT-01-01 MS	M679	83.80	
05/25/93	9303-FDT-01-01 MSD	M679	168.40	(Q)
06/03/93	9303-FDT-01-01 MS	M679	78.40	

Number of Samples : 8
Mean % Recovery : 126.6
Standard Deviation : 45.22
Below acceptance : 0
Above acceptance : 3
Acceptance Criteria : 44-142

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 1,4-Dichlorobenzene

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	SPIKED BLANK	M654	71.20	
05/27/93	SPIKED BLANK	M655	74.40	
06/01/93	SPIKED BLANK	M689	21.80	
06/02/93	SPIKED BLANK	M689	75.40	
05/24/93	SPIKED BLANK	M769	125.30	(Q)
05/26/93	SPIKED BLANK	M769	75.80	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 74.0	Above acceptance :	1
Standard Deviation	: 32.77	Acceptance Criteria :	20-124

Type of Spike : Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	89.20	
05/19/93	9303-AE-01-01 MSD	M654	90.50	
05/19/93	9303-AE-01-01 MS	M655	73.40	
05/28/93	9303-AE-01-01 MSD	M655	168.70	(Q)
05/24/93	9303-FDT-01-01 MSD	M679	174.40	(Q)
05/25/93	9303-FDT-01-01 MS	M679	78.90	
05/25/93	9303-FDT-01-01 MSD	M679	159.00	(Q)
06/03/93	9303-FDT-01-01 MS	M679	89.10	

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 115.4	Above acceptance :	3
Standard Deviation	: 43.62	Acceptance Criteria :	20-124

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2,4,6-Tribromophenol

Type of Spike : Surrogate

05/18/93	9303-ALH-02-01	M654	107.30
05/18/93	9303-ALH-03-01	M654	87.80
05/18/93	9303-ALS-01-01	M654	82.90
05/18/93	9303-ALS-02-01	M654	94.60
05/19/93	9303-AC-01-01	M654	110.00
05/19/93	9303-AC-01-02	M654	105.40
05/19/93	9303-AD-01-01	M654	97.60
05/19/93	9303-AE-01-01	M654	68.20
05/19/93	9303-AE-01-02	M654	57.90
05/19/93	9303-AF-01-01	M654	52.10
05/19/93	9303-AG-01-01	M654	64.50
05/19/93	9303-ALH-01-01	M654	83.80
05/20/93	9303-AA-01-01	M654	43.10

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2,4,6-Tribromophenol, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/20/93	9303-FLH-01-01	M654	68.50
05/20/93	9303-FLH-02-01	M654	70.00
05/27/93	9303-ALH-03-01	M655	81.00
05/27/93	9303-ALS-01-01	M655	62.60
05/27/93	9303-ALS-02-01	M655	71.30
05/28/93	9303-AC-01-01	M655	89.40
05/28/93	9303-AC-01-02	M655	82.40
05/28/93	9303-AD-01-01	M655	77.40
05/28/93	9303-ADT-01-01	M655	68.00
05/28/93	9303-AE-01-01	M655	63.90
05/28/93	9303-AE-01-02	M655	62.90
05/28/93	9303-AF-01-01	M655	82.70
05/28/93	9303-AG-01-01	M655	72.50
05/28/93	9303-ALH-01-01	M655	77.60
05/28/93	9303-ALH-02-01	M655	83.50
05/29/93	9303-AA-01-01	M655	63.70
05/29/93	9303-FLH-01-01	M655	62.30
05/29/93	9303-FLH-02-01	M655	57.90
05/25/93	9303-FDT-02-01	M679	34.80
05/25/93	9303-FDT-02-01	M679	57.00
05/25/93	9303-FDT-03-01	M679	39.70
05/25/93	9303-FDT-03-01	M679	48.50
05/25/93	9303-FG-01-01	M679	57.80
05/25/93	9303-FLH-03-01	M679	58.90
05/25/93	9303-FLH-03-02	M679	48.30
05/26/93	9303-BDT-01-01	M679	44.50
05/26/93	9303-FG-01-01	M679	46.20
05/19/93	9303-ADT-01-01	M689	73.80
05/25/93	9303-BDT-01-01	M689	52.10
06/01/93	9303-BA-01-01	M689	96.70
06/01/93	9303-BE-01-01	M689	64.30
06/01/93	9303-GLS-01-01	M689	54.70
06/01/93	9303-IDT-01-01	M689	60.90
06/01/93	9303-NLS-01-01	M689	55.70
06/02/93	9303-BA-01-01	M689	36.20
06/02/93	9303-BE-01-01	M689	41.60
06/02/93	9303-GLS-01-01	M689	37.70
06/02/93	9303-IDT-01-01	M689	45.60
06/02/93	9303-NLS-01-01	M689	39.70
06/03/93	9303-FLH-03-01	M689	71.90

Number of Samples	: 53	Below acceptance :	0
Mean % Recovery	: 66.4	Above acceptance :	0
Standard Deviation	: 19.21	Acceptance Criteria :	19-122

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2,4,6-Tribromophenol, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	PROC. BLANK	M654	65.60
05/27/93	PROC. BLANK	M655	50.50
05/24/93	PROC. BLANK	M679	56.10
05/26/93	PROC. BLANK	M679	47.10
06/01/93	PROC. BLANK	M689	33.30
06/02/93	PROC. BLANK	M689	39.60

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 48.7	Above acceptance :	0
Standard Deviation	: 11.54	Acceptance Criteria :	10-123

Type of Spike : Surrogate - Blank Sample

05/18/93	SAND BLANK	M654	65.40
05/27/93	SAND BLANK	M655	52.50
05/26/93	SAND BLANK	M679	46.00
06/03/93	SAND BLANK	M679	60.80
06/01/93	SAND BLANK	M689	55.50
06/01/93	SAND BLANK	M689	30.20

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 51.7	Above acceptance :	0
Standard Deviation	: 12.49	Acceptance Criteria :	19-122

Type of Spike : Surrogate - Laboratory Control

05/18/93	SPIKED BLANK	M654	70.20
05/27/93	SPIKED BLANK	M655	51.10
05/24/93	SPIKED BLANK	M679	34.90
06/01/93	SPIKED BLANK	M689	40.80
06/02/93	SPIKED BLANK	M689	49.50
05/26/93	SPIKED BLANK	M769	47.60

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 49.0	Above acceptance :	0
Standard Deviation	: 12.02	Acceptance Criteria :	10-123

Type of Spike : Surrogate - Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	73.30
05/19/93	9303-AE-01-01 MSD	M654	68.10
05/19/93	9303-AE-01-01 MS	M655	74.00
05/28/93	9303-AE-01-01 MSD	M655	60.50

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2,4,6-Tribromophenol, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/24/93	9303-FDT-01-01 MSD	M679	52.60	
05/25/93	9303-FDT-01-01 MS	M679	41.40	
05/25/93	9303-FDT-01-01 MSD	M679	56.70	
06/03/93	9303-FDT-01-01 MS	M679	51.80	

Number of Samples : 8
Mean % Recovery : 59.8
Standard Deviation : 11.45
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : 19-122

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2,4-Dinitrotoluene

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	SPIKED BLANK	M654	185.90	(Q)
05/27/93	SPIKED BLANK	M655	196.80	(Q)
06/01/93	SPIKED BLANK	M689	148.80	(Q)
06/02/93	SPIKED BLANK	M689	161.20	(Q)
05/24/93	SPIKED BLANK	M769	1694.50	(Q)
05/26/93	SPIKED BLANK	M769	205.00	(Q)

Number of Samples : 6
Mean % Recovery : 432.0
Standard Deviation : 618.85
Below acceptance : 0
Above acceptance : 6
Acceptance Criteria : 39-139

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/19/93	9303-AE-01-01 MS	M654	89.70	
05/19/93	9303-AE-01-01 MSD	M654	43.50	
05/19/93	9303-AE-01-01 MSD	M655	113.90	
05/28/93	9303-AE-01-01 MS	M655	73.80	
05/24/93	9303-FDT-01-01 MSD	M679	115.30	
05/25/93	9303-FDT-01-01 MS	M679	112.40	
05/25/93	9303-FDT-01-01 MSD	M679	117.00	
06/03/93	9303-FDT-01-01 MS	M679	168.90	(Q)

Number of Samples : 8
Mean % Recovery : 104.3
Standard Deviation : 36.75
Below acceptance : 0
Above acceptance : 1
Acceptance Criteria : 39-139

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Chlorophenol

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	SPIKED BLANK	M654	93.60
05/27/93	SPIKED BLANK	M655	97.10
06/01/93	SPIKED BLANK	M689	28.20
06/02/93	SPIKED BLANK	M689	86.70
05/24/93	SPIKED BLANK	M769	124.80
05/26/93	SPIKED BLANK	M769	111.20

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 90.3	Above acceptance :	0
Standard Deviation	: 33.33	Acceptance Criteria :	23-134

Type of Spike : Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	109.90
05/19/93	9303-AE-01-01 MSD	M654	53.20
05/19/93	9303-AE-01-01 MS	M655	90.40
05/28/93	9303-AE-01-01 MSD	M655	98.50
05/24/93	9303-FDT-01-01 MSD	M679	111.70
05/25/93	9303-FDT-01-01 MS	M679	115.40
05/25/93	9303-FDT-01-01 MSD	M679	117.40
06/03/93	9303-FDT-01-01 MS	M679	119.80

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 102.0	Above acceptance :	0
Standard Deviation	: 22.10	Acceptance Criteria :	23-134

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorobiphenyl

Type of Spike : Surrogate

05/18/93	9303-ALH-02-01	M654	73.60	
05/18/93	9303-ALH-03-01	M654	92.50	
05/18/93	9303-ALS-01-01	M654	109.40	
05/18/93	9303-ALS-02-01	M654	86.50	
05/19/93	9303-AC-01-01	M654	114.10	
05/19/93	9303-AC-01-02	M654	116.60	(Q)
05/19/93	9303-AD-01-01	M654	101.10	
05/19/93	9303-AE-01-01	M654	85.90	
05/19/93	9303-AE-01-02	M654	79.70	
05/19/93	9303-AF-01-01	M654	61.20	
05/19/93	9303-AG-01-01	M654	75.10	
05/19/93	9303-ALH-01-01	M654	85.70	
05/20/93	9303-AA-01-01	M654	82.10	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorobiphenyl, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/20/93	9303-FLH-01-01	M654	101.40
05/20/93	9303-FLH-02-01	M654	94.10
05/27/93	9303-ALH-03-01	M655	88.20
05/27/93	9303-ALS-01-01	M655	76.30
05/27/93	9303-ALS-02-01	M655	82.20
05/28/93	9303-AC-01-01	M655	96.00
05/28/93	9303-AC-01-02	M655	91.90
05/28/93	9303-AD-01-01	M655	89.40
05/28/93	9303-ADT-01-01	M655	80.80
05/28/93	9303-AE-01-01	M655	71.40
05/28/93	9303-AE-01-02	M655	75.10
05/28/93	9303-AF-01-01	M655	91.70
05/28/93	9303-AG-01-01	M655	80.30
05/28/93	9303-ALH-01-01	M655	89.10
05/28/93	9303-ALH-02-01	M655	87.90
05/29/93	9303-AA-01-01	M655	75.40
05/29/93	9303-FLH-01-01	M655	82.90
05/29/93	9303-FLH-02-01	M655	80.80
05/25/93	9303-FDT-02-01	M679	88.20
05/25/93	9303-FDT-02-01	M679	78.30
05/25/93	9303-FDT-03-01	M679	96.10
05/25/93	9303-FDT-03-01	M679	90.20
05/25/93	9303-FG-01-01	M679	99.00
05/25/93	9303-FLH-03-01	M679	90.90
05/25/93	9303-FLH-03-02	M679	93.90
05/26/93	9303-BDT-01-01	M679	90.10
05/26/93	9303-FG-01-01	M679	85.90
05/19/93	9303-ADT-01-01	M689	86.10
05/25/93	9303-BDT-01-01	M689	82.50
06/01/93	9303-BA-01-01	M689	103.90
06/01/93	9303-BE-01-01	M689	71.80
06/01/93	9303-GLS-01-01	M689	61.20
06/01/93	9303-IDT-01-01	M689	66.90
06/01/93	9303-NLS-01-01	M689	79.30
06/02/93	9303-BA-01-01	M689	40.60
06/02/93	9303-BE-01-01	M689	56.50
06/02/93	9303-GLS-01-01	M689	39.10
06/02/93	9303-IDT-01-01	M689	54.00
06/02/93	9303-NLS-01-01	M689	53.40
06/03/93	9303-FLH-03-01	M689	85.10

Number of Samples	: 53	Below acceptance :	0
Mean % Recovery	: 82.9	Above acceptance :	1
Standard Deviation	: 16.02	Acceptance Criteria :	30-115

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorobiphenyl, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	PROC. BLANK	M654	83.40	
05/27/93	PROC. BLANK	M655	73.20	
05/24/93	PROC. BLANK	M679	73.00	
05/26/93	PROC. BLANK	M679	66.60	
06/01/93	PROC. BLANK	M689	26.00	(Q)
06/02/93	PROC. BLANK	M689	58.40	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 63.4	Above acceptance :	0
Standard Deviation	: 20.11	Acceptance Criteria :	43-116

Type of Spike : Surrogate - Blank Sample

05/18/93	SAND BLANK	M654	74.10	
05/27/93	SAND BLANK	M655	74.70	
05/26/93	SAND BLANK	M679	72.10	
06/03/93	SAND BLANK	M679	69.20	
06/01/93	SAND BLANK	M689	66.10	
06/01/93	SAND BLANK	M689	20.10	(Q)

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 62.7	Above acceptance :	0
Standard Deviation	: 21.12	Acceptance Criteria :	30-115

Type of Spike : Surrogate - Laboratory Control

05/18/93	SPIKED BLANK	M654	78.00	
05/27/93	SPIKED BLANK	M655	74.20	
05/24/93	SPIKED BLANK	M679	59.90	
06/01/93	SPIKED BLANK	M689	36.30	(Q)
06/02/93	SPIKED BLANK	M689	66.30	
05/26/93	SPIKED BLANK	M769	64.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 63.1	Above acceptance :	0
Standard Deviation	: 14.73	Acceptance Criteria :	43-116

Type of Spike : Surrogate - Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	89.60
05/19/93	9303-AE-01-01 MSD	M654	84.20
05/19/93	9303-AE-01-01 MS	M655	90.40
05/28/93	9303-AE-01-01 MSD	M655	84.30

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorobiphenyl, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/24/93	9303-FDT-01-01 MSD	M679	88.90
05/25/93	9303-FDT-01-01 MS	M679	81.40
05/25/93	9303-FDT-01-01 MSD	M679	79.30
06/03/93	9303-FDT-01-01 MS	M679	75.80

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 84.2	Above acceptance :	0
Standard Deviation	: 5.24	Acceptance Criteria :	30-115

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorophenol

Type of Spike : Surrogate

05/18/93	9303-ALH-02-01	M654	73.00
05/18/93	9303-ALH-03-01	M654	70.40
05/18/93	9303-ALS-01-01	M654	69.80
05/18/93	9303-ALS-02-01	M654	60.10
05/19/93	9303-AC-01-01	M654	91.10
05/19/93	9303-AC-01-02	M654	91.00
05/19/93	9303-AD-01-01	M654	76.50
05/19/93	9303-AE-01-01	M654	53.10
05/19/93	9303-AE-01-02	M654	37.20
05/19/93	9303-AF-01-01	M654	28.80
05/19/93	9303-AG-01-01	M654	50.20
05/19/93	9303-ALH-01-01	M654	57.00
05/20/93	9303-AA-01-01	M654	35.20
05/20/93	9303-FLH-01-01	M654	77.70
05/20/93	9303-FLH-02-01	M654	81.30
05/27/93	9303-ALH-03-01	M655	67.20
05/27/93	9303-ALS-01-01	M655	59.90
05/27/93	9303-ALS-02-01	M655	59.10
05/28/93	9303-AC-01-01	M655	69.70
05/28/93	9303-AC-01-02	M655	72.30
05/28/93	9303-AD-01-01	M655	65.00
05/28/93	9303-ADT-01-01	M655	56.60
05/28/93	9303-AE-01-01	M655	44.40
05/28/93	9303-AE-01-02	M655	38.60
05/28/93	9303-AF-01-01	M655	65.10
05/28/93	9303-AG-01-01	M655	62.90
05/28/93	9303-ALH-01-01	M655	69.70
05/28/93	9303-ALH-02-01	M655	67.50
05/29/93	9303-AA-01-01	M655	45.60
05/29/93	9303-FLH-01-01	M655	68.70
05/29/93	9303-FLH-02-01	M655	68.10

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorophenol, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/25/93	9303-FDT-02-01	M679	55.00	
05/25/93	9303-FDT-02-01	M679	72.30	
05/25/93	9303-FDT-03-01	M679	43.60	
05/25/93	9303-FDT-03-01	M679	70.20	
05/25/93	9303-FG-01-01	M679	75.50	
05/25/93	9303-FLH-03-01	M679	77.60	
05/25/93	9303-FLH-03-02	M679	68.20	
05/26/93	9303-BDT-01-01	M679	103.60	
05/26/93	9303-FG-01-01	M679	71.10	
05/19/93	9303-ADT-01-01	M689	42.80	
05/25/93	9303-BDT-01-01	M689	72.50	
06/01/93	9303-BA-01-01	M689	86.90	
06/01/93	9303-BE-01-01	M689	56.50	
06/01/93	9303-GLS-01-01	M689	38.20	
06/01/93	9303-IDT-01-01	M689	51.60	
06/01/93	9303-NLS-01-01	M689	58.10	
06/02/93	9303-BA-01-01	M689	22.50	(Q)
06/02/93	9303-BE-01-01	M689	38.60	
06/02/93	9303-GLS-01-01	M689	23.50	(Q)
06/02/93	9303-IDT-01-01	M689	34.90	
06/02/93	9303-NLS-01-01	M689	52.90	
06/03/93	9303-FLH-03-01	M689	65.00	

Number of Samples	: 53	Below acceptance :	2
Mean % Recovery	: 60.6	Above acceptance :	0
Standard Deviation	: 17.53	Acceptance Criteria :	25-121

Type of Spike : Surrogate - Blank Sample

05/18/93	PROC. BLANK	M654	58.90	
05/27/93	PROC. BLANK	M655	59.10	
05/24/93	PROC. BLANK	M679	31.30	
05/26/93	PROC. BLANK	M679	54.30	
06/01/93	PROC. BLANK	M689	19.40	(Q)
06/02/93	PROC. BLANK	M689	40.20	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 43.9	Above acceptance :	0
Standard Deviation	: 16.35	Acceptance Criteria :	21-100

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 2-Fluorophenol, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	SAND BLANK	M654	61.80	
05/27/93	SAND BLANK	M655	65.50	
05/26/93	SAND BLANK	M679	23.40	(Q)
06/03/93	SAND BLANK	M679	51.00	
06/01/93	SAND BLANK	M689	56.60	
06/01/93	SAND BLANK	M689	14.20	(Q)

Number of Samples	: 6	Below acceptance :	2
Mean % Recovery	: 45.4	Above acceptance :	0
Standard Deviation	: 21.39	Acceptance Criteria :	25-121

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	SPIKED BLANK	M654	46.10	
05/27/93	SPIKED BLANK	M655	58.20	
05/24/93	SPIKED BLANK	M679	47.10	
06/01/93	SPIKED BLANK	M689	16.70	(Q)
06/02/93	SPIKED BLANK	M689	55.00	
05/26/93	SPIKED BLANK	M769	45.70	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 44.8	Above acceptance :	0
Standard Deviation	: 14.70	Acceptance Criteria :	21-100

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/19/93	9303-AE-01-01 MS	M654	57.00
05/19/93	9303-AE-01-01 MSD	M654	45.30
05/19/93	9303-AE-01-01 MS	M655	57.50
05/28/93	9303-AE-01-01 MSD	M655	49.00
05/24/93	9303-FDT-01-01 MSD	M679	75.70
05/25/93	9303-FDT-01-01 MS	M679	65.20
05/25/93	9303-FDT-01-01 MSD	M679	80.60
06/03/93	9303-FDT-01-01 MS	M679	57.50

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 61.0	Above acceptance :	0
Standard Deviation	: 12.24	Acceptance Criteria :	25-121

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 4-Chloro-3-methylphenol

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	SPIKED BLANK	M654	108.30
05/27/93	SPIKED BLANK	M655	131.80
06/01/93	SPIKED BLANK	M689	55.50
06/02/93	SPIKED BLANK	M689	107.30
05/24/93	SPIKED BLANK	M769	53.80
05/26/93	SPIKED BLANK	M769	152.90 (Q)

Number of Samples : 6
Mean % Recovery : 101.6
Standard Deviation : 40.08
Below acceptance : 0
Above acceptance : 1
Acceptance Criteria : 22-147

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/19/93	9303-AE-01-01 MS	M654	102.60
05/19/93	9303-AE-01-01 MSD	M654	47.60
05/19/93	9303-AE-01-01 MSD	M655	86.80
05/28/93	9303-AE-01-01 MS	M655	84.40
05/24/93	9303-FDT-01-01 MSD	M679	104.00
05/25/93	9303-FDT-01-01 MS	M679	89.20
05/25/93	9303-FDT-01-01 MSD	M679	94.50
06/03/93	9303-FDT-01-01 MS	M679	103.00

Number of Samples : 8
Mean % Recovery : 89.0
Standard Deviation : 18.42
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : 22-147

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 4-Nitrophenol

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	SPIKED BLANK	M654	68.10
05/27/93	SPIKED BLANK	M655	7.50
06/01/93	SPIKED BLANK	M689	33.70
06/02/93	SPIKED BLANK	M689	73.80
05/24/93	SPIKED BLANK	M769	75.40
05/26/93	SPIKED BLANK	M769	82.30

Number of Samples : 6
Mean % Recovery : 56.8
Standard Deviation : 29.59
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : D-132

Method : SW8270 - Semivolatile Organics
Spiked Analyte : 4-Nitrophenol, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/19/93	9303-AE-01-01 MS	M654	46.90	
05/19/93	9303-AE-01-01 MSD	M654	16.80	
05/19/93	9303-AE-01-01 MSD	M655	33.60	
05/28/93	9303-AE-01-01 MS	M655	38.60	
05/24/93	9303-FDT-01-01 MSD	M679	5.60	
05/25/93	9303-FDT-01-01 MS	M679	7.40	
05/25/93	9303-FDT-01-01 MSD	M679	5.30	
06/03/93	9303-FDT-01-01 MS	M679	112.30	

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 33.3 Above acceptance : 0
Standard Deviation : 35.75 Acceptance Criteria : D-132

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Acenaphthene

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	M654	78.80	
05/27/93	SPIKED BLANK	M655	74.90	
06/01/93	SPIKED BLANK	M689	42.10	(Q)
06/02/93	SPIKED BLANK	M689	68.90	
05/24/93	SPIKED BLANK	M769	40.40	(Q)
05/26/93	SPIKED BLANK	M769	73.20	

Number of Samples : 6 Below acceptance : 2
Mean % Recovery : 63.1 Above acceptance : 0
Standard Deviation : 17.19 Acceptance Criteria : 47-145

Type of Spike : Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	100.60	
05/19/93	9303-AE-01-01 MSD	M654	104.20	
05/19/93	9303-AE-01-01 MSD	M655	163.80	(Q)
05/28/93	9303-AE-01-01 MS	M655	82.80	
05/24/93	9303-FDT-01-01 MSD	M679	172.40	(Q)
05/25/93	9303-FDT-01-01 MS	M679	83.80	
05/25/93	9303-FDT-01-01 MSD	M679	157.20	(Q)
06/03/93	9303-FDT-01-01 MS	M679	82.70	

Number of Samples : 8 Below acceptance : 0
Mean % Recovery : 118.4 Above acceptance : 3
Standard Deviation : 39.17 Acceptance Criteria : 47-145

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES. HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Nitrobenzene-d5

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	9303-ALH-02-01	M654	78.20
05/18/93	9303-ALH-03-01	M654	75.20
05/18/93	9303-ALS-01-01	M654	79.20
05/18/93	9303-ALS-02-01	M654	74.40
05/19/93	9303-AC-01-01	M654	87.30
05/19/93	9303-AC-01-02	M654	97.40
05/19/93	9303-AD-01-01	M654	69.70
05/19/93	9303-AE-01-01	M654	63.00
05/19/93	9303-AE-01-02	M654	55.90
05/19/93	9303-AF-01-01	M654	38.10
05/19/93	9303-AG-01-01	M654	50.50
05/19/93	9303-ALH-01-01	M654	67.90
05/20/93	9303-AA-01-01	M654	46.40
05/20/93	9303-FLH-01-01	M654	71.70
05/20/93	9303-FLH-02-01	M654	72.00
05/27/93	9303-ALH-03-01	M655	67.80
05/27/93	9303-ALS-01-01	M655	67.00
05/27/93	9303-ALS-02-01	M655	65.50
05/28/93	9303-AC-01-01	M655	73.80
05/28/93	9303-AC-01-02	M655	71.50
05/28/93	9303-AD-01-01	M655	67.30
05/28/93	9303-ADT-01-01	M655	77.40
05/28/93	9303-AE-01-01	M655	63.50
05/28/93	9303-AE-01-02	M655	61.90
05/28/93	9303-AF-01-01	M655	65.00
05/28/93	9303-AG-01-01	M655	58.40
05/28/93	9303-ALH-01-01	M655	70.50
05/28/93	9303-ALH-02-01	M655	67.80
05/29/93	9303-AA-01-01	M655	58.20
05/29/93	9303-FLH-01-01	M655	68.90
05/29/93	9303-FLH-02-01	M655	67.60
05/25/93	9303-FDT-02-01	M679	69.50
05/25/93	9303-FDT-02-01	M679	57.40
05/25/93	9303-FDT-03-01	M679	70.20
05/25/93	9303-FDT-03-01	M679	65.10
05/25/93	9303-FG-01-01	M679	77.40
05/25/93	9303-FLH-03-01	M679	78.00
05/25/93	9303-FLH-03-02	M679	66.90
05/26/93	9303-BDT-01-01	M679	77.30
05/26/93	9303-FG-01-01	M679	64.70
05/19/93	9303-ADT-01-01	M689	68.10
05/25/93	9303-BDT-01-01	M689	74.70
06/01/93	9303-BA-01-01	M689	107.50
06/01/93	9303-BE-01-01	M689	68.60
06/01/93	9303-GLS-01-01	M689	49.10
06/01/93	9303-IDT-01-01	M689	61.70

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Nitrobenzene-d5, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/01/93	9303-NLS-01-01	M689	71.00
06/02/93	9303-BA-01-01	M689	28.80
06/02/93	9303-BE-01-01	M689	53.80
06/02/93	9303-GLS-01-01	M689	29.40
06/02/93	9303-IDT-01-01	M689	43.00
06/02/93	9303-NLS-01-01	M689	59.10
06/03/93	9303-FLH-03-01	M689	108.60

Number of Samples : 53
Mean % Recovery : 67.0
Standard Deviation : 15.05
8elow acceptance : 0
Above acceptance : 0
Acceptance Criteria : 23-120

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Nitrobenzene-d6

Type of Spike : Surrogate - Blank Sample

05/18/93	PROC. BLANK	M654	79.50
05/27/93	PROC. BLANK	M655	71.90
05/24/93	PROC. BLANK	M679	67.80
05/26/93	PROC. BLANK	M679	87.30
06/01/93	PROC. BLANK	M689	18.50 (Q)
06/02/93	PROC. BLANK	M689	58.90

Number of Samples : 6
Mean % Recovery : 64.0
Standard Deviation : 24.32
Below acceptance : 1
Above acceptance : 0
Acceptance Criteria : 23-120

Type of Spike : Surrogate - Blank Sample

05/18/93	SAND BLANK	M654	78.90
05/27/93	SAND BLANK	M655	74.10
05/26/93	SAND BLANK	M679	64.70
06/03/93	SAND BLANK	M679	108.40
06/01/93	SAND BLANK	M689	14.10 (Q)
06/01/93	SAND BLANK	M689	71.60

Number of Samples : 6
Mean % Recovery : 68.6
Standard Deviation : 30.71
Below acceptance : 1
Above acceptance : 0
Acceptance Criteria : 23-120

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Nitrobenzene-d6, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/18/93	SPIKED BLANK	M654	71.40	
05/27/93	SPIKED BLANK	M655	71.40	
05/24/93	SPIKED BLANK	M679	94.20	
06/01/93	SPIKED BLANK	M689	20.50	(Q)
06/02/93	SPIKED BLANK	M689	71.60	
05/26/93	SPIKED BLANK	M769	77.90	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 67.8	Above acceptance :	0
Standard Deviation	: 24.81	Acceptance Criteria :	23-120

Type of Spike : Surrogate - Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	66.90	
05/19/93	9303-AE-01-01 MSD	M654	63.20	
05/19/93	9303-AE-01-01 MS	M655	67.50	
05/28/93	9303-AE-01-01 MSD	M655	68.70	
05/24/93	9303-FDT-01-01 MSD	M679	74.90	
05/25/93	9303-FDT-01-01 MS	M679	67.10	
05/25/93	9303-FDT-01-01 MSD	M679	71.40	
06/03/93	9303-FDT-01-01 MS	M679	100.40	

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 72.5	Above acceptance :	0
Standard Deviation	: 11.78	Acceptance Criteria :	23-120

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Pentachlorophenol

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	M654	107.00	
05/27/93	SPIKED BLANK	M655	9.60	(Q)
06/01/93	SPIKED BLANK	M689	56.40	
06/02/93	SPIKED BLANK	M689	71.80	
05/24/93	SPIKED BLANK	M769	87.40	
05/26/93	SPIKED BLANK	M769	81.10	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 68.9	Above acceptance :	0
Standard Deviation	: 33.54	Acceptance Criteria :	14-176

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Pentachlorophenol, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/19/93	9303-AE-01-01 MS	M654	99.00	
05/19/93	9303-AE-01-01 MSD	M654	42.90	
05/19/93	9303-AE-01-01 MSD	M655	50.30	
05/28/93	9303-AE-01-01 MS	M655	81.50	
05/24/93	9303-FDT-01-01 MSD	M679	63.20	
05/25/93	9303-FDT-01-01 MS	M679	29.60	
05/25/93	9303-FDT-01-01 MSD	M679	46.20	
06/03/93	9303-FDT-01-01 MS	M679	57.70	

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 58.8	Above acceptance :	0
Standard Deviation	: 22.32	Acceptance Criteria :	14-176

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Phenol

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	M654	75.70	
05/27/93	SPIKED BLANK	M655	97.70	
06/01/93	SPIKED BLANK	M689	26.60	
06/02/93	SPIKED BLANK	M689	87.90	
05/24/93	SPIKED BLANK	M769	132.20	(Q)
05/26/93	SPIKED BLANK	M769	76.20	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 82.7	Above acceptance :	1
Standard Deviation	: 34.47	Acceptance Criteria :	5-112

Type of Spike : Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	90.80	
05/19/93	9303-AE-01-01 MSD	M654	42.10	
05/19/93	9303-AE-01-01 MS	M655	74.70	
05/28/93	9303-AE-01-01 MSD	M655	85.30	
05/24/93	9303-FDT-01-01 MSD	M679	125.50	(Q)
05/25/93	9303-FDT-01-01 MS	M679	112.30	(Q)
05/25/93	9303-FDT-01-01 MSD	M679	134.90	(Q)
06/03/93	9303-FDT-01-01 MS	M679	138.40	(Q)

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 100.5	Above acceptance :	4
Standard Deviation	: 33.35	Acceptance Criteria :	5-112

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Phenol-d6

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	9303-ALH-02-01	M654	74.80
05/18/93	9303-ALH-03-01	M654	73.50
05/18/93	9303-ALS-01-01	M654	72.50
05/18/93	9303-ALS-02-01	M654	57.70
05/19/93	9303-AC-01-01	M654	81.20
05/19/93	9303-AC-01-02	M654	75.20
05/19/93	9303-AD-01-01	M654	66.50
05/19/93	9303-AE-01-01	M654	52.80
05/19/93	9303-AE-01-02	M654	36.80
05/19/93	9303-AF-01-01	M654	28.70
05/19/93	9303-AG-01-01	M654	55.80
05/19/93	9303-ALH-01-01	M654	61.00
05/20/93	9303-AA-01-01	M654	33.80
05/20/93	9303-FLH-01-01	M654	56.30
05/20/93	9303-FLH-02-01	M654	55.80
05/27/93	9303-ALH-03-01	M655	76.80
05/27/93	9303-ALS-01-01	M655	71.00
05/27/93	9303-ALS-02-01	M655	61.90
05/28/93	9303-AC-01-01	M655	78.90
05/28/93	9303-AC-01-02	M655	80.60
05/28/93	9303-AD-01-01	M655	70.40
05/28/93	9303-ADT-01-01	M655	68.00
05/28/93	9303-AE-01-01	M655	51.60
05/28/93	9303-AE-01-02	M655	40.80
05/28/93	9303-AF-01-01	M655	67.30
05/28/93	9303-AG-01-01	M655	67.50
05/28/93	9303-ALH-01-01	M655	80.40
05/28/93	9303-ALH-02-01	M655	74.20
05/29/93	9303-AA-01-01	M655	49.40
05/29/93	9303-FLH-01-01	M655	76.30
05/29/93	9303-FLH-02-01	M655	74.30
05/25/93	9303-FDT-02-01	M679	74.60
05/25/93	9303-FDT-02-01	M679	56.10
05/25/93	9303-FDT-03-01	M679	58.20
05/25/93	9303-FDT-03-01	M679	68.50
05/25/93	9303-FG-01-01	M679	76.30
05/25/93	9303-FLH-03-01	M679	81.80
05/25/93	9303-FLH-03-02	M679	69.80
05/26/93	9303-BDT-01-01	M679	77.80
05/26/93	9303-FG-01-01	M679	68.80
05/19/93	9303-ADT-01-01	M689	49.60
05/25/93	9303-BDT-01-01	M689	82.40
06/01/93	9303-BA-01-01	M689	80.20
06/01/93	9303-BE-01-01	M689	63.10
06/01/93	9303-GLS-01-01	M689	46.80
06/01/93	9303-IDT-01-01	M689	53.40

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Phenol-d6, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/01/93	9303-NLS-01-01	M689	69.20
06/02/93	9303-BA-01-01	M689	39.10
06/02/93	9303-BE-01-01	M689	52.20
06/02/93	9303-GLS-01-01	M689	28.70
06/02/93	9303-IDT-01-01	M689	39.50
06/02/93	9303-NLS-01-01	M689	61.10
06/03/93	9303-FLH-03-01	M689	91.10

Number of Samples : 53 Below acceptance : 0
Mean % Recovery : 63.4 Above acceptance : 0
Standard Deviation : 15.08 Acceptance Criteria : 24-113

Type of Spike : Surrogate - Blank Sample

05/18/93	PROC. BLANK	M654	65.20	
05/27/93	PROC. BLANK	M655	66.40	
05/24/93	PROC. BLANK	M679	37.80	
05/26/93	PROC. BLANK	M679	68.50	
06/01/93	PROC. BLANK	M689	17.90	(Q)
06/02/93	PROC. BLANK	M689	50.40	

Number of Samples : 6 Below acceptance : 1
Mean % Recovery : 51.0 Above acceptance : 0
Standard Deviation : 20.08 Acceptance Criteria : 24-113

Type of Spike : Surrogate - Blank Sample

05/18/93	SAND BLANK	M654	66.20	
05/27/93	SAND BLANK	M655	72.30	
05/26/93	SAND BLANK	M679	50.40	
06/03/93	SAND BLANK	M679	69.70	
06/01/93	SAND BLANK	M689	53.60	
06/01/93	SAND BLANK	M689	13.30	(Q)

Number of Samples : 6 Below acceptance : 1
Mean % Recovery : 54.3 Above acceptance : 0
Standard Deviation : 21.91 Acceptance Criteria : 24-113

Type of Spike : Surrogate - Laboratory Control

05/18/93	SPIKED BLANK	M654	52.10
05/27/93	SPIKED BLANK	M655	62.40
05/24/93	SPIKED BLANK	M679	83.30

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Phenol-d6, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/01/93	SPIKED BLANK	M689	16.60 (Q)
06/02/93	SPIKED BLANK	M689	53.10
05/26/93	SPIKED BLANK	M769	58.60

Number of Samples : 6
Mean % Recovery : 54.4
Standard Deviation : 21.69
Below acceptance : 1
Above acceptance : 0
Acceptance Criteria : 24-113

Type of Spike : Surrogate - Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	54.70
05/19/93	9303-AE-01-01 MSD	M654	46.50
05/19/93	9303-AE-01-01 MS	M655	55.20
05/28/93	9303-AE-01-01 MSD	M655	55.10
05/24/93	9303-FDT-01-01 MSD	M679	71.30
05/25/93	9303-FDT-01-01 MS	M679	57.60
05/25/93	9303-FDT-01-01 MSD	M679	73.80
06/03/93	9303-FDT-01-01 MS	M679	80.20

Number of Samples : 8
Mean % Recovery : 61.8
Standard Deviation : 11.73
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : 24-113

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Pyrene

Type of Spike : Laboratory Control

05/18/93	SPIKED BLANK	M654	123.40 (Q)
05/27/93	SPIKED BLANK	M655	92.50
06/01/93	SPIKED BLANK	M689	75.50
06/02/93	SPIKED BLANK	M689	78.60
05/24/93	SPIKED BLANK	M769	55.60
05/26/93	SPIKED BLANK	M769	102.60

Number of Samples : 6
Mean % Recovery : 88.0
Standard Deviation : 23.58
Below acceptance : 0
Above acceptance : 1
Acceptance Criteria : 52-115

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Pyrene, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
05/19/93	9303-AE-01-01 MS	M654	82.10	
05/19/93	9303-AE-01-01 MSD	M654	41.20	(Q)
05/19/93	9303-AE-01-01 MSD	M655	89.00	
05/28/93	9303-AE-01-01 MS	M655	67.60	
05/24/93	9303-FDT-01-01 MSD	M679	100.70	
05/25/93	9303-FDT-01-01 MS	M679	89.40	
05/25/93	9303-FDT-01-01 MSD	M679	67.50	
06/03/93	9303-FDT-01-01 MS	M679	92.20	

Number of Samples : 8
Mean % Recovery : 78.7
Standard Deviation : 19.10
Below acceptance : 1
Above acceptance : 0
Acceptance Criteria : 52-115

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Terphenyl-d14

Type of Spike : Surrogate

05/18/93	9303-ALH-02-01	M654	44.00
05/18/93	9303-ALH-03-01	M654	45.40
05/18/93	9303-ALS-01-01	M654	94.30
05/18/93	9303-ALS-02-01	M654	46.20
05/19/93	9303-AC-01-01	M654	62.60
05/19/93	9303-AC-01-02	M654	49.80
05/19/93	9303-AD-01-01	M654	43.10
05/19/93	9303-AE-01-01	M654	45.00
05/19/93	9303-AE-01-02	M654	38.00
05/19/93	9303-AF-01-01	M654	28.90
05/19/93	9303-AG-01-01	M654	30.90
05/19/93	9303-ALH-01-01	M654	42.40
05/20/93	9303-AA-01-01	M654	29.20
05/20/93	9303-FLH-01-01	M654	38.40
05/20/93	9303-FLH-02-01	M654	45.00
05/27/93	9303-ALH-03-01	M655	59.00
05/27/93	9303-ALS-01-01	M655	68.10
05/27/93	9303-ALS-02-01	M655	58.80
05/28/93	9303-AC-01-01	M655	55.00
05/28/93	9303-AC-01-02	M655	52.50
05/28/93	9303-AD-01-01	M655	46.20
05/28/93	9303-ADT-01-01	M655	60.70
05/28/93	9303-AE-01-01	M655	41.20
05/28/93	9303-AE-01-02	M655	43.50
05/28/93	9303-AF-01-01	M655	49.00
05/28/93	9303-AG-01-01	M655	40.80
05/28/93	9303-ALH-01-01	M655	66.10

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Terphenyl-d14, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/28/93	9303-ALH-02-01	M655	55.10
05/29/93	9303-AA-01-01	M655	39.30
05/29/93	9303-FLH-01-01	M655	34.00
05/29/93	9303-FLH-02-01	M655	40.80
05/25/93	9303-FDT-02-01	M679	23.10
05/25/93	9303-FDT-02-01	M679	53.00
05/25/93	9303-FDT-03-01	M679	23.10
05/25/93	9303-FDT-03-01	M679	30.40
05/25/93	9303-FG-01-01	M679	25.00
05/25/93	9303-FLH-03-01	M679	54.10
05/25/93	9303-FLH-03-02	M679	25.90
05/26/93	9303-BDT-01-01	M679	25.50
05/26/93	9303-FG-01-01	M679	23.90
05/19/93	9303-ADT-01-01	M689	43.20
05/25/93	9303-BDT-01-01	M689	61.90
06/01/93	9303-BA-01-01	M689	115.20
06/01/93	9303-BE-01-01	M689	56.40
06/01/93	9303-GLS-01-01	M689	82.60
06/01/93	9303-IDT-01-01	M689	24.50
06/01/93	9303-NLS-01-01	M689	49.90
06/02/93	9303-BA-01-01	M689	49.60
06/02/93	9303-BE-01-01	M689	55.00
06/02/93	9303-GLS-01-01	M689	96.40
06/02/93	9303-IDT-01-01	M689	35.60
06/02/93	9303-NLS-01-01	M689	58.70
06/03/93	9303-FLH-03-01	M689	57.90

Number of Samples	: 53	Below acceptance :	0
Mean % Recovery	: 48.4	Above acceptance :	0
Standard Deviation	: 18.80	Acceptance Criteria :	18-137

Type of Spike : Surrogate - Blank Sample

05/18/93	PROC. BLANK	M654	56.40
05/27/93	PROC. BLANK	M655	52.00
05/24/93	PROC. BLANK	M679	44.80
05/26/93	PROC. BLANK	M679	54.40
06/01/93	PROC. BLANK	M689	44.00
06/02/93	PROC. BLANK	M689	56.10

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 51.3	Above acceptance :	0
Standard Deviation	: 5.56	Acceptance Criteria :	33-141

Method : SW8270 - Semivolatile Organics
Spiked Analyte : Terphenyl-d14, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	SAND BLANK	M654	54.50
05/27/93	SAND BLANK	M655	51.90
05/26/93	SAND BLANK	M679	50.40
06/03/93	SAND BLANK	M679	55.60
06/01/93	SAND BLANK	M689	67.00
06/01/93	SAND BLANK	M689	43.20

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 53.8	Above acceptance :	0
Standard Deviation	: 7.82	Acceptance Criteria :	18-137

Type of Spike : Surrogate - Laboratory Control

05/18/93	SPIKED BLANK	M654	55.20
05/27/93	SPIKED BLANK	M655	49.80
05/24/93	SPIKED BLANK	M679	33.40
06/01/93	SPIKED BLANK	M689	40.20
06/02/93	SPIKED BLANK	M689	47.20
05/26/93	SPIKED BLANK	M769	55.30

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 46.9	Above acceptance :	0
Standard Deviation	: 8.66	Acceptance Criteria :	33-141

Type of Spike : Surrogate - Matrix Spike

05/19/93	9303-AE-01-01 MS	M654	41.50
05/19/93	9303-AE-01-01 MSD	M654	42.80
05/19/93	9303-AE-01-01 MS	M655	41.90
05/28/93	9303-AE-01-01 MSD	M655	52.90
05/24/93	9303-FDT-01-01 MSD	M679	52.10
05/25/93	9303-FDT-01-01 MS	M679	47.10
05/25/93	9303-FDT-01-01 MSD	M679	35.30
06/03/93	9303-FDT-01-01 MS	M679	51.80

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 45.7	Above acceptance :	0
Standard Deviation	: 6.33	Acceptance Criteria :	18-137

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8270 - Semivolatile Organics
Spiked Analyte : n-Nitroso-di-n-propylamine

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/18/93	SPIKED BLANK	M654	85.60
05/27/93	SPIKED BLANK	M655	82.00
06/01/93	SPIKED BLANK	M689	47.50
06/02/93	SPIKED BLANK	M689	92.50
05/24/93	SPIKED BLANK	M769	41.70
05/26/93	SPIKED BLANK	M769	120.10

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 78.2	Above acceptance :	0
Standard Deviation	: 29.34	Acceptance Criteria :	D-230

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
05/19/93	9303-AE-01-01 MS	M654	82.60
05/19/93	9303-AE-01-01 MSD	M654	55.30
05/19/93	9303-AE-01-01 MS	M655	81.30
05/28/93	9303-AE-01-01 MSD	M655	179.40
05/24/93	9303-FDT-01-01 MSD	M679	218.90
05/25/93	9303-FDT-01-01 MS	M679	83.90
05/25/93	9303-FDT-01-01 MSD	M679	209.20
06/03/93	9303-FDT-01-01 MS	M679	230.60

Number of Samples	: 8	Below acceptance :	0
Mean % Recovery	: 142.7	Above acceptance :	1
Standard Deviation	: 73.47	Acceptance Criteria :	D-230

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,6,7,8-HpCDD

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	116.00
06/29/93	SPIKED BLANK	M661	108.00
06/30/93	SPIKED BLANK	M680	100.00
07/02/93	SPIKED BLANK	M680	105.00
07/02/93	SPIKED BLANK	M680	109.00
07/03/93	SPIKED BLANK	M690	86.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 104.0	Above acceptance :	0
Standard Deviation	: 10.26	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,6,7,8-HpCDD, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	108.00	
06/29/93	9303-AE-01-01 MSD	M660	109.00	
06/23/93	9303-AE-01-01 MS	M661	127.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	127.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	110.00	
06/29/93	9303-FDT-01-01 MSD	M680	108.00	
07/02/93	9303-FDT-01-01 MS	M680	107.00	
07/02/93	9303-FDT-01-01 MSD	M680	100.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	113.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	119.00	

Number of Samples : 10 Below acceptance : 0
Mean % Recovery : 112.8 Above acceptance : 2
Standard Deviation : 8.87 Acceptance Criteria : 40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,6,7,8-HpCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	101.00	
06/29/93	SPIKED BLANK	M661	133.00	(Q)
06/30/93	SPIKED BLANK	M680	99.00	
07/02/93	SPIKED BLANK	M680	130.00	(Q)
07/02/93	SPIKED BLANK	M680	129.00	(Q)
07/03/93	SPIKED BLANK	M690	117.00	

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 118.2 Above acceptance : 3
Standard Deviation : 15.11 Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	117.00	
06/29/93	9303-AE-01-01 MSD	M660	159.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	132.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	133.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	131.00	(Q)
06/29/93	9303-FDT-01-01 MSD	M680	121.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	127.00	(Q)
07/02/93	9303-FDT-01-01 MSD	M680	133.00	(Q)
07/07/93	9303-FDT-01-01 MS/DU	M680	114.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	99.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,6,7,8-HpCDF, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 126.6	Above acceptance :	7
Standard Deviation	: 15.72	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,7,8,9-HpCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	106.00	
06/29/93	SPIKED BLANK	M661	127.00	(Q)
06/30/93	SPIKED BLANK	M680	95.00	
07/02/93	SPIKED BLANK	M680	131.00	(Q)
07/02/93	SPIKED BLANK	M680	128.00	(Q)
07/03/93	SPIKED BLANK	M690	113.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 116.7	Above acceptance :	3
Standard Deviation	: 14.40	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	106.00	
06/29/93	9303-AE-01-01 MSD	M660	129.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	128.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	131.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	127.00	(Q)
06/29/93	9303-FDT-01-01 MSD	M680	126.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	126.00	(Q)
07/02/93	9303-FDT-01-01 MSD	M680	118.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	105.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	94.00	

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 119.0	Above acceptance :	6
Standard Deviation	: 12.81	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,7,8-HxCDD

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	127.00	(Q)
06/29/93	SPIKED BLANK	M661	104.00	
06/30/93	SPIKED BLANK	M680	112.00	
07/02/93	SPIKED BLANK	M680	107.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,7,8-HxCDD, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SPIKED BLANK	M680	103.00
07/03/93	SPIKED BLANK	M690	83.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 106.0	Above acceptance :	1
Standard Deviation	: 14.28	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	106.00	
06/29/93	9303-AE-01-01 MSD	M660	108.00	
06/23/93	9303-AE-01-01 MS	M661	116.00	
06/23/93	9303-AE-01-01 MSD	M661	115.00	
06/29/93	9303-FDT-01-01 MS	M680	107.00	
06/29/93	9303-FDT-01-01 MSD	M680	103.00	
07/02/93	9303-FDT-01-01 MS	M680	102.00	
07/02/93	9303-FDT-01-01 MSD	M680	94.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	123.00	(Q)
07/07/93	9303-FDT-01-01 MSD/DU	M680	144.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 111.8	Above acceptance :	2
Standard Deviation	: 13.95	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,7,8-HxCDF

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	113.00
06/29/93	SPIKED BLANK	M661	116.00
06/30/93	SPIKED BLANK	M680	97.00
07/02/93	SPIKED BLANK	M680	119.00
07/02/93	SPIKED BLANK	M680	116.00
07/03/93	SPIKED BLANK	M690	95.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 109.3	Above acceptance :	0
Standard Deviation	: 10.52	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,4,7,8-HxCDF, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	107.00	
06/29/93	9303-AE-01-01 MSD	M660	116.00	
06/23/93	9303-AE-01-01 MS	M661	129.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	127.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	118.00	
06/29/93	9303-FDT-01-01 MSD	M680	115.00	
07/02/93	9303-FDT-01-01 MS	M680	115.00	
07/02/93	9303-FDT-01-01 MSD	M680	112.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	108.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	104.00	

Number of Samples : 10
Mean % Recovery : 115.1
Standard Deviation : 8.12
Below acceptance : 0
Above acceptance : 2
Acceptance Criteria : 40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,6,7,8-HxCDD

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	113.00	
06/29/93	SPIKED BLANK	M661	105.00	
06/30/93	SPIKED BLANK	M680	110.00	
07/02/93	SPIKED BLANK	M680	104.00	
07/02/93	SPIKED BLANK	M680	103.00	
07/03/93	SPIKED BLANK	M690	81.00	

Number of Samples : 6
Mean % Recovery : 102.7
Standard Deviation : 11.29
Below acceptance : 0
Above acceptance : 0
Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	106.00	
06/29/93	9303-AE-01-01 MSD	M660	102.00	
06/23/93	9303-AE-01-01 MS	M661	119.00	
06/23/93	9303-AE-01-01 MSD	M661	115.00	
06/29/93	9303-FDT-01-01 MS	M680	103.00	
06/29/93	9303-FDT-01-01 MSD	M680	102.00	
07/02/93	9303-FDT-01-01 MS	M680	103.00	
07/02/93	9303-FDT-01-01 MSD	M680	93.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	119.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	134.00	(Q)

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,6,7,8-HxCDD, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 109.6	Above acceptance :	1
Standard Deviation	: 11.98	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,6,7,8-HxCDF

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	112.00	
06/29/93	SPIKED BLANK	M661	115.00	
06/30/93	SPIKED BLANK	M680	96.00	
07/02/93	SPIKED BLANK	M680	115.00	
07/02/93	SPIKED BLANK	M680	118.00	
07/03/93	SPIKED BLANK	M690	94.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 108.3	Above acceptance :	0
Standard Deviation	: 10.52	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	114.00	
06/29/93	9303-AE-01-01 MSD	M660	116.00	
06/23/93	9303-AE-01-01 MS	M661	130.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	127.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	117.00	
06/29/93	9303-FDT-01-01 MSD	M680	112.00	
07/02/93	9303-FDT-01-01 MS	M680	111.00	
07/02/93	9303-FDT-01-01 MSD	M680	108.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	114.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	103.00	

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 115.2	Above acceptance :	2
Standard Deviation	: 8.12	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8,9-HxCDD

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	135.00	(Q)
06/29/93	SPIKED BLANK	M661	105.00	
06/30/93	SPIKED BLANK	M680	109.00	
07/02/93	SPIKED BLANK	M680	79.00	

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8,9-HxCDD, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SPIKED BLANK	M680	104.00
07/03/93	SPIKED BLANK	M690	85.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 102.8	Above acceptance :	1
Standard Deviation	: 19.82	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	103.00	
06/29/93	9303-AE-01-01 MSD	M660	111.00	
06/23/93	9303-AE-01-01 MS	M661	120.00	
06/23/93	9303-AE-01-01 MSD	M661	120.00	
06/29/93	9303-FDT-01-01 MS	M680	105.00	
06/29/93	9303-FDT-01-01 MSD	M680	80.00	
07/02/93	9303-FDT-01-01 MS	M680	112.00	
07/02/93	9303-FDT-01-01 MSD	M680	100.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	133.00	(Q)
07/07/93	9303-FDT-01-01 MSD/DU	M680	143.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 112.7	Above acceptance :	2
Standard Deviation	: 17.71	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8,9-HxCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	122.00	(Q)
06/29/93	SPIKED BLANK	M661	116.00	
06/30/93	SPIKED BLANK	M680	93.00	
07/02/93	SPIKED BLANK	M680	118.00	
07/02/93	SPIKED BLANK	M680	116.00	
07/03/93	SPIKED BLANK	M690	93.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 109.7	Above acceptance :	1
Standard Deviation	: 13.09	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8,9-HxCDF, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	108.00	
06/29/93	9303-AE-01-01 MSD	M660	116.00	
06/23/93	9303-AE-01-01 MS	M661	124.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	128.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	119.00	
06/29/93	9303-FDT-01-01 MSD	M680	114.00	
07/02/93	9303-FDT-01-01 MS	M680	113.00	
07/02/93	9303-FDT-01-01 MSD	M680	107.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	112.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	100.00	

Number of Samples : 10
Mean % Recovery : 114.1
Standard Deviation : 8.24
Below acceptance : 0
Above acceptance : 2
Acceptance Criteria : 40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8-PeCDD

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	128.00	(Q)
06/29/93	SPIKED BLANK	M661	94.00	
06/30/93	SPIKED BLANK	M680	92.00	
07/02/93	SPIKED BLANK	M680	97.00	
07/02/93	SPIKED BLANK	M680	93.00	
07/03/93	SPIKED BLANK	M690	80.00	

Number of Samples : 6
Mean % Recovery : 97.3
Standard Deviation : 16.12
Below acceptance : 0
Above acceptance : 1
Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	113.00	
06/29/93	9303-AE-01-01 MSD	M660	98.00	
06/23/93	9303-AE-01-01 MS	M661	107.00	
06/23/93	9303-AE-01-01 MSD	M661	102.00	
06/29/93	9303-FDT-01-01 MS	M680	98.00	
06/29/93	9303-FDT-01-01 MSD	M680	92.00	
07/02/93	9303-FDT-01-01 MS	M680	97.00	
07/02/93	9303-FDT-01-01 MSD	M680	87.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	113.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	127.00	(Q)

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8-PeCDD, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 103.4	Above acceptance :	1
Standard Deviation	: 11.81	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 1,2,3,7,8-PeCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	126.00	(Q)
06/29/93	SPIKED BLANK	M661	107.00	
06/30/93	SPIKED BLANK	M680	78.00	
07/02/93	SPIKED BLANK	M680	120.00	
07/02/93	SPIKED BLANK	M680	116.00	
07/03/93	SPIKED BLANK	M690	65.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 102.0	Above acceptance :	1
Standard Deviation	: 24.76	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	116.00	
06/29/93	9303-AE-01-01 MSD	M660	124.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	147.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	136.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	108.00	
06/29/93	9303-FDT-01-01 MSD	M680	109.00	
07/02/93	9303-FDT-01-01 MS	M680	118.00	
07/02/93	9303-FDT-01-01 MSD	M680	119.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	111.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	131.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 121.9	Above acceptance :	4
Standard Deviation	: 12.71	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDD

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	96.00
06/09/93	9303-ALH-01-01	M660	107.00
06/09/93	9303-ALH-03-01	M660	106.00
06/14/93	9303-AA-01-01	M660	82.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/14/93	9303-AE-01-02	M660	85.00	
06/14/93	9303-FLH-01-01	M660	86.00	
06/14/93	9303-FLH-02-01	M660	103.00	
06/28/93	9303-AC-01-02	M660	90.00	
06/28/93	9303-AD-01-01	M660	83.00	
06/28/93	9303-ALH-02-01	M660	98.00	
07/03/93	9303-AF-01-01	M660	80.00	
07/07/93	9303-AE-01-01	M660	92.00	
07/08/93	9303-ALS-01-01	M660	115.00	
07/09/93	9303-AC-01-01	M660	85.00	
06/18/93	9303-ADT-01-01	M661	80.00	
06/18/93	9303-AE-01-01	M661	87.00	
06/18/93	9303-AF-01-01	M661	90.00	
06/18/93	9303-AG-01-01	M661	89.00	
06/18/93	9303-ALH-01-01	M661	88.00	
06/18/93	9303-ALH-02-01	M661	88.00	
06/18/93	9303-ALH-03-01	M661	89.00	
06/23/93	9303-AA-01-01	M661	77.00	
06/23/93	9303-AC-01-02	M661	99.00	
06/23/93	9303-AD-01-01	M661	70.00	
06/23/93	9303-AE-01-02	M661	85.00	
06/23/93	9303-ALS-01-01	M661	85.00	
06/23/93	9303-ALS-02-01	M661	82.00	
06/23/93	9303-FLH-01-01	M661	87.00	
07/08/93	9303-AC-01-01	M661	126.00	(Q)
06/29/93	9303-FDT-02-01	M680	95.00	
06/29/93	9303-FLH-03-01	M680	90.00	
06/29/93	9303-FLH-03-02	M680	94.00	
06/30/93	9303-BDT-01-01	M680	85.00	
06/30/93	9303-FDT-02-01	M680	60.00	
06/30/93	9303-FG-01-01	M680	90.00	
07/01/93	9303-BDT-01-01	M680	87.00	
07/01/93	9303-FDT-03-01	M680	80.00	
07/01/93	9303-FG-01-01	M680	88.00	
07/08/93	9303-FLH-03-01	M680	100.00	
07/12/93	9303-FDT-03-01	M680	119.00	
07/12/93	9303-FLH-03-02	M680	123.00	(Q)
07/01/93	9303-BA-01-01	M690	61.00	
07/01/93	9303-BE-01-01	M690	86.00	
07/01/93	9303-IDT-01-01	M690	82.00	
07/01/93	9303-NLS-01-01	M690	79.00	
07/03/93	9303-BA-01-01	M690	76.00	
07/03/93	9303-GLS-01-01	M690	81.00	
07/03/93	9303-GLS-01-01	M690	82.00	
07/03/93	9303-IDT-01-01	M690	81.00	
07/03/93	9303-NLS-01-01	M690	80.00	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW829D - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDD, continued

Number of Samples	: 50	Below acceptance :	0
Mean % Recovery	: 89.0	Above acceptance :	2
Standard Deviation	: 13.19	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/14/93	PROC. BLANK	M660	92.00
06/29/93	PROC. BLANK	M661	99.00
07/02/93	PROC. BLANK	M680	82.00
07/07/93	PROC. BLANK	M680	98.00
07/03/93	PROC. BLANK	M690	101.00
07/07/93	PROC. BLANK	M690	90.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 93.7	Above acceptance :	0
Standard Deviation	: 7.12	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/28/93	SAND BLANK	M660	98.00
06/18/93	SAND BLANK	M661	91.00
07/02/93	SAND BLANK	M680	77.00
07/02/93	SAND BLANK	M680	79.00
07/03/93	SAND BLANK	M690	82.00
07/07/93	SAND BLANK	M690	111.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 89.7	Above acceptance :	0
Standard Deviation	: 13.11	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	110.00
06/29/93	SPIKED BLANK	M661	90.00
06/30/93	SPIKED BLANK	M680	87.00
07/02/93	SPIKED BLANK	M680	81.00
07/02/93	SPIKED BLANK	M680	73.00
07/03/93	SPIKED BLANK	M690	78.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 86.5	Above acceptance :	0
Standard Deviation	: 13.03	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDD, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/09/93	9303-AE-01-01 MS	M660	105.00
06/29/93	9303-AE-01-01 MSD	M660	79.00
06/23/93	9303-AE-01-01 MS	M661	84.00
06/23/93	9303-AE-01-01 MSD	M661	76.00
06/29/93	9303-FDT-01-01 MS	M680	86.00
06/29/93	9303-FDT-01-01 MSD	M680	95.00
07/02/93	9303-FDT-01-01 MS	M680	73.00
07/02/93	9303-FDT-01-01 MSD	M680	73.00
07/07/93	9303-FDT-01-01 MS/DU	M680	82.00
07/07/93	9303-FDT-01-01 MSD/DU	M680	108.00

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 86.1	Above acceptance :	0
Standard Deviation	: 12.62	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDF

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	86.00	
06/09/93	9303-ALH-01-01	M660	139.00	(Q)
06/09/93	9303-ALH-03-01	M660	136.00	(Q)
06/14/93	9303-AA-01-01	M660	72.00	
06/14/93	9303-AE-01-02	M660	75.00	
06/14/93	9303-FLH-01-01	M660	62.00	
06/14/93	9303-FLH-02-01	M660	135.00	(Q)
06/28/93	9303-AC-01-02	M660	8.00	(Q)
06/28/93	9303-AD-01-01	M660	36.00	
06/28/93	9303-ALH-02-01	M660	151.00	(Q)
07/03/93	9303-AF-01-01	M660	69.00	
07/07/93	9303-AE-01-01	M660	84.00	
07/08/93	9303-ALS-01-01	M660	42.00	
07/09/93	9303-AC-01-01	M660	75.00	
06/18/93	9303-ADT-01-01	M661	89.00	
06/18/93	9303-AE-01-01	M661	89.00	
06/18/93	9303-AF-01-01	M661	92.00	
06/18/93	9303-AG-01-01	M661	88.00	
06/18/93	9303-ALH-01-01	M661	95.00	
06/18/93	9303-ALH-02-01	M661	91.00	
06/18/93	9303-ALH-03-01	M661	92.00	
06/23/93	9303-AA-01-01	M661	112.00	
06/23/93	9303-AC-01-02	M661	144.00	(Q)
06/23/93	9303-AD-01-01	M661	106.00	
06/23/93	9303-AE-01-02	M661	97.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/23/93	9303-ALS-01-01	M661	61.00	
06/23/93	9303-ALS-02-01	M661	99.00	
06/23/93	9303-FLH-01-01	M661	104.00	
07/08/93	9303-AC-01-01	M661	64.00	
06/29/93	9303-FDT-02-01	M680	91.00	
06/29/93	9303-FLH-03-01	M680	90.00	
06/29/93	9303-FLH-03-02	M680	93.00	
06/30/93	9303-BDT-01-01	M680	65.00	
06/30/93	9303-FDT-02-01	M680	67.00	
06/30/93	9303-FG-01-01	M680	71.00	
07/01/93	9303-BDT-01-01	M680	83.00	
07/01/93	9303-FDT-03-01	M680	81.00	
07/01/93	9303-FG-01-01	M680	86.00	
07/08/93	9303-FLH-03-01	M680	104.00	
07/12/93	9303-FDT-03-01	M680	128.00	(Q)
07/12/93	9303-FLH-03-02	M680	130.00	(Q)
07/01/93	9303-BA-01-01	M690	58.00	
07/01/93	9303-BE-01-01	M690	73.00	
07/01/93	9303-IDT-01-01	M690	79.00	
07/01/93	9303-NLS-01-01	M690	74.00	
07/03/93	9303-BA-01-01	M690	62.00	
07/03/93	9303-GLS-01-01	M690	81.00	
07/03/93	9303-GLS-01-01	M690	66.00	
07/03/93	9303-IDT-01-01	M690	61.00	
07/03/93	9303-NLS-01-01	M690	65.00	

Number of Samples	: 50	Below acceptance :	2
Mean % Recovery	: 86.0	Above acceptance :	7
Standard Deviation	: 28.04	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	69.00	
06/29/93	PROC. BLANK	M661	99.00	
07/02/93	PROC. BLANK	M680	207.00	(Q)
07/07/93	PROC. BLANK	M680	109.00	
07/03/93	PROC. BLANK	M690	94.00	
07/07/93	PROC. BLANK	M690	82.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 110.0	Above acceptance :	1
Standard Deviation	: 49.50	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,6,7,8-HpCDF, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/28/93	SAND BLANK	M660	70.00
06/18/93	SAND BLANK	M661	80.00
07/02/93	SAND BLANK	M680	77.00
07/02/93	SAND BLANK	M680	82.00
07/03/93	SAND BLANK	M690	50.00
07/07/93	SAND BLANK	M690	102.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 76.8	Above acceptance :	0
Standard Deviation	: 16.95	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	66.00
06/29/93	SPIKED BLANK	M661	81.00
06/30/93	SPIKED BLANK	M680	62.00
07/02/93	SPIKED BLANK	M680	80.00
07/02/93	SPIKED BLANK	M680	117.00
07/03/93	SPIKED BLANK	M690	58.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 77.3	Above acceptance :	0
Standard Deviation	: 21.59	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	79.00	
06/29/93	9303-AE-01-01 MSD	M660	44.00	
06/23/93	9303-AE-01-01 MS	M661	108.00	
06/23/93	9303-AE-01-01 MSD	M661	70.00	
06/29/93	9303-FDT-01-01 MS	M680	78.00	
06/29/93	9303-FDT-01-01 MSD	M680	101.00	
07/02/93	9303-FDT-01-01 MS	M680	71.00	
07/02/93	9303-FDT-01-01 MSD	M680	79.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	81.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	136.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 84.7	Above acceptance :	1
Standard Deviation	: 25.00	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8,9-HpCDF

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	97.00	
06/09/93	9303-ALH-01-01	M660	109.00	
06/09/93	9303-ALH-03-01	M660	101.00	
06/14/93	9303-AA-01-01	M660	78.00	
06/14/93	9303-AE-01-02	M660	84.00	
06/14/93	9303-FLH-01-01	M660	75.00	
06/14/93	9303-FLH-02-01	M660	93.00	
06/28/93	9303-AC-01-02	M660	9.00	(Q)
06/28/93	9303-AD-01-01	M660	55.00	
06/28/93	9303-ALH-02-01	M660	129.00	(Q)
07/03/93	9303-AF-01-01	M660	70.00	
07/07/93	9303-AE-01-01	M660	91.00	
07/08/93	9303-ALS-01-01	M660	74.00	
07/09/93	9303-AC-01-01	M660	84.00	
06/18/93	9303-ADT-01-01	M661	78.00	
06/18/93	9303-AE-01-01	M661	87.00	
06/18/93	9303-AF-01-01	M661	87.00	
06/18/93	9303-AG-01-01	M661	87.00	
06/18/93	9303-ALH-01-01	M661	83.00	
06/18/93	9303-ALH-02-01	M661	85.00	
06/18/93	9303-ALH-03-01	M661	86.00	
06/23/93	9303-AA-01-01	M661	100.00	
06/23/93	9303-AC-01-02	M661	124.00	(Q)
06/23/93	9303-AD-01-01	M661	97.00	
06/23/93	9303-AE-01-02	M661	95.00	
06/23/93	9303-ALS-01-01	M661	88.00	
06/23/93	9303-ALS-02-01	M661	93.00	
06/23/93	9303-FLH-01-01	M661	98.00	
07/08/93	9303-AC-01-01	M661	105.00	
06/29/93	9303-FDT-02-01	M680	95.00	
06/29/93	9303-FLH-03-01	M680	91.00	
06/29/93	9303-FLH-03-02	M680	101.00	
06/30/93	9303-BDT-01-01	M680	71.00	
06/30/93	9303-FDT-02-01	M680	56.00	
06/30/93	9303-FG-01-01	M680	67.00	
07/01/93	9303-BDT-01-01	M680	86.00	
07/01/93	9303-FDT-03-01	M680	82.00	
07/01/93	9303-FG-01-01	M680	91.00	
07/08/93	9303-FLH-03-01	M680	102.00	
07/12/93	9303-FDT-03-01	M680	122.00	(Q)
07/12/93	9303-FLH-03-02	M680	120.00	
07/01/93	9303-BA-01-01	M690	59.00	
07/01/93	9303-BE-01-01	M690	74.00	
07/01/93	9303-IDT-01-01	M690	79.00	
07/01/93	9303-NLS-01-01	M690	70.00	
07/03/93	9303-BA-01-01	M690	62.00	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8,9-HpCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/03/93	9303-GLS-01-01	M690	83.00
07/03/93	9303-GLS-01-01	M690	68.00
07/03/93	9303-IDT-01-01	M690	65.00
07/03/93	9303-NLS-01-01	M690	69.00

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 85.1	Above acceptance :	3
Standard Deviation	: 20.25	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	87.00
06/29/93	PROC. BLANK	M661	95.00
07/02/93	PROC. BLANK	M680	101.00
07/07/93	PROC. BLANK	M680	104.00
07/03/93	PROC. BLANK	M690	83.00
07/07/93	PROC. BLANK	M690	83.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 92.2	Above acceptance :	0
Standard Deviation	: 9.17	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	69.00
06/18/93	SAND BLANK	M661	93.00
07/02/93	SAND BLANK	M680	80.00
07/02/93	SAND BLANK	M680	77.00
07/03/93	SAND BLANK	M690	56.00
07/07/93	SAND BLANK	M690	108.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 80.5	Above acceptance :	0
Standard Deviation	: 18.21	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	96.00
06/29/93	SPIKED BLANK	M661	90.00
06/30/93	SPIKED BLANK	M680	63.00
07/02/93	SPIKED BLANK	M680	85.00
07/02/93	SPIKED BLANK	M680	76.00
07/03/93	SPIKED BLANK	M690	62.00

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8,9-HpCDF, continued

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 78.7	Above acceptance :	0
Standard Deviation	: 14.14	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	107.00	
06/29/93	9303-AE-01-01 MSD	M660	69.00	
06/23/93	9303-AE-01-01 MS	M661	107.00	
06/23/93	9303-AE-01-01 MSD	M661	92.00	
06/29/93	9303-FDT-01-01 MS	M680	82.00	
06/29/93	9303-FDT-01-01 MSD	M680	90.00	
07/02/93	9303-FDT-01-01 MS	M680	68.00	
07/02/93	9303-FDT-01-01 MSD	M680	69.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	84.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	121.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 88.9	Above acceptance :	1
Standard Deviation	: 18.25	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDD

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	92.00	
06/09/93	9303-ALH-01-01	M660	128.00	(Q)
06/09/93	9303-ALH-03-01	M660	141.00	(Q)
06/14/93	9303-AA-01-01	M660	96.00	
06/14/93	9303-AE-01-02	M660	95.00	
06/14/93	9303-FLH-01-01	M660	90.00	
06/14/93	9303-FLH-02-01	M660	142.00	(Q)
06/28/93	9303-AC-01-02	M660	16.00	(Q)
06/28/93	9303-AD-01-01	M660	73.00	
06/28/93	9303-ALH-02-01	M660	145.00	(Q)
07/03/93	9303-AF-01-01	M660	102.00	
07/07/93	9303-AE-01-01	M660	101.00	
07/08/93	9303-ALS-01-01	M660	63.00	
07/09/93	9303-AC-01-01	M660	95.00	
06/18/93	9303-ADT-01-01	M661	101.00	
06/18/93	9303-AE-01-01	M661	102.00	
06/18/93	9303-AF-01-01	M661	99.00	
06/18/93	9303-AG-01-01	M661	87.00	
06/18/93	9303-ALH-01-01	M661	96.00	
06/18/93	9303-ALH-02-01	M661	100.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/18/93	9303-ALH-03-01	M661	101.00	
06/23/93	9303-AA-D1-01	M661	104.00	
06/23/93	9303-AC-01-02	M661	117.00	
06/23/93	9303-AD-01-01	M661	107.00	
06/23/93	9303-AE-01-02	M661	104.00	
06/23/93	9303-ALS-01-01	M661	90.00	
06/23/93	9303-ALS-02-01	M661	98.00	
06/23/93	9303-FLH-01-01	M661	100.00	
07/08/93	9303-AC-01-01	M661	82.00	
06/29/93	9303-FDT-02-01	M680	100.00	
06/29/93	9303-FLH-03-01	M680	99.00	
06/29/93	9303-FLH-03-02	M680	101.00	
06/30/93	9303-BDT-01-01	M680	100.00	
06/30/93	9303-FDT-02-01	M680	90.00	
06/30/93	9303-FG-01-01	M680	96.00	
07/01/93	9303-BDT-01-01	M680	95.00	
07/01/93	9303-FDT-03-01	M680	82.00	
07/01/93	9303-FG-01-01	M680	90.00	
07/08/93	9303-FLH-03-01	M680	101.00	
07/12/93	9303-FDT-03-01	M680	93.00	
07/12/93	9303-FLH-03-02	M680	96.00	
07/01/93	9303-BA-01-01	M690	70.00	
07/01/93	9303-BE-01-01	M690	100.00	
07/01/93	9303-IDT-01-01	M690	102.00	
07/01/93	9303-NLS-01-01	M690	99.00	
07/03/93	9303-BA-01-01	M690	102.00	
07/03/93	9303-GLS-01-01	M690	103.00	
07/03/93	9303-GLS-01-01	M690	99.00	
07/03/93	9303-IDT-01-01	M690	100.00	
07/03/93	9303-NLS-01-01	M690	104.00	

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 97.8	Above acceptance :	4
Standard Deviation	: 19.14	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	89.00	
06/29/93	PROC. BLANK	M661	110.00	
07/02/93	PROC. BLANK	M680	210.00	(Q)
07/07/93	PROC. BLANK	M680	101.00	
07/03/93	PROC. BLANK	M690	158.00	(Q)
07/07/93	PROC. BLANK	M690	99.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDD, continued

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 127.8	Above acceptance :	2
Standard Deviation	: 46.99	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/28/93	SAND BLANK	M660	109.00	
06/18/93	SAND BLANK	M661	108.00	
07/02/93	SAND BLANK	M680	91.00	
07/02/93	SAND BLANK	M680	106.00	
07/03/93	SAND BLANK	M690	99.00	
07/07/93	SAND BLANK	M690	89.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 100.3	Above acceptance :	0
Standard Deviation	: 8.76	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	85.00	
06/29/93	SPIKED BLANK	M661	101.00	
06/30/93	SPIKED BLANK	M680	99.00	
07/02/93	SPIKED BLANK	M680	96.00	
07/02/93	SPIKED BLANK	M680	139.00	(Q)
07/03/93	SPIKED BLANK	M690	94.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 102.3	Above acceptance :	1
Standard Deviation	: 18.80	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/09/93	9303-AE-01-01 MS	M660	105.00
06/29/93	9303-AE-01-01 MSD	M660	90.00
06/23/93	9303-AE-01-01 MS	M661	102.00
06/23/93	9303-AE-01-01 MSD	M661	101.00
06/29/93	9303-FDT-01-01 MS	M680	90.00
06/29/93	9303-FDT-01-01 MSD	M680	129.00
07/02/93	9303-FDT-01-01 MS	M680	92.00
07/02/93	9303-FDT-01-01 MSD	M680	90.00
07/07/93	9303-FDT-01-01 MS/DU	M680	83.00
07/07/93	9303-FDT-01-01 MSD/DU	M680	85.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SWB290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDD, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 96.7	Above acceptance :	1
Standard Deviation	: 13.50	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDF

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	74.00	
06/09/93	9303-ALH-01-01	M660	139.00	(Q)
06/09/93	9303-ALH-03-01	M660	143.00	(Q)
06/14/93	9303-AA-01-01	M660	56.00	
06/14/93	9303-AE-01-02	M660	61.00	
06/14/93	9303-FLH-01-01	M660	27.00	(Q)
06/14/93	9303-FLH-02-01	M660	125.00	(Q)
06/28/93	9303-AC-01-02	M660	2.00	(Q)
06/28/93	9303-AD-01-01	M660	10.00	(Q)
06/28/93	9303-ALH-02-01	M660	156.00	(Q)
07/03/93	9303-AF-01-01	M660	77.00	
07/07/93	9303-AE-01-01	M660	95.00	
07/08/93	9303-ALS-01-01	M660	17.00	(Q)
07/09/93	9303-AC-01-01	M660	61.00	
06/18/93	9303-ADT-01-01	M661	97.00	
06/18/93	9303-AE-01-01	M661	82.00	
06/18/93	9303-AF-01-01	M661	81.00	
06/18/93	9303-AG-01-01	M661	80.00	
06/18/93	9303-ALH-01-01	M661	88.00	
06/18/93	9303-ALH-02-01	M661	81.00	
06/18/93	9303-ALH-03-01	M661	89.00	
06/23/93	9303-AA-01-01	M661	125.00	(Q)
06/23/93	9303-AC-01-02	M661	150.00	(Q)
06/23/93	9303-AD-01-01	M661	124.00	(Q)
06/23/93	9303-AE-01-02	M661	100.00	
06/23/93	9303-ALS-01-01	M661	35.00	(Q)
06/23/93	9303-ALS-02-01	M661	103.00	
06/23/93	9303-FLH-01-01	M661	94.00	
07/08/93	9303-AC-01-01	M661	22.00	(Q)
06/29/93	9303-FDT-02-01	M680	92.00	
06/29/93	9303-FLH-03-01	M680	96.00	
06/29/93	9303-FLH-03-02	M680	98.00	
06/30/93	9303-BDT-01-01	M680	78.00	
06/30/93	9303-FDT-02-01	M680	76.00	
06/30/93	9303-FG-01-01	M680	89.00	
07/01/93	9303-BDT-01-01	M680	80.00	
07/01/93	9303-FDT-03-01	M680	76.00	
07/01/93	9303-FG-01-01	M680	85.00	

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	9303-FLH-03-01	M680	106.00	
07/12/93	9303-FDT-03-01	M680	100.00	
07/12/93	9303-FLH-03-02	M680	100.00	
07/01/93	9303-BA-01-01	M690	58.00	
07/01/93	9303-BE-01-01	M690	76.00	
07/01/93	9303-IDT-01-01	M690	83.00	
07/01/93	9303-NLS-01-01	M690	81.00	
07/03/93	9303-BA-01-01	M690	73.00	
07/03/93	9303-GLS-01-01	M690	83.00	
07/03/93	9303-GLS-01-01	M690	74.00	
07/03/93	9303-IDT-01-01	M690	69.00	
07/03/93	9303-NLS-01-01	M690	74.00	

Number of Samples	: 50	Below acceptance :	6
Mean % Recovery	: 82.8	Above acceptance :	7
Standard Deviation	: 32.92	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	29.00	
06/29/93	PROC. BLANK	M661	107.00	
07/02/93	PROC. BLANK	M680	258.00	(Q)
07/07/93	PROC. BLANK	M680	111.00	
07/03/93	PROC. BLANK	M690	119.00	
07/07/93	PROC. BLANK	M690	111.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 122.5	Above acceptance :	1
Standard Deviation	: 74.32	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	39.00	(Q)
06/18/93	SAND BLANK	M661	47.00	
07/02/93	SAND BLANK	M680	89.00	
07/02/93	SAND BLANK	M680	87.00	
07/03/93	SAND BLANK	M690	63.00	
07/07/93	SAND BLANK	M690	110.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 72.5	Above acceptance :	0
Standard Deviation	: 27.39	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,4,7,8-HxCDF, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	16.00	(Q)
06/29/93	SPIKED BLANK	M661	67.00	
06/30/93	SPIKED BLANK	M680	84.00	
07/02/93	SPIKED BLANK	M680	92.00	
07/02/93	SPIKED BLANK	M680	149.00	
07/03/93	SPIKED BLANK	M690	67.00	

Number of Samples : 6 Below acceptance : 1
Mean % Recovery : 79.2 Above acceptance : 1
Standard Deviation : 43.25 Acceptance Criteria : 40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	26.00	(Q)
06/29/93	9303-AE-01-01 MSD	M660	17.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	116.00	
06/23/93	9303-AE-01-01 MSD	M661	49.00	
06/29/93	9303-FDT-01-01 MS	M680	78.00	
06/29/93	9303-FDT-01-01 MSD	M680	124.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	87.00	
07/02/93	9303-FDT-01-01 MSD	M680	81.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	88.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	122.00	(Q)

Number of Samples : 10 Below acceptance : 2
Mean % Recovery : 78.8 Above acceptance : 2
Standard Deviation : 37.93 Acceptance Criteria : 40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDD

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	92.00	
06/09/93	9303-ALH-01-01	M660	132.00	(Q)
06/09/93	9303-ALH-03-01	M660	140.00	(Q)
06/14/93	9303-AA-01-01	M660	93.00	
06/14/93	9303-AE-01-02	M660	97.00	
06/14/93	9303-FLH-01-01	M660	95.00	
06/14/93	9303-FLH-02-01	M660	129.00	(Q)
06/28/93	9303-AC-01-02	M660	21.00	(Q)
06/28/93	9303-AD-01-01	M660	78.00	
06/28/93	9303-ALH-02-01	M660	148.00	(Q)
07/03/93	9303-AF-01-01	M660	103.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/07/93	9303-AE-01-01	M660	100.00
07/08/93	9303-ALS-01-01	M660	79.00
07/09/93	9303-AC-01-01	M660	97.00
06/18/93	9303-ADT-01-01	M661	101.00
06/18/93	9303-AE-01-01	M661	104.00
06/18/93	9303-AF-01-01	M661	101.00
06/18/93	9303-AG-01-01	M661	87.00
06/18/93	9303-ALH-01-01	M661	104.00
06/18/93	9303-ALH-02-01	M661	98.00
06/18/93	9303-ALH-03-01	M661	100.00
06/23/93	9303-AA-01-01	M661	100.00
06/23/93	9303-AC-01-02	M661	113.00
06/23/93	9303-AD-01-01	M661	93.00
06/23/93	9303-AE-01-02	M661	104.00
06/23/93	9303-ALS-01-01	M661	94.00
06/23/93	9303-ALS-02-01	M661	96.00
06/23/93	9303-FLH-01-01	M661	102.00
07/08/93	9303-AC-01-01	M661	91.00
06/29/93	9303-FDT-02-01	M680	100.00
06/29/93	9303-FLH-03-01	M680	95.00
06/29/93	9303-FLH-03-02	M680	99.00
06/30/93	9303-BDT-01-01	M680	101.00
06/30/93	9303-FDT-02-01	M680	93.00
06/30/93	9303-FG-01-01	M680	98.00
07/01/93	9303-BDT-01-01	M680	95.00
07/01/93	9303-FDT-03-01	M680	85.00
07/01/93	9303-FG-01-01	M680	89.00
07/08/93	9303-FLH-03-01	M680	109.00
07/12/93	9303-FDT-03-01	M680	100.00
07/12/93	9303-FLH-03-02	M680	99.00
07/01/93	9303-BA-01-01	M690	68.00
07/01/93	9303-BE-01-01	M690	97.00
07/01/93	9303-IDT-01-01	M690	102.00
07/01/93	9303-NLS-01-01	M690	98.00
07/03/93	9303-BA-01-01	M690	102.00
07/03/93	9303-GLS-01-01	M690	102.00
07/03/93	9303-GLS-01-01	M690	100.00
07/03/93	9303-IDT-01-01	M690	101.00
07/03/93	9303-NLS-01-01	M690	99.00

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 98.5	Above acceptance :	4
Standard Deviation	: 17.58	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDD, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/14/93	PROC. BLANK	M660	90.00	
06/29/93	PROC. BLANK	M661	112.00	
07/02/93	PROC. BLANK	M680	207.00	(Q)
07/07/93	PROC. BLANK	M680	107.00	
07/03/93	PROC. BLANK	M690	147.00	
07/07/93	PROC. BLANK	M690	98.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 126.8	Above acceptance :	2
Standard Deviation	: 43.90	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	115.00	
06/18/93	SAND BLANK	M661	107.00	
07/02/93	SAND BLANK	M680	108.00	
07/02/93	SAND BLANK	M680	94.00	
07/03/93	SAND BLANK	M690	97.00	
07/07/93	SAND BLANK	M690	103.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 104.0	Above acceptance :	0
Standard Deviation	: 7.69	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	88.00	
06/29/93	SPIKED BLANK	M661	100.00	
06/30/93	SPIKED BLANK	M680	96.00	
07/02/93	SPIKED BLANK	M680	129.00	(Q)
07/02/93	SPIKED BLANK	M680	98.00	
07/03/93	SPIKED BLANK	M690	96.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 101.2	Above acceptance :	1
Standard Deviation	: 14.23	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	107.00
06/29/93	9303-AE-01-01 MSD	M660	92.00
06/23/93	9303-AE-01-01 MS	M661	98.00
06/23/93	9303-AE-01-01 MSD	M661	97.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLDMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDD, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/29/93	9303-FDT-01-01 MS	M680	94.00	
06/29/93	9303-FDT-01-01 MSD	M680	126.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	91.00	
07/02/93	9303-FDT-01-01 MSD	M680	90.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	87.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	91.00	

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 97.3	Above acceptance :	1
Standard Deviation	: 11.53	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDF

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	72.00	
06/09/93	9303-ALH-01-01	M660	135.00	(Q)
06/09/93	9303-ALH-03-01	M660	144.00	(Q)
06/14/93	9303-AA-01-01	M660	51.00	
06/14/93	9303-AE-01-02	M660	59.00	
06/14/93	9303-FLH-01-01	M660	29.00	(Q)
06/14/93	9303-FLH-02-01	M660	123.00	(Q)
06/28/93	9303-AC-01-02	M660	2.00	(Q)
06/28/93	9303-AD-01-01	M660	11.00	(Q)
06/28/93	9303-ALH-02-01	M660	157.00	(Q)
07/03/93	9303-AF-01-01	M660	78.00	
07/07/93	9303-AE-01-01	M660	96.00	
07/08/93	9303-ALS-01-01	M660	15.00	(Q)
07/09/93	9303-AC-01-01	M660	59.00	
06/18/93	9303-ADT-01-01	M661	96.00	
06/18/93	9303-AE-01-01	M661	78.00	
06/18/93	9303-AF-01-01	M661	80.00	
06/18/93	9303-AG-01-01	M661	81.00	
06/18/93	9303-ALH-01-01	M661	87.00	
06/18/93	9303-ALH-02-01	M661	83.00	
06/18/93	9303-ALH-03-01	M661	89.00	
06/23/93	9303-AA-01-01	M661	129.00	(Q)
06/23/93	9303-AC-01-02	M661	147.00	(Q)
06/23/93	9303-AD-01-01	M661	125.00	(Q)
06/23/93	9303-AE-01-02	M661	99.00	
06/23/93	9303-ALS-01-01	M661	34.00	(Q)
06/23/93	9303-ALS-02-01	M661	103.00	
06/23/93	9303-FLH-01-01	M661	94.00	
07/08/93	9303-AC-01-01	M661	24.00	(Q)

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGDONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/29/93	9303-FDT-02-01	M680	94.00	
06/29/93	9303-FLH-03-01	M680	97.00	
06/29/93	9303-FLH-03-02	M680	99.00	
06/30/93	9303-BDT-01-01	M680	73.00	
06/30/93	9303-FDT-02-01	M680	79.00	
06/30/93	9303-FG-01-01	M680	90.00	
07/01/93	9303-BDT-01-01	M680	83.00	
07/01/93	9303-FDT-03-01	M680	78.00	
07/01/93	9303-FG-01-01	M680	83.00	
07/08/93	9303-FLH-03-01	M680	114.00	
07/12/93	9303-FDT-03-01	M680	105.00	
07/12/93	9303-FLH-03-02	M680	104.00	
07/01/93	9303-BA-01-01	M690	57.00	
07/01/93	9303-BE-01-01	M690	78.00	
07/01/93	9303-IDT-01-01	M690	83.00	
07/01/93	9303-NLS-01-01	M690	80.00	
07/03/93	9303-BA-01-01	M690	74.00	
07/03/93	9303-GLS-01-01	M690	84.00	
07/03/93	9303-GLS-01-01	M690	74.00	
07/03/93	9303-IDT-01-01	M690	70.00	
07/03/93	9303-NLS-01-01	M690	76.00	

Number of Samples	: 50	Below acceptance :	6
Mean % Recovery	: 83.1	Above acceptance :	7
Standard Deviation	: 33.17	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	30.00	
06/29/93	PROC. BLANK	M661	115.00	
07/02/93	PROC. BLANK	M680	243.00	(Q)
07/07/93	PROC. BLANK	M680	114.00	
07/03/93	PROC. BLANK	M690	118.00	
07/07/93	PROC. BLANK	M690	108.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 121.3	Above acceptance :	1
Standard Deviation	: 68.45	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	41.00
06/18/93	SAND BLANK	M661	48.00
07/02/93	SAND BLANK	M680	90.00

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,6,7,8-HxCDF, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SAND BLANK	M680	88.00
07/03/93	SAND BLANK	M690	66.00
07/07/93	SAND BLANK	M690	110.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 73.8	Above acceptance :	0
Standard Deviation	: 26.75	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	19.00	(Q)
06/29/93	SPIKED BLANK	M661	67.00	
06/30/93	SPIKED BLANK	M680	84.00	
07/02/93	SPIKED BLANK	M680	146.00	(Q)
07/02/93	SPIKED BLANK	M680	92.00	
07/03/93	SPIKED BLANK	M690	68.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 79.3	Above acceptance :	1
Standard Deviation	: 41.35	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	28.00	(Q)
06/29/93	9303-AE-01-01 MSD	M660	19.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	114.00	
06/23/93	9303-AE-01-01 MSD	M661	49.00	
06/29/93	9303-FDT-01-01 MS	M680	79.00	
06/29/93	9303-FDT-01-01 MSD	M680	123.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	90.00	
07/02/93	9303-FDT-01-01 MSD	M680	84.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	90.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	125.00	(Q)

Number of Samples	: 10	Below acceptance :	2
Mean % Recovery	: 80.1	Above acceptance :	2
Standard Deviation	: 37.47	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8,9-HxCDF

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	87.00	
06/09/93	9303-ALH-01-01	M660	118.00	
06/09/93	9303-ALH-03-01	M660	126.00	(Q)
06/14/93	9303-AA-01-01	M660	78.00	
06/14/93	9303-AE-01-02	M660	81.00	
06/14/93	9303-FLH-01-01	M660	93.00	
06/14/93	9303-FLH-02-01	M660	108.00	
06/28/93	93D3-AC-01-02	M660	56.00	
06/28/93	9303-AD-01-01	M660	85.00	
06/28/93	9303-ALH-02-01	M660	130.00	(Q)
07/03/93	9303-AF-01-01	M660	75.00	
07/07/93	9303-AE-01-01	M660	94.00	
07/08/93	9303-ALS-01-01	M660	122.00	(Q)
07/09/93	9303-AC-01-01	M660	81.00	
06/18/93	9303-ADT-01-01	M661	99.00	
06/18/93	9303-AE-01-01	M661	100.00	
06/18/93	9303-AF-01-01	M661	96.00	
06/18/93	9303-AG-01-01	M661	85.00	
06/18/93	9303-ALH-01-01	M661	90.00	
06/18/93	9303-ALH-02-01	M661	94.00	
06/18/93	9303-ALH-03-01	M661	97.00	
06/23/93	9303-AA-01-01	M661	120.00	
06/23/93	9303-AC-01-02	M661	148.00	(Q)
06/23/93	9303-AD-01-01	M661	117.00	
06/23/93	9303-AE-01-02	M661	111.00	
06/23/93	9303-ALS-01-01	M661	108.00	
06/23/93	9303-ALS-02-01	M661	104.00	
06/23/93	9303-FLH-01-01	M661	119.00	
07/08/93	9303-AC-01-01	M661	116.00	
06/29/93	9303-FDT-02-01	M680	96.00	
06/29/93	9303-FLH-03-01	M680	96.00	
06/29/93	9303-FLH-03-02	M680	99.00	
06/30/93	9303-BDT-01-01	M680	89.00	
06/30/93	9303-FDT-02-01	M680	76.00	
06/30/93	9303-FG-01-01	M680	87.00	
07/01/93	9303-BDT-01-01	M680	79.00	
07/01/93	9303-FDT-03-01	M680	76.00	
07/01/93	9303-FG-01-01	M680	85.00	
07/08/93	9303-FLH-03-01	M680	108.00	
07/12/93	9303-FDT-03-01	M680	101.00	
07/12/93	9303-FLH-03-02	M680	100.00	
07/01/93	9303-BA-01-01	M690	56.00	
07/01/93	9303-BE-01-01	M690	78.00	
07/01/93	9303-IDT-01-01	M690	81.00	
07/01/93	9303-NLS-01-01	M690	78.00	
07/03/93	9303-BA-01-01	M690	74.00	

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8,9-HxCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/03/93	9303-GLS-01-01	M690	76.00
07/03/93	9303-GLS-01-01	M690	81.00
07/03/93	9303-IDT-01-01	M690	69.00
07/03/93	9303-NLS-01-01	M690	76.00

Number of Samples	: 50	Below acceptance :	0
Mean % Recovery	: 94.0	Above acceptance :	4
Standard Deviation	: 19.01	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	82.00	
06/29/93	PROC. BLANK	M661	105.00	
07/02/93	PROC. BLANK	M680	151.00	(Q)
07/07/93	PROC. BLANK	M680	113.00	
07/03/93	PROC. BLANK	M690	111.00	
07/07/93	PROC. BLANK	M690	103.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 110.8	Above acceptance :	1
Standard Deviation	: 22.56	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	116.00
06/18/93	SAND BLANK	M661	100.00
07/02/93	SAND BLANK	M680	98.00
07/02/93	SAND BLANK	M680	86.00
07/03/93	SAND BLANK	M690	64.00
07/07/93	SAND BLANK	M690	105.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 94.8	Above acceptance :	0
Standard Deviation	: 17.98	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	114.00
06/29/93	SPIKED BLANK	M661	93.00
06/30/93	SPIKED BLANK	M680	84.00
07/02/93	SPIKED BLANK	M680	102.00
07/02/93	SPIKED BLANK	M680	91.00
07/03/93	SPIKED BLANK	M690	68.00

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8,9-HxCDF, continued

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 92.0	Above acceptance :	0
Standard Deviation	: 15.66	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	102.00	
06/29/93	9303-AE-01-01 MSD	M660	83.00	
06/23/93	9303-AE-01-01 MS	M661	118.00	
06/23/93	9303-AE-01-01 MSD	M661	107.00	
06/29/93	9303-FDT-01-01 MS	M680	83.00	
06/29/93	9303-FDT-01-01 MSD	M680	102.00	
07/02/93	9303-FDT-01-01 MS	M680	83.00	
07/02/93	9303-FDT-01-01 MSD	M680	81.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	87.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	123.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 96.9	Above acceptance :	1
Standard Deviation	: 15.67	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDD

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	107.00	
06/09/93	9303-ALH-01-01	M660	86.00	
06/09/93	9303-ALH-03-01	M660	79.00	
06/14/93	9303-AA-01-01	M660	159.00	(Q)
06/14/93	9303-AE-01-02	M660	93.00	
06/14/93	9303-FLH-01-01	M660	44.00	
06/14/93	9303-FLH-02-01	M660	92.00	
06/28/93	9303-AC-01-02	M660	17.00	(Q)
06/28/93	9303-AD-01-01	M660	50.00	
06/28/93	9303-ALH-02-01	M660	98.00	
07/03/93	9303-AF-01-01	M660	80.00	
07/07/93	9303-AE-01-01	M660	86.00	
07/08/93	9303-ALS-01-01	M660	75.00	
07/09/93	9303-AC-01-01	M660	90.00	
06/18/93	9303-ADT-01-01	M661	142.00	(Q)
06/18/93	9303-AE-01-01	M661	136.00	(Q)
06/18/93	9303-AF-01-01	M661	145.00	(Q)
06/18/93	9303-AG-01-01	M661	148.00	(Q)
06/18/93	9303-ALH-01-01	M661	137.00	(Q)
06/18/93	9303-ALH-02-01	M661	145.00	(Q)

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TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/18/93	9303-ALH-03-01	M661	136.00	(Q)
06/23/93	9303-AA-01-01	M661	93.00	
06/23/93	9303-AC-01-02	M661	90.00	
06/23/93	9303-AD-01-01	M661	81.00	
06/23/93	9303-AE-01-02	M661	95.00	
06/23/93	9303-ALS-01-01	M661	116.00	
06/23/93	9303-ALS-02-01	M661	109.00	
06/23/93	9303-FLH-01-01	M661	113.00	
07/08/93	9303-AC-01-01	M661	57.00	
06/29/93	9303-FDT-02-01	M680	102.00	
06/29/93	9303-FLH-03-01	M680	87.00	
06/29/93	9303-FLH-03-02	M680	89.00	
06/30/93	9303-BDT-01-01	M680	79.00	
06/30/93	9303-FDT-02-01	M680	89.00	
06/30/93	9303-FG-01-01	M680	87.00	
07/01/93	9303-BDT-01-01	M680	119.00	
07/01/93	9303-FDT-03-01	M680	81.00	
07/01/93	9303-FG-01-01	M680	102.00	
07/08/93	9303-FLH-03-01	M680	94.00	
07/12/93	9303-FDT-03-01	M680	110.00	
07/12/93	9303-FLH-03-02	M680	132.00	(Q)
07/01/93	9303-BA-01-01	M690	61.00	
07/01/93	9303-BE-01-01	M690	147.00	(Q)
07/01/93	9303-IDT-01-01	M690	97.00	
07/01/93	9303-NLS-01-01	M690	90.00	
07/03/93	9303-BA-01-01	M690	92.00	
07/03/93	9303-GLS-01-01	M690	82.00	
07/03/93	9303-GLS-01-01	M690	88.00	
07/03/93	9303-IDT-01-01	M690	124.00	(Q)
07/03/93	9303-NLS-01-01	M690	84.00	

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 98.7	Above acceptance :	11
Standard Deviation	: 28.97	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	63.00
06/29/93	PROC. BLANK	M661	91.00
07/02/93	PROC. BLANK	M680	69.00
07/07/93	PROC. BLANK	M680	101.00
07/03/93	PROC. BLANK	M690	71.00
07/07/93	PROC. BLANK	M690	103.00

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDD, continued

Number of Samples	: 6	Below acceptance :	0	
Mean % Recovery	: 83.0	Above acceptance :	0	
Standard Deviation	: 17.48	Acceptance Criteria :	40-120	

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/28/93	SAND BLANK	M660	46.00	
06/18/93	SAND BLANK	M661	126.00	(Q)
07/02/93	SAND BLANK	M680	95.00	
07/02/93	SAND BLANK	M680	114.00	
07/03/93	SAND BLANK	M690	121.00	(Q)
07/07/93	SAND BLANK	M690	100.00	

Number of Samples	: 6	Below acceptance :	0	
Mean % Recovery	: 100.3	Above acceptance :	2	
Standard Deviation	: 29.17	Acceptance Criteria :	40-120	

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	77.00	
06/29/93	SPIKED BLANK	M661	97.00	
06/30/93	SPIKED BLANK	M680	84.00	
07/02/93	SPIKED BLANK	M680	96.00	
07/02/93	SPIKED BLANK	M680	67.00	
07/03/93	SPIKED BLANK	M690	85.00	

Number of Samples	: 6	Below acceptance :	0	
Mean % Recovery	: 84.3	Above acceptance :	0	
Standard Deviation	: 11.41	Acceptance Criteria :	40-120	

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	84.00	
06/29/93	9303-AE-01-01 MSD	M660	178.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	125.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	93.00	
06/29/93	9303-FDT-01-01 MS	M680	119.00	
06/29/93	9303-FDT-01-01 MSD	M680	65.00	
07/02/93	9303-FDT-01-01 MS	M680	100.00	
07/02/93	9303-FDT-01-01 MSD	M680	107.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	116.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	121.00	(Q)

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDD, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 110.8	Above acceptance :	3
Standard Deviation	: 30.15	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDF

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	113.00	
06/09/93	9303-ALH-01-01	M660	104.00	
06/09/93	9303-ALH-03-01	M660	83.00	
06/14/93	9303-AA-01-01	M660	146.00	(Q)
06/14/93	9303-AE-01-02	M660	92.00	
06/14/93	9303-FLH-01-01	M660	37.00	
06/14/93	9303-FLH-02-01	M660	103.00	
06/28/93	9303-AC-01-02	M660	3.00	(Q)
06/28/93	9303-AD-01-01	M660	29.00	(Q)
06/28/93	9303-ALH-02-01	M660	105.00	
07/03/93	9303-AF-01-01	M660	61.00	
07/07/93	9303-AE-01-01	M660	83.00	
07/08/93	9303-ALS-01-01	M660	43.00	
07/09/93	9303-AC-01-01	M660	89.00	
06/18/93	9303-ADT-01-01	M661	115.00	
06/18/93	9303-AE-01-01	M661	123.00	(Q)
06/18/93	9303-AF-01-01	M661	116.00	
06/18/93	9303-AG-01-01	M661	127.00	(Q)
06/18/93	9303-ALH-01-01	M661	145.00	(Q)
06/18/93	9303-ALH-02-01	M661	130.00	(Q)
06/18/93	9303-ALH-03-01	M661	126.00	(Q)
06/23/93	9303-AA-01-01	M661	100.00	
06/23/93	9303-AC-01-02	M661	102.00	
06/23/93	9303-AD-01-01	M661	92.00	
06/23/93	9303-AE-01-02	M661	81.00	
06/23/93	9303-ALS-01-01	M661	108.00	
06/23/93	9303-ALS-02-01	M661	98.00	
06/23/93	9303-FLH-01-01	M661	122.00	(Q)
07/08/93	9303-AC-01-01	M661	58.00	
06/29/93	9303-FDT-02-01	M680	89.00	
06/29/93	9303-FLH-03-01	M680	81.00	
06/29/93	9303-FLH-03-02	M680	82.00	
06/30/93	9303-BDT-01-01	M680	61.00	
06/30/93	9303-FDT-02-01	M680	71.00	
06/30/93	9303-FG-01-01	M680	64.00	
07/01/93	9303-BDT-01-01	M680	96.00	
07/01/93	9303-FDT-03-01	M680	73.00	
07/01/93	9303-FG-01-01	M680	95.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	9303-FLH-03-01	M680	102.00	
07/12/93	9303-FDT-03-01	M680	106.00	
07/12/93	9303-FLH-03-02	M680	125.00	(Q)
07/01/93	9303-BA-01-01	M690	49.00	
07/01/93	9303-BE-01-01	M690	112.00	
07/01/93	9303-IDT-01-01	M690	66.00	
07/01/93	9303-NLS-01-01	M690	71.00	
07/03/93	9303-BA-01-01	M690	60.00	
07/03/93	9303-GLS-01-01	M690	69.00	
07/03/93	9303-GLS-01-01	M690	60.00	
07/03/93	9303-IDT-01-01	M690	62.00	
07/03/93	9303-NLS-01-01	M690	61.00	

Number of Samples	: 50	Below acceptance :	3
Mean % Recovery	: 87.8	Above acceptance :	8
Standard Deviation	: 30.19	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	57.00	
06/29/93	PROC. BLANK	M661	91.00	
07/02/93	PROC. BLANK	M680	72.00	
07/07/93	PROC. BLANK	M680	108.00	
07/03/93	PROC. BLANK	M690	51.00	
07/07/93	PROC. BLANK	M690	102.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 80.2	Above acceptance :	0
Standard Deviation	: 23.76	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	34.00	(Q)
06/18/93	SAND BLANK	M661	124.00	(Q)
07/02/93	SAND BLANK	M680	95.00	
07/02/93	SAND BLANK	M680	81.00	
07/03/93	SAND BLANK	M690	56.00	
07/07/93	SAND BLANK	M690	113.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 83.8	Above acceptance :	1
Standard Deviation	: 34.22	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-1,2,3,7,8-PeCDF, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	79.00
06/29/93	SPIKED BLANK	M661	83.00
06/30/93	SPIKED BLANK	M680	63.00
07/02/93	SPIKED BLANK	M680	83.00
07/02/93	SPIKED BLANK	M680	63.00
07/03/93	SPIKED BLANK	M690	53.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 70.7	Above acceptance :	0
Standard Deviation	: 12.68	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	77.00	
06/29/93	9303-AE-01-01 MSD	M660	69.00	
06/23/93	9303-AE-01-01 MS	M661	123.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	90.00	
06/29/93	9303-FDT-01-01 MS	M680	100.00	
06/29/93	9303-FDT-01-01 MSD	M680	62.00	
07/02/93	9303-FDT-01-01 MS	M680	86.00	
07/02/93	9303-FDT-01-01 MSD	M680	80.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	113.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	134.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 93.4	Above acceptance :	2
Standard Deviation	: 23.68	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,6,7,8-HxCDF

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	94.00
06/09/93	9303-ALH-01-01	M660	99.00
06/09/93	9303-ALH-03-01	M660	97.00
06/14/93	9303-AA-01-01	M660	84.00
06/14/93	9303-AE-01-02	M660	90.00
06/14/93	9303-FLH-01-01	M660	99.00
06/14/93	9303-FLH-02-01	M660	89.00
06/28/93	9303-AC-01-02	M660	33.00
06/28/93	9303-AD-01-01	M660	95.00
06/28/93	9303-ALH-02-01	M660	108.00
07/03/93	9303-AF-01-01	M660	81.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,6,7,8-HxCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/07/93	9303-AE-01-01	M660	107.00	
07/08/93	9303-ALS-01-01	M660	123.00	(Q)
07/09/93	9303-AC-01-01	M660	90.00	
06/18/93	9303-ADT-01-01	M661	86.00	
06/18/93	9303-AE-01-01	M661	92.00	
06/18/93	9303-AF-01-01	M661	89.00	
06/18/93	9303-AG-01-01	M661	84.00	
06/18/93	9303-ALH-01-01	M661	94.00	
06/18/93	9303-ALH-02-01	M661	93.00	
06/18/93	9303-ALH-03-01	M661	90.00	
06/23/93	9303-AA-01-01	M661	124.00	(Q)
06/23/93	9303-AC-01-02	M661	151.00	(Q)
06/23/93	9303-AD-01-01	M661	114.00	
06/23/93	9303-AE-01-02	M661	105.00	
06/23/93	9303-ALS-01-01	M661	105.00	
06/23/93	9303-ALS-02-01	M661	103.00	
06/23/93	9303-FLH-01-01	M661	117.00	
07/08/93	9303-AC-01-01	M661	123.00	(Q)
06/29/93	9303-FDT-02-01	M680	94.00	
06/29/93	9303-FLH-03-01	M680	97.00	
06/29/93	9303-FLH-03-02	M680	95.00	
06/30/93	9303-BDT-01-01	M680	89.00	
06/30/93	9303-FDT-02-01	M680	70.00	
06/30/93	9303-FG-01-01	M680	82.00	
07/01/93	9303-BDT-01-01	M680	81.00	
07/01/93	9303-FDT-03-01	M680	84.00	
07/01/93	9303-FG-01-01	M680	93.00	
07/08/93	9303-FLH-03-01	M680	110.00	
07/12/93	9303-FDT-03-01	M680	111.00	
07/12/93	9303-FLH-03-02	M680	109.00	
07/01/93	9303-BA-01-01	M690	61.00	
07/01/93	9303-BE-01-01	M690	84.00	
07/01/93	9303-IDT-01-01	M690	86.00	
07/01/93	9303-NLS-01-01	M690	85.00	
07/03/93	9303-BA-01-01	M690	79.00	
07/03/93	9303-GLS-01-01	M690	88.00	
07/03/93	9303-GLS-01-01	M690	78.00	
07/03/93	9303-IDT-01-01	M690	74.00	
07/03/93	9303-NLS-01-01	M690	78.00	

Number of Samples	: 50	Below acceptance :	0
Mean % Recovery	: 93.7	Above acceptance :	50
Standard Deviation	: 18.11	Acceptance Criteria :	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,6,7,8-HxCDF, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/14/93	PROC. BLANK	M660	87.00	
06/29/93	PROC. BLANK	M661	88.00	
07/02/93	PROC. BLANK	M680	96.00	
07/07/93	PROC. BLANK	M680	111.00	
07/03/93	PROC. BLANK	M690	86.00	
07/07/93	PROC. BLANK	M690	111.00	

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 96.5 Above acceptance : 0
Standard Deviation : 11.78 Acceptance Criteria : 40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	91.00	
06/18/93	SAND BLANK	M661	90.00	
07/02/93	SAND BLANK	M680	100.00	
07/02/93	SAND BLANK	M680	84.00	
07/03/93	SAND BLANK	M690	68.00	
07/07/93	SAND BLANK	M690	119.00	

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 92.0 Above acceptance : 6
Standard Deviation : 16.96 Acceptance Criteria :

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	140.00	(Q)
06/29/93	SPIKED BLANK	M661	91.00	
06/30/93	SPIKED BLANK	M680	82.00	
07/02/93	SPIKED BLANK	M680	92.00	
07/02/93	SPIKED BLANK	M680	93.00	
07/03/93	SPIKED BLANK	M690	73.00	

Number of Samples : 6 Below acceptance : 0
Mean % Recovery : 95.2 Above acceptance : 1
Standard Deviation : 23.27 Acceptance Criteria : 40-120

Type of Spike : Surrogate - Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	102.00	
06/29/93	9303-AE-01-01 MSD	M660	79.00	
06/23/93	9303-AE-01-01 MS	M661	123.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	112.00	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,6,7,8-HxCDF, continued

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/29/93	9303-FDT-01-01 MS	M680	90.00	
06/29/93	9303-FDT-01-01 MSD	M680	94.00	
07/02/93	9303-FDT-01-01 MS	M680	86.00	
07/02/93	9303-FDT-01-01 MSD	M680	84.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	95.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	133.00	(Q)

Number of Samples : 10
Mean % Recovery : 99.8
Standard Deviation : 17.70
Below acceptance : 0
Above acceptance : 10
Acceptance Criteria :

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,7,8-PeCDF

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	104.00	
06/09/93	9303-ALH-01-01	M660	97.00	
06/09/93	9303-ALH-03-01	M660	87.00	
06/14/93	9303-AA-01-01	M660	143.00	(Q)
06/14/93	9303-AE-01-02	M660	90.00	
06/14/93	9303-FLH-01-01	M660	41.00	
06/14/93	9303-FLH-02-01	M660	96.00	
06/28/93	9303-AC-01-02	M660	20.00	(Q)
06/28/93	9303-AD-01-01	M660	46.00	
06/28/93	9303-ALH-02-01	M660	109.00	
07/03/93	9303-AF-01-01	M660	59.00	
07/07/93	9303-AE-01-01	M660	82.00	
07/08/93	9303-ALS-01-01	M660	76.00	
07/09/93	9303-AC-01-01	M660	87.00	
06/18/93	9303-ADT-01-01	M661	134.00	(Q)
06/18/93	9303-AE-01-01	M661	123.00	(Q)
06/18/93	9303-AF-01-01	M661	135.00	(Q)
06/18/93	9303-AG-01-01	M661	133.00	(Q)
06/18/93	9303-ALH-01-01	M661	131.00	(Q)
06/18/93	9303-ALH-02-01	M661	133.00	(Q)
06/18/93	9303-ALH-03-01	M661	129.00	(Q)
06/23/93	9303-AA-01-01	M661	93.00	
06/23/93	9303-AC-01-02	M661	99.00	
06/23/93	9303-AD-01-01	M661	87.00	
06/23/93	9303-AE-01-02	M661	84.00	
06/23/93	9303-ALS-01-01	M661	114.00	
06/23/93	9303-ALS-02-01	M661	95.00	
06/23/93	9303-FLH-01-01	M661	119.00	
07/08/93	9303-AC-01-01	M661	66.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,7,8-PeCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/29/93	9303-FDT-02-01	M680	88.00	
06/29/93	9303-FLH-03-01	M680	76.00	
06/29/93	9303-FLH-03-02	M680	78.00	
06/30/93	9303-BDT-01-01	M680	57.00	
06/30/93	9303-FDT-02-01	M680	74.00	
06/30/93	9303-FG-01-01	M680	62.00	
07/01/93	9303-BDT-01-01	M680	95.00	
07/01/93	9303-FDT-03-01	M680	70.00	
07/01/93	9303-FG-01-01	M680	93.00	
07/08/93	9303-FLH-03-01	M680	97.00	
07/12/93	9303-FDT-03-01	M680	102.00	
07/12/93	9303-FLH-03-02	M680	123.00	(Q)
07/01/93	9303-BA-01-01	M690	48.00	
07/01/93	9303-BE-01-01	M690	115.00	
07/01/93	9303-IDT-01-01	M690	76.00	
07/01/93	9303-NLS-01-01	M690	70.00	
07/03/93	9303-BA-01-01	M690	63.00	
07/03/93	9303-GLS-01-01	M690	64.00	
07/03/93	9303-GLS-01-01	M690	62.00	
07/03/93	9303-IDT-01-01	M690	85.00	
07/03/93	9303-NLS-01-01	M690	61.00	

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 89.4	Above acceptance :	9
Standard Deviation	: 27.94	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	60.00	
06/29/93	PROC. BLANK	M661	81.00	
07/02/93	PROC. BLANK	M680	61.00	
07/07/93	PROC. BLANK	M680	102.00	
07/03/93	PROC. BLANK	M690	54.00	
07/07/93	PROC. BLANK	M690	115.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 78.8	Above acceptance :	0
Standard Deviation	: 25.06	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	46.00	
06/18/93	SAND BLANK	M661	124.00	(Q)
07/02/93	SAND BLANK	M680	79.00	

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,4,7,8-PeCDF, continued

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/02/93	SAND BLANK	M680	94.00
07/03/93	SAND BLANK	M690	80.00
07/07/93	SAND BLANK	M690	107.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 88.3	Above acceptance :	1
Standard Deviation	: 26.84	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	97.00
06/29/93	SPIKED BLANK	M661	80.00
06/30/93	SPIKED BLANK	M680	61.00
07/02/93	SPIKED BLANK	M680	80.00
07/02/93	SPIKED BLANK	M680	54.00
07/03/93	SPIKED BLANK	M690	57.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 71.5	Above acceptance :	0
Standard Deviation	: 16.86	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	87.00	
06/29/93	9303-AE-01-01 MSD	M660	141.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	127.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	85.00	
06/29/93	9303-FDT-01-01 MS	M680	103.00	
06/29/93	9303-FDT-01-01 MSD	M680	57.00	
07/02/93	9303-FDT-01-01 MS	M680	85.00	
07/02/93	9303-FDT-01-01 MSD	M680	82.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	108.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	134.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 100.9	Above acceptance :	3
Standard Deviation	: 26.71	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDD

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AG-01-01	M660	102.00	
06/09/93	9303-ALH-01-01	M660	81.00	
06/09/93	9303-ALH-03-01	M660	79.00	
06/14/93	9303-AA-01-01	M660	117.00	
06/14/93	9303-AE-01-02	M660	75.00	
06/14/93	9303-FLH-01-01	M660	50.00	
06/14/93	9303-FLH-02-01	M660	84.00	
06/28/93	9303-AC-01-02	M660	16.00	(Q)
06/28/93	9303-AD-01-01	M660	57.00	
06/28/93	9303-ALH-02-01	M660	79.00	
07/03/93	9303-AF-01-01	M660	104.00	
07/07/93	9303-AE-01-01	M660	100.00	
07/08/93	9303-ALS-01-01	M660	49.00	
07/09/93	9303-AC-01-01	M660	73.00	
06/18/93	9303-ADT-01-01	M661	102.00	
06/18/93	9303-AE-01-01	M661	105.00	
06/18/93	9303-AF-01-01	M661	94.00	
06/18/93	9303-AG-01-01	M661	101.00	
06/18/93	9303-ALH-01-01	M661	109.00	
06/18/93	9303-ALH-02-01	M661	105.00	
06/18/93	9303-ALH-03-01	M661	107.00	
06/23/93	9303-AA-01-01	M661	102.00	
06/23/93	9303-AC-01-02	M661	79.00	
06/23/93	9303-AD-01-01	M661	87.00	
06/23/93	9303-AE-01-02	M661	62.00	
06/23/93	9303-ALS-01-01	M661	134.00	(Q)
06/23/93	9303-ALS-02-01	M661	109.00	
06/23/93	9303-FLH-01-01	M661	109.00	
07/08/93	9303-AC-01-01	M661	72.00	
06/29/93	9303-FDT-02-01	M680	104.00	
06/29/93	9303-FLH-03-01	M680	101.00	
06/29/93	9303-FLH-03-02	M680	103.00	
06/30/93	9303-BDT-01-01	M680	100.00	
06/30/93	9303-FDT-02-01	M680	100.00	
06/30/93	9303-FG-01-01	M680	99.00	
07/01/93	9303-BDT-01-01	M680	108.00	
07/01/93	9303-FDT-03-01	M680	92.00	
07/01/93	9303-FG-01-01	M680	105.00	
07/08/93	9303-FLH-03-01	M680	95.00	
07/12/93	9303-FDT-03-01	M680	102.00	
07/12/93	9303-FLH-03-02	M680	108.00	
07/01/93	9303-BA-01-01	M690	74.00	
07/01/93	9303-BE-01-01	M690	110.00	
07/01/93	9303-IDT-01-01	M690	107.00	
07/01/93	9303-NLS-01-01	M690	103.00	
07/03/93	9303-BA-01-01	M690	111.00	

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/03/93	9303-GLS-01-01	M690	107.00	
07/03/93	9303-GLS-01-01	M690	106.00	
07/03/93	9303-IDT-01-01	M690	127.00	(Q)
07/03/93	9303-NLS-01-01	M690	107.00	

Number of Samples	: 50	Below acceptance :	1
Mean % Recovery	: 94.2	Above acceptance :	2
Standard Deviation	: 21.18	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	49.00
06/29/93	PROC. BLANK	M661	99.00
07/02/93	PROC. BLANK	M680	71.00
07/07/93	PROC. BLANK	M680	102.00
07/03/93	PROC. BLANK	M690	93.00
07/07/93	PROC. BLANK	M690	97.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 85.2	Above acceptance :	0
Standard Deviation	: 20.90	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	50.00
06/18/93	SAND BLANK	M661	108.00
07/02/93	SAND BLANK	M680	104.00
07/02/93	SAND BLANK	M680	103.00
07/03/93	SAND BLANK	M690	109.00
07/07/93	SAND BLANK	M690	105.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 96.5	Above acceptance :	0
Standard Deviation	: 22.90	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

07/08/93	SPIKED BLANK	M660	79.00
06/29/93	SPIKED BLANK	M661	106.00
06/30/93	SPIKED BLANK	M680	101.00
07/02/93	SPIKED BLANK	M680	102.00
07/02/93	SPIKED BLANK	M680	80.00
07/03/93	SPIKED BLANK	M690	109.00

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SWB290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDD, continued

Number of Samples	: 6		Below acceptance :	0
Mean % Recovery	: 96.2		Above acceptance :	0
Standard Deviation	: 13.23		Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	63.00	
06/29/93	9303-AE-01-01 MSD	M660	149.00	(Q)
06/23/93	9303-AE-01-01 MS	M661	113.00	
06/23/93	9303-AE-01-01 MSD	M661	110.00	
06/29/93	9303-FDT-01-01 MS	M680	109.00	
06/29/93	9303-FDT-01-01 MSD	M680	85.00	
07/02/93	9303-FDT-01-01 MS	M680	111.00	
07/02/93	9303-FDT-01-01 MSD	M680	97.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	112.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	96.00	

Number of Samples	: 10		Below acceptance :	0
Mean % Recovery	: 104.5		Above acceptance :	1
Standard Deviation	: 22.19		Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDF

Type of Spike : Surrogate

06/09/93	9303-AG-01-01	M660	106.00
06/09/93	9303-ALH-01-01	M660	97.00
06/09/93	9303-ALH-03-01	M660	85.00
06/14/93	9303-AA-01-01	M660	143.00
06/14/93	9303-AE-01-02	M660	82.00
06/14/93	9303-FLH-01-01	M660	44.00
06/14/93	9303-FLH-02-01	M660	115.00
06/28/93	9303-AC-01-02	M660	50.00
06/28/93	9303-AD-01-01	M660	46.00
06/28/93	9303-ALH-02-01	M660	89.00
07/03/93	9303-AF-01-01	M660	77.00
07/07/93	9303-AE-01-01	M660	88.00
07/08/93	9303-ALS-01-01	M660	65.00
07/09/93	9303-AC-01-01	M660	79.00
06/18/93	9303-ADT-01-01	M661	104.00
06/18/93	9303-AE-01-01	M661	101.00
06/18/93	9303-AF-01-01	M661	88.00
06/18/93	9303-AG-01-01	M661	96.00
06/18/93	9303-ALH-01-01	M661	115.00
06/18/93	9303-ALH-02-01	M661	104.00

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDF, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/18/93	9303-ALH-03-01	M661	109.00	
06/23/93	9303-AA-01-01	M661	97.00	
06/23/93	9303-AC-01-02	M661	79.00	
06/23/93	9303-AD-01-01	M661	92.00	
06/23/93	9303-AE-01-02	M661	51.00	
06/23/93	9303-ALS-01-01	M661	126.00	(Q)
06/23/93	9303-ALS-02-01	M661	93.00	
06/23/93	9303-FLH-01-01	M661	104.00	
07/08/93	9303-AC-01-01	M661	72.00	
06/29/93	9303-FDT-02-01	M680	85.00	
06/29/93	9303-FLH-03-01	M680	81.00	
06/29/93	9303-FLH-03-02	M680	82.00	
06/30/93	9303-BDT-01-01	M680	81.00	
06/30/93	9303-FDT-02-01	M680	82.00	
06/30/93	9303-FG-01-01	M680	81.00	
07/01/93	9303-BDT-01-01	M680	88.00	
07/01/93	9303-FDT-03-01	M680	79.00	
07/01/93	9303-FG-01-01	M680	91.00	
07/08/93	9303-FLH-03-01	M680	98.00	
07/12/93	9303-FDT-03-01	M680	107.00	
07/12/93	9303-FLH-03-02	M680	114.00	
07/01/93	9303-BA-01-01	M690	59.00	
07/01/93	9303-BE-01-01	M690	88.00	
07/01/93	9303-IDT-01-01	M690	50.00	
07/01/93	9303-NLS-01-01	M690	59.00	
07/03/93	9303-BA-01-01	M690	78.00	
07/03/93	9303-GLS-01-01	M690	83.00	
07/03/93	9303-GLS-01-01	M690	73.00	
07/03/93	9303-IDT-01-01	M690	77.00	
07/03/93	9303-NLS-01-01	M690	80.00	

Number of Samples	: 50	Below acceptance :	0
Mean % Recovery	: 86.3	Above acceptance :	2
Standard Deviation	: 20.45	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	52.00
06/29/93	PROC. BLANK	M661	83.00
07/02/93	PROC. BLANK	M680	60.00
07/07/93	PROC. BLANK	M680	96.00
07/03/93	PROC. BLANK	M690	74.00
07/07/93	PROC. BLANK	M690	94.00

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDF, continued

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 76.5	Above acceptance :	0
Standard Deviation	: 17.93	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/28/93	SAND BLANK	M660	41.00
06/18/93	SAND BLANK	M661	112.00
07/02/93	SAND BLANK	M680	82.00
07/02/93	SAND BLANK	M680	84.00
07/03/93	SAND BLANK	M690	76.00
07/07/93	SAND BLANK	M690	103.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 83.0	Above acceptance :	0
Standard Deviation	: 24.72	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	SPIKED BLANK	M660	99.00
06/29/93	SPIKED BLANK	M661	85.00
06/30/93	SPIKED BLANK	M680	82.00
07/02/93	SPIKED BLANK	M680	84.00
07/02/93	SPIKED BLANK	M680	65.00
07/03/93	SPIKED BLANK	M690	75.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 81.7	Above acceptance :	0
Standard Deviation	: 11.31	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/09/93	9303-AE-01-01 MS	M660	65.00
06/29/93	9303-AE-01-01 MSD	M660	111.00
06/23/93	9303-AE-01-01 MS	M661	116.00
06/23/93	9303-AE-01-01 MSD	M661	93.00
06/29/93	9303-FDT-01-01 MS	M680	86.00
06/29/93	9303-FDT-01-01 MSD	M680	71.00
07/02/93	9303-FDT-01-01 MS	M680	85.00
07/02/93	9303-FDT-01-01 MSD	M680	75.00
07/07/93	9303-FDT-01-01 MS/DU	M680	96.00
07/07/93	9303-FDT-01-01 MSD/DU	M680	105.00

Date Compiled: 28 September 1993 ND = Not Detected NC = Not Calculable NS = Not Specified

* - Value is considered suspect, refer to QC Report () = Data Flag

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-2,3,7,8-TCDF, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 90.3	Above acceptance :	0
Standard Deviation	: 17.12	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-OCDD

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
06/09/93	9303-AG-01-01	M660	90.00
06/09/93	9303-ALH-01-01	M660	81.00
06/09/93	9303-ALH-03-01	M660	75.00
06/14/93	9303-AA-01-01	M660	95.00
06/14/93	9303-AE-01-02	M660	74.00
06/14/93	9303-FLH-01-01	M660	70.00
06/14/93	9303-FLH-02-01	M660	64.00
06/28/93	9303-AC-01-02	M660	111.00
06/28/93	9303-AD-01-01	M660	75.00
06/28/93	9303-ALH-02-01	M660	43.00
07/03/93	9303-AF-01-01	M660	73.00
07/07/93	9303-AE-01-01	M660	71.00
07/08/93	9303-ALS-01-01	M660	87.00
07/09/93	9303-AC-01-01	M660	74.00
06/18/93	9303-ADT-01-01	M661	59.00
06/18/93	9303-AE-01-01	M661	68.00
06/18/93	9303-AF-01-01	M661	70.00
06/18/93	9303-AG-01-01	M661	76.00
06/18/93	9303-ALH-01-01	M661	64.00
06/18/93	9303-ALH-02-01	M661	68.00
06/18/93	9303-ALH-03-01	M661	71.00
06/23/93	9303-AA-01-01	M661	42.00
06/23/93	9303-AC-01-02	M661	82.00
06/23/93	9303-AD-01-01	M661	44.00
06/23/93	9303-AE-01-02	M661	76.00
06/23/93	9303-ALS-01-01	M661	66.00
06/23/93	9303-ALS-02-01	M661	75.00
06/23/93	9303-FLH-01-01	M661	71.00
07/08/93	9303-AC-01-01	M661	103.00
06/29/93	9303-FDT-02-01	M680	70.00
06/29/93	9303-FLH-03-01	M680	72.00
06/29/93	9303-FLH-03-02	M680	70.00
06/30/93	9303-BDT-01-01	M680	44.00
06/30/93	9303-FDT-02-01	M680	47.00
06/30/93	9303-FG-01-01	M680	64.00
07/01/93	9303-BDT-01-01	M680	66.00
07/01/93	9303-FDT-03-01	M680	63.00
07/01/93	9303-FG-01-01	M680	70.00

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-OCDD, continued

Type of Spike : Surrogate

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY
07/08/93	9303-FLH-03-01	M680	68.00
07/12/93	9303-FDT-03-01	M680	76.00
07/12/93	9303-FLH-03-02	M680	81.00
07/01/93	9303-BA-01-01	M690	51.00
07/01/93	9303-BE-01-01	M690	72.00
07/01/93	9303-IDT-01-01	M690	66.00
07/01/93	9303-NLS-01-01	M690	62.00
07/03/93	9303-BA-01-01	M690	72.00
07/03/93	9303-GLS-01-01	M690	78.00
07/03/93	9303-GLS-01-01	M690	69.00
07/03/93	9303-IDT-01-01	M690	65.00
07/03/93	9303-NLS-01-01	M690	73.00

Number of Samples	: 50	Below acceptance :	0
Mean % Recovery	: 70.3	Above acceptance :	0
Standard Deviation	: 13.52	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/14/93	PROC. BLANK	M660	45.00	
06/29/93	PROC. BLANK	M661	78.00	
07/02/93	PROC. BLANK	M680	28.00	(Q)
07/07/93	PROC. BLANK	M680	80.00	
07/03/93	PROC. BLANK	M690	69.00	
07/07/93	PROC. BLANK	M690	63.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 60.5	Above acceptance :	0
Standard Deviation	: 20.31	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Blank Sample

06/28/93	SAND BLANK	M660	62.00
06/18/93	SAND BLANK	M661	69.00
07/02/93	SAND BLANK	M680	61.00
07/02/93	SAND BLANK	M680	42.00
07/03/93	SAND BLANK	M690	71.00
07/07/93	SAND BLANK	M690	84.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 64.8	Above acceptance :	0
Standard Deviation	: 13.91	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 13C-OCDD, continued

Type of Spike : Surrogate - Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/08/93	SPIKED BLANK	M660	92.00	
06/29/93	SPIKED BLANK	M661	78.00	
06/30/93	SPIKED BLANK	M680	65.00	
07/02/93	SPIKED BLANK	M680	34.00	(Q)
07/02/93	SPIKED BLANK	M680	62.00	
07/03/93	SPIKED BLANK	M690	62.00	

Number of Samples	: 6	Below acceptance :	1
Mean % Recovery	: 65.5	Above acceptance :	0
Standard Deviation	: 19.37	Acceptance Criteria :	40-120

Type of Spike : Surrogate - Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	81.00	
06/29/93	9303-AE-01-01 MSD	M660	57.00	
06/23/93	9303-AE-01-01 MS	M661	65.00	
06/23/93	9303-AE-01-01 MSD	M661	60.00	
06/29/93	9303-FDT-01-01 MS	M680	75.00	
06/29/93	9303-FDT-01-01 MSD	M680	61.00	
07/02/93	9303-FDT-01-01 MS	M680	53.00	
07/02/93	9303-FDT-01-01 MSD	M680	56.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	60.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	70.00	

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 63.8	Above acceptance :	0
Standard Deviation	: 8.95	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,4,6,7,8-HxCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	118.00	
06/29/93	SPIKED BLANK	M661	115.00	
06/30/93	SPIKED BLANK	M680	100.00	
07/02/93	SPIKED BLANK	M680	123.00	(Q)
07/02/93	SPIKED BLANK	M680	119.00	
07/03/93	SPIKED BLANK	M690	92.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 111.2	Above acceptance :	1
Standard Deviation	: 12.29	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,4,6,7,8-HxCDF, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	111.00	
06/29/93	9303-AE-01-01 MSD	M660	119.00	
06/23/93	9303-AE-01-01 MS	M661	134.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	131.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	124.00	(Q)
06/29/93	9303-FDT-01-01 MSD	M680	125.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	120.00	
07/02/93	9303-FDT-01-01 MSD	M680	112.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	119.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	110.00	

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 120.5	Above acceptance :	4
Standard Deviation	: 8.18	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,4,7,8-PeCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	123.00	(Q)
06/29/93	SPIKED BLANK	M661	112.00	
06/30/93	SPIKED BLANK	M680	80.00	
07/02/93	SPIKED BLANK	M680	120.00	
07/02/93	SPIKED BLANK	M680	117.00	
07/03/93	SPIKED BLANK	M690	79.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 105.2	Above acceptance :	1
Standard Deviation	: 20.21	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	119.00	
06/29/93	9303-AE-01-01 MSD	M660	111.00	
06/23/93	9303-AE-01-01 MS	M661	150.00	
06/23/93	9303-AE-01-01 MSD	M661	143.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	109.00	
06/29/93	9303-FDT-01-01 MSD	M680	115.00	
07/02/93	9303-FDT-01-01 MS	M680	117.00	
07/02/93	9303-FDT-01-01 MSD	M680	110.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	108.00	
07/07/93	9303-FDT-01-01 MSD/DU	M680	124.00	(Q)

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,4,7,8-PeCDF, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 120.6	Above acceptance :	3
Standard Deviation	: 14.62	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,7,8-TCDD

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	119.00
06/29/93	SPIKED BLANK	M661	77.00
06/30/93	SPIKED BLANK	M680	78.00
07/02/93	SPIKED BLANK	M680	85.00
07/02/93	SPIKED BLANK	M680	83.00
07/03/93	SPIKED BLANK	M690	71.00

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 85.5	Above acceptance :	0
Standard Deviation	: 17.13	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	84.00
06/29/93	9303-AE-01-01 MSD	M660	81.00
06/23/93	9303-AE-01-01 MS	M661	87.00
06/23/93	9303-AE-01-01 MSD	M661	82.00
06/29/93	9303-FDT-01-01 MS	M680	85.00
06/29/93	9303-FDT-01-01 MSD	M680	81.00
07/02/93	9303-FDT-01-01 MS	M680	79.00
07/02/93	9303-FDT-01-01 MSD	M680	76.00
07/07/93	9303-FDT-01-01 MS/DU	M680	94.00
07/07/93	9303-FDT-01-01 MSD/DU	M680	103.00

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 85.2	Above acceptance :	0
Standard Deviation	: 7.94	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,7,8-TCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	121.00	(Q)
06/29/93	SPIKED BLANK	M661	105.00	
06/30/93	SPIKED BLANK	M680	76.00	
07/02/93	SPIKED BLANK	M680	103.00	

Method : SW8290 - Dioxins and Furans
Spiked Analyte : 2,3,7,8-TCDF, continued

Type of Spike : Laboratory Control

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
07/02/93	SPIKED BLANK	M680	97.00	
07/03/93	SPIKED BLANK	M690	55.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 92.8	Above acceptance :	1
Standard Deviation	: 23.57	Acceptance Criteria :	40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	117.00	
06/29/93	9303-AE-01-01 MSD	M660	110.00	
06/23/93	9303-AE-01-01 MS	M661	123.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	122.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	100.00	
06/29/93	9303-FDT-01-01 MSD	M680	107.00	
07/02/93	9303-FDT-01-01 MS	M680	102.00	
07/02/93	9303-FDT-01-01 MSD	M680	88.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	122.00	(Q)
07/07/93	9303-FDT-01-01 MSD/DU	M680	128.00	(Q)

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 111.9	Above acceptance :	4
Standard Deviation	: 12.70	Acceptance Criteria :	40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : OCDD

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	122.00	(Q)
06/29/93	SPIKED BLANK	M661	110.00	
06/30/93	SPIKED BLANK	M680	112.00	
07/02/93	SPIKED BLANK	M680	108.00	
07/02/93	SPIKED BLANK	M680	119.00	
07/03/93	SPIKED BLANK	M690	90.00	

Number of Samples	: 6	Below acceptance :	0
Mean % Recovery	: 110.2	Above acceptance :	1
Standard Deviation	: 11.25	Acceptance Criteria :	40-120

TABLE B2 DETAILED LISTING OF SPIKE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Method : SW8290 - Dioxins and Furans
Spiked Analyte : OCDD, continued

Type of Spike : Matrix Spike

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY	
06/09/93	9303-AE-01-01 MS	M660	109.00	
06/29/93	9303-AE-01-01 MSD	M660	114.00	
06/23/93	9303-AE-01-01 MS	M661	127.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	121.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	111.00	
06/29/93	9303-FDT-01-01 MSD	M680	111.00	
07/02/93	9303-FDT-01-01 MS	M680	112.00	
07/02/93	9303-FDT-01-01 MSD	M680	106.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	124.00	(Q)
07/07/93	9303-FDT-01-01 MSD/DU	M680	140.00	(Q)

Number of Samples : 10
Mean % Recovery : 117.5
Standard Deviation : 10.45
Below acceptance : 0
Above acceptance : 4
Acceptance Criteria : 40-120

Method : SW8290 - Dioxins and Furans
Spiked Analyte : OCDF

Type of Spike : Laboratory Control

07/08/93	SPIKED BLANK	M660	114.00	
06/29/93	SPIKED BLANK	M661	113.00	
06/30/93	SPIKED BLANK	M680	105.00	
07/02/93	SPIKED BLANK	M680	234.00	(Q)
07/02/93	SPIKED BLANK	M680	119.00	
07/03/93	SPIKED BLANK	M690	83.00	

Number of Samples : 6
Mean % Recovery : 128.0
Standard Deviation : 53.46
Below acceptance : 0
Above acceptance : 1
Acceptance Criteria : 40-120

Type of Spike : Matrix Spike

06/09/93	9303-AE-01-01 MS	M660	131.00	(Q)
06/29/93	9303-AE-01-01 MSD	M660	120.00	
06/23/93	9303-AE-01-01 MS	M661	159.00	(Q)
06/23/93	9303-AE-01-01 MSD	M661	150.00	(Q)
06/29/93	9303-FDT-01-01 MS	M680	130.00	(Q)
06/29/93	9303-FDT-01-01 MSD	M680	131.00	(Q)
07/02/93	9303-FDT-01-01 MS	M680	118.00	
07/02/93	9303-FDT-01-01 MSD	M680	110.00	
07/07/93	9303-FDT-01-01 MS/DU	M680	122.00	(Q)
07/07/93	9303-FDT-01-01 MSD/DU	M680	150.00	(Q)

DATE ANALYZED	SAMPLE ID	BATCH ID	% RECOVERY

Method : SW8290 - Dioxins and Furans

Spiked Analyte : OCDF, continued

Number of Samples	: 10	Below acceptance :	0
Mean % Recovery	: 132.1	Above acceptance :	7
Standard Deviation	: 16.01	Acceptance Criteria :	40-120

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Method = E249.2 - Nickel									
Type = Field Duplicate (mg/kg)									
Nickel	9303-AC-01-01	9303-AC-01-02	0.191		0.1884		0.1899385	0.0	2
Nickel	9303-AE-01-01	9303-AE-01-02	0.144	(J)	0.3084		0.226225	0.1	73
Nickel	9303-FLH-03-01	9303-FLH-03-02	< 0.1696		0.0737	(J)	NC	NC	NC
Type = Laboratory Replicate (mg/kg)									
Nickel	9303-AA-01-01	9303-AA-01-01	0.080	(J)	0.0115	(J)	0.0462345	0.0	150
Nickel	9303-AC-01-01	9303-AC-01-01	0.191		0.2325		0.2119865	0.0	19
Nickel	9303-AC-01-02	9303-AC-01-02	0.188		0.1024	(J)	0.1454925	0.1	59
Nickel	9303-AD-01-01	9303-AD-01-01	0.363		0.5429		0.4530165	0.1	40
Nickel	9303-ADT-01-01	9303-ADT-01-01	3.683		3.4488		3.5660595	0.2	7
Nickel	9303-AE-01-01	9303-AE-01-01	0.144	(J)	0.1625	(J)	0.1533095	0.0	12
Nickel	9303-AE-01-02	9303-AE-01-02	0.308		0.3762		0.342334	0.0	20
Nickel	9303-AF-01-01	9303-AF-01-01	0.136	(J)	0.0099	(J)	0.073414	0.1	173
Nickel	9303-AG-01-01	9303-AG-01-01	0.050	(J)	0.1408	(J)	0.0957025	0.1	94
Nickel	9303-ALH-01-01	9303-ALH-01-01	0.579		0.4586		0.519126	0.1	23
Nickel	9303-ALH-02-01	9303-ALH-02-01	0.700		0.6280		0.6640735	0.1	11
Nickel	9303-ALH-03-01	9303-ALH-03-01	0.245		0.4774		0.3614475	0.2	64
Nickel	9303-ALS-01-01	9303-ALS-01-01	1.747		1.1441		1.445704	0.4	42
Nickel	9303-ALS-02-01	9303-ALS-02-01	0.240		0.3808		0.310717	0.1	45
Nickel	9303-BE-01-01	9303-BE-01-01	0.497		0.5527		0.5248905	0.0	11
Nickel	9303-FDT-01-01	9303-FDT-01-01	< 0.1666		< 0.1780		NC	NC	NC
Nickel	9303-FDT-01-01.1	9303-FDT-01-01.1	< 0.1690		< 0.1778		NC	NC	NC
Nickel	9303-FDT-01-01.2	9303-FDT-01-01.2	< 0.1696		< 0.1744		NC	NC	NC
Nickel	9303-FDT-02-01	9303-FDT-02-01	0.127		0.0262	(J)	0.076617	0.1	132
Nickel	9303-FDT-03-01	9303-FDT-03-01	0.195		0.2640		0.2295795	0.0	30
Nickel	9303-FG-01-01	9303-FG-01-01	< 0.1862		< 0.1830		NC	NC	NC
Nickel	9303-FLH-01-01	9303-FLH-01-01	< 0.1749		< 0.1724		NC	NC	NC
Nickel	9303-FLH-02-01	9303-FLH-02-01	0.051	(J)	< 0.1663		NC	NC	NC
Nickel	9303-FLH-03-01	9303-FLH-03-01	< 0.1696		0.1463	(J)	NC	NC	NC
Nickel	9303-FLH-03-02	9303-FLH-03-02	0.073	(J)	< 0.1784		NC	NC	NC
Nickel	9303-GLS-01-01	9303-GLS-01-01	0.535		0.6448		0.59016	0.1	19

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Nickel	9303-IDT-01-01	9303-IDT-01-01	0.109		0.2555		0.1824405	0.1	80
Method = E249.2 - Nickel, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Nickel	9303-NLS-01-01	9303-NLS-01-01	0.515		0.2956		0.405582	0.2	54
Type = Matrix Spike (%)									
Nickel	9303-AE-01-01 MS	9303-AE-01-01 MSD	113.3		114.5		113.9	0.8	1
Nickel	9303-AE-01-01 MS	9303-AE-01-01 MSD	96		112.8		104.4	11.9	16
Nickel	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	93.1		98.3		95.7	3.7	5
Nickel	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	84.7		91.3		88	4.7	8
Method = E272.2 - Silver									
Type = Field Duplicate (mg/kg)									
Silver	9303-AC-01-01	9303-AC-01-02	0.223		0.2181		0.2207985	0.0	2
Silver	9303-AE-01-01	9303-AE-01-02	0.282		0.2914		0.286819	0.0	3
Silver	9303-FLH-03-01	9303-FLH-03-02	0.115		0.1059		0.110847	0.0	9
Type = Laboratory Replicate (mg/kg)									
Silver	9303-AA-01-01	9303-AA-01-01	0.608		0.6514		0.6299085	0.0	7
Silver	9303-AC-01-01	9303-AC-01-01	0.223		0.2236		0.223524	0.0	0
Silver	9303-AC-01-02	9303-AC-01-02	0.218		0.2049		0.2115695	0.0	6
Silver	9303-AD-01-01	9303-AD-01-01	0.389		0.3777		0.3834015	0.0	3
Silver	9303-ADT-01-01	9303-ADT-01-01	0.734		0.6698		0.7019615	0.0	9
Silver	9303-AE-01-01	9303-AE-01-01	0.282		0.2685		0.275358	0.0	5
Silver	9303-AE-01-02	9303-AE-01-02	0.291		0.2612		0.2763395	0.0	11
Silver	9303-AF-01-01	9303-AF-01-01	0.525		0.5155		0.5207205	0.0	2
Silver	9303-AG-01-01	9303-AG-01-01	0.461		0.4264		0.443865	0.0	8
Silver	9303-ALH-01-01	9303-ALH-01-01	0.088		0.0713		0.079706	0.0	21
Silver	9303-ALH-02-01	9303-ALH-02-01	0.138		0.1289		0.133889	0.0	7
Silver	9303-ALH-03-01	9303-ALH-03-01	0.102		0.0860		0.094469	0.0	18
Silver	9303-ALS-01-01	9303-ALS-01-01	0.029	(J)	0.0369		0.0330965	0.0	23
Silver	9303-ALS-02-01	9303-ALS-02-01	0.043		0.0326	(J)	0.038022	0.0	28

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Silver	9303-BE-01-01	9303-BE-01-01	3.378		2.9667		3.1724365	0.3	13
Method = E272.2 - Silver, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Silver	9303-FDT-01-01	9303-FDT-01-01	0.258		0.2472		0.253007	0.0	5
Silver	9303-FDT-01-01.1	9303-FDT-01-01.1	0.282		0.2447		0.26362	0.0	14
Silver	9303-FDT-01-01.2	9303-FDT-01-01.2	0.259		0.2749		0.2672395	0.0	6
Silver	9303-FDT-02-01	9303-FDT-02-01	0.902		0.6776		0.79004	0.2	28
Silver	9303-FDT-03-01	9303-FDT-03-01	0.484		0.4136		0.4491165	0.1	16
Silver	9303-FG-01-01	9303-FG-01-01	0.236		0.2218		0.2292305	0.0	6
Silver	9303-FLH-01-01	9303-FLH-01-01	0.117		0.1115		0.114441	0.0	5
Silver	9303-FLH-02-01	9303-FLH-02-01	0.151		0.1409		0.146292	0.0	7
Silver	9303-FLH-03-01	9303-FLH-03-01	0.115		0.1107		0.1132555	0.0	4
Silver	9303-FLH-03-02	9303-FLH-03-02	0.105		0.1112		0.1085955	0.0	5
Silver	9303-GLS-01-01	9303-GLS-01-01	0.047		0.0548		0.0509795	0.0	15
Silver	9303-IDT-01-01	9303-IDT-01-01	0.928		0.8585		0.8934	0.0	8
Silver	9303-NLS-01-01	9303-NLS-01-01	0.119		0.1388		0.129159	0.0	15
Type = Matrix Spike (%)									
Silver	9303-AE-01-01 MS	9303-AE-01-01 MSD	84.5		87.4		85.95	2.1	3
Silver	9303-AE-01-01 MS	9303-AE-01-01 MSD	91.4		90		90.7	1.0	2
Silver	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	86.3		83.2		84.75	2.2	4
Silver	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	88.7		90.6		89.65	1.3	2
Method = SOP-9017 - Chlorinated Pesticides and PCBs									
Type = Field Duplicate (ng/g)									
2,4'-DDD	9303-AC-01-01	9303-AC-01-02	0.271	(J)	0.3840		0.32771	0.1	34
2,4'-DDD	9303-AE-01-01	9303-AE-01-02	1.919		1.9404		1.929736	0.0	1
2,4'-DDD	9303-FLH-03-01	9303-FLH-03-02	0.199	(J)	0.0961	(J)	0.147628	0.1	70
2,4'-DDE	9303-AC-01-01	9303-AC-01-02	< 0.1512		< 0.1613		NC	NC	NC
2,4'-DDE	9303-AE-01-01	9303-AE-01-02	< 0.2723		< 0.2824		NC	NC	NC
2,4'-DDE	9303-FLH-03-01	9303-FLH-03-02	< 0.2370		< 0.2050		NC	NC	NC
2,4'-DDT	9303-AC-01-01	9303-AC-01-02	0.930		0.2370	(J)	0.5836355	0.5	119

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
2,4'-DDT	9303-AE-01-01	9303-AE-01-02	2.914		1.9915		2.4528815	0.7	38
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Field Duplicate (ng/g), cont.									
2,4'-DDT	9303-FLH-03-01	9303-FLH-03-02	< 0.3760		< 0.3252		NC	NC	NC
4,4'-DDD	9303-AC-01-01	9303-AC-01-02	2.816		3.1136		2.9650595	0.2	10
4,4'-DDD	9303-AE-01-01	9303-AE-01-02	29.35		25.900		27.625392	2.4	12
4,4'-DDD	9303-FLH-03-01	9303-FLH-03-02	10.02		5.5062		7.764836	3.2	58
4,4'-DDE	9303-AC-01-01	9303-AC-01-02	2.458		2.7995		2.6288685	0.2	13
4,4'-DDE	9303-AE-01-01	9303-AE-01-02	4.965		4.5474		4.7564265	0.3	9
4,4'-DDE	9303-FLH-03-01	9303-FLH-03-02	7.617		3.8642		5.740658	2.7	65
4,4'-DDT	9303-AC-01-01	9303-AC-01-02	0.759		1.1261		0.9430035	0.3	39
4,4'-DDT	9303-AE-01-01	9303-AE-01-02	0.934		0.8295		0.8819	0.1	12
4,4'-DDT	9303-FLH-03-01	9303-FLH-03-02	1.306		0.0234	(J)	0.6652335	0.9	193
Aldrin	9303-AC-01-01	9303-AC-01-02	0.023	(J)	0.0173	(J)	0.020207	0.0	28
Aldrin	9303-AE-01-01	9303-AE-01-02	< 0.4532		0.5391		NC	NC	NC
Aldrin	9303-FLH-03-01	9303-FLH-03-02	< 0.3945		< 0.3412		NC	NC	NC
Dieldrin	9303-AC-01-01	9303-AC-01-02	< 0.34		5.6045		NC	NC	NC
Dieldrin	9303-AE-01-01	9303-AE-01-02	2.268		1.6323		1.9503495	0.4	33
Dieldrin	9303-FLH-03-01	9303-FLH-03-02	0.733		0.3073	(J)	0.5204435	0.3	82
Endrin	9303-AC-01-01	9303-AC-01-02	< 0.2502		0.9884		NC	NC	NC
Endrin	9303-AE-01-01	9303-AE-01-02	1.467		< 0.4672		NC	NC	NC
Endrin	9303-FLH-03-01	9303-FLH-03-02	< 0.3921		< 0.3391		NC	NC	NC
HCB	9303-AC-01-01	9303-AC-01-02	< 0.2753		0.0469	(J)	NC	NC	NC
HCB	9303-AE-01-01	9303-AE-01-02	0.080	(J)	0.0506	(J)	0.0656225	0.0	46
HCB	9303-FLH-03-01	9303-FLH-03-02	0.347	(J)	< 0.3732		NC	NC	NC
Heptachlor	9303-AC-01-01	9303-AC-01-02	0.438		0.3249		0.381555	0.1	30
Heptachlor	9303-AE-01-01	9303-AE-01-02	0.092	(J)	0.2990	(J)	0.195875	0.1	105
Heptachlor	9303-FLH-03-01	9303-FLH-03-02	D.134	(J)	< 0.3579	(J)	NC	NC	NC
Heptachlor epoxide	9303-AC-01-01	9303-AC-01-02	< 0.2938		< 0.3134	(J)	NC	NC	NC
Heptachlor epoxide	9303-AE-01-01	9303-AE-01-02	< 0.5289		< 0.5486		NC	NC	NC
Heptachlor epoxide	9303-FLH-03-01	9303-FLH-03-02	< 0.4604		< 0.3982		NC	NC	NC
Mirex	9303-AC-01-01	9303-AC-01-02	< 0.2784		< 0.2970		NC	NC	NC
Mirex	9303-AE-01-01	9303-AE-01-02	< 0.5012		< 0.5198		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Mirex	9303-FLH-03-01	9303-FLH-03-02	< 0.4363		< 0.3773		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Field Duplicate (ng/g), cont.									
Oxychlordane	9303-AC-01-01	9303-AC-01-02	0.544		0.3285	(J)	0.4367005	0.2	50
Oxychlordane	9303-AE-01-01	9303-AE-01-02	0.214	(J)	0.2294	(J)	0.22219	0.0	6
Oxychlordane	9303-FLH-03-01	9303-FLH-03-02	0.748		0.4020	(J)	0.575108	0.2	60
Total BHCs	9303-AC-01-01	9303-AC-01-02	2.854		4.9114		3.8831105	1.5	53
Total BHCs	9303-AE-01-01	9303-AE-01-02	1.701		2.1447		1.922942	0.3	23
Total BHCs	9303-FLH-03-01	9303-FLH-03-02	1.054		0.5722		0.8131425	0.3	59
Total Chlordanes	9303-AC-01-01	9303-AC-01-02	2.928		2.6199		2.77415	0.2	11
Total Chlordanes	9303-AE-01-01	9303-AE-01-02	2.954		3.1481		3.0510815	0.1	6
Total Chlordanes	9303-FLH-03-01	9303-FLH-03-02	5.714		3.0310		4.3726745	1.9	61
Total DDTs	9303-AC-01-01	9303-AC-01-02	7.236		7.6603		7.448277	0.3	6
Total DDTs	9303-AE-01-01	9303-AE-01-02	40.08		35.209		37.646336	3.4	13
Total DDTs	9303-FLH-03-01	9303-FLH-03-02	19.14		9.4900		14.318355	6.8	67
Total Decachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	1.768		< 0.3211		NC	NC	NC
Total Decachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	< 0.5418		< 0.5620		NC	NC	NC
Total Decachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	< 0.4716		< 0.4079		NC	NC	NC
Total Dichlorobiphenyls	9303-AC-01-01	9303-AC-01-02	8.874		10.288		9.581624	1.0	15
Total Dichlorobiphenyls	9303-AE-01-01	9303-AE-01-02	13.25		8.8640		11.061087	3.1	40
Total Dichlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	1.502		0.62		1.0613005	0.6	83
Total Heptachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	10.06		11.220		10.640527	0.8	11
Total Heptachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	15.78		11.448		13.616061	3.1	32
Total Heptachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	2.115		2.26		2.1877765	0.1	7
Total Hexachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	31.25		35.805		33.529688	3.2	14
Total Hexachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	47.32		40.695		44.00851	4.7	15
Total Hexachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	10.12		3.87		6.9973505	4.4	89
Total Nonachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	0.040	(J)	< 0.3233		NC	NC	NC
Total Nonachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	< 0.5455		< 0.5658		NC	NC	NC
Total Nonachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	< 0.4749		< 0.4107		NC	NC	NC
Total Octachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	0.211	(J)	0.2341	(J)	0.2229185	0.0	10
Total Octachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	1.257		< 0.8482		NC	NC	NC
Total Octachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	0.300	(J)	< 0.6157		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Total PCBs	9303-AC-01-01	9303-AC-01-02	147.1		191.01	169.05957	31.0	26
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.								
Type = Field Duplicate (ng/g), cont.								
Total PCBs	9303-AE-01-01	9303-AE-01-02	198.7		170.02	184.38628	20.3	16
Total PCBs	9303-FLH-03-01	9303-FLH-03-02	27.93		14.239	21.086170	9.7	65
Total Pentachlorobiphenyls	9303-AC-01-01	9303-AC-01-02	60.65		83.399	72.029001	16.1	32
Total Pentachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	83.95		72.986	78.472753	7.8	14
Total Pentachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	8.667		4.43	6.54874	3.0	65
Total Tetrachlorobiphenyls	93D3-AC-01-01	9303-AC-01-02	30.01		43.254	36.633479	9.4	36
Total Tetrachlorobiphenyls	9303-AE-01-01	9303-AE-01-02	27.59		26.895	27.245696	0.5	3
Total Tetrachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	3.599		2.15	2.87457	1.0	50
Total Trichlorobiphenyls	9303-AC-01-01	9303-AC-01-02	4.227		6.8086	5.517889	1.8	47
Total Trichlorobiphenyls	9303-AE-01-01	9303-AE-01-02	9.575		9.1309	9.3533115	0.3	5
Total Trichlorobiphenyls	9303-FLH-03-01	9303-FLH-03-02	1.622		0.92	1.2712895	0.5	55
Toxaphene	9303-AC-01-01	9303-AC-01-02	< 0.8437		< 0.9001	NC	NC	NC
Toxaphene	9303-AE-01-01	9303-AE-01-02	< 1.5187		< 1.5753	NC	NC	NC
Toxaphene	9303-FLH-03-01	9303-FLH-03-02	< 1.3221		< 1.1434	NC	NC	NC
alpha-BHC	9303-AC-01-01	9303-AC-01-02	< 0.2676		0.5242	NC	NC	NC
alpha-BHC	9303-AE-01-01	9303-AE-01-02	< 0.4818		< 0.4997	NC	NC	NC
alpha-BHC	9303-FLH-03-01	9303-FLH-03-02	< 0.4194		< 0.3627	NC	NC	NC
alpha-Chlordane	9303-AC-01-01	9303-AC-01-02	0.679		0.5398	0.6098395	0.1	23
alpha-Chlordane	9303-AE-01-01	9303-AE-01-02	1.046		1.0583	1.052449	0.0	1
alpha-Chlordane	9303-FLH-03-01	9303-FLH-03-02	0.661		0.4917	(J) 0.5766565	0.1	29
beta-BHC	9303-AC-01-01	9303-AC-01-02	< 0.6969		0.7512	NC	NC	NC
beta-BHC	9303-AE-01-01	9303-AE-01-02	< 1.2544		< 1.3011	NC	NC	NC
beta-BHC	9303-FLH-03-01	9303-FLH-03-02	< 1.0920		< 0.9444	NC	NC	NC
cis-Nonachlor	9303-AC-01-01	9303-AC-01-02	< 0.1112		0.4337	NC	NC	NC
cis-Nonachlor	9303-AE-01-01	9303-AE-01-02	0.401		0.4437	0.422462	0.0	10
cis-Nonachlor	9303-FLH-03-01	9303-FLH-03-02	1.019		0.7097	0.864777	0.2	36
delta-BHC	9303-AC-01-01	9303-AC-01-02	1.540		1.1180	1.3292445	0.3	32
delta-BHC	9303-AE-01-01	9303-AE-01-02	0.223	(J)	0.9847	0.604215	0.5	126
delta-BHC	9303-FLH-03-01	9303-FLH-03-02	0.149	(J)	< 0.3884	NC	NC	NC
gamma-BHC	9303-AC-01-01	9303-AC-01-02	1.314		2.5179	1.916119	0.9	63

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
gamma-BHC	9303-AE-01-01	9303-AE-01-02	1.477		1.1599		1.3187275	0.2	24
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Field Duplicate (ng/g), cont.									
gamma-BHC	9303-FLH-03-01	9303-FLH-03-02	0.904		0.5722		0.7381655	0.2	45
gamma-Chlordane	9303-AC-01-01	9303-AC-01-02	0.916		0.6979		0.8070725	0.2	27
gamma-Chlordane	9303-AE-01-01	9303-AE-01-02	0.735		0.6537		0.694778	0.1	12
gamma-Chlordane	9303-FLH-03-01	9303-FLH-03-02	0.172	(J)	0.0273	(J)	0.0998335	0.1	145
trans-Nonachlor	9303-AC-01-01	9303-AC-01-02	0.349	(J)	0.2901	(J)	0.3196665	0.0	18
trans-Nonachlor	9303-AE-01-01	9303-AE-01-02	0.462	(J)	0.4637	(J)	0.4633275	0.0	0
trans-Nonachlor	9303-FLH-03-01	9303-FLH-03-02	2.977		1.3953		2.1865845	1.1	72
Type = Laboratory Replicate (ng/g)									
2,4'-DDD	9303-AA-01-01	9303-AA-01-01	3.340		2.7969		3.068813	0.4	18
2,4'-DDD	9303-AC-01-01	9303-AC-01-01	0.271	(J)	0.3054	(J)	0.2884405	0.0	12
2,4'-DDD	9303-AC-01-02	9303-AC-01-02	0.384		0.0179	(J)	0.201007	0.3	182
2,4'-DDD	9303-AD-01-01	9303-AD-01-01	0.633		0.2607	(J)	0.447078	0.3	83
2,4'-DDD	9303-ADT-01-01	9303-ADT-01-01	1.153		1.1565		1.1549555	0.0	0
2,4'-DDD	9303-AE-01-01	9303-AE-01-01	1.919		1.7178		1.818436	0.1	11
2,4'-DDD	9303-AE-01-02	9303-AE-01-02	1.940		2.3683		2.1543885	0.3	20
2,4'-DDD	9303-AF-01-01	9303-AF-01-01	37.98		50.884		44.434877	9.1	29
2,4'-DDD	9303-AG-01-01	9303-AG-01-01	0.281	(J)	0.3121	(J)	0.2967185	0.0	10
2,4'-DDD	9303-ALH-01-01	9303-ALH-01-01	0.124	(J)	0.1440	(J)	0.1343415	0.0	14
2,4'-DDD	9303-ALH-02-01	9303-ALH-02-01	0.092	(J)	0.2266	(J)	0.1593135	0.1	84
2,4'-DDD	9303-ALH-03-01	9303-ALH-03-01	0.059	(J)	0.6662	(J)	0.3629715	0.4	167
2,4'-DDD	9303-ALS-01-01	9303-ALS-01-01	< 1.5408		0.1499	(J)	NC	NC	NC
2,4'-DDD	9303-BA-01-01	9303-BA-01-01	1.199	(J)	1.4834	(J)	1.3415945	0.2	21
2,4'-DDD	9303-BDT-01-01	9303-BDT-01-01	0.486	(J)	< 3.3017		NC	NC	NC
2,4'-DDD	9303-BE-01-01	9303-BE-01-01	0.325	(J)	< 1.8372		NC	NC	NC
2,4'-DDD	9303-FDT-02-01	9303-FDT-02-01	2.671		2.4019		2.5366375	0.2	11
2,4'-DDD	9303-FDT-03-01	9303-FDT-03-01	31.51		26.967		29.242229	3.2	16
2,4'-DDD	9303-FG-01-01	9303-FG-01-01	0.613		0.5683		0.5906995	0.0	8
2,4'-DDD	9303-FLH-01-01	9303-FLH-01-01	< 1.284		0.0251	(J)	NC	NC	NC
2,4'-DDD	9303-FLH-03-01	9303-FLH-03-01	0.199	(J)	0.1834	(J)	0.191258	0.0	8

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Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
2,4'-DDD	9303-FLH-03-02	9303-FLH-03-02	0.096	(J)	1.4452		0.7707045	1.0	175
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
2,4'-DDD	9303-GLS-01-01	9303-GLS-01-01	< 0.5609		0.0080	(J)	NC	NC	NC
2,4'-DDD	9303-IDT-01-01	9303-IDT-01-01	0.060	(J)	0.2295	(J)	0.145207	0.1	116
2,4'-DDD	9303-NLS-01-01	9303-NLS-01-01	< 0.7369		0.3039	(J)	NC	NC	NC
2,4'-DDE	9303-AA-01-01	9303-AA-01-01	< 0.1959		< 0.2090		NC	NC	NC
2,4'-DDE	9303-AC-01-01	9303-AC-01-01	< 0.1512		< 0.1416		NC	NC	NC
2,4'-DDE	9303-AC-01-02	9303-AC-01-02	< 0.1613		< 0.1724		NC	NC	NC
2,4'-DDE	9303-AD-01-01	9303-AD-01-01	< 0.1691		< 0.1566		NC	NC	NC
2,4'-DDE	9303-ADT-01-01	9303-ADT-01-01	< 0.3636		< 0.4282		NC	NC	NC
2,4'-DDE	9303-AE-01-01	9303-AE-01-01	< 0.2723		< 0.2917		NC	NC	NC
2,4'-DDE	9303-AE-01-02	9303-AE-01-02	< 0.2824		< 0.3218		NC	NC	NC
2,4'-DDE	9303-AF-01-01	9303-AF-01-01	4.996		5.3266		5.161649	0.2	6
2,4'-DDE	9303-AG-01-01	9303-AG-01-01	< 0.1517		< 0.2074		NC	NC	NC
2,4'-DDE	9303-ALH-01-01	9303-ALH-01-01	< 0.2966		< 0.3123		NC	NC	NC
2,4'-DDE	9303-ALH-02-01	9303-ALH-02-01	< 0.2590		< 0.2504		NC	NC	NC
2,4'-DDE	9303-ALH-03-01	9303-ALH-03-01	< 0.4248		< 0.3904		NC	NC	NC
2,4'-DDE	9303-ALS-01-01	9303-ALS-01-01	< 0.708		< 0.6555		NC	NC	NC
2,4'-DDE	9303-BA-01-01	9303-BA-01-01	< 1.0133		< 1.0814		NC	NC	NC
2,4'-DDE	9303-BDT-01-01	9303-BDT-01-01	0.077	(J)	0.0903	(J)	0.084094	0.0	15
2,4'-DDE	9303-BE-01-01	9303-BE-01-01	< 0.5110		< 0.8441		NC	NC	NC
2,4'-DDE	9303-FDT-02-01	9303-FDT-02-01	0.443		1.0529		0.7482365	0.4	81
2,4'-DDE	9303-FDT-03-01	9303-FDT-03-01	3.388		2.9523		3.1706215	0.3	14
2,4'-DDE	9303-FG-01-01	9303-FG-01-01	< 0.1029		< 0.0906		NC	NC	NC
2,4'-DDE	9303-FLH-01-01	9303-FLH-01-01	< 0.59		< 0.7175		NC	NC	NC
2,4'-DDE	9303-FLH-03-01	9303-FLH-03-01	< 0.2370		< 0.2298		NC	NC	NC
2,4'-DDE	9303-FLH-03-02	9303-FLH-03-02	< 0.2050		0.4549		NC	NC	NC
2,4'-DDE	9303-GLS-01-01	9303-GLS-01-01	< 0.2577		< 0.2984		NC	NC	NC
2,4'-DDE	9303-IDT-01-01	9303-IDT-01-01	< 0.3755		< 0.3583		NC	NC	NC
2,4'-DDE	9303-NLS-01-01	9303-NLS-01-01	0.261	(J)	< 0.3443		NC	NC	NC
2,4'-DDT	9303-AA-01-01	9303-AA-01-01	1.110		2.1407		1.6258005	0.7	63
2,4'-DDT	9303-AC-01-01	9303-AC-01-01	0.930		0.9917		0.96102	0.0	6

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
2,4'-DDT	9303-AC-01-02	9303-AC-01-02	0.237	(J)	0.0739	(J)	0.155472	0.1	105

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

2,4'-DDT	9303-AD-01-01	9303-AD-01-01	1.178		1.2849		1.2317715	0.1	9
2,4'-DDT	9303-ADT-01-01	9303-ADT-01-01	< 0.5769		0.0293	(J)	NC	NC	NC
2,4'-DDT	9303-AE-01-01	9303-AE-01-01	2.914		2.4122		2.663268	0.4	19
2,4'-DDT	9303-AE-01-02	9303-AE-01-02	1.991		3.1416		2.566593	0.8	45
2,4'-DDT	9303-AF-01-01	9303-AF-01-01	1.243		0.9440		1.093712	0.2	27
2,4'-DDT	9303-AG-01-01	9303-AG-01-01	< 0.2406		0.0203	(J)	NC	NC	NC
2,4'-DDT	9303-ALH-01-01	9303-ALH-01-01	< 0.4706		0.0191	(J)	NC	NC	NC
2,4'-DDT	9303-ALH-02-01	9303-ALH-02-01	< 0.4109		0.3484	(J)	NC	NC	NC
2,4'-DDT	9303-ALH-03-01	9303-ALH-03-01	< 0.6739		< 0.6194		NC	NC	NC
2,4'-DDT	9303-ALS-01-01	9303-ALS-01-01	< 1.1232		< 1.04		NC	NC	NC
2,4'-DDT	9303-BA-01-01	9303-BA-01-01	1.310	(J)	0.6449	(J)	0.9777215	0.5	68
2,4'-DDT	9303-BDT-01-01	9303-BDT-01-01	< 3.24		< 2.4068		NC	NC	NC
2,4'-DDT	9303-BE-01-01	9303-BE-01-01	< 0.8107		< 1.3392		NC	NC	NC
2,4'-DDT	9303-FDT-02-01	9303-FDT-02-01	< 0.2441		< 0.1932		NC	NC	NC
2,4'-DDT	9303-FDT-03-01	9303-FDT-03-01	3.722		4.0592		3.8907105	0.2	9
2,4'-DDT	9303-FG-01-01	9303-FG-01-01	0.836		0.6098		0.723139	0.2	31
2,4'-DDT	9303-FLH-01-01	9303-FLH-01-01	< 0.936		< 1.1383		NC	NC	NC
2,4'-DDT	9303-FLH-03-01	9303-FLH-03-01	< 0.3760		< 0.3646		NC	NC	NC
2,4'-DDT	9303-FLH-03-02	9303-FLH-03-02	< 0.3252		< 0.2307		NC	NC	NC
2,4'-DDT	9303-GLS-01-01	9303-GLS-01-01	< 0.4089		< 0.4735		NC	NC	NC
2,4'-DDT	9303-IDT-01-01	9303-IDT-01-01	< 0.5957		< 0.5684		NC	NC	NC
2,4'-DDT	9303-NLS-01-01	9303-NLS-01-01	0.350	(J)	< 0.5463		NC	NC	NC
4,4'-DDD	9303-AA-01-01	9303-AA-01-01	32.29		29.260		30.77705	2.1	10
4,4'-DDD	9303-AC-01-01	9303-AC-01-01	2.816		3.1946		3.005549	0.3	13
4,4'-DDD	9303-AC-01-02	9303-AC-01-02	3.113		0.2361		1.674939	2.0	172
4,4'-DDD	9303-AD-01-01	9303-AD-01-01	6.674		5.3274		6.0009735	1.0	22
4,4'-DDD	9303-ADT-01-01	9303-ADT-01-01	16.30		15.490		15.897104	0.6	5
4,4'-DDD	9303-AE-01-01	9303-AE-01-01	29.35		28.016		28.683343	0.9	5
4,4'-DDD	9303-AE-01-02	9303-AE-01-02	25.90		35.314		30.607519	6.7	31
4,4'-DDD	9303-AF-01-01	9303-AF-01-01	329.1	(C)	561.56	(C)	445.36223	164.3	52

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
4,4'-DDD	9303-AG-01-01	9303-AG-01-01	4.872		6.6557		5.7642685	1.3	31

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

4,4'-DDD	9303-ALH-01-01	9303-ALH-01-01	0.297	(J)	0.8961		0.596833	0.4	100
4,4'-DDD	9303-ALH-02-01	9303-ALH-02-01	0.591		3.0521		1.821629	1.7	135
4,4'-DDD	9303-ALH-03-01	9303-ALH-03-01	0.691		7.2148		3.953138	4.6	165
4,4'-DDD	9303-ALS-01-01	9303-ALS-01-01	< 0.9216		1.8848		NC	NC	NC
4,4'-DDD	9303-BA-01-01	9303-BA-01-01	30.54		18.333		24.438994	8.6	50
4,4'-DDD	9303-BDT-01-01	9303-BDT-01-01	36.49		29.519		33.008157	4.9	21
4,4'-DDD	9303-BE-01-01	9303-BE-01-01	15.05		< 1.0988		NC	NC	NC
4,4'-DDD	9303-FDT-02-01	9303-FDT-02-01	127.3	(C)	281.83	(C)	204.57799	109.3	76
4,4'-DDD	9303-FDT-03-01	9303-FDT-03-01	1753.	(C)	2050.9	(C)	1902.4637	210.0	16
4,4'-DDD	9303-FG-01-01	9303-FG-01-01	23.30		22.717		23.012883	0.4	3
4,4'-DDD	9303-FLH-01-01	9303-FLH-01-01	7.124		1.8261		4.4752865	3.7	118
4,4'-DDD	9303-FLH-03-01	9303-FLH-03-01	10.02		13.667		11.845415	2.6	31
4,4'-DDD	9303-FLH-03-02	9303-FLH-03-02	5.506		44.787		25.147057	27.8	156
4,4'-DDD	9303-GLS-01-01	9303-GLS-01-01	< 0.3355		< 0.3885		NC	NC	NC
4,4'-DDD	9303-IDT-01-01	9303-IDT-01-01	3.002		4.0725		3.5373655	0.8	30
4,4'-DDD	9303-NLS-01-01	9303-NLS-01-01	0.814		< 0.4482		NC	NC	NC
4,4'-DDE	9303-AA-01-01	9303-AA-01-01	7.178		7.3901		7.2842245	0.1	3
4,4'-DDE	9303-AC-01-01	9303-AC-01-01	2.458		3.0215		2.7398855	0.4	21
4,4'-DDE	9303-AC-01-02	9303-AC-01-02	2.799		0.2386	(J)	1.5191075	1.8	169
4,4'-DDE	9303-AD-01-01	9303-AD-01-01	2.395		2.0616		2.2288005	0.2	15
4,4'-DDE	9303-ADT-01-01	9303-ADT-01-01	2.565		2.9411		2.75309	0.3	14
4,4'-DDE	9303-AE-01-01	9303-AE-01-01	4.965		5.3285		5.1469675	0.3	7
4,4'-DDE	9303-AE-01-02	9303-AE-01-02	4.547		6.3380		5.442792	1.3	33
4,4'-DDE	9303-AF-01-01	9303-AF-01-01	42.74		54.865		48.805874	8.6	25
4,4'-DDE	9303-AG-01-01	9303-AG-01-01	0.913		1.1313		1.022598	0.2	21
4,4'-DDE	9303-ALH-01-01	9303-ALH-01-01	< 0.7602		< 0.8004		NC	NC	NC
4,4'-DDE	9303-ALH-02-01	9303-ALH-02-01	0.592	(J)	1.2855		0.939096	0.5	74
4,4'-DDE	9303-ALH-03-01	9303-ALH-03-01	< 1.0886		1.8461		NC	NC	NC
4,4'-DDE	9303-ALS-01-01	9303-ALS-01-01	< 1.8144		0.5659	(J)	NC	NC	NC
4,4'-DDE	9303-BA-01-01	9303-BA-01-01	13.59		14.308		13.952722	0.5	5

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
4,4'-DDE	9303-BDT-01-01	9303-BDT-01-01	16.77		11.073		13.924669	4.0	41

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

4,4'-DDE	9303-BE-01-01	9303-BE-01-01	2.960		< 2.1634		NC	NC	NC
4,4'-DDE	9303-FDT-02-01	9303-FDT-02-01	143.1	(C)	124.09	(C)	133.60776	13.5	14
4,4'-DDE	9303-FDT-03-01	9303-FDT-03-01	556.9	(C)	596.16	(C)	576.55854	27.7	7
4,4'-DDE	9303-FG-01-01	9303-FG-01-01	11.43		11.672		11.556048	0.2	2
4,4'-DDE	9303-FLH-01-01	9303-FLH-01-01	5.527		1.4910	(J)	3.509498	2.9	115
4,4'-DDE	9303-FLH-03-01	9303-FLH-03-01	7.617		11.127		9.3725095	2.5	37
4,4'-DDE	9303-FLH-03-02	9303-FLH-03-02	3.864		20.491		12.178074	11.8	137
4,4'-DDE	9303-GLS-01-01	9303-GLS-01-01	4.971		< 0.7649		NC	NC	NC
4,4'-DDE	9303-IDT-01-01	9303-IDT-01-01	6.457		7.1923		6.824868	0.5	11
4,4'-DDE	9303-NLS-01-01	9303-NLS-01-01	1.724		< 0.8824		NC	NC	NC
4,4'-DDT	9303-AA-01-01	9303-AA-01-01	0.515		0.7721		0.6438215	0.2	40
4,4'-DDT	9303-AC-01-01	9303-AC-01-01	0.759		0.8745		0.817237	0.1	14
4,4'-DDT	9303-AC-01-02	9303-AC-01-02	1.126		0.0525	(J)	0.589338	0.8	182
4,4'-DDT	9303-AD-01-01	9303-AD-01-01	1.003		0.5086		0.756006	0.3	65
4,4'-DDT	9303-ADT-01-01	9303-ADT-01-01	< 0.4672		0.5146	(J)	NC	NC	NC
4,4'-DDT	9303-AE-01-01	9303-AE-01-01	0.934		1.2765		1.1054005	0.2	31
4,4'-DDT	9303-AE-01-02	9303-AE-01-02	0.829		2.4029		1.616233	1.1	97
4,4'-DDT	9303-AF-01-01	9303-AF-01-01	3.747		6.2980		5.022686	1.8	51
4,4'-DDT	9303-AG-01-01	9303-AG-01-01	0.578		0.2379	(J)	0.408204	0.2	83
4,4'-DDT	9303-ALH-01-01	9303-ALH-01-01	0.164	(J)	0.0508	(J)	0.107677	0.1	105
4,4'-DDT	9303-ALH-02-01	9303-ALH-02-01	< 0.3327		< 0.3217		NC	NC	NC
4,4'-DDT	9303-ALH-03-01	9303-ALH-03-01	< 0.5457		0.4712	(J)	NC	NC	NC
4,4'-DDT	9303-ALS-01-01	9303-ALS-01-01	< 0.9096		< 0.8422		NC	NC	NC
4,4'-DDT	9303-BA-01-01	9303-BA-01-01	3.021		3.8431		3.4320915	0.6	24
4,4'-DDT	9303-BDT-01-01	9303-BDT-01-01	0.250	(J)	< 1.9491		NC	NC	NC
4,4'-DDT	9303-BE-01-01	9303-BE-01-01	< 0.6565		< 1.0845		NC	NC	NC
4,4'-DDT	9303-FDT-02-01	9303-FDT-02-01	20.62		18.955		19.788807	1.2	8
4,4'-DDT	9303-FDT-03-01	9303-FDT-03-01	93.36	(C)	88.187	(C)	90.777275	3.7	6
4,4'-DDT	9303-FG-01-01	9303-FG-01-01	1.697		1.7613		1.729467	0.0	4
4,4'-DDT	9303-FLH-01-01	9303-FLH-01-01	1.006		0.1564	(J)	0.5815085	0.6	146

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
4,4'-DDT	9303-FLH-03-01	9303-FLH-03-01	1.306		0.9163		1.111676	0.3	35
Method = SDP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
4,4'-DDT	9303-FLH-03-02	9303-FLH-03-02	0.023	(J)	3.0254		1.5244665	2.1	197
4,4'-DDT	9303-GLS-01-01	9303-GLS-01-01	< 0.3311		0.0374	(J)	NC	NC	NC
4,4'-DDT	9303-IDT-01-01	9303-IDT-01-01	0.675		0.7640		0.7196825	0.1	12
4,4'-DDT	9303-NLS-01-01	9303-NLS-01-01	0.872		2.2167		1.544711	1.0	87
Aldrin	9303-AA-01-01	9303-AA-01-01	0.271	(J)	0.2577	(J)	0.264451	0.0	5
Aldrin	9303-AC-01-01	9303-AC-01-01	0.023	(J)	0.1560	(J)	0.0895485	0.1	148
Aldrin	9303-AC-01-02	9303-AC-01-02	0.017	(J)	0.0082	(J)	0.012804	0.0	71
Aldrin	9303-AD-01-01	9303-AD-01-01	0.217	(J)	0.1316	(J)	0.1746205	0.1	49
Aldrin	9303-ADT-01-01	9303-ADT-01-01	0.641		< 0.7127		NC	NC	NC
Aldrin	9303-AE-01-01	9303-AE-01-01	< 0.4532		0.7159		NC	NC	NC
Aldrin	9303-AE-01-02	9303-AE-01-02	0.539		0.1240	(J)	0.3315625	0.3	125
Aldrin	9303-AF-01-01	9303-AF-01-01	0.289		0.1418	(J)	0.2155445	0.1	68
Aldrin	9303-AG-01-01	9303-AG-01-01	0.007	(J)	0.1771	(J)	0.0924435	0.1	183
Aldrin	9303-ALH-01-01	9303-ALH-01-01	0.085	(J)	< 0.5198		NC	NC	NC
Aldrin	9303-ALH-02-01	9303-ALH-02-01	0.180	(J)	< 0.4168		NC	NC	NC
Aldrin	9303-ALH-03-01	9303-ALH-03-01	< 0.7070		1.2163		NC	NC	NC
Aldrin	9303-ALS-01-01	9303-ALS-01-01	0.792	(J)	0.2308	(J)	0.511793	0.4	110
Aldrin	9303-BA-01-01	9303-BA-01-01	< 1.6866		< 1.8		NC	NC	NC
Aldrin	9303-BDT-01-01	9303-BDT-01-01	< 3.3992		< 2.5251		NC	NC	NC
Aldrin	9303-BE-01-01	9303-BE-01-01	< 0.8506		< 1.4050		NC	NC	NC
Aldrin	9303-FDT-02-01	9303-FDT-02-01	< 0.2561		< 0.2027		NC	NC	NC
Aldrin	9303-FDT-03-01	9303-FDT-03-01	< 0.2382		< 0.1492		NC	NC	NC
Aldrin	9303-FG-01-01	9303-FG-01-01	< 0.1712		0.1054	(J)	NC	NC	NC
Aldrin	9303-FLH-01-01	9303-FLH-01-01	< 0.982		< 1.1943		NC	NC	NC
Aldrin	9303-FLH-03-01	9303-FLH-03-01	< 0.3945		< 0.3825		NC	NC	NC
Aldrin	9303-FLH-03-02	9303-FLH-03-02	< 0.3412		< 0.2421		NC	NC	NC
Aldrin	9303-GLS-01-01	9303-GLS-01-01	< 0.4290		< 0.4967		NC	NC	NC
Aldrin	9303-IDT-01-01	9303-IDT-01-01	< 0.6250		< 0.5963		NC	NC	NC
Aldrin	9303-NLS-01-01	9303-NLS-01-01	< 0.5636		< 0.5731		NC	NC	NC
Dieldrin	9303-AA-01-01	9303-AA-01-01	2.144		4.1646		3.1544835	1.4	64

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Dieldrin	9303-AC-01-01	9303-AC-01-01	< 0.34		2.9266		NC	NC	NC

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Dieldrin	9303-AC-01-02	9303-AC-01-02	5.604		0.2011	(J)	2.902848	3.8	186
Dieldrin	9303-AD-01-D1	9303-AD-01-01	3.048		1.6696		2.359091	1.0	58
Dieldrin	9303-ADT-01-01	9303-ADT-01-01	0.999		1.0349		1.017224	0.0	3
Dieldrin	9303-AE-01-01	9303-AE-01-01	2.268		1.7771		2.022738	0.3	24
Dieldrin	9303-AE-01-02	9303-AE-01-02	1.632		3.3127		2.472529	1.2	68
Dieldrin	9303-AF-01-01	9303-AF-01-01	1.583		3.7508		2.66718	1.5	81
Dieldrin	9303-AG-01-01	9303-AG-01-01	0.713		0.8390		0.776327	0.1	16
Dieldrin	9303-ALH-01-01	9303-ALH-01-01	< 0.6667		< 0.702		NC	NC	NC
Dieldrin	9303-ALH-02-01	9303-ALH-02-01	0.367	(J)	0.8209		0.594452	0.3	76
Dieldrin	9303-ALH-03-01	9303-ALH-03-01	< 0.9547		0.5462	(J)	NC	NC	NC
Dieldrin	9303-ALS-01-01	9303-ALS-01-01	0.374	(J)	< 1.4733		NC	NC	NC
Dieldrin	9303-BA-01-01	9303-BA-01-01	< 2.2774		< 2.4305		NC	NC	NC
Dieldrin	9303-BDT-01-01	9303-BDT-01-01	5.606		6.2857		5.9460765	0.5	11
Dieldrin	9303-BE-01-01	9303-BE-01-01	< 1.1486		< 1.8972		NC	NC	NC
Dieldrin	9303-FDT-02-01	9303-FDT-02-01	1.774		1.8354		1.804914	0.0	3
Dieldrin	9303-FDT-03-01	9303-FDT-03-01	4.219		3.6784		3.948728	0.4	14
Dieldrin	9303-FG-01-01	9303-FG-01-01	1.611		1.4622		1.5368505	0.1	10
Dieldrin	9303-FLH-01-01	9303-FLH-01-01	1.711		0.2303	(J)	0.970839	1.0	153
Dieldrin	9303-FLH-03-01	9303-FLH-03-01	0.733		0.8009		0.7672435	0.0	9
Dieldrin	9303-FLH-03-02	9303-FLH-03-02	0.307	(J)	1.6083		0.95789	0.9	136
Dieldrin	9303-GLS-01-01	9303-GLS-01-01	1.765		< 0.6708		NC	NC	NC
Dieldrin	9303-IDT-01-01	9303-IDT-01-01	0.286	(J)	0.4240	(J)	0.3550575	0.1	39
Dieldrin	9303-NLS-01-01	9303-NLS-01-01	< 0.7610		0.1151	(J)	NC	NC	NC
Endrin	9303-AA-01-01	9303-AA-01-01	1.447		< 0.3458		NC	NC	NC
Endrin	9303-AC-01-01	9303-AC-01-01	< 0.2502		0.9734		NC	NC	NC
Endrin	9303-AC-01-02	9303-AC-01-02	0.988		0.0612	(J)	0.5248955	0.7	177
Endrin	9303-AD-01-01	9303-AD-01-01	< 0.2797		0.9334		NC	NC	NC
Endrin	9303-ADT-01-01	9303-ADT-01-01	< 0.6016		< 0.7083		NC	NC	NC
Endrin	9303-AE-01-01	9303-AE-01-01	1.467		1.3074		1.387716	0.1	12
Endrin	9303-AE-01-02	9303-AE-01-02	< 0.4672		2.3354		NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Endrin	9303-AF-01-01	9303-AF-01-01	1.593		< 0.3378		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Endrin	9303-AG-01-01	9303-AG-01-01	0.309		0.5065		0.408255	0.1	48
Endrin	9303-ALH-01-01	9303-ALH-01-01	< 0.4907		< 0.5167		NC	NC	NC
Endrin	9303-ALH-02-01	9303-ALH-02-01	< 0.4284		< 0.4143		NC	NC	NC
Endrin	9303-ALH-03-01	9303-ALH-03-01	< 0.7027		< 0.6458		NC	NC	NC
Endrin	9303-ALS-01-01	9303-ALS-01-01	< 1.1712		< 1.0844		NC	NC	NC
Endrin	9303-BA-01-01	9303-BA-01-01	< 1.6763		< 1.7890		NC	NC	NC
Endrin	9303-BDT-01-01	9303-BDT-01-01	< 3.3784		< 2.5097		NC	NC	NC
Endrin	9303-BE-01-01	9303-BE-01-01	< 0.8454		< 1.3965		NC	NC	NC
Endrin	9303-FDT-02-01	9303-FDT-02-01	< 0.2546		< 0.2014		NC	NC	NC
Endrin	9303-FDT-03-01	9303-FDT-03-01	0.474		0.4770		0.4759075	0.0	0
Endrin	9303-FG-01-01	9303-FG-01-01	< 0.1702		< 0.1498		NC	NC	NC
Endrin	9303-FLH-01-01	9303-FLH-01-01	< 0.976		< 1.1870		NC	NC	NC
Endrin	9303-FLH-03-01	9303-FLH-03-01	< 0.3921		< 0.3802		NC	NC	NC
Endrin	9303-FLH-03-02	9303-FLH-03-02	< 0.3391		< 0.2406		NC	NC	NC
Endrin	9303-GLS-01-01	9303-GLS-01-01	1.630		< 0.4937		NC	NC	NC
Endrin	9303-IDT-01-01	9303-IDT-01-01	< 0.6212		< 0.5927		NC	NC	NC
Endrin	9303-NLS-01-01	9303-NLS-01-01	< 0.5602		< 0.5696		NC	NC	NC
HCB	9303-AA-01-01	9303-AA-01-01	0.198	(J)	0.1229	(J)	0.1609355	0.1	47
HCB	9303-AC-01-01	9303-AC-01-01	< 0.2753		0.0284	(J)	NC	NC	NC
HCB	9303-AC-01-02	9303-AC-01-02	0.046	(J)	< 0.3138	(J)	NC	NC	NC
HCB	9303-AD-01-01	9303-AD-01-01	0.038	(J)	0.0366	(J)	0.0377445	0.0	6
HCB	9303-ADT-01-01	9303-ADT-01-01	< 0.6620		0.0420	(J)	NC	NC	NC
HCB	9303-AE-01-01	9303-AE-01-01	0.080	(J)	0.0684	(J)	0.0745265	0.0	16
HCB	9303-AE-01-02	9303-AE-01-02	0.050	(J)	0.1956	(J)	0.12313	0.1	118
HCB	9303-AF-01-01	9303-AF-01-01	0.019	(J)	0.0906	(J)	0.055193	0.1	128
HCB	9303-AG-01-01	9303-AG-01-01	< 0.2761		0.0730	(J)	NC	NC	NC
HCB	9303-ALH-01-01	9303-ALH-01-01	0.026	(J)	0.0581	(J)	0.0421675	0.0	76
HCB	9303-ALH-02-01	9303-ALH-02-01	< 0.4715		0.0284	(J)	NC	NC	NC
HCB	9303-ALH-03-01	9303-ALH-03-01	0.167	(J)	0.0434	(J)	0.10572	0.1	118
HCB	9303-ALS-01-01	9303-ALS-01-01	< 1.2888		< 1.1933		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
HCB	9303-BA-01-01	9303-BA-01-01	1.362	(J)	0.7603	(J)	1.0611995	0.4	57

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

HCB	9303-BDT-01-01	9303-BDT-01-01	0.347	(J)	0.2793	(J)	0.313448	0.0	22
HCB	9303-BE-01-01	9303-BE-01-01	< 0.9303		0.3079	(J)	NC	NC	NC
HCB	9303-FDT-02-01	9303-FDT-02-01	0.228	(J)	0.1197	(J)	0.1741355	0.1	62
HCB	9303-FDT-03-01	9303-FDT-03-01	0.626		0.3464		0.486578	0.2	58
HCB	9303-FG-01-01	9303-FG-01-01	0.417		0.2794		0.34846	0.1	40
HCB	9303-FLH-01-01	9303-FLH-01-01	< 1.074		0.0074	(J)	NC	NC	NC
HCB	9303-FLH-03-01	9303-FLH-03-01	0.347	(J)	0.3902	(J)	0.368959	0.0	12
HCB	9303-FLH-03-02	9303-FLH-03-02	< 0.3732		0.0573	(J)	NC	NC	NC
HCB	9303-GLS-01-01	9303-GLS-01-01	< 0.4692		0.7516		NC	NC	NC
HCB	9303-IDT-01-01	9303-IDT-01-01	0.344	(J)	0.0740	(J)	0.209323	0.2	129
HCB	9303-NLS-01-01	9303-NLS-01-01	0.039	(J)	0.2779	(J)	0.1587135	0.2	150
Heptachlor	9303-AA-01-01	9303-AA-01-01	0.085	(J)	0.0887	(J)	0.0873775	0.0	3
Heptachlor	9303-AC-01-01	9303-AC-01-01	0.438		< 0.2472		NC	NC	NC
Heptachlor	9303-AC-01-02	9303-AC-01-02	0.324		0.0147	(J)	0.1698285	0.2	183
Heptachlor	9303-AD-01-01	9303-AD-01-01	0.131	(J)	0.1069	(J)	0.119023	0.0	20
Heptachlor	9303-ADT-01-01	9303-ADT-01-01	0.017	(J)	0.1184	(J)	0.0677745	0.1	150
Heptachlor	9303-AE-01-01	9303-AE-01-01	0.092	(J)	0.0685	(J)	0.080589	0.0	30
Heptachlor	9303-AE-01-02	9303-AE-01-02	0.299	(J)	0.1643	(J)	0.231707	0.1	58
Heptachlor	9303-AF-01-01	9303-AF-01-01	0.101	(J)	0.2759	(J)	0.188913	0.1	92
Heptachlor	9303-AG-01-01	9303-AG-01-01	0.186	(J)	0.1061	(J)	0.146427	0.1	55
Heptachlor	9303-ALH-01-01	9303-ALH-01-01	0.188	(J)	0.2198	(J)	0.2043585	0.0	15
Heptachlor	9303-ALH-02-01	9303-ALH-02-01	0.558		0.6966		0.6274765	0.1	22
Heptachlor	9303-ALH-03-01	9303-ALH-03-01	0.254	(J)	0.5261	(J)	0.3905115	0.2	69
Heptachlor	9303-ALS-01-01	9303-ALS-01-01	0.428	(J)	0.3035	(J)	0.3659285	0.1	34
Heptachlor	9303-BA-01-01	9303-BA-01-01	< 1.7690		< 1.8879		NC	NC	NC
Heptachlor	9303-BDT-01-01	9303-BDT-01-01	0.146	(J)	< 2.6485		NC	NC	NC
Heptachlor	9303-BE-01-01	9303-BE-01-01	0.041	(J)	< 1.4737		NC	NC	NC
Heptachlor	9303-FDT-02-01	9303-FDT-02-01	< 0.2686		0.0767	(J)	NC	NC	NC
Heptachlor	9303-FDT-03-01	9303-FDT-03-01	0.127	(J)	0.0771	(J)	0.1024935	0.0	49
Heptachlor	9303-FG-01-01	9303-FG-01-01	0.039	(J)	0.0372	(J)	0.0383925	0.0	6

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Heptachlor	9303-FLH-01-01	9303-FLH-01-01	0.337	(J)	0.0530	(J)	0.19506	0.2	146

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Heptachlor	9303-FLH-03-01	9303-FLH-03-01	0.134	(J)	0.2339	(J)	0.1843215	0.1	54
Heptachlor	9303-FLH-03-02	9303-FLH-03-02	< 0.3579	(J)	< 0.2539		NC	NC	NC
Heptachlor	9303-GLS-01-01	9303-GLS-01-01	< 0.45		1.1650		NC	NC	NC
Heptachlor	9303-IDT-01-01	9303-IDT-01-01	0.196	(J)	0.1031	(J)	0.15004	0.1	63
Heptachlor	9303-NLS-01-01	9303-NLS-01-01	0.065	(J)	< 0.6011		NC	NC	NC
Heptachlor epoxide	9303-AA-01-01	9303-AA-01-01	< 0.3805		< 0.4060		NC	NC	NC
Heptachlor epoxide	9303-AC-01-01	9303-AC-01-01	< 0.2938		0.0480	(J)	NC	NC	NC
Heptachlor epoxide	9303-AC-01-02	9303-AC-01-02	< 0.3134	(J)	< 0.3348	(J)	NC	NC	NC
Heptachlor epoxide	9303-AD-01-01	9303-AD-01-01	< 0.3284		< 0.3042		NC	NC	NC
Heptachlor epoxide	9303-ADT-01-01	9303-ADT-01-01	< 0.7064		< 0.8317		NC	NC	NC
Heptachlor epoxide	9303-AE-01-01	9303-AE-01-01	< 0.5289		< 0.5667		NC	NC	NC
Heptachlor epoxide	9303-AE-01-02	9303-AE-01-02	< 0.5486		< 0.6250		NC	NC	NC
Heptachlor epoxide	9303-AF-01-01	9303-AF-01-01	0.045	(J)	< 0.3966		NC	NC	NC
Heptachlor epoxide	9303-AG-01-01	9303-AG-01-01	< 0.2946		< 0.4028		NC	NC	NC
Heptachlor epoxide	9303-ALH-01-01	9303-ALH-01-01	< 0.5762		< 0.6067		NC	NC	NC
Heptachlor epoxide	9303-ALH-02-01	9303-ALH-02-01	< 0.5031		< 0.4865		NC	NC	NC
Heptachlor epoxide	9303-ALH-03-01	9303-ALH-03-01	< 0.8251		< 0.7583		NC	NC	NC
Heptachlor epoxide	9303-ALS-01-01	9303-ALS-01-01	< 1.3752		< 1.2733		NC	NC	NC
Heptachlor epoxide	9303-BA-01-01	9303-BA-01-01	< 1.9683		< 2.1006		NC	NC	NC
Heptachlor epoxide	9303-BDT-01-01	9303-BDT-01-01	< 3.9669		< 2.9468		NC	NC	NC
Heptachlor epoxide	9303-BE-01-01	9303-BE-01-01	< 0.9926		< 1.6397		NC	NC	NC
Heptachlor epoxide	9303-FDT-02-01	9303-FDT-02-01	< 0.2989		< 0.2365		NC	NC	NC
Heptachlor epoxide	9303-FDT-03-01	9303-FDT-03-01	0.505		0.5027		0.5042885	0.0	1
Heptachlor epoxide	9303-FG-01-01	9303-FG-01-01	0.063	(J)	0.0507	(J)	0.057107	0.0	22
Heptachlor epoxide	9303-FLH-01-01	9303-FLH-01-01	< 1.146		< 1.3937		NC	NC	NC
Heptachlor epoxide	9303-FLH-03-01	9303-FLH-03-01	< 0.4604		< 0.4464		NC	NC	NC
Heptachlor epoxide	9303-FLH-03-02	9303-FLH-03-02	< 0.3982		< 0.2825		NC	NC	NC
Heptachlor epoxide	9303-GLS-01-01	9303-GLS-01-01	< 0.5006		< 0.5797		NC	NC	NC
Heptachlor epoxide	9303-IDT-01-01	9303-IDT-01-01	< 0.7294		< 0.6959		NC	NC	NC
Heptachlor epoxide	9303-NLS-01-01	9303-NLS-01-01	< 0.6577		< 0.6688		NC	NC	NC

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TABLE B3 DETAILED LISTING OF OUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample IO	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Mirex	9303-AA-01-01	9303-AA-01-01	< 0.3606		< 0.3848		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Mirex	9303-AC-01-01	9303-AC-01-01	< 0.2784		< 0.2606		NC	NC	NC
Mirex	9303-AC-01-02	9303-AC-01-02	< 0.2970		< 0.3173		NC	NC	NC
Mirex	9303-AD-01-01	9303-AD-01-01	< 0.3112		< 0.2883		NC	NC	NC
Mirex	9303-ADT-01-01	9303-ADT-01-01	< 0.6694		< 0.7882		NC	NC	NC
Mirex	9303-AE-01-01	9303-AE-01-01	< 0.5012		< 0.5370		NC	NC	NC
Mirex	9303-AE-01-02	9303-AE-01-02	< 0.5198		< 0.5923		NC	NC	NC
Mirex	9303-AF-01-01	9303-AF-01-01	0.131	(J)	< 0.3759		NC	NC	NC
Mirex	9303-AG-01-01	9303-AG-01-01	< 0.2792		< 0.3817		NC	NC	NC
Mirex	9303-ALH-01-01	9303-ALH-01-01	< 0.5460		< 0.5749		NC	NC	NC
Mirex	9303-ALH-02-01	9303-ALH-02-01	< 0.4767		< 0.4610		NC	NC	NC
Mirex	9303-ALH-03-01	9303-ALH-03-01	< 0.7819		< 0.7186		NC	NC	NC
Mirex	9303-ALS-01-01	9303-ALS-01-01	< 1.3032		< 1.2066		NC	NC	NC
Mirex	9303-BA-01-01	9303-BA-01-01	< 1.8652		< 1.9906		NC	NC	NC
Mirex	9303-BDT-01-01	9303-BDT-01-01	< 3.7592		< 2.7925		NC	NC	NC
Mirex	9303-BE-01-01	9303-BE-01-01	< 0.9407		< 1.5538		NC	NC	NC
Mirex	9303-FDT-02-01	9303-FDT-02-01	< 0.2833		< 0.2241		NC	NC	NC
Mirex	9303-FDT-03-01	9303-FOT-03-01	< 0.2634		< 0.1651		NC	NC	NC
Mirex	9303-FG-01-01	9303-FG-01-01	< 0.1894	(J)	< 0.1667		NC	NC	NC
Mirex	9303-FLH-01-01	9303-FLH-01-01	< 1.086		< 1.3208		NC	NC	NC
Mirex	9303-FLH-03-01	9303-FLH-03-01	< 0.4363		< 0.4231		NC	NC	NC
Mirex	9303-FLH-03-02	9303-FLH-03-02	< 0.3773		< 0.2677		NC	NC	NC
Mirex	9303-GLS-01-01	9303-GLS-01-01	< 0.4744		0.0134	(J)	NC	NC	NC
Mirex	9303-IDT-01-01	9303-IDT-01-01	< 0.6912		< 0.6595		NC	NC	NC
Mirex	9303-NLS-01-01	9303-NLS-01-01	< 0.6233		< 0.6338		NC	NC	NC
Oxychlordane	9303-AA-01-01	9303-AA-01-01	0.172	(J)	0.2023	(J)	0.1872415	0.0	16
Oxychlordane	9303-AC-01-01	9303-AC-01-01	0.544		0.2207	(J)	0.3827975	0.2	85
Oxychlordane	9303-AC-01-02	9303-AC-01-02	0.328	(J)	0.0196	(J)	0.174118	0.2	177
Oxychlordane	9303-AD-01-01	9303-AO-01-01	0.152	(J)	0.0530	(J)	0.1028185	0.1	97
Oxychlordane	9303-ADT-01-01	9303-ADT-01-01	0.411	(J)	0.6474	(J)	0.529661	0.2	44
Oxychlordane	9303-AE-01-01	9303-AE-01-01	0.214	(J)	0.1748	(J)	0.1949125	0.0	21

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Oxychlordane	9303-AE-01-02	9303-AE-01-02	0.229	(J)	0.2434	(J)	0.236447	0.0	6
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Oxychlordane	9303-AF-01-01	9303-AF-01-01	0.686		1.3503		1.018581	0.5	65
Oxychlordane	9303-AG-01-01	9303-AG-01-01	0.129	(J)	0.0822	(J)	0.105751	0.0	44
Oxychlordane	9303-ALH-01-01	9303-ALH-01-01	< 0.7159		< 0.7538		NC	NC	NC
Oxychlordane	9303-ALH-02-01	9303-ALH-02-01	0.226	(J)	0.9627		0.594517	0.5	124
Oxychlordane	9303-ALH-03-01	9303-ALH-03-01	< 1.0252		0.9677		NC	NC	NC
Oxychlordane	9303-ALS-01-01	9303-ALS-01-01	0.561	(J)	< 1.5822		NC	NC	NC
Oxychlordane	9303-BA-01-01	9303-BA-01-01	0.821	(J)	1.3492	(J)	1.0853795	0.4	49
Oxychlordane	9303-BDT-01-01	9303-BDT-01-01	4.814	(J)	3.6086	(J)	4.2113555	0.9	29
Oxychlordane	9303-BE-01-01	9303-BE-01-01	< 1.2334		< 2.0375		NC	NC	NC
Oxychlordane	9303-FDT-02-01	9303-FDT-02-01	17.29		17.245		17.271089	0.0	0
Oxychlordane	9303-FDT-03-01	9303-FDT-03-01	9.633		7.4889		8.561239	1.5	25
Oxychlordane	9303-FG-01-01	9303-FG-01-01	0.626		0.7182		0.6722515	0.1	14
Oxychlordane	9303-FLH-01-01	9303-FLH-01-01	0.554	(J)	0.1125	(J)	0.333682	0.3	133
Oxychlordane	9303-FLH-03-01	9303-FLH-03-01	0.748		1.0389		0.8935475	0.2	33
Oxychlordane	9303-FLH-03-02	9303-FLH-03-02	0.402	(J)	2.5416		1.471854	1.5	145
Oxychlordane	9303-GLS-01-01	9303-GLS-01-01	< 0.6221		< 0.7204		NC	NC	NC
Oxychlordane	9303-IDT-01-01	9303-IDT-01-01	0.943		0.7162	(J)	0.829696	0.2	27
Oxychlordane	9303-NLS-01-01	9303-NLS-01-01	< 0.8173		0.1309	(J)	NC	NC	NC
Total BHCs	9303-AA-01-01	9303-AA-01-01	2.141		< 0.4909		NC	NC	NC
Total BHCs	9303-AC-01-01	9303-AC-01-01	2.854		4.5341		3.6944575	1.2	45
Total BHCs	9303-AC-01-02	9303-AC-01-02	4.911		0.2142	(J)	2.562825	3.3	183
Total BHCs	9303-AD-01-01	9303-AD-01-01	3.033		2.1819		2.607939	0.6	33
Total BHCs	9303-ADT-01-01	9303-ADT-01-01	0.698	(J)	1.4714		1.085173	0.5	71
Total BHCs	9303-AE-01-01	9303-AE-01-01	1.701		1.9028		1.8019735	0.1	11
Total BHCs	9303-AE-01-02	9303-AE-01-02	2.144		3.0507		2.597735	0.6	35
Total BHCs	9303-AF-01-01	9303-AF-01-01	1.160		1.4333		1.2967125	0.2	21
Total BHCs	9303-AG-01-01	9303-AG-01-01	2.573		2.6321		2.602698	0.0	2
Total BHCs	9303-ALH-01-01	9303-ALH-01-01	0.850		1.6625		1.2567325	0.6	65
Total BHCs	9303-ALH-02-01	9303-ALH-02-01	2.041		0.5910		1.316382	1.0	110
Total BHCs	9303-ALH-03-01	9303-ALH-03-01	0.981	(J)	2.2439		1.612923	0.9	78

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total BHCs	9303-ALS-01-01	9303-ALS-01-01	4.572		0.6668	(J)	2.619448	2.8	149

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Total BHCs	9303-BA-01-01	9303-BA-01-01	1.362	(J)	0.7603	(J)	1.0611995	0.4	57
Total BHCs	9303-BDT-01-01	9303-BDT-01-01	0.750	(J)	1.5479	(J)	1.149152	0.6	69
Total BHCs	9303-BE-01-01	9303-BE-01-01	< 1.2001		0.3079	(J)	NC	NC	NC
Total BHCs	9303-FDT-02-01	9303-FDT-02-01	0.862		0.7809		0.8215335	0.1	10
Total BHCs	9303-FDT-03-01	9303-FDT-03-01	2.434		2.0215		2.2281095	0.3	19
Total BHCs	9303-FG-01-01	9303-FG-01-01	1.441		1.2841		1.3629005	0.1	12
Total BHCs	9303-FLH-01-01	9303-FLH-01-01	< 1.3855		0.2840	(J)	NC	NC	NC
Total BHCs	9303-FLH-03-01	9303-FLH-03-01	1.054		0.88		0.9670315	0.1	18
Total BHCs	9303-FLH-03-02	9303-FLH-03-02	0.572		1.1745		0.873405	0.4	69
Total BHCs	9303-GLS-01-01	9303-GLS-01-01	0.992		3.15		2.0710045	1.5	104
Total BHCs	9303-IDT-01-01	9303-IDT-01-01	1.032		0.4949	(J)	0.763711	0.4	70
Total BHCs	9303-NLS-01-01	9303-NLS-01-01	0.890		0.8537		0.8722485	0.0	4
Total Chlordanes	9303-AA-01-01	9303-AA-01-01	4.836		4.8155		4.8261895	0.0	0
Total Chlordanes	9303-AC-01-01	9303-AC-01-01	2.928		2.1394		2.5338915	0.6	31
Total Chlordanes	9303-AC-01-02	9303-AC-01-02	2.619		0.1942	(J)	1.407106	1.7	172
Total Chlordanes	9303-AD-01-01	9303-AD-01-01	1.717		1.0093		1.3632975	0.5	52
Total Chlordanes	9303-ADT-01-01	9303-ADT-01-01	6.867		7.0634		6.9655295	0.1	3
Total Chlordanes	9303-AE-01-01	9303-AE-01-01	2.954		3.1683		3.0611675	0.2	7
Total Chlordanes	9303-AE-01-02	9303-AE-01-02	3.148		3.9968		3.572499	0.6	24
Total Chlordanes	9303-AF-01-01	9303-AF-01-01	44.38		55.623		50.003101	7.9	22
Total Chlordanes	9303-AG-01-01	9303-AG-01-01	0.923		0.8100		0.8665815	0.1	13
Total Chlordanes	9303-ALH-01-01	9303-ALH-01-01	0.255	(J)	0.7162	(J)	0.4859515	0.3	95
Total Chlordanes	9303-ALH-02-01	9303-ALH-02-01	1.797		2.8417		2.3196745	0.7	45
Total Chlordanes	9303-ALH-03-01	9303-ALH-03-01	0.568	(J)	3.7097		2.1389395	2.2	147
Total Chlordanes	9303-ALS-01-01	9303-ALS-01-01	4.305		0.4492	(J)	2.37743	2.7	162
Total Chlordanes	9303-BA-01-01	9303-BA-01-01	4.583		4.1994		4.3912715	0.3	9
Total Chlordanes	9303-BDT-01-01	9303-BDT-01-01	13.49		9.5680		11.531875	2.8	34
Total Chlordanes	9303-BE-01-01	9303-BE-01-01	0.151	(J)	< 2.0379		NC	NC	NC
Total Chlordanes	9303-FDT-02-01	9303-FDT-02-01	133.3		119.26		126.28989	9.9	11
Total Chlordanes	9303-FDT-03-01	9303-FDT-03-01	56.04		43.164		49.605288	9.1	26

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Total Chlordanes	9303-FG-01-01	9303-FG-01-01	3.773	4.2011	3.9873885	0.3	11

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Total Chlordanes	9303-FLH-01-01	9303-FLH-01-01	4.606	1.0104	(J) 2.808243	2.5	128
Total Chlordanes	9303-FLH-03-01	9303-FLH-03-01	5.714	8.7440	7.2291625	2.1	42
Total Chlordanes	9303-FLH-03-02	9303-FLH-03-02	3.031	19.608	11.319862	11.7	146
Total Chlordanes	9303-GLS-01-01	9303-GLS-01-01	< 0.6222	1.17	NC	NC	NC
Total Chlordanes	9303-IDT-01-01	9303-IDT-01-01	7.132	5.7165	6.424417	1.0	22
Total Chlordanes	9303-NLS-01-01	9303-NLS-01-01	0.817	0.7821	(J) 0.7999615	0.0	4
Total DDTs	9303-AA-01-01	9303-AA-01-01	44.43	42.360	43.399709	1.5	5
Total DDTs	9303-AC-01-01	9303-AC-01-01	7.236	8.3880	7.8121325	0.8	15
Total DDTs	9303-AC-01-02	9303-AC-01-02	7.660	0.6193	4.1398635	5.0	170
Total DDTs	9303-AD-01-01	9303-AD-01-01	11.88	9.4433	10.664629	1.7	23
Total DDTs	9303-ADT-01-01	9303-ADT-01-01	20.02	20.131	20.077140	0.1	1
Total DDTs	9303-AE-01-01	9303-AE-01-01	40.08	38.751	39.417416	0.9	3
Total DDTs	9303-AE-01-02	9303-AE-01-02	35.20	49.565	42.387526	10.2	34
Total DDTs	9303-AF-01-01	9303-AF-01-01	419.8	679.88	549.88103	183.9	47
Total DDTs	9303-AG-01-01	9303-AG-01-01	6.646	8.3574	7.501978	1.2	23
Total DDTs	9303-ALH-01-01	9303-ALH-01-01	0.586	1.1101	0.848426	0.4	62
Total DDTs	9303-ALH-02-01	9303-ALH-02-01	1.275	4.9127	3.0942495	2.6	118
Total DDTs	9303-ALH-03-01	9303-ALH-03-01	0.751	10.198	5.4748135	6.7	173
Total DDTs	9303-ALS-01-01	9303-ALS-01-01	< 1.1696	2.6006	NC	NC	NC
Total DDTs	9303-BA-01-01	9303-BA-01-01	49.67	38.613	44.143124	7.8	25
Total DDTs	9303-BDT-01-01	9303-BDT-01-01	54.08	40.683	47.385768	9.5	28
Total DDTs	9303-BE-01-01	9303-BE-01-01	18.34	< 1.3945	NC	NC	NC
Total DDTs	9303-FDT-02-01	9303-FDT-02-01	294.1	428.33	361.25944	94.9	37
Total DDTs	9303-FDT-03-01	9303-FDT-03-01	2442.	2769.2	2606.1031	230.7	13
Total DDTs	9303-FG-01-01	9303-FG-01-01	37.89	37.329	37.612237	0.4	2
Total DDTs	9303-FLH-01-01	9303-FLH-01-01	13.65	3.4987	8.5788915	7.2	118
Total DDTs	9303-FLH-03-01	9303-FLH-03-01	19.14	25.895	22.520858	4.8	30
Total DDTs	9303-FLH-03-02	9303-FLH-03-02	9.490	70.205	39.847793	42.9	152
Total DDTs	9303-GLS-01-01	9303-GLS-01-01	4.971	0.05	(J) 2.510794	3.5	196
Total DDTs	9303-IDT-01-01	9303-IDT-01-01	10.19	12.258	11.227122	1.5	18

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total DDTs	9303-NLS-01-01	9303-NLS-01-01	4.023		2.5206		3.272185	1.1	46

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Total Decachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	0.391		< 0.4159		NC	NC	NC
Total Decachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	1.768		< 0.2817		NC	NC	NC
Total Decachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	< 0.3211		< 0.3430		NC	NC	NC
Total Decachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	0.333	(J)	< 0.3116		NC	NC	NC
Total Decachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	< 0.7236		< 0.8520		NC	NC	NC
Total Decachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	< 0.5418		0.0653	(J)	NC	NC	NC
Total Decachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	< 0.5620		< 0.6403		NC	NC	NC
Total Decachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	0.011	(J)	< 0.4063		NC	NC	NC
Total Decachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	< 0.3018		< 0.4127		NC	NC	NC
Total Decachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	< 0.5902		< 0.6215		NC	NC	NC
Total Decachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	< 0.5154		< 0.4983		NC	NC	NC
Total Decachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	< 0.8452		< 0.7769		NC	NC	NC
Total Decachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	< 1.4088		< 1.3044		NC	NC	NC
Total Decachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	< 2.0164		< 2.1519		NC	NC	NC
Total Decachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	< 4.0638		< 3.0188		NC	NC	NC
Total Decachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	< 1.0169		< 1.6798		NC	NC	NC
Total Decachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	< 0.3062		< 0.2423		NC	NC	NC
Total Decachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	< 0.2847		0.01	(J)	NC	NC	NC
Total Decachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	< 0.2047		< 0.1803		NC	NC	NC
Total Decachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	< 1.174		< 1.4278		NC	NC	NC
Total Decachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	< 0.4716		< 0.4574		NC	NC	NC
Total Decachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	< 0.4079		< 0.2894		NC	NC	NC
Total Decachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	< 0.5129		< 0.5939		NC	NC	NC
Total Decachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	< 0.7472		< 0.7129		NC	NC	NC
Total Decachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	< 0.6738		< 0.6852		NC	NC	NC
Total Dichlorobiphenyls	9303-AA-01-01	9303-AA-01-01	4.955		4.1435		4.549783	0.6	18
Total Dichlorobiphenyls	9303-AC-01-01	9303-AC-01-01	8.874		5.4320		7.1534985	2.4	48
Total Dichlorobiphenyls	9303-AC-01-02	9303-AC-01-02	10.28		1.2158		5.752061	6.4	158
Total Dichlorobiphenyls	9303-AD-01-01	9303-AD-01-01	1.530		3.8393		2.685137	1.6	86
Total Dichlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	19.80		18.265		19.036663	1.1	8

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Dichlorobiphenyls	9303-AE-01-01	9303-AE-01-01	13.25		20.568		16.913138	5.2	43

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Dichlorobiphenyls	9303-AE-01-02	9303-AE-01-02	8.864		8.5960		8.730041	0.2	3
Total Dichlorobiphenyls	9303-AF-01-01	9303-AF-01-01	5.496		11.922		8.709167	4.5	74
Total Dichlorobiphenyls	9303-AG-01-01	9303-AG-01-01	4.139		5.4629		4.801359	0.9	28
Total Dichlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	2.586		10.922		6.754818	5.9	123
Total Dichlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	17.69		20.321		19.007667	1.9	14
Total Dichlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	3.968		46.711		25.340089	30.2	169
Total Dichlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	30.65		< 1.8644		NC	NC	NC
Total Dichlorobiphenyls	9303-BA-01-01	9303-BA-01-01	< 2.8820		< 3.0757		NC	NC	NC
Total Dichlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	0.44	(J)	6.02		3.23	3.9	173
Total Dichlorobiphenyls	9303-BE-01-01	9303-BE-01-01	0.27	(J)	< 2.4009		NC	NC	NC
Total Dichlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	0.04	(J)	0.37		0.205	0.2	161
Total Dichlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	0.08	(J)	0.23	(J)	0.155	0.1	97
Total Dichlorobiphenyls	9303-FG-01-01	9303-FG-01-01	0.32		0.17	(J)	0.245	0.1	61
Total Dichlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	0.533	(J)	0.0575	(J)	0.295602	0.3	161
Total Dichlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	1.502		0.7716		1.13711	0.5	64
Total Dichlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	0.62		0.4	(J)	0.51	0.2	43
Total Dichlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	0.01	(J)	3.38		1.695	2.4	199
Total Dichlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	0.11	(J)	0.32	(J)	0.215	0.1	98
Total Dichlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	0.2	(J)	0.49	(J)	0.345	0.2	84
Total Heptachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	15.75		38.768		27.259828	16.3	84
Total Heptachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	10.06		41.172		25.616742	22.0	121
Total Heptachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	11.22		2.9273		7.073885	5.9	117
Total Heptachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	10.58		32.850		21.718169	15.7	103
Total Heptachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	1.638		8.1642		4.9016015	4.6	133
Total Heptachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	15.78		41.379		28.581579	18.1	90
Total Heptachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	11.44		53.443		32.445963	29.7	129
Total Heptachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	5.044		13.889		9.467277	6.3	93
Total Heptachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	2.940		3.3575		3.149273	0.3	13
Total Heptachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	1.444		0.7036		1.073935	0.5	69
Total Heptachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	0.462		1.4466		0.954839	0.7	103

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Heptachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	< 0.5155		1.7352		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Total Heptachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	< 0.8592		1.1244		NC	NC	NC
Total Heptachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	59.85		48.65		54.25	7.9	21
Total Heptachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	1.06	(J)	1.43	(J)	1.245	0.3	30
Total Heptachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	3.02		< 1.0244		NC	NC	NC
Total Heptachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	22.53		16.46		19.495	4.3	31
Total Heptachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	38.22		37.55		37.885	0.5	2
Total Heptachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	28.22		25.34		26.78	2.0	11
Total Heptachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	0.194	(J)	1.6010		0.898004	1.0	157
Total Heptachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	2.115		1.5740		1.844796	0.4	29
Total Heptachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	2.26		20.87		11.565	13.2	161
Total Heptachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	1		0.11	(J)	0.555	0.6	160
Total Heptachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	4.75		5.72		5.235	0.7	19
Total Heptachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	0.78		3.44		2.11	1.9	126
Total Hexachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	67.63		67.263		67.450452	0.3	1
Total Hexachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	31.25		32.254		31.753821	0.7	3
Total Hexachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	35.80		2.4817		19.143862	23.6	174
Total Hexachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	36.91		30.119		33.517765	4.8	20
Total Hexachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	7.813		8.8915		8.352409	0.8	13
Total Hexachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	47.32		46.458		46.889766	0.6	2
Total Hexachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	40.69		60.871		50.783509	14.3	40
Total Hexachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	15.63		19.509		17.574445	2.7	22
Total Hexachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	7.921		11.234		9.5780745	2.3	35
Total Hexachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	1.721		1.7230		1.722396	0.0	0
Total Hexachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	1.379		4.1759		2.7778425	2.0	101
Total Hexachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	1.981		3.4913		2.7362165	1.1	55
Total Hexachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	1.698		< 0.8888		NC	NC	NC
Total Hexachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	146.9		97.8		122.35	34.7	40
Total Hexachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	13.69		11.75		12.72	1.4	15
Total Hexachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	10.26		2.94		6.6	5.2	111
Total Hexachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	34.93		24.77		29.85	7.2	34

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Hexachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	62.92		57.25		60.085	4.0	9
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Total Hexachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	41.36		39.57		40.465	1.3	4
Total Hexachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	5.358		1.9607		3.6593825	2.4	93
Total Hexachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	10.12		7.8047		8.964749	1.6	26
Total Hexachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	3.87		34.67		19.27	21.8	160
Total Hexachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	9.89		1.01		5.45	6.3	163
Total Hexachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	6.49		6.49		6.49	0.0	0
Total Hexachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	2.42		3.81		3.115	1.0	45
Total Nonachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	< 0.3925		< 0.4188		NC	NC	NC
Total Nonachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	0.040	(J)	0.1039	(J)	0.0721595	0.0	88
Total Nonachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	< 0.3233		< 0.3453		NC	NC	NC
Total Nonachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	0.069	(J)	< 0.3138		NC	NC	NC
Total Nonachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	< 0.7286		< 0.8579		NC	NC	NC
Total Nonachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	< 0.5455		< 0.5845		NC	NC	NC
Total Nonachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	< 0.5658		0.0806	(J)	NC	NC	NC
Total Nonachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	< 0.3233		< 0.4091		NC	NC	NC
Total Nonachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	< 0.3039		< 0.4155		NC	NC	NC
Total Nonachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	< 0.5943		< 0.6257		NC	NC	NC
Total Nonachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	< 0.5189		< 0.5017		NC	NC	NC
Total Nonachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	< 0.8510		< 0.7822		NC	NC	NC
Total Nonachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	< 1.4184		< 1.3133		NC	NC	NC
Total Nonachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	< 2.0301		< 2.1665		NC	NC	NC
Total Nonachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	0.26	(J)	0.72	(J)	0.49	0.3	94
Total Nonachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	< 1.0238		< 1.6912		NC	NC	NC
Total Nonachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	0.14	(J)	0.2	(J)	0.17	0.0	35
Total Nonachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	0.92		0.95		0.935	0.0	3
Total Nonachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	< 0.2061		< 0.1815		NC	NC	NC
Total Nonachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	< 1.182		< 1.4375		NC	NC	NC
Total Nonachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	< 0.4749		< 0.4605		NC	NC	NC
Total Nonachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	< 0.4107		< 0.2914		NC	NC	NC
Total Nonachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	< 0.5164		< 0.5979		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Nonachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	< 0.7523		< 0.7178		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Total Nonachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	< 0.6784		< 0.6898		NC	NC	NC
Total Octachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	2.607		1.4795		2.043768	0.8	55
Total Octachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	0.211	(J)	0.3524	(J)	0.282099	0.1	50
Total Octachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	0.234	(J)	0.0165	(J)	0.125332	0.2	174
Total Octachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	0.815		0.8126		0.81417	0.0	0
Total Octachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	0.120	(J)	0.0615	(J)	0.090821	0.0	64
Total Octachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	1.257		0.3397	(J)	0.7987215	0.6	115
Total Octachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	< 0.8482		1.0089		NC	NC	NC
Total Octachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	0.016	(J)	0.3711	(J)	0.193943	0.3	183
Total Octachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	< 0.4556		< 0.6229		NC	NC	NC
Total Octachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	< 0.8909		0.2838	(J)	NC	NC	NC
Total Octachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	0.613	(J)	0.0534	(J)	0.333692	0.4	168
Total Octachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	< 1.2758		< 1.1726		NC	NC	NC
Total Octachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	< 2.1264		< 1.9688		NC	NC	NC
Total Octachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	< 3.0435		0.4	(J)	NC	NC	NC
Total Octachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	0.44	(J)	< 4.5565		NC	NC	NC
Total Octachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	< 1.5349		< 2.5354		NC	NC	NC
Total Octachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	5.21		3.12		4.165	1.5	50
Total Octachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	8.05		7.28		7.665	0.5	10
Total Octachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	0.32		0.06	(J)	0.19	0.2	137
Total Octachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	< 1.772		0.1428	(J)	NC	NC	NC
Total Octachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	0.300	(J)	0.4034	(J)	0.35201	0.1	29
Total Octachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	< 0.6157		0.34	(J)	NC	NC	NC
Total Octachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	< 0.7741		< 0.8964		NC	NC	NC
Total Octachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	< 1.1278		< 1.0761		NC	NC	NC
Total Octachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	< 1.0170		< 1.0342		NC	NC	NC
Total PCBs	9303-AA-01-01	9303-AA-01-01	289.8		276.18		283.00633	9.6	5
Total PCBs	9303-AC-01-01	9303-AC-01-01	147.1		201.38		174.24501	38.4	31
Total PCBs	9303-AC-01-02	9303-AC-01-02	191.0		15.803		103.40704	123.9	169
Total PCBs	9303-AD-01-01	9303-AD-01-01	175.8		164.35		170.07655	8.1	7

Compiled: 27 September 1993

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TABLE 83 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Total PCBs	9303-ADT-01-01	9303-ADT-01-01	59.23	104.11	81.674467	31.7	55
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.							
Type = Laboratory Replicate (ng/g), cont.							
Total PCBs	9303-AE-01-01	9303-AE-01-01	198.7	244.56	221.65689	32.4	21
Total PCBs	9303-AE-01-02	9303-AE-01-02	170.0	311.28	240.65062	99.9	59
Total PCBs	9303-AF-01-01	9303-AF-01-01	115.5	159.79	137.65975	31.3	32
Total PCBs	9303-AG-01-01	9303-AG-01-01	43.82	59.957	51.892700	11.4	31
Total PCBs	9303-ALH-01-01	9303-ALH-01-01	9.160	23.391	16.276074	10.1	87
Total PCBs	9303-ALH-02-01	9303-ALH-02-01	36.99	51.652	44.325742	10.4	33
Total PCBs	9303-ALH-03-01	9303-ALH-03-01	10.14	98.653	54.397221	62.6	163
Total PCBs	9303-ALS-01-01	9303-ALS-01-01	58.78	4.6224	31.701433	38.3	171
Total PCBs	9303-BA-01-01	9303-BA-01-01	422.1	290.28	356.19968	93.2	37
Total PCBs	9303-BDT-01-01	9303-BDT-01-01	42.30	33.056	37.680634	6.5	25
Total PCBs	9303-BE-01-01	9303-BE-01-01	31.97	2.9409	17.458332	20.5	166
Total PCBs	9303-FDT-02-01	9303-FDT-02-01	124.8	99.161	111.99568	18.2	23
Total PCBs	9303-FDT-03-01	9303-FDT-03-01	201.2	175.20	188.23557	18.4	14
Total PCBs	9303-FG-01-01	9303-FG-01-01	177.9	168.23	173.07486	6.8	6
Total PCBs	9303-FLH-01-01	9303-FLH-01-01	16.66	6.1137	11.389993	7.5	93
Total PCBs	9303-FLH-03-01	9303-FLH-03-01	27.93	20.790	24.361445	5.1	29
Total PCBs	9303-FLH-03-02	9303-FLH-03-02	14.23	148.45	81.345122	94.9	165
Total PCBs	9303-GLS-01-01	9303-GLS-01-01	17.12	27.98	22.553614	7.7	48
Total PCBs	9303-IDT-01-01	9303-IDT-01-01	33.94	32.869	33.405635	0.8	3
Total PCBs	9303-NLS-01-01	9303-NLS-01-01	8.082	10.668	9.3753015	1.8	28
Total Pentachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	135.6	120.73	128.17970	10.5	12
Total Pentachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	60.65	76.188	68.423595	11.0	23
Total Pentachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	83.39	5.7507	44.574999	54.9	174
Total Pentachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	81.02	62.338	71.682096	13.2	26
Total Pentachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	10.34	12.594	11.471792	1.6	20
Total Pentachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	83.95	88.011	85.985731	2.9	5
Total Pentachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	72.98	127.74	100.36480	38.7	55
Total Pentachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	44.95	61.220	53.08909	11.5	31
Total Pentachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	17.08	20.004	18.546349	2.1	16
Total Pentachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-D1	0.717	0.8776	0.797355	0.1	20

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Pentachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	2.150	3.9440		3.0471145	1.3	59
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.								
Type = Laboratory Replicate (ng/g), cont.								
Total Pentachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	0.899	5.5883		3.2438615	3.3	145
Total Pentachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	2.292	0.4670	(J)	1.379853	1.3	132
Total Pentachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	177.9	120.8		149.37	40.4	38
Total Pentachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	9.1	4.73		6.915	3.1	63
Total Pentachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	12.95	< 1.4651		NC	NC	NC
Total Pentachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	25.42	20.36		22.89	3.6	22
Total Pentachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	69.72	54.61		62.165	10.7	24
Total Pentachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	72.94	74.56		73.75	1.1	2
Total Pentachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	4.666	0.9857	(J)	2.8262575	2.6	130
Total Pentachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	8.667	6.2559		7.4616955	1.7	32
Total Pentachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	4.43	63.3		33.865	41.6	174
Total Pentachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	1.73	0.08	(J)	0.905	1.2	182
Total Pentachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	17.12	14.79		15.955	1.6	15
Total Pentachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	1.71	1.13		1.42	0.4	41
Total Tetrachlorobiphenyls	9303-AA-01-01	9303-AA-01-01	57.63	38.398		48.015607	13.6	40
Total Tetrachlorobiphenyls	9303-AC-01-01	9303-AC-01-01	30.01	39.427		34.719976	6.7	27
Total Tetrachlorobiphenyls	9303-AC-01-02	9303-AC-01-02	43.25	2.8259		23.039985	28.6	175
Total Tetrachlorobiphenyls	9303-AD-01-01	9303-AD-01-01	39.69	30.476		35.084912	6.5	26
Total Tetrachlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	8.077	9.6725		8.875089	1.1	18
Total Tetrachlorobiphenyls	9303-AE-01-01	9303-AE-01-01	27.59	35.236		31.416404	5.4	24
Total Tetrachlorobiphenyls	9303-AE-01-02	9303-AE-01-02	26.89	54.275		40.585587	19.4	67
Total Tetrachlorobiphenyls	9303-AF-01-01	9303-AF-01-01	33.34	50.021		41.680647	11.8	40
Total Tetrachlorobiphenyls	9303-AG-01-01	9303-AG-01-01	8.226	14.169		11.198078	4.2	53
Total Tetrachlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	1.523	2.3916		1.9575445	0.6	44
Total Tetrachlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	5.145	9.3577		7.2516255	3.0	58
Total Tetrachlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	0.626	15.478		8.052376	10.5	184
Total Tetrachlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	3.079	2.0999		2.589524	0.7	38
Total Tetrachlorobiphenyls	9303-BA-01-01	9303-BA-01-01	34.87	20.54		27.705	10.1	52
Total Tetrachlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	13.44	5.28		9.36	5.8	87
Total Tetrachlorobiphenyls	9303-BE-01-01	9303-BE-01-01	5.09	< 0.6896		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIDTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Tetrachlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	13.36		10.11		11.735	2.3	28

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

Total Tetrachlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	12.88		10.45		11.665	1.7	21
Total Tetrachlorobiphenyls	9303-FG-01-01	9303-FG-01-01	29.49		27.38		28.435	1.5	7
Total Tetrachlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	3.670		1.1165		2.393338	1.8	107
Total Tetrachlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	3.599		2.7895		3.1943555	0.6	25
Total Tetrachlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	2.15		23.2		12.675	14.9	166
Total Tetrachlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	3.52		8.95		6.235	3.8	87
Total Tetrachlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	5.38		4.89		5.135	0.3	10
Total Tetrachlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	2.46		1.43		1.945	0.7	53
Total Trichlorobiphenyls	9303-AA-01-01	9303-AA-01-01	5.226		5.3960		5.311417	0.1	3
Total Trichlorobiphenyls	9303-AC-01-01	9303-AC-01-01	4.227		6.4505		5.338888	1.6	42
Total Trichlorobiphenyls	9303-AC-01-02	9303-AC-01-02	6.808		0.5852		3.6969235	4.4	168
Total Trichlorobiphenyls	9303-AD-01-01	9303-AD-01-01	4.829		3.9163		4.372796	0.6	21
Total Trichlorobiphenyls	9303-ADT-01-01	9303-ADT-01-01	11.42		46.469		28.946090	24.8	121
Total Trichlorobiphenyls	9303-AE-01-01	9303-AE-01-01	9.575		12.502		11.038884	2.1	27
Total Trichlorobiphenyls	9303-AE-01-02	9303-AE-01-02	9.130		5.2608		7.195916	2.7	54
Total Trichlorobiphenyls	9303-AF-01-01	9303-AF-01-01	11.02		2.8565		6.9394885	5.8	118
Total Trichlorobiphenyls	9303-AG-01-01	9303-AG-01-01	3.510		5.7285		4.6195655	1.6	48
Total Trichlorobiphenyls	9303-ALH-01-01	9303-ALH-01-01	1.166		6.4892		3.8281065	3.8	139
Total Trichlorobiphenyls	9303-ALH-02-01	9303-ALH-02-01	9.552		12.353		10.952961	2.0	26
Total Trichlorobiphenyls	9303-ALH-03-01	9303-ALH-03-01	2.665		25.648		14.157061	16.3	162
Total Trichlorobiphenyls	9303-ALS-01-01	9303-ALS-01-01	21.05		0.9310	(J)	10.991258	14.2	183
Total Trichlorobiphenyls	9303-BA-01-01	9303-BA-01-01	2.56		2.09		2.325	0.3	20
Total Trichlorobiphenyls	9303-BDT-01-01	9303-BDT-01-01	3.86		3.13		3.495	0.5	21
Total Trichlorobiphenyls	9303-BE-01-01	9303-BE-01-01	0.37	(J)	< 1.4938		NC	NC	NC
Total Trichlorobiphenyls	9303-FDT-02-01	9303-FDT-02-01	23.18		23.77		23.475	0.4	3
Total Trichlorobiphenyls	9303-FDT-03-01	9303-FDT-03-01	8.47		6.88		7.675	1.1	21
Total Trichlorobiphenyls	9303-FG-01-01	9303-FG-01-01	5.26		1.16		3.21	2.9	128
Total Trichlorobiphenyls	9303-FLH-01-01	9303-FLH-01-01	2.242		0.2492	(J)	1.245978	1.4	160
Total Trichlorobiphenyls	9303-FLH-03-01	9303-FLH-03-01	1.622		1.1908		1.406729	0.3	31
Total Trichlorobiphenyls	9303-FLH-03-02	9303-FLH-03-02	0.92		5.67		3.295	3.4	144

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Total Trichlorobiphenyls	9303-GLS-01-01	9303-GLS-01-01	0.97		14.46		7.715	9.5	175
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
Total Trichlorobiphenyls	9303-IDT-01-01	9303-IDT-01-01	0.1	(J)	0.66		0.38	0.4	147
Total Trichlorobiphenyls	9303-NLS-01-01	9303-NLS-01-01	0.52	(J)	0.37	(J)	0.445	0.1	34
Toxaphene	9303-AA-01-01	9303-AA-01-01	< 1.0928		< 1.1659		NC	NC	NC
Toxaphene	9303-AC-01-01	9303-AC-01-01	< 0.8437		< 0.7897		NC	NC	NC
Toxaphene	9303-AC-01-02	9303-AC-01-02	< 0.9001		< 0.9615		NC	NC	NC
Toxaphene	9303-AD-01-01	9303-AD-01-01	< 0.9431		< 0.8736		NC	NC	NC
Toxaphene	9303-ADT-01-01	9303-ADT-01-01	< 2.0284		< 2.3883		NC	NC	NC
Toxaphene	9303-AE-01-01	9303-AE-01-01	< 1.5187		< 1.6272		NC	NC	NC
Toxaphene	9303-AE-01-02	9303-AE-01-02	< 1.5753		< 1.7949		NC	NC	NC
Toxaphene	9303-AF-01-01	9303-AF-01-01	< 0.9001		< 1.1390		NC	NC	NC
Toxaphene	9303-AG-01-01	9303-AG-01-01	< 0.8461		< 1.1568		NC	NC	NC
Toxaphene	9303-ALH-01-01	9303-ALH-01-01	< 1.6545		< 1.7421		NC	NC	NC
Toxaphene	9303-ALH-02-01	9303-ALH-02-01	< 1.4446		< 1.3969		NC	NC	NC
Toxaphene	9303-ALH-03-01	9303-ALH-03-01	< 2.3692		< 2.1776		NC	NC	NC
Toxaphene	9303-ALS-01-01	9303-ALS-01-01	< 3.9488		< 3.6562		NC	NC	NC
Toxaphene	9303-BA-01-01	9303-BA-01-01	< 5.6519		< 6.0317		NC	NC	NC
Toxaphene	9303-BDT-01-01	9303-BDT-01-01	< 11.390		< 8.4617		NC	NC	NC
Toxaphene	9303-BE-01-01	9303-BE-01-01	< 2.8504		< 4.7084		NC	NC	NC
Toxaphene	9303-FDT-02-01	9303-FDT-02-01	< 0.8584		< 0.6792		NC	NC	NC
Toxaphene	9303-FDT-03-01	9303-FDT-03-01	< 0.7982		< 0.5002		NC	NC	NC
Toxaphene	9303-FG-01-01	9303-FG-01-01	< 0.5739		< 0.5053		NC	NC	NC
Toxaphene	9303-FLH-01-01	9303-FLH-01-01	< 3.2906		< 4.0021		NC	NC	NC
Toxaphene	9303-FLH-03-01	9303-FLH-03-01	< 1.3221		< 1.2820		NC	NC	NC
Toxaphene	9303-FLH-03-02	9303-FLH-03-02	< 1.1434		< 0.8113		NC	NC	NC
Toxaphene	9303-GLS-01-01	9303-GLS-01-01	< 1.4376		< 1.6647		NC	NC	NC
Toxaphene	9303-IDT-01-01	9303-IDT-01-01	< 2.0944		< 1.9983		NC	NC	NC
Toxaphene	9303-NLS-01-01	9303-NLS-01-01	< 1.8887		< 1.9206		NC	NC	NC
alpha-BHC	9303-AA-01-01	9303-AA-01-01	0.562		< 0.3699		NC	NC	NC
alpha-BHC	9303-AC-01-01	9303-AC-01-01	< 0.2676		0.4957		NC	NC	NC
alpha-BHC	9303-AC-01-02	9303-AC-01-02	0.524		0.0319	(J)	0.2781195	0.3	177

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Ouplicate Value		Mean Value	Standard Deviation	RPD (%)
alpha-BHC	9303-AD-01-01	9303-AD-01-01	0.299		0.2288	(J)	0.2642785	0.1	27

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

alpha-BHC	9303-ADT-01-01	9303-ADT-01-01	< 0.6435		< 0.7577		NC	NC	NC
alpha-BHC	9303-AE-01-01	9303-AE-01-01	< 0.4818		< 0.5162		NC	NC	NC
alpha-BHC	9303-AE-01-02	9303-AE-01-02	< 0.4997		0.5278	(J)	NC	NC	NC
alpha-BHC	9303-AF-01-01	9303-AF-01-01	0.175	(J)	0.2429	(J)	0.2090525	0.0	32
alpha-BHC	9303-AG-01-01	9303-AG-01-01	0.191	(J)	0.7384		0.464951	0.4	118
alpha-BHC	9303-ALH-01-01	9303-ALH-01-01	< 0.5249		< 0.5527		NC	NC	NC
alpha-BHC	9303-ALH-02-01	9303-ALH-02-01	< 0.4583		< 0.4432		NC	NC	NC
alpha-BHC	9303-ALH-03-01	9303-ALH-03-01	< 0.7516		< 0.6908		NC	NC	NC
alpha-BHC	9303-ALS-01-01	9303-ALS-01-01	< 1.2528		< 1.16		NC	NC	NC
alpha-BHC	9303-BA-01-01	9303-BA-01-01	< 1.7931		< 1.9136		NC	NC	NC
alpha-BHC	9303-BDT-01-01	9303-BDT-01-01	< 3.6138		< 2.6845		NC	NC	NC
alpha-BHC	9303-BE-01-01	9303-BE-01-01	< 0.9043		< 1.4938		NC	NC	NC
alpha-BHC	9303-FDT-D2-01	9303-FDT-02-01	< 0.2723		< 0.2155		NC	NC	NC
alpha-BHC	9303-FDT-03-01	9303-FDT-03-01	< 0.2532		< 0.1587		NC	NC	NC
alpha-BHC	9303-FG-01-01	9303-FG-01-01	0.336		0.2938		0.315233	0.0	14
alpha-BHC	9303-FLH-01-01	9303-FLH-01-01	< 1.044		< 1.2697		NC	NC	NC
alpha-BHC	9303-FLH-03-01	9303-FLH-03-01	< 0.4194		< 0.4067		NC	NC	NC
alpha-BHC	9303-FLH-03-02	9303-FLH-03-02	< 0.3627		0.5602		NC	NC	NC
alpha-BHC	9303-GLS-01-01	9303-GLS-01-01	< 0.4561		< 0.5281		NC	NC	NC
alpha-BHC	9303-IDT-01-01	9303-IDT-01-01	0.314	(J)	0.3358	(J)	0.3252325	0.0	7
alpha-BHC	9303-NLS-01-01	9303-NLS-01-01	0.679		< 0.6093		NC	NC	NC
alpha-Chlordane	9303-AA-01-01	9303-AA-01-01	1.175		1.3474		1.2612895	0.1	14
alpha-Chlordane	9303-AC-01-01	9303-AC-01-01	0.679		0.4547		0.5673115	0.2	40
alpha-Chlordane	9303-AC-01-02	9303-AC-01-02	0.539		0.0490	(J)	0.2944095	0.3	167
alpha-Chlordane	9303-AD-01-01	9303-AD-01-01	0.508		0.4190		0.4636035	0.1	19
alpha-Chlordane	9303-ADT-01-01	9303-ADT-01-01	1.853		1.8794		1.866304	0.0	1
alpha-Chlordane	9303-AE-01-01	9303-AE-01-01	1.046		1.2577		1.1521525	0.1	18
alpha-Chlordane	9303-AE-01-02	9303-AE-01-02	1.058		1.7123		1.3853845	0.5	47
alpha-Chlordane	9303-AF-01-01	9303-AF-01-01	19.13		25.955		22.544586	4.8	30
alpha-Chlordane	9303-AG-01-01	9303-AG-01-01	0.352	(J)	0.3585	(J)	0.3554925	0.0	2

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
alpha-Chlordane	9303-ALH-01-01	9303-ALH-01-01	0.066	(J)	0.1519	(J)	0.109417	0.1	78

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

alpha-Chlordane	9303-ALH-02-01	9303-ALH-02-01	0.132	(J)	0.4588	(J)	0.295706	0.2	110
alpha-Chlordane	9303-ALH-03-01	9303-ALH-03-01	0.122	(J)	0.8449	(J)	0.483744	0.5	149
alpha-Chlordane	9303-ALS-01-01	9303-ALS-01-01	0.965	(J)	0.1457	(J)	0.5555545	0.6	148
alpha-Chlordane	9303-BA-01-01	9303-BA-01-01	< 2.5832		< 2.7568		NC	NC	NC
alpha-Chlordane	9303-BDT-01-01	9303-BDT-01-01	2.492	(J)	1.6313	(J)	2.061913	0.6	42
alpha-Chlordane	9303-BE-01-01	9303-BE-01-01	< 1.3027		< 2.1519		NC	NC	NC
alpha-Chlordane	9303-FDT-02-01	9303-FDT-02-01	13.65		11.833		12.743470	1.3	14
alpha-Chlordane	9303-FDT-03-01	9303-FDT-03-01	9.376		7.3522		8.364519	1.4	24
alpha-Chlordane	9303-FG-01-01	9303-FG-01-01	0.655		0.8297		0.7427015	0.1	23
alpha-Chlordane	9303-FLH-01-01	9303-FLH-01-01	0.454	(J)	0.0951	(J)	0.274603	0.3	131
alpha-Chlordane	9303-FLH-03-01	9303-FLH-03-01	0.661		0.9096		0.7855705	0.2	32
alpha-Chlordane	9303-FLH-03-02	9303-FLH-03-02	0.491	(J)	4.3687		2.430278	2.7	160
alpha-Chlordane	9303-GLS-01-01	9303-GLS-01-01	< 0.6570		< 0.7608		NC	NC	NC
alpha-Chlordane	9303-IDT-01-01	9303-IDT-01-01	3.253		1.6723		2.4628805	1.1	64
alpha-Chlordane	9303-NLS-01-01	9303-NLS-01-01	< 0.8632		< 0.8778		NC	NC	NC
beta-BHC	9303-AA-01-01	9303-AA-01-01	< 0.9026		< 0.9630		NC	NC	NC
beta-BHC	9303-AC-01-01	9303-AC-01-01	< 0.6969		0.4248	(J)	NC	NC	NC
beta-BHC	9303-AC-01-02	9303-AC-01-02	0.751		0.0237	(J)	0.3874925	0.5	188
beta-BHC	9303-AD-01-01	9303-AD-01-01	< 0.7790		< 0.7215		NC	NC	NC
beta-BHC	9303-ADT-01-01	9303-ADT-01-01	< 1.6754		< 1.9727		NC	NC	NC
beta-BHC	9303-AE-01-01	9303-AE-01-01	< 1.2544		< 1.3440		NC	NC	NC
beta-BHC	9303-AE-01-02	9303-AE-01-02	< 1.3011		< 1.4825		NC	NC	NC
beta-BHC	9303-AF-01-01	9303-AF-01-01	< 0.7435		< 0.9408		NC	NC	NC
beta-BHC	9303-AG-01-01	9303-AG-01-01	< 0.6989		< 0.9555		NC	NC	NC
beta-BHC	9303-ALH-01-01	9303-ALH-01-01	< 1.3665		< 1.4389		NC	NC	NC
beta-BHC	9303-ALH-02-01	9303-ALH-02-01	< 1.1932		< 1.1538		NC	NC	NC
beta-BHC	9303-ALH-03-01	9303-ALH-03-01	< 1.9569		< 1.7986		NC	NC	NC
beta-BHC	9303-ALS-01-01	9303-ALS-01-01	< 3.2616		< 3.02		NC	NC	NC
beta-BHC	9303-BA-01-01	9303-BA-01-01	< 4.6683		< 4.9820		NC	NC	NC
beta-BHC	9303-BDT-01-01	9303-BDT-01-01	0.750	(J)	1.5479	(J)	1.149152	0.6	69

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
beta-BHC	9303-BE-01-01	9303-BE-01-01	< 2.3543		< 3.8890		NC	NC	NC
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
beta-BHC	9303-FDT-02-01	9303-FDT-02-01	0.280	(J)	0.2557	(J)	0.268061	0.0	9
beta-BHC	9303-FDT-03-01	9303-FDT-03-01	0.424	(J)	0.7468		0.5857465	0.2	55
beta-BHC	9303-FG-01-01	9303-FG-01-01	0.120	(J)	0.1494	(J)	0.134805	0.0	22
beta-BHC	9303-FLH-01-01	9303-FLH-01-01	< 2.718		< 3.3056		NC	NC	NC
beta-BHC	9303-FLH-03-01	9303-FLH-03-01	< 1.0920		< 1.0589		NC	NC	NC
beta-BHC	9303-FLH-03-02	9303-FLH-03-02	< 0.9444		< 0.6701		NC	NC	NC
beta-BHC	9303-GLS-01-01	9303-GLS-01-01	< 1.1874		2.4007		NC	NC	NC
beta-BHC	9303-IDT-01-01	9303-IDT-01-01	< 1.7299		< 1.6506		NC	NC	NC
beta-BHC	9303-NLS-01-01	9303-NLS-01-01	< 1.5600		< 1.5863		NC	NC	NC
cis-Nonachlor	9303-AA-01-01	9303-AA-01-01	1.008		0.9787		0.993554	0.0	3
cis-Nonachlor	9303-AC-01-01	9303-AC-01-01	< 0.1112		0.3822		NC	NC	NC
cis-Nonachlor	9303-AC-01-02	9303-AC-01-02	0.433		0.0286	(J)	0.231163	0.3	175
cis-Nonachlor	9303-AD-01-01	9303-AD-01-01	0.314		0.2447		0.2795905	0.0	25
cis-Nonachlor	9303-ADT-01-01	9303-ADT-01-01	0.840		0.2504	(J)	0.545253	0.4	108
cis-Nonachlor	9303-AE-01-01	9303-AE-01-01	0.401		0.2525		0.3268725	0.1	45
cis-Nonachlor	9303-AE-01-02	9303-AE-01-02	0.443		0.2516		0.347702	0.1	55
cis-Nonachlor	9303-AF-01-01	9303-AF-01-01	1.877		2.6127		2.2450975	0.5	33
cis-Nonachlor	9303-AG-01-01	9303-AG-01-01	< 0.1116		< 0.1525		NC	NC	NC
cis-Nonachlor	9303-ALH-01-01	9303-ALH-01-01	< 0.2182		0.1209	(J)	NC	NC	NC
cis-Nonachlor	9303-ALH-02-01	9303-ALH-02-01	0.145	(J)	< 0.1842		NC	NC	NC
cis-Nonachlor	9303-ALH-03-01	9303-ALH-03-01	< 0.3124		< 0.2872		NC	NC	NC
cis-Nonachlor	9303-ALS-01-01	9303-ALS-01-01	< 0.5208		< 0.4822		NC	NC	NC
cis-Nonachlor	9303-BA-01-01	9303-BA-01-01	2.491		1.7707		2.1309675	0.5	34
cis-Nonachlor	9303-BDT-01-01	9303-BDT-01-01	2.614		1.4694		2.0420325	0.8	56
cis-Nonachlor	9303-BE-01-01	9303-BE-01-01	< 0.3759		< 0.6209		NC	NC	NC
cis-Nonachlor	9303-FDT-02-01	9303-FDT-02-01	20.20		17.851		19.026839	1.7	12
cis-Nonachlor	9303-FDT-03-01	9303-FDT-03-01	6.769		4.4130		5.591323	1.7	42
cis-Nonachlor	9303-FG-01-01	9303-FG-01-01	0.609		0.7180		0.663686	0.1	16
cis-Nonachlor	9303-FLH-01-01	9303-FLH-01-01	0.761		0.1265	(J)	0.443901	0.4	143
cis-Nonachlor	9303-FLH-03-01	9303-FLH-03-01	1.019		1.8254		1.4226235	0.6	57

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
cis-Nonachlor	9303-FLH-03-D2	9303-FLH-03-02	0.709		3.0683		1.8890375	1.7	125
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
cis-Nonachlor	93D3-GLS-01-01	9303-GLS-01-01	< 0.1896		< 0.2195		NC	NC	NC
cis-Nonachlor	9303-IDT-01-01	9303-IDT-01-01	0.778		0.8373		0.8081435	0.0	7
cis-Nonachlor	9303-NLS-01-01	9303-NLS-01-01	0.141	(J)	0.1211	(J)	0.131181	0.0	15
delta-BHC	9303-AA-01-01	9303-AA-01-01	< 0.3712		< 0.3961		NC	NC	NC
delta-BHC	9303-AC-01-01	9303-AC-01-01	1.540		1.2828		1.41167	0.2	18
delta-BHC	9303-AC-01-02	9303-AC-01-02	1.118		< 0.3266		NC	NC	NC
delta-BHC	9303-AD-01-01	9303-AD-01-01	1.296		0.7943		1.045425	0.4	48
delta-BHC	93D3-ADT-01-01	9303-ADT-01-01	0.102	(J)	0.3933	(J)	0.2480265	0.2	117
delta-BHC	9303-AE-01-01	9303-AE-01-01	0.223	(J)	< 0.5528		NC	NC	NC
delta-BHC	9303-AE-01-02	9303-AE-01-02	0.984		0.3752	(J)	0.680017	0.4	90
delta-BHC	9303-AF-01-01	9303-AF-01-01	< 0.3058		1.1903		NC	NC	NC
delta-BHC	9303-AG-01-01	9303-AG-01-01	0.922		0.2782	(J)	0.600333	0.5	107
delta-BHC	9303-ALH-01-01	9303-ALH-01-01	< 0.5621		0.7328		NC	NC	NC
delta-BHC	9303-ALH-02-01	9303-ALH-02-01	< 0.4908		0.5910		NC	NC	NC
delta-BHC	9303-ALH-03-01	9303-ALH-03-01	< 0.8049		< 0.7398		NC	NC	NC
delta-BHC	93D3-ALS-01-01	9303-ALS-01-01	< 1.3416		0.6668	(J)	NC	NC	NC
delta-BHC	9303-BA-01-01	9303-BA-01-01	< 1.9202		< 2.0492		NC	NC	NC
delta-BHC	9303-BDT-01-01	9303-BDT-01-01	< 3.87		< 2.8748		NC	NC	NC
delta-BHC	9303-BE-01-01	9303-BE-01-01	< 0.9684		< 1.5996		NC	NC	NC
delta-BHC	9303-FDT-D2-01	9303-FDT-02-01	0.194	(J)	0.0593	(J)	0.1270945	0.1	107
delta-BHC	9303-FDT-03-01	9303-FDT-03-01	0.407		0.0639	(J)	0.2355595	0.2	146
delta-BHC	9303-FG-01-01	9303-FG-01-01	< 0.195		< 0.1717		NC	NC	NC
delta-BHC	9303-FLH-01-01	9303-FLH-01-01	< 1.118		0.0254	(J)	NC	NC	NC
delta-BHC	9303-FLH-03-01	9303-FLH-03-01	0.149	(J)	< 0.4355		NC	NC	NC
delta-BHC	9303-FLH-03-02	9303-FLH-03-02	< 0.3884		< 0.2756		NC	NC	NC
delta-BHC	9303-GLS-01-01	9303-GLS-01-01	< 0.4884		< 0.5655		NC	NC	NC
delta-BHC	9303-IDT-01-01	9303-IDT-01-01	< 0.7115		0.0850	(J)	NC	NC	NC
delta-BHC	9303-NLS-01-01	9303-NLS-01-01	< 0.6417		0.5758	(J)	NC	NC	NC
gamma-BHC	9303-AA-01-01	9303-AA-01-01	1.579		< 0.2345		NC	NC	NC
gamma-BHC	9303-AC-01-01	9303-AC-01-01	1.314		2.3305		1.8224605	0.7	56

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
gamma-BHC	9303-AC-01-02	9303-AC-01-02	2.517		0.1584	(J)	1.3382045	1.7	176
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
gamma-BHC	9303-AD-01-01	9303-AD-01-01	1.437		1.1588		1.298236	0.2	21
gamma-BHC	9303-ADT-01-01	9303-ADT-01-01	0.596		1.0781		0.8371465	0.3	58
gamma-BHC	9303-AE-01-01	9303-AE-01-01	1.477		1.9028		1.690143	0.3	25
gamma-BHC	9303-AE-01-02	9303-AE-01-02	1.159		2.1476		1.653793	0.7	60
gamma-BHC	9303-AF-01-01	9303-AF-01-01	0.984		< 0.2291		NC	NC	NC
gamma-BHC	9303-AG-01-01	9303-AG-01-01	1.459		1.6154		1.537414	0.1	10
gamma-BHC	9303-ALH-01-01	9303-ALH-01-01	0.850		0.9297		0.890291	0.1	9
gamma-BHC	9303-ALH-02-01	9303-ALH-02-01	2.041		< 0.2810		NC	NC	NC
gamma-BHC	9303-ALH-03-01	9303-ALH-03-01	0.981		2.2439		1.612923	0.9	78
gamma-BHC	9303-ALS-01-01	9303-ALS-01-01	4.572		< 0.7355		NC	NC	NC
gamma-BHC	9303-BA-01-01	9303-BA-01-01	< 1.1370		< 1.2134		NC	NC	NC
gamma-BHC	9303-BDT-01-01	9303-BDT-01-01	< 2.2915		< 1.7022		NC	NC	NC
gamma-BHC	9303-BE-01-01	9303-BE-01-01	< 0.5734		< 0.9472		NC	NC	NC
gamma-BHC	9303-FDT-02-01	9303-FDT-02-01	0.386		0.4658		0.4263785	0.1	19
gamma-BHC	9303-FDT-03-01	9303-FDT-03-01	1.602		1.2107		1.406804	0.3	28
gamma-BHC	9303-FG-01-01	9303-FG-01-01	0.984		0.8409		0.9128625	0.1	16
gamma-BHC	9303-FLH-01-01	9303-FLH-01-01	< 0.662		0.2586	(J)	NC	NC	NC
gamma-BHC	9303-FLH-03-01	9303-FLH-03-01	0.904		0.8773		0.890743	0.0	3
gamma-BHC	9303-FLH-03-02	9303-FLH-03-02	0.572		0.6143		0.5932815	0.0	7
gamma-BHC	9303-GLS-01-01	9303-GLS-01-01	0.992		< 0.3349		NC	NC	NC
gamma-BHC	9303-IDT-01-01	9303-IDT-01-01	0.373	(J)	< 0.4020		NC	NC	NC
gamma-BHC	9303-NLS-01-01	9303-NLS-01-01	0.171	(J)	< 0.3863		NC	NC	NC
gamma-Chlordane	9303-AA-01-01	9303-AA-01-01	1.939		1.7100		1.8248835	0.2	13
gamma-Chlordane	9303-AC-01-01	9303-AC-01-01	0.916		0.7357		0.8259965	0.1	22
gamma-Chlordane	9303-AC-01-02	9303-AC-01-02	0.697		0.0576	(J)	0.3777755	0.5	169
gamma-Chlordane	9303-AD-01-01	9303-AD-01-01	0.365		< 0.1900		NC	NC	NC
gamma-Chlordane	9303-ADT-01-01	9303-ADT-01-01	2.455		2.5206		2.488245	0.0	3
gamma-Chlordane	9303-AE-01-01	9303-AE-01-01	0.735		0.8442		0.7900625	0.1	14
gamma-Chlordane	9303-AE-01-02	9303-AE-01-02	0.653		0.9682		0.8109955	0.2	39
gamma-Chlordane	9303-AF-01-01	9303-AF-01-01	15.69		16.531		16.114197	0.6	5

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
gamma-Chlordane	9303-AG-01-01	9303-AG-01-01	0.035	(J)	< 0.2517		NC	NC	NC

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Laboratory Replicate (ng/g), cont.

gamma-Chlordane	9303-ALH-01-01	9303-ALH-01-01	< 0.36		< 0.3790		NC	NC	NC
gamma-Chlordane	9303-ALH-02-01	9303-ALH-02-01	0.407		0.3240		0.366007	0.1	23
gamma-Chlordane	9303-ALH-03-01	9303-ALH-03-01	0.033	(J)	0.9103		0.471828	0.6	186
gamma-Chlordane	9303-ALS-01-01	9303-ALS-01-01	1.733		< 0.7955		NC	NC	NC
gamma-Chlordane	9303-BA-01-01	9303-BA-01-01	< 1.2297		< 1.3124		NC	NC	NC
gamma-Chlordane	9303-BDT-01-01	9303-BDT-01-01	< 2.4784		< 1.8411		NC	NC	NC
gamma-Chlordane	9303-BE-01-01	9303-BE-01-01	< 0.6202		< 1.0244		NC	NC	NC
gamma-Chlordane	9303-FDT-02-01	9303-FDT-02-01	4.888		4.6512		4.77004	0.2	5
gamma-Chlordane	9303-FDT-03-01	9303-FDT-03-01	3.055		2.7056		2.880696	0.2	12
gamma-Chlordane	9303-FG-01-01	9303-FG-01-01	0.217		0.1625		0.1902015	0.0	29
gamma-Chlordane	9303-FLH-01-01	9303-FLH-01-01	< 0.716		0.0537	(J)	NC	NC	NC
gamma-Chlordane	9303-FLH-03-01	9303-FLH-03-01	0.172	(J)	0.1976	(J)	0.184949	0.0	14
gamma-Chlordane	9303-FLH-03-02	9303-FLH-03-02	0.027	(J)	1.9379		0.9826935	1.4	194
gamma-Chlordane	9303-GLS-01-01	9303-GLS-01-01	< 0.3128		< 0.3622		NC	NC	NC
gamma-Chlordane	9303-IDT-01-01	9303-IDT-01-01	< 0.4557		< 0.4348		NC	NC	NC
gamma-Chlordane	9303-NLS-01-01	9303-NLS-01-01	< 0.4109		< 0.4178		NC	NC	NC
trans-Nonachlor	9303-AA-01-01	9303-AA-01-01	0.455	(J)	0.4882	(J)	0.471843	0.0	7
trans-Nonachlor	9303-AC-01-01	9303-AC-01-01	0.349	(J)	0.2979	(J)	0.3235485	0.0	16
trans-Nonachlor	9303-AC-01-02	9303-AC-01-02	0.290	(J)	0.0225	(J)	0.1563435	0.2	171
trans-Nonachlor	9303-AD-01-01	9303-AD-01-01	0.245	(J)	0.1855	(J)	0.215672	0.0	28
trans-Nonachlor	9303-ADT-01-01	9303-ADT-01-01	1.289	(J)	1.6469	(J)	1.4682915	0.3	24
trans-Nonachlor	9303-AE-01-01	9303-AE-01-01	0.462	(J)	0.5702	(J)	0.516579	0.1	21
trans-Nonachlor	9303-AE-01-02	9303-AE-01-02	0.463	(J)	0.6567	(J)	0.5602625	0.1	34
trans-Nonachlor	9303-AF-01-01	9303-AF-01-01	6.840		8.8975		7.8691815	1.5	26
trans-Nonachlor	9303-AG-01-01	9303-AG-01-01	0.219	(J)	0.2630	(J)	0.241167	0.0	18
trans-Nonachlor	9303-ALH-01-01	9303-ALH-01-01	< 1.8683		0.2233	(J)	NC	NC	NC
trans-Nonachlor	9303-ALH-02-01	9303-ALH-02-01	0.327	(J)	0.3994	(J)	0.3632885	0.1	20
trans-Nonachlor	9303-ALH-03-01	9303-ALH-03-01	0.157	(J)	0.4606	(J)	0.3089945	0.2	98
trans-Nonachlor	9303-ALS-01-01	9303-ALS-01-01	0.616	(J)	< 4.1288		NC	NC	NC
trans-Nonachlor	9303-BA-01-01	9303-BA-01-01	1.270	(J)	1.0795	(J)	1.174924	0.1	16

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
trans-Nonachlor	9303-BDT-01-01	9303-BDT-01-01	3.427	(J)	2.8586	(J)	3.1432295	0.4	18
Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.									
Type = Laboratory Replicate (ng/g), cont.									
trans-Nonachlor	9303-BE-01-01	9303-BE-01-01	0.110	(J)	< 5.3170		NC	NC	NC
trans-Nonachlor	9303-FDT-02-01	9303-FDT-02-01	77.27	(C)	67.607	(C)	72.440079	6.8	13
trans-Nonachlor	9303-FDT-03-01	9303-FDT-03-01	26.57		20.624		23.600728	4.2	25
trans-Nonachlor	9303-FG-01-01	9303-FG-01-01	1.561		1.6846		1.6230485	0.1	8
trans-Nonachlor	9303-FLH-01-01	9303-FLH-01-01	2.498	(J)	0.5693	(J)	1.534108	1.4	126
trans-Nonachlor	9303-FLH-03-01	9303-FLH-03-01	2.977		4.5384		3.7581505	1.1	42
trans-Nonachlor	9303-FLH-03-02	9303-FLH-03-02	1.395		7.6919		4.5436375	4.5	139
trans-Nonachlor	9303-GLS-01-01	9303-GLS-01-01	< 1.6234		< 1.8799		NC	NC	NC
trans-Nonachlor	9303-IDT-01-01	9303-IDT-01-01	1.959	(J)	2.3874		2.1736575	0.3	20
trans-Nonachlor	9303-NLS-01-01	9303-NLS-01-01	0.610	(J)	0.5299	(J)	0.57031	0.1	14
Type = Matrix Spike (%)									
2,4'-DDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	98		70		84	19.8	33
2,4'-DDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	78		76		77	1.4	3
2,4'-DDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	59		61		60	1.4	3
2,4'-DDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	71		71		71	0.0	0
2,4'-DDE	9303-AE-01-01 MS	9303-AE-01-01 MSD	73		60		66.5	9.2	20
2,4'-DDE	9303-AE-01-01 MS	9303-AE-01-01 MSD	59		65		62	4.2	10
2,4'-DDE	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	55		47		51	5.7	16
2,4'-DDE	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	60		49		54.5	7.8	20
2,4'-DDT	9303-AE-01-01 MS	9303-AE-01-01 MSD	71		75		73	2.8	5
2,4'-DDT	9303-AE-01-01 MS	9303-AE-01-01 MSD	96		72		84	17.0	29
2,4'-DDT	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	71		61		66	7.1	15
2,4'-DDT	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	59		52		55.5	4.9	13
4,4'-DDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	126	(Q)	111		118.5	10.6	13
4,4'-DDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	126	(Q)	86		106	28.3	38
4,4'-DDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	124	(Q)	476		300	248.9	117
4,4'-DDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	466	(Q)	294		380	121.6	45
4,4'-DDE	9303-AE-01-01 MS	9303-AE-01-01 MSD	104		78		91	18.4	29
4,4'-DDE	9303-AE-01-01 MS	9303-AE-01-01 MSD	90		81		85.5	6.4	11

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4,4'-DDE	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	106		256	181	106.1	83

Method = SOP-9017 - Chlorinated Pesticides and PCBs, cont.

Type = Matrix Spike (%), cont.

4,4'-DDE	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	293	(Q)	180	236.5	79.9	48
4,4'-DDT	9303-AE-01-01 MS	9303-AE-01-01 MSD	83		84	83.5	0.7	1
4,4'-DDT	9303-AE-01-01 MS	9303-AE-01-01 MSD	113		88	100.5	17.7	25
4,4'-DDT	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	87		95	91	5.7	9
4,4'-DDT	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	85		75	80	7.1	13
Aldrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	73		55	64	12.7	28
Aldrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	58		56	57	1.4	4
Aldrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	61		66	63.5	3.5	8
Aldrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	75		67	71	5.7	11
Dieldrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	86		69	77.5	12.0	22
Dieldrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	71		66	68.5	3.5	7
Dieldrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	77		71	74	4.2	8
Dieldrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	66		64	65	1.4	3
Endrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	101		78	89.5	16.3	26
Endrin	9303-AE-01-01 MS	9303-AE-01-01 MSD	75		72	73.5	2.1	4
Endrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	64		61	62.5	2.1	5
Endrin	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	77		70	73.5	4.9	10
HCB	9303-AE-01-01 MS	9303-AE-01-01 MSD	36	(Q)	45	40.5	6.4	22
HCB	9303-AE-01-01 MS	9303-AE-01-01 MSD	75		45	60	21.2	50
HCB	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	27	(Q)	20	23.5	4.9	30
HCB	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	23	(Q)	35	29	8.5	41
Heptachlor	9303-AE-01-01 MS	9303-AE-01-01 MSD	58		57	57.5	0.7	2
Heptachlor	9303-AE-01-01 MS	9303-AE-01-01 MSD	74		59	66.5	10.6	23
Heptachlor	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	65		65	65	0.0	0
Heptachlor	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	74		69	71.5	3.5	7
Heptachlor epoxide	9303-AE-01-01 MS	9303-AE-01-01 MSD	76		59	67.5	12.0	25
Heptachlor epoxide	9303-AE-01-01 MS	9303-AE-01-01 MSD	51		50	50.5	0.7	2
Heptachlor epoxide	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	56		60	58	2.8	7
Heptachlor epoxide	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	72		65	68.5	4.9	10
Mirex	9303-AE-01-01 MS	9303-AE-01-01 MSD	96		73	84.5	16.3	27

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Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Mirex	9303-AE-01-01 MS	9303-AE-01-01 MSD	71		71	71	0.0	0
Method = SDP-9017 - Chlorinated Pesticides and PCBs, cont.								
Type = Matrix Spike (%), cont.								
Mirex	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	76		55	65.5	14.8	32
Mirex	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	41		51	46	7.1	22
alpha-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	69		51	60	12.7	30
alpha-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	48		47	47.5	0.7	2
alpha-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	71		71	71	0.0	0
alpha-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	61		68	64.5	4.9	11
alpha-Chlordane	9303-AE-01-01 MS	9303-AE-01-01 MSD	57		55	56	1.4	4
alpha-Chlordane	9303-AE-01-01 MS	9303-AE-01-01 MSD	71		56	63.5	10.6	24
alpha-Chlordane	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	101		79	90	15.6	24
alpha-Chlordane	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	75		100	87.5	17.7	29
beta-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	5	(Q)	6	5.5	0.7	18
beta-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	19	(Q)	12	15.5	4.9	45
beta-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	13	(Q)	13	13	0.0	0
beta-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	27	(Q)	24	25.5	2.1	12
delta-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	69		57	63	8.5	19
delta-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	55		60	57.5	3.5	9
delta-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	54		52	53	1.4	4
delta-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	78		61	69.5	12.0	24
gamma-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	54		52	53	1.4	4
gamma-BHC	9303-AE-01-01 MS	9303-AE-01-01 MSD	68		53	60.5	10.6	25
gamma-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	67		70	68.5	2.1	4
gamma-BHC	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	77		72	74.5	3.5	7
gamma-Chlordane	9303-AE-01-01 MS	9303-AE-01-01 MSD	58		57	57.5	0.7	2
gamma-Chlordane	9303-AE-01-01 MS	9303-AE-01-01 MSD	74		60	67	9.9	21
gamma-Chlordane	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	92		76	84	11.3	19
gamma-Chlordane	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	75		90	82.5	10.6	18
trans-Nonachlor	9303-AE-01-01 MS	9303-AE-01-01 MSD	74		59	66.5	10.6	23
trans-Nonachlor	9303-AE-01-01 MS	9303-AE-01-01 MSD	58		57	57.5	0.7	2
trans-Nonachlor	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	143	(Q)	114	128.5	20.5	23
trans-Nonachlor	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	81		139	110	41.0	53

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE 83 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Method = SOP-9202 - Metals By DCP							
Type = Field Duplicate (mg/kg)							
Barium	9303-AC-01-01	9303-AC-01-02	2.095	2.2714	2.183495	0.1	8
Barium	9303-AE-01-01	9303-AE-01-02	2.293	2.4094	2.351606	0.1	5
Barium	9303-FLH-03-01	9303-FLH-03-02	5.094	6.3934	5.743923	0.9	23
Manganese	9303-AC-01-01	9303-AC-01-02	22.49	24.345	23.421526	1.3	8
Manganese	9303-AE-01-01	9303-AE-01-02	74.13	80.002	77.06662	4.2	8
Manganese	9303-FLH-03-01	9303-FLH-03-02	17.66	21.287	19.474424	2.6	19
Type = Laboratory Replicate (mg/kg)							
Barium	9303-AA-01-01	9303-AA-01-01	1.941	1.8734	1.907652	0.0	4
Barium	9303-AC-01-01	9303-AC-01-01	2.095	2.2520	2.173764	0.1	7
Barium	9303-AC-01-02	9303-AC-01-02	2.271	2.1503	2.210908	0.1	5
Barium	9303-AD-01-01	9303-AD-01-01	1.747	1.7703	1.75892	0.0	1
Barium	9303-ADT-01-01	9303-ADT-01-01	29.05	28.558	28.805532	0.3	2
Barium	9303-AE-01-01	9303-AE-01-01	2.293	2.2447	2.2692415	0.0	2
Barium	9303-AE-01-02	9303-AE-01-02	2.409	2.1444	2.276939	0.2	12
Barium	9303-AF-01-01	9303-AF-01-01	1.924	1.4768	1.7006785	0.3	26
Barium	9303-AG-01-01	9303-AG-01-01	0.971	0.8441	0.9080755	0.1	14
Barium	9303-ALH-01-01	9303-ALH-01-01	5.589	5.2672	5.428243	0.2	6
Barium	9303-ALH-02-01	9303-ALH-02-01	5.561	5.6238	5.592849	0.0	1
Barium	9303-ALH-03-01	9303-ALH-03-01	5.566	5.2620	5.414038	0.2	6
Barium	9303-ALS-01-01	9303-ALS-01-01	3.762	3.4848	3.6235975	0.2	8
Barium	9303-ALS-02-01	9303-ALS-02-01	4.602	4.8168	4.709779	0.2	5
Barium	9303-BE-01-01	9303-BE-01-01	7.131	9.5316	8.3315505	1.7	29
Barium	9303-FDT-01-01	9303-FDT-01-01	8.336	8.4258	8.381362	0.1	1
Barium	9303-FDT-01-01.1	9303-FDT-01-01.1	7.237	8.2922	7.764872	0.7	14
Barium	9303-FDT-01-01.2	9303-FDT-01-01.2	7.400	6.5950	6.9975985	0.6	12
Barium	9303-FDT-02-01	9303-FDT-02-01	7.536	5.9891	6.762663	1.1	23
Barium	9303-FDT-03-01	9303-FDT-03-01	6.306	5.4110	5.8585655	0.6	15
Barium	9303-FG-01-01	9303-FG-01-01	7.043	8.7393	7.8914765	1.2	21
Barium	9303-FLH-01-01	9303-FLH-01-01	5.183	4.9322	5.0578875	0.2	5
Barium	9303-FLH-02-01	9303-FLH-02-01	6.164	6.0272	6.095753	0.1	2

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Barium	9303-FLH-03-01	9303-FLH-03-01	5.094	5.3764	5.235405	0.2	5
Method = SOP-9202 - Metals By DCP, cont.							
Type = Laboratory Replicate (mg/kg), cont.							
Barium	9303-FLH-03-02	9303-FLH-03-02	6.393	5.1534	5.7734595	0.9	21
Barium	9303-GLS-01-01	9303-GLS-01-01	3.630	4.1150	3.8726635	0.3	13
Barium	9303-IDT-01-01	9303-IDT-01-01	0.754	0.9765	0.8656495	0.2	26
Barium	9303-NLS-01-01	9303-NLS-01-01	3.603	4.0436	3.823702	0.3	12
Manganese	9303-AA-01-01	9303-AA-01-01	139.0	145.10	142.09496	4.3	4
Manganese	9303-AC-01-01	9303-AC-01-01	22.49	25.237	23.867605	1.9	11
Manganese	9303-AC-01-02	9303-AC-01-02	24.34	23.237	23.791459	0.8	5
Manganese	9303-AD-01-01	9303-AD-01-01	114.2	108.59	111.40004	4.0	5
Manganese	9303-ADT-01-01	9303-ADT-01-01	113.6	110.32	111.97171	2.3	3
Manganese	9303-AE-01-01	9303-AE-01-01	74.13	72.112	73.121783	1.4	3
Manganese	9303-AE-01-02	9303-AE-01-02	80.00	73.232	76.617571	4.8	9
Manganese	9303-AF-01-01	9303-AF-01-01	80.89	86.510	83.703687	4.0	7
Manganese	9303-AG-01-01	9303-AG-01-01	65.79	56.153	60.97403	6.8	16
Manganese	9303-ALH-01-01	9303-ALH-01-01	39.82	38.881	39.351317	0.7	2
Manganese	9303-ALH-02-01	9303-ALH-02-01	45.89	44.428	45.163102	1.0	3
Manganese	9303-ALH-03-01	9303-ALH-03-01	33.02	31.766	32.398370	0.9	4
Manganese	9303-ALS-01-01	9303-ALS-01-01	49.13	45.871	47.501779	2.3	7
Manganese	9303-ALS-02-01	9303-ALS-02-01	89.06	99.255	94.161276	7.2	11
Manganese	9303-BE-01-01	9303-BE-01-01	30.74	37.841	34.295778	5.0	21
Manganese	9303-FDT-01-01	9303-FDT-01-01	18.55	19.034	18.796816	0.3	3
Manganese	9303-FDT-01-01.1	9303-FDT-01-01.1	18.43	17.613	18.025592	0.6	5
Manganese	9303-FDT-01-01.2	9303-FDT-01-01.2	20.13	18.022	19.079903	1.5	11
Manganese	9303-FDT-02-01	9303-FDT-02-01	58.94	51.766	55.357784	5.1	13
Manganese	9303-FDT-03-01	9303-FDT-03-01	85.17	69.051	77.111493	11.4	21
Manganese	9303-FG-01-01	9303-FG-01-01	15.59	22.561	19.079283	4.9	37
Manganese	9303-FLH-01-01	9303-FLH-01-01	18.36	19.903	19.136086	1.1	8
Manganese	9303-FLH-02-01	9303-FLH-02-01	17.10	18.633	17.871139	1.1	9
Manganese	9303-FLH-03-01	9303-FLH-03-01	17.66	20.362	19.011892	1.9	14
Manganese	9303-FLH-03-02	9303-FLH-03-02	21.28	18.844	20.065940	1.7	12
Manganese	9303-GLS-01-01	9303-GLS-01-01	136.1	154.46	145.28766	13.0	13

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Manganese	9303-IDT-01-01	9303-IDT-01-01	23.08		28.481		25.785648	3.8	21
Method = SOP-9202 - Metals By DCP, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Manganese	9303-NLS-01-01	9303-NLS-01-01	107.2		130.55		118.92111	16.5	20
Type = Matrix Spike (%)									
Barium	9303-AE-01-01 MS	9303-AE-01-01 MSD	108.5		109.9		109.2	1.0	1
Barium	9303-AE-01-01 MS	9303-AE-01-01 MSD	103.5		105.1		104.3	1.1	2
Barium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	114.8		103.9		109.35	7.7	10
Barium	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	83		85.9		84.45	2.1	3
Manganese	9303-AE-01-01 MS	9303-AE-01-01 MSD	130.2	(Q)	107.3		118.75	16.2	19
Manganese	9303-AE-01-01 MS	9303-AE-01-01 MSD	170	(Q)	150.9	(Q)	160.45	13.5	12
Manganese	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	102.8		85.6		94.2	12.2	18
Manganese	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	76.5		77.2		76.85	0.5	1
Method = SW7040 - Antimony									
Type = Field Duplicate (mg/kg)									
Antimony	9303-AC-01-01	9303-AC-01-02	< 0.2914		< 0.2870		NC	NC	NC
Antimony	9303-AE-01-01	9303-AE-01-02	< 0.2939		< 0.2994		NC	NC	NC
Antimony	9303-FLH-03-01	9303-FLH-03-02	0.001	(J)	< 0.3115		NC	NC	NC
Type = Laboratory Replicate (mg/kg)									
Antimony	9303-AA-01-01	9303-AA-01-01	< 0.3072		< 0.3152		NC	NC	NC
Antimony	9303-AC-01-01	9303-AC-01-01	< 0.2914		< 0.2994		NC	NC	NC
Antimony	9303-AC-01-02	9303-AC-01-02	< 0.2870		< 0.3014		NC	NC	NC
Antimony	9303-AD-01-01	9303-AD-01-01	< 0.2992		0.0118	(J)	NC	NC	NC
Antimony	9303-ADT-01-01	9303-ADT-01-01	< 0.3008		0.0243	(J)	NC	NC	NC
Antimony	9303-AE-01-01	9303-AE-01-01	< 0.2939		0.0461	(J)	NC	NC	NC
Antimony	9303-AE-01-02	9303-AE-01-02	< 0.2994		< 0.2924		NC	NC	NC
Antimony	9303-AF-01-01	9303-AF-01-01	< 0.2932		< 0.2997		NC	NC	NC
Antimony	9303-AG-01-01	9303-AG-01-01	< 0.3159		< 0.2934		NC	NC	NC
Antimony	9303-ALH-01-01	9303-ALH-01-01	< 0.3072		0.1324	(J)	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Antimony	9303-ALH-02-01	9303-ALH-02-01	< 0.3061		0.2778	(J)	NC	NC	NC
Method = SW7040 - Antimony, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Antimony	9303-ALH-03-01	9303-ALH-03-01	0.258	(J)	0.2311	(J)	0.2447215	0.0	11
Antimony	9303-ALS-01-01	9303-ALS-01-01	0.013		0.0328		0.0232505	0.0	83
Antimony	9303-ALS-02-01	9303-ALS-02-01	0.085		0.2613	(J)	0.1735395	0.1	101
Antimony	9303-BE-01-01	9303-BE-01-01	0.121	(J)	0.0980	(J)	0.109989	0.0	22
Antimony	9303-FDT-01-01	9303-FDT-01-01	< 0.2940		< 0.3142		NC	NC	NC
Antimony	9303-FDT-01-01.1	9303-FDT-01-01.1	0.015	(J)	0.0983	(J)	0.0571225	0.1	144
Antimony	9303-FDT-01-01.2	9303-FDT-01-01.2	0.024	(J)	< 0.3077		NC	NC	NC
Antimony	9303-FDT-02-01	9303-FDT-02-01	0.002	(J)	< 0.3025		NC	NC	NC
Antimony	9303-FDT-03-01	9303-FDT-03-01	< 0.3080		< 0.3181		NC	NC	NC
Antimony	9303-FG-01-01	9303-FG-01-01	< 0.3286		< 0.3230		NC	NC	NC
Antimony	9303-FLH-01-01	9303-FLH-01-01	0.014	(J)	< 0.3043		NC	NC	NC
Antimony	9303-FLH-02-01	9303-FLH-02-01	0.064	(J)	< 0.2936		NC	NC	NC
Antimony	9303-FLH-03-01	9303-FLH-03-01	0.001	(J)	< 0.2966		NC	NC	NC
Antimony	9303-FLH-03-02	9303-FLH-03-02	< 0.3115		0.0188	(J)	NC	NC	NC
Antimony	9303-GLS-01-01	9303-GLS-01-01	0.836		0.7362		0.786319	0.1	13
Antimony	9303-IDT-01-01	9303-IDT-01-01	0.040	(J)	0.0806	(J)	0.0605425	0.0	67
Antimony	9303-NLS-01-01	9303-NLS-01-01	0.203	(J)	0.0863	(J)	0.1446685	0.1	81
Type = Matrix Spike (%)									
Antimony	9303-AE-01-01 MS	9303-AE-01-01 MSD	97.6		94.8		96.2	2.0	3
Antimony	9303-AE-01-01 MS	9303-AE-01-01 MSD	96.6		101.8		99.2	3.7	5
Antimony	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	95.6		98.9		97.25	2.3	3
Antimony	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	86.8		88.3		87.55	1.1	2
Method = SW7060 - Arsenic									
Type = Field Duplicate (mg/kg)									
Arsenic	9303-AC-01-01	9303-AC-01-02	1.569		1.6935		1.631748	0.1	8
Arsenic	9303-AE-01-01	9303-AE-01-02	1.211		1.1558		1.183439	0.0	5
Arsenic	9303-FLH-03-01	9303-FLH-03-02	0.039	(J)	0.0499	(J)	0.0449085	0.0	22

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TABLE B3 DETAILED LISTING OF OUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Type = Laboratory Replicate (mg/kg)									
Arsenic	9303-AA-01-01	9303-AA-01-01	1.526		1.4415		1.4838175	0.1	6
Arsenic	9303-AC-01-01	9303-AC-01-01	1.569		1.152		1.3609685	0.3	31
Arsenic	9303-AC-01-02	9303-AC-01-02	1.693		1.0149		1.3542295	0.5	50
Arsenic	9303-AD-01-01	9303-AD-01-01	1.490		1.1967		1.3434445	0.2	22
Arsenic	9303-ADT-01-01	9303-ADT-01-01	1.977		1.4839		1.7307025	0.3	29
Arsenic	9303-AE-01-01	9303-AE-01-01	1.211		0.9944		1.1027345	0.2	20
Arsenic	9303-AE-01-02	9303-AE-01-02	1.155		1.002		1.0789045	0.1	14
Arsenic	9303-AF-01-01	9303-AF-01-01	2.670		2.4901		2.580183	0.1	7
Arsenic	9303-AG-01-01	9303-AG-01-01	1.625		1.3245		1.475219	0.2	20
Arsenic	9303-ALH-01-01	9303-ALH-01-01	1.572		1.2597		1.416321	0.2	22
Arsenic	9303-ALH-02-01	9303-ALH-02-01	2.316		1.784		2.050286	0.4	26
Arsenic	9303-ALH-03-01	9303-ALH-03-01	1.530		1.0764		1.3034935	0.3	35
Arsenic	9303-ALS-01-01	9303-ALS-01-01	2.232		1.7994		2.015832	0.3	21
Arsenic	9303-ALS-02-01	9303-ALS-02-01	2.296		2.34		2.3183415	0.0	2
Arsenic	9303-BE-01-01	9303-BE-01-01	0.232		0.3273		0.279895	0.1	34
Arsenic	9303-FDT-01-01	9303-FDT-01-01	0.143	(J)	0.0041	(J)	0.0736515	0.1	189
Arsenic	9303-FDT-01-01.1	9303-FDT-01-01.1	0.224		< 0.1778		NC	NC	NC
Arsenic	9303-FDT-01-01.2	9303-FDT-01-01.2	0.141	(J)	0.1333	(J)	0.1375565	0.0	6
Arsenic	9303-FDT-02-01	9303-FDT-02-01	1.064		1.0104		1.0374805	0.0	5
Arsenic	9303-FDT-03-01	9303-FDT-03-01	0.306		0.7211		0.5135945	0.3	81
Arsenic	9303-FG-01-01	9303-FG-01-01	0.131	(J)	0.1120	(J)	0.1217265	0.0	16
Arsenic	9303-FLH-01-01	9303-FLH-01-01	< 0.1749		0.2008		NC	NC	NC
Arsenic	9303-FLH-02-01	9303-FLH-02-01	0.060	(J)	0.0293	(J)	0.04501	0.0	70
Arsenic	9303-FLH-03-01	9303-FLH-03-01	0.039	(J)	0.0415	(J)	0.0407245	0.0	4
Arsenic	9303-FLH-03-02	9303-FLH-03-02	0.049	(J)	0.1301		0.090024	0.1	89
Arsenic	9303-GLS-01-01	9303-GLS-01-01	3.159		3.1116		3.1353815	0.0	2
Arsenic	9303-IDT-01-01	9303-IDT-01-01	0.404		0.5316		0.467848	0.1	27
Arsenic	9303-NLS-01-01	9303-NLS-01-01	3.013		5.0675		4.04051	1.5	51
Type = Matrix Spike (%)									
Arsenic	9303-AE-01-01 MS	9303-AE-01-01 MSD	82		81.7		81.85	0.2	0
Arsenic	9303-AE-01-01 MS	9303-AE-01-01 MSD	90.2		90.3		90.25	0.1	0
Arsenic	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	75.1		78.9		77	2.7	5

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Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Arsenic	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	74.9	71.7	73.3	2.3	4
Method = SW7131 - Cadmium							
Type = Field Duplicate (mg/kg)							
Cadmium	9303-AC-01-01	9303-AC-01-02	0.101	0.0995	0.1002725	0.0	2
Cadmium	9303-AE-01-01	9303-AE-01-02	0.199	0.2086	0.2042445	0.0	4
Cadmium	9303-FLH-03-01	9303-FLH-03-02	0.011	0.0176	0.0148155	0.0	38
Type = Laboratory Replicate (mg/kg)							
Cadmium	9303-AA-01-01	9303-AA-01-01	0.244	0.2059	0.2253615	0.0	17
Cadmium	9303-AC-01-01	9303-AC-01-01	0.101	0.0998	0.1004295	0.0	1
Cadmium	9303-AC-01-02	9303-AC-01-02	0.099	0.2250	0.162296	0.1	77
Cadmium	9303-AD-01-01	9303-AD-01-01	0.265	0.2601	0.2627145	0.0	2
Cadmium	9303-ADT-01-01	9303-ADT-01-01	0.539	0.6587	0.5991085	0.1	20
Cadmium	9303-AE-01-01	9303-AE-01-01	0.199	0.1961	0.198017	0.0	2
Cadmium	9303-AE-01-02	9303-AE-01-02	0.208	0.193	0.200802	0.0	8
Cadmium	9303-AF-01-01	9303-AF-01-01	0.197	0.2028	0.2001385	0.0	3
Cadmium	9303-AG-01-01	9303-AG-01-01	0.175	0.1653	0.170587	0.0	6
Cadmium	9303-ALH-01-01	9303-ALH-01-01	0.176	0.1702	0.1731715	0.0	3
Cadmium	9303-ALH-02-01	9303-ALH-02-01	0.269	0.2411	0.2552625	0.0	11
Cadmium	9303-ALH-03-01	9303-ALH-03-01	0.228	0.2125	0.220437	0.0	7
Cadmium	9303-ALS-01-01	9303-ALS-01-01	0.257	0.2485	0.252836	0.0	3
Cadmium	9303-ALS-02-01	9303-ALS-02-01	0.162	0.1541	0.158148	0.0	5
Cadmium	9303-BE-01-01	9303-BE-01-01	0.060	0.0535	0.0572685	0.0	13
Cadmium	9303-FDT-01-01	9303-FDT-01-01	0.018	0.0136	0.0161215	0.0	31
Cadmium	9303-FDT-01-01.1	9303-FDT-01-01.1	0.018	0.0167	0.017817	0.0	12
Cadmium	9303-FDT-01-01.2	9303-FDT-01-01.2	0.016	0.0153	0.016179	0.0	10
Cadmium	9303-FDT-02-01	9303-FDT-02-01	0.111	0.0837	0.097495	0.0	28
Cadmium	9303-FDT-03-01	9303-FDT-03-01	0.126	0.0965	0.111399	0.0	27
Cadmium	9303-FG-01-01	9303-FG-01-01	0.087	0.0075	0.0475865	0.1	168
Cadmium	9303-FLH-01-01	9303-FLH-01-01	0.013	0.0121	0.0127745	0.0	9
Cadmium	9303-FLH-02-01	9303-FLH-02-01	0.011	0.0088	0.010362	0.0	30
Cadmium	9303-FLH-03-01	9303-FLH-03-01	0.011	0.0138	0.0129095	0.0	14
Cadmium	9303-FLH-03-02	9303-FLH-03-02	0.017	0.0115	0.0146005	0.0	42

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Cadmium	9303-GLS-01-01	9303-GLS-01-01	0.109		0.0863		0.097776	0.0	23
Method = SW7131 - Cadmium, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Cadmium	9303-IDT-01-01	9303-IDT-01-01	0.105		0.1044		0.104956	0.0	1
Cadmium	9303-NLS-01-01	9303-NLS-01-01	0.359		0.3472		0.353251	0.0	3
Type = Matrix Spike (%)									
Cadmium	9303-AE-01-01 MS	9303-AE-01-01 MSD	95		93.8		94.4	0.8	1
Cadmium	9303-AE-01-01 MS	9303-AE-01-01 MSD	89.8		88.6		89.2	0.8	1
Cadmium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	82.7		83.9		83.3	0.8	1
Cadmium	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	89		86		87.5	2.1	3
Method = SW7191 - Chromium									
Type = Field Duplicate (mg/kg)									
Chromium	9303-AC-01-01	9303-AC-01-02	0.076	(J)	0.1425		0.1096565	0.0	60
Chromium	9303-AE-01-01	9303-AE-01-02	0.096	(J)	0.0808	(J)	0.088435	0.0	17
Chromium	9303-FLH-03-01	9303-FLH-03-02	< 0.1197		0.0363	(J)	NC	NC	NC
Type = Laboratory Replicate (mg/kg)									
Chromium	9303-AA-01-01	9303-AA-01-01	< 0.1229		0.1071	(J)	NC	NC	NC
Chromium	9303-AC-01-01	9303-AC-01-01	0.076	(J)	0.1786		0.127716	0.1	80
Chromium	9303-AC-01-02	9303-AC-01-02	0.142		0.1517		0.1471475	0.0	6
Chromium	9303-AD-01-01	9303-AD-01-01	0.328		0.1503		0.2392445	0.1	74
Chromium	9303-ADT-01-01	9303-ADT-01-01	5.165		5.2829		5.2241465	0.1	2
Chromium	9303-AE-01-01	9303-AE-01-01	0.096	(J)	0.1006	(J)	0.09836	0.0	5
Chromium	9303-AE-01-02	9303-AE-01-02	0.080	(J)	0.1471		0.114017	0.0	58
Chromium	9303-AF-01-01	9303-AF-01-01	0.180		0.1249		0.1528615	0.0	37
Chromium	9303-AG-01-01	9303-AG-01-01	< 0.1263		0.0577	(J)	NC	NC	NC
Chromium	9303-ALH-01-01	9303-ALH-01-01	0.200		0.1080		0.1543745	0.1	60
Chromium	9303-ALH-02-01	9303-ALH-02-01	0.179		0.1686		0.174144	0.0	6
Chromium	9303-ALH-03-01	9303-ALH-03-01	0.316		0.2775		0.296859	0.0	13
Chromium	9303-ALS-01-01	9303-ALS-01-01	5.341		3.1069		4.223991	1.6	53

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Chromium	9303-ALS-02-01	9303-ALS-02-01	0.452		0.2572		0.354798	0.1	55
Method = SW7191 - Chromium, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Chromium	9303-BE-01-01	9303-BE-01-01	0.705		0.6274		0.666407	0.1	12
Chromium	9303-FDT-01-01	9303-FDT-01-01	< 0.1176		0.0261	(J)	NC	NC	NC
Chromium	9303-FDT-01-01.1	9303-FDT-01-01.1	< 0.1193		< 0.1255		NC	NC	NC
Chromium	9303-FDT-01-01.2	9303-FDT-01-01.2	0.062	(J)	0.0574	(J)	0.0601685	0.0	9
Chromium	9303-FDT-02-01	9303-FDT-02-01	0.117		0.2773		0.1973295	0.1	81
Chromium	9303-FDT-03-01	9303-FDT-03-01	0.390		0.3563		0.373252	0.0	9
Chromium	9303-FG-01-01	9303-FG-01-01	0.007	(J)	0.0452	(J)	0.02645	0.0	142
Chromium	9303-FLH-01-01	9303-FLH-01-01	0.042	(J)	0.0770	(J)	0.059641	0.0	59
Chromium	9303-FLH-02-01	9303-FLH-02-01	0.122	(J)	0.1536		0.1380315	0.0	23
Chromium	9303-FLH-03-01	9303-FLH-03-01	< 0.1197		0.0464	(J)	NC	NC	NC
Chromium	9303-FLH-03-02	9303-FLH-03-02	0.036	(J)	0.0409	(J)	0.038642	0.0	12
Chromium	9303-GLS-01-01	9303-GLS-01-01	0.488		0.3767		0.432547	0.1	26
Chromium	9303-IDT-01-01	9303-IDT-01-01	0.127		0.1872		0.157173	0.0	38
Chromium	9303-NLS-01-01	9303-NLS-01-01	0.220		0.2430		0.231999	0.0	10
Type = Matrix Spike (%)									
Chromium	9303-AE-01-01 MS	9303-AE-01-01 MSD	102.9		102.8		102.85	0.1	0
Chromium	9303-AE-01-01 MS	9303-AE-01-01 MSD	100.3		101.8		101.05	1.1	1
Chromium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	95.7		95.8		95.75	0.1	0
Chromium	9303-FDT-01-01.2 MS	93D3-FDT-01-01.2 MSD	100.8		99.5		100.15	0.9	1
Method = SW7421 - Lead									
Type = Field Duplicate (mg/kg)									
Lead	9303-AC-01-01	9303-AC-01-02	0.271		0.2746		0.272826	0.0	1
Lead	9303-AE-01-01	9303-AE-01-02	0.147		0.1457		0.146839	0.0	2
Lead	9303-FLH-03-01	9303-FLH-03-02	0.188		0.0425	(J)	0.1155945	0.1	126
Type = Laboratory Replicate (mg/kg)									
Lead	9303-AA-01-01	9303-AA-01-01	0.345		0.3425		0.343844	0.0	1

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Lead	9303-AC-01-01	9303-AC-01-01	0.271		0.3533		0.3122105	0.1	26
Method = SW7421 - Lead, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Lead	9303-AC-01-02	9303-AC-01-02	0.274		0.2883		0.281496	0.0	5
Lead	9303-AD-01-01	9303-AD-01-01	0.309		0.3916		0.3504265	0.1	24
Lead	9303-ADT-01-01	9303-ADT-01-01	5.938		6.3120		6.1253125	0.3	6
Lead	9303-AE-01-01	9303-AE-01-01	0.147		0.1604		0.15422	0.0	8
Lead	9303-AE-01-02	9303-AE-01-02	0.145		0.1501		0.1479175	0.0	3
Lead	9303-AF-01-01	9303-AF-01-01	0.141		0.1588		0.1502995	0.0	11
Lead	9303-AG-01-01	9303-AG-01-01	0.117		0.1252		0.1215755	0.0	6
Lead	9303-ALH-01-01	9303-ALH-01-01	0.142		0.3057		0.224051	0.1	73
Lead	9303-ALH-02-01	9303-ALH-02-01	0.155		0.1260		0.140565	0.0	21
Lead	9303-ALH-03-01	9303-ALH-03-01	0.169		0.1299		0.149628	0.0	26
Lead	9303-ALS-01-01	9303-ALS-01-01	0.626		0.5669		0.5965945	0.0	10
Lead	9303-ALS-02-01	9303-ALS-02-01	0.602		0.4931		0.547589	0.1	20
Lead	9303-BE-01-01	9303-BE-01-01	0.507		0.3940		0.450747	0.1	25
Lead	9303-FDT-01-01	9303-FDT-01-01	0.035	(J)	0.0471	(J)	0.041215	0.0	29
Lead	9303-FDT-01-01.1	9303-FDT-01-01.1	0.015	(J)	0.0366	(J)	0.026263	0.0	79
Lead	9303-FDT-01-01.2	9303-FDT-01-01.2	0.040	(J)	0.0502	(J)	0.045598	0.0	21
Lead	9303-FDT-02-01	9303-FDT-02-01	0.367		0.3620		0.364884	0.0	2
Lead	9303-FDT-03-01	9303-FDT-03-01	0.399		0.4115		0.4054475	0.0	3
Lead	9303-FG-01-01	9303-FG-01-01	0.007	(J)	0.0323	(J)	0.019988	0.0	123
Lead	9303-FLH-01-01	9303-FLH-01-01	0.024	(J)	0.0497	(J)	0.0372005	0.0	67
Lead	9303-FLH-02-01	9303-FLH-02-01	0.030	(J)	0.0313	(J)	0.0308245	0.0	3
Lead	9303-FLH-03-01	9303-FLH-03-01	0.188		0.0355	(J)	0.112103	0.1	136
Lead	9303-FLH-03-02	9303-FLH-03-02	0.042	(J)	0.0545	(J)	0.04858	0.0	25
Lead	9303-GLS-01-01	9303-GLS-01-01	0.455		0.4488		0.4520005	0.0	1
Lead	9303-IDT-01-01	9303-IDT-01-01	0.076	(J)	0.0589	(J)	0.0679105	0.0	26
Lead	9303-NLS-01-01	9303-NLS-01-01	0.204		0.2371		0.2205635	0.0	15
Type = Matrix Spike (%)									
Lead	9303-AE-01-01 MS	9303-AE-01-01 MSD	99.4		100.3		99.85	0.6	1
Lead	9303-AE-01-01 MS	9303-AE-01-01 MSD	98.5		98.6		98.55	0.1	0

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Lead	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	101.7	100.5	101.1	0.8	1
Method = SW7421 - Lead, cont.							
Type = Matrix Spike (%), cont.							
Lead	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	98.4	99.6	99	0.8	1
Method = SW7450 - Magnesium							
Type = Field Duplicate (mg/kg)							
Magnesium	9303-AC-01-01	9303-AC-01-02	3437.	4025.7	3731.5323	416.1	16
Magnesium	9303-AE-01-01	9303-AE-01-02	8690.	8852.4	8771.3762	114.6	2
Magnesium	9303-FLH-03-01	9303-FLH-03-02	1582.	1589.0	1585.7507	4.6	0
Type = Laboratory Replicate (mg/kg)							
Magnesium	9303-AA-01-01	9303-AA-01-01	5729.	5224.7	5477.0520	356.8	9
Magnesium	9303-AC-01-01	9303-AC-01-01	3437.	4009.1	3723.2122	404.4	15
Magnesium	9303-AC-01-02	9303-AC-01-02	4025.	3747.3	3886.5948	196.9	7
Magnesium	9303-AD-01-01	9303-AD-01-01	3242.	3262.7	3252.8639	14.0	1
Magnesium	9303-ADT-01-01	9303-ADT-01-01	15438	15302.	15370.583	96.2	1
Magnesium	9303-AE-01-01	9303-AE-01-01	8690.	7823.6	8256.9988	612.8	10
Magnesium	9303-AE-01-02	9303-AE-01-02	8852.	8621.9	8737.1931	163.0	3
Magnesium	9303-AF-01-01	9303-AF-01-01	3598.	3678.6	3638.5346	56.8	2
Magnesium	9303-AG-01-01	9303-AG-01-01	3272.	4139.0	3705.9078	612.6	23
Magnesium	9303-ALH-01-01	9303-ALH-01-01	21935	22513.	22224.310	408.9	3
Magnesium	9303-ALH-02-01	9303-ALH-02-01	13662	13781.	13721.792	84.3	1
Magnesium	9303-ALH-03-01	9303-ALH-03-01	19730	17362.	18546.538	1674.0	13
Magnesium	9303-ALS-01-01	9303-ALS-01-01	31292	29046.	30169.743	1588.0	7
Magnesium	9303-ALS-02-01	9303-ALS-02-01	28341	29557.	28949.306	859.9	4
Magnesium	9303-BE-01-01	9303-BE-01-01	1861.	3212.7	2537.0349	955.7	53
Magnesium	9303-FDT-01-01	9303-FDT-01-01	1663.	2379.2	2021.4957	505.9	35
Magnesium	9303-FDT-01-01.I	9303-FDT-01-01.1	1656.	1700.5	1678.4773	31.2	3
Magnesium	9303-FDT-01-01.2	9303-FDT-01-01.2	2529.	2550.8	2540.0950	15.2	1
Magnesium	9303-FDT-02-01	9303-FDT-02-01	1210.	3134.0	2172.0451	1360.5	89
Magnesium	9303-FDT-03-01	9303-FDT-03-01	2064.	2966.4	2515.5581	637.7	36

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Magnesium	9303-FG-01-01	9303-FG-01-01	1623.		2394.3		2008.9835	545.0	38
Method = SW7450 - Magnesium, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Magnesium	9303-FLH-01-01	9303-FLH-01-01	1598.		2255.3		1927.0972	464.3	34
Magnesium	9303-FLH-02-01	9303-FLH-02-01	1648.		2386.6		2017.6345	521.9	37
Magnesium	9303-FLH-03-01	9303-FLH-03-01	1582.		2434.9		2008.6976	602.8	42
Magnesium	9303-FLH-03-02	9303-FLH-03-02	1589.		2433.8		2011.4519	597.4	42
Magnesium	9303-GLS-01-01	9303-GLS-01-01	18995		21073.		20034.609	1469.1	10
Magnesium	9303-IDT-01-01	9303-IDT-01-01	1248.		1829.9		1539.2357	411.2	38
Magnesium	9303-NLS-01-01	9303-NLS-01-01	10492		10957.		10724.732	328.7	4
Type = Matrix Spike (%)									
Magnesium	9303-AE-01-01 MS	9303-AE-01-01 MSD	130.8	(Q)	113.8		122.3	12.0	14
Magnesium	9303-AE-01-01 MS	9303-AE-01-01 MSD	186.5	(Q)	98.1	(Q)	142.3	62.5	62
Magnesium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	0	(Q)	0	(Q)	0	0.0	NC
Magnesium	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	136.9	(Q)	157.1	(Q)	147	14.3	14
Method = SW7471 - Mercury									
Type = Field Duplicate (mg/kg)									
Mercury	9303-AC-01-01	9303-AC-01-02	0.047		0.0432		0.045392	0.0	9
Mercury	9303-AE-01-01	9303-AE-01-02	0.042		0.0427		0.0427465	0.0	0
Mercury	9303-FLH-03-01	9303-FLH-03-02	0.047		0.0627		0.05493	0.0	28
Type = Laboratory Replicate (mg/kg)									
Mercury	9303-AA-01-01	9303-AA-01-01	0.080		0.0822		0.0811725	0.0	3
Mercury	9303-AC-01-01	9303-AC-01-01	0.047		0.0466		0.047104	0.0	2
Mercury	9303-AC-01-02	9303-AC-01-02	0.043		0.0474		0.045371	0.0	9
Mercury	9303-AD-01-01	9303-AD-01-01	0.065		0.0654		0.065286	0.0	1
Mercury	9303-ADT-01-01	9303-ADT-01-01	0.086		0.0870		0.0868155	0.0	1
Mercury	9303-AE-01-01	9303-AE-01-01	0.042		0.0517		0.047233	0.0	19
Mercury	9303-AE-01-02	9303-AE-01-02	0.042		0.0521		0.047463	0.0	20
Mercury	9303-AF-01-01	9303-AF-01-01	0.035		0.0382		0.036999	0.0	7

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Mercury	9303-AG-01-01	9303-AG-01-01	0.055	0.0607	0.057886	0.0	10
Method = SW7471 - Mercury, cont.							
Type = Laboratory Replicate (mg/kg), cont.							
Mercury	9303-ALH-01-01	9303-ALH-01-01	0.061	0.0524	0.057189	0.0	17
Mercury	9303-ALH-02-01	9303-ALH-02-01	0.069	0.069	0.069422	0.0	1
Mercury	9303-ALH-03-01	9303-ALH-03-01	0.074	0.0752	0.0748255	0.0	1
Mercury	9303-ALS-01-01	9303-ALS-01-01	0.067	0.0492	0.0585585	0.0	32
Mercury	9303-ALS-02-01	9303-ALS-02-01	0.044	0.0442	0.0441705	0.0	0
Mercury	9303-BE-01-01	9303-BE-01-01	0.026	0.0436	0.0348375	0.0	51
Mercury	9303-FDT-01-01	9303-FDT-01-01	0.106	0.1029	0.1045225	0.0	3
Mercury	9303-FDT-01-01.1	9303-FDT-01-01.1	0.097	0.0956	0.0965515	0.0	2
Mercury	9303-FDT-01-01.2	9303-FDT-01-01.2	0.089		0.044948	0.1	200
Mercury	9303-FDT-02-01	9303-FDT-02-01	0.936	0.9041	0.9204915	0.0	4
Mercury	9303-FDT-03-01	9303-FDT-03-01	0.199	0.1811	0.190268	0.0	10
Mercury	9303-FG-01-01	9303-FG-01-01	0.033	0.0284	(J) 0.030877	0.0	16
Mercury	9303-FLH-01-01	9303-FLH-01-01	0.097	0.1003	0.099054	0.0	3
Mercury	9303-FLH-02-01	9303-FLH-02-01	0.067	0.0640	0.0660045	0.0	6
Mercury	9303-FLH-03-01	9303-FLH-03-01	0.047	0.0513	0.0492095	0.0	9
Mercury	9303-FLH-03-02	9303-FLH-03-02	0.062	0.0651	0.0639305	0.0	4
Mercury	9303-GLS-01-01	9303-GLS-01-01	0.036	0.0389	0.037772	0.0	6
Mercury	9303-IDT-01-01	9303-IDT-01-01	0.073	0.0718	0.0725895	0.0	2
Mercury	9303-NLS-01-01	9303-NLS-01-01	0.065	0.0611	0.063165	0.0	6
Type = Matrix Spike (%)							
Mercury	9303-AE-01-01 MS	9303-AE-01-01 MSD	81.4	82.1	81.75	0.5	1
Mercury	9303-AE-01-01 MS	9303-AE-01-01 MSD	88.4	89.7	89.05	0.9	1
Mercury	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	90.9	84.6	87.75	4.5	7
Mercury	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	82.5	79.7	81.1	2.0	3
Method = SW7740 - Selenium							
Type = Field Duplicate (mg/kg)							
Selenium	9303-AC-01-01	9303-AC-01-02	1.930	1.7921	1.8612365	0.1	7

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Selenium	9303-AE-01-01	9303-AE-01-02	2.041		2.0131		2.0275735	0.0	1
Method = SW7740 - Selenium, cont.									
Type = Field Duplicate (mg/kg), cont.									
Selenium	9303-FLH-03-01	9303-FLH-03-02	1.936		1.4249		1.680943	0.4	30
Type = Laboratory Replicate (mg/kg)									
Selenium	9303-AA-01-01	9303-AA-01-01	1.714		1.3911		1.5528255	0.2	21
Selenium	9303-AC-01-01	9303-AC-01-01	1.930		1.7698		1.850114	0.1	9
Selenium	9303-AC-01-02	9303-AC-01-02	1.792		1.7212		1.756695	0.1	4
Selenium	9303-AD-01-01	9303-AD-01-01	3.020		2.6564		2.8383645	0.3	13
Selenium	9303-ADT-01-01	9303-ADT-01-01	2.221		1.6757		1.9484485	0.4	28
Selenium	9303-AE-01-01	9303-AE-01-01	2.041		1.7800		1.910996	0.2	14
Selenium	9303-AE-01-02	9303-AE-01-02	2.013		1.7564		1.8848395	0.2	14
Selenium	9303-AF-01-01	9303-AF-01-01	2.500		2.3571		2.428681	0.1	6
Selenium	9303-AG-01-01	9303-AG-01-01	2.153		1.9397		2.046628	0.2	10
Selenium	9303-ALH-01-01	9303-ALH-01-01	0.884		0.9835		0.934153	0.1	11
Selenium	9303-ALH-02-01	9303-ALH-02-01	1.818		1.4089		1.613754	0.3	25
Selenium	9303-ALH-03-01	9303-ALH-03-01	1.413		1.0578		1.235779	0.3	29
Selenium	9303-ALS-01-01	9303-ALS-01-01	0.658		0.4252	(J)	0.541796	0.2	43
Selenium	9303-ALS-02-01	9303-ALS-02-01	0.225	(J)	0.5543		0.389753	0.2	84
Selenium	9303-BE-01-01	9303-BE-01-01	1.310		1.1984		1.2544695	0.1	9
Selenium	9303-FDT-01-01	9303-FDT-01-01	2.919		2.6399		2.7795415	0.2	10
Selenium	9303-FDT-01-01.1	9303-FDT-01-01.1	2.671		2.8401		2.7557575	0.1	6
Selenium	9303-FDT-01-01.2	9303-FDT-01-01.2	2.431		2.2499		2.34072	0.1	8
Selenium	9303-FDT-02-01	9303-FDT-02-01	3.387		0.4316	(J)	1.909331	2.1	155
Selenium	9303-FDT-03-01	9303-FDT-03-01	2.677		2.7596		2.718643	0.1	3
Selenium	9303-FG-01-01	9303-FG-01-01	2.188		2.1818		2.1852695	0.0	0
Selenium	9303-FLH-01-01	9303-FLH-01-01	1.818		1.4952		1.6566695	0.2	19
Selenium	9303-FLH-02-01	9303-FLH-02-01	2.076		1.8156		1.946014	0.2	13
Selenium	9303-FLH-03-01	9303-FLH-03-01	1.936		1.7463		1.841644	0.1	10
Selenium	9303-FLH-03-02	9303-FLH-03-02	1.424		1.6195		1.5222155	0.1	13
Selenium	9303-GLS-01-01	9303-GLS-01-01	0.027		0.0660		0.046927	0.0	81
Selenium	9303-IDT-01-01	9303-IDT-01-01	1.847		1.8257		1.8366735	0.0	1

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TABLE 83 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Selenium	9303-NLS-01-01	9303-NLS-01-01	2.221		2.0079		2.11465	0.2	10
Method = SW7740 - Selenium									
Type = Matrix Spike (%)									
Selenium	9303-AE-01-01 MS	9303-AE-01-01 MSD	104.1		101.8		102.95	1.6	2
Selenium	9303-AE-01-01 MS	9303-AE-01-01 MSD	104.3		105.8		105.05	1.1	1
Selenium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	103.8		110.8		107.3	4.9	7
Selenium	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	102.3		105		103.65	1.9	3
Method = SW7841 - Thallium									
Type = Field Duplicate (mg/kg)									
Thallium	9303-AC-01-01	9303-AC-01-02	0.082	(J)	0.0267	(J)	0.054684	0.0	102
Thallium	9303-AE-01-01	9303-AE-01-02	< 0.3919		< 0.3992		NC	NC	NC
Thallium	9303-FLH-03-01	9303-FLH-03-02	< 0.3991		0.0218	(J)	NC	NC	NC
Type = Laboratory Replicate (mg/kg)									
Thallium	9303-AA-01-01	9303-AA-01-01	0.011	(J)	< 0.4202		NC	NC	NC
Thallium	9303-AC-01-01	9303-AC-01-01	0.082	(J)	0.3234	(J)	0.203002	0.2	119
Thallium	9303-AC-01-02	9303-AC-01-02	0.026	(J)	< 0.4019		NC	NC	NC
Thallium	9303-AD-01-01	9303-AD-01-01	< 0.3989		< 0.3956		NC	NC	NC
Thallium	9303-ADT-01-01	9303-ADT-01-01	0.002	(J)	0.0416	(J)	0.02181	0.0	182
Thallium	9303-AE-01-01	9303-AE-01-01	< 0.3919		< 0.4195		NC	NC	NC
Thallium	9303-AE-01-02	9303-AE-01-02	< 0.3992		0.0126	(J)	NC	NC	NC
Thallium	9303-AF-01-01	9303-AF-01-01	< 0.3909		< 0.3996		NC	NC	NC
Thallium	9303-AG-01-01	9303-AG-01-01	< 0.4212		0.0107	(J)	NC	NC	NC
Thallium	9303-ALH-01-01	9303-ALH-01-01	< 0.4096		< 0.4076		NC	NC	NC
Thallium	9303-ALH-02-01	9303-ALH-02-01	< 0.4082		0.0347	(J)	NC	NC	NC
Thallium	9303-ALH-03-01	9303-ALH-03-01	0.035	(J)	0.1240	(J)	0.079686	0.1	111
Thallium	9303-ALS-01-01	9303-ALS-01-01	0.164	(J)	0.1037	(J)	0.134165	0.0	45
Thallium	9303-ALS-02-01	9303-ALS-02-01	0.089	(J)	0.1735	(J)	0.1317035	0.1	64
Thallium	9303-BE-01-01	9303-BE-01-01	< 0.4602		0.0232	(J)	NC	NC	NC
Thallium	9303-FDT-01-01	9303-FDT-01-01	0.012	(J)	< 0.4190		NC	NC	NC
Thallium	9303-FDT-01-01.1	9303-FDT-01-01.1	< 0.3978		0.1610	(J)	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Thallium	9303-FDT-01-01.2	9303-FDT-01-01.2	< 0.3992		0.1118	(J)	NC	NC	NC
Method = SW7841 - Thallium, cont.									
Type = Laboratory Replicate (mg/kg), cont.									
Thallium	9303-FDT-02-01	9303-FDT-02-01	0.185	(J)	0.1290	(J)	0.1570795	0.0	36
Thallium	9303-FDT-03-01	9303-FDT-03-01	0.020	(J)	0.0413	(J)	0.030948	0.0	67
Thallium	9303-FG-01-01	9303-FG-01-01	< 0.4381		0.0053	(J)	NC	NC	NC
Thallium	9303-FLH-01-01	9303-FLH-01-01	< 0.4115		< 0.4057		NC	NC	NC
Thallium	9303-FLH-02-01	9303-FLH-02-01	< 0.4332		< 0.3915		NC	NC	NC
Thallium	9303-FLH-03-01	9303-FLH-03-01	< 0.3991		< 0.3955		NC	NC	NC
Thallium	9303-FLH-03-02	9303-FLH-03-02	0.021	(J)	0.0199	(J)	0.020876	0.0	9
Thallium	9303-GLS-01-01	9303-GLS-01-01	0.261	(J)	0.0477	(J)	0.1545135	0.2	138
Thallium	9303-IDT-01-01	9303-IDT-01-01	< 0.3941		0.0165	(J)	NC	NC	NC
Thallium	9303-NLS-01-01	9303-NLS-01-01	< 0.3980		0.0823	(J)	NC	NC	NC
Type = Matrix Spike (%)									
Thallium	9303-AE-01-01 MS	9303-AE-01-01 MSD	97.1		97.9		97.5	0.6	1
Thallium	9303-AE-01-01 MS	9303-AE-01-01 MSD	0	(Q)	0	(Q)	0	0.0	NC
Thallium	9303-FDT-01-01.1 MS	9303-FDT-01-01.1 MSD	100.3		100.5		100.4	0.1	0
Thallium	9303-FDT-01-01.2 MS	9303-FDT-01-01.2 MSD	94.9		91.6		93.25	2.3	4
Method = SW827D - Semivolatile Organics									
Type = Field Duplicate (ug/kg)									
1,2,4,5-Tetrachlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
1,2,4-Trichlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
1,2,4-Trichlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
1,2,4-Trichlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
1,2-Dichlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
1,2-Dichlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
1,2-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
1,3-Dichlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,3-Dichlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
1,3-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
1,3-Dinitrobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
1,3-Dinitrobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
1,3-Dinitrobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
1,4-Dichlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
1,4-Dichlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
1,4-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
1,4-Naphthoquinone	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
1,4-Naphthoquinone	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
1,4-Naphthoquinone	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
1,4-Phenylenediamine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
1,4-Phenylenediamine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
1,4-Phenylenediamine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
1-Naphthylamine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
1-Naphthylamine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
1-Naphthylamine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,4,5-Trichlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,4,5-Trichlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,4,5-Trichlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,4,6-Trichlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,4,6-Trichlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,4,6-Trichlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,4-Dichlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,4-Dichlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,4-Dichlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,4-Dimethylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,4-Dimethylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4-Dimethylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
2,4-Dinitrophenol	9303-AC-01-01	9303-AC-01-02	< 298	< 228	NC	NC	NC
2,4-Dinitrophenol	9303-AE-01-01	9303-AE-01-02	< 521	< 442	NC	NC	NC
2,4-Dinitrophenol	9303-FLH-03-01	9303-FLH-03-02	< 585	< 267	NC	NC	NC
2,4-Dinitrotoluene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,4-Dinitrotoluene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,4-Dinitrotoluene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,6-Dichlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,6-Dichlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,6-Dichlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2,6-Dinitrotoluene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2,6-Dinitrotoluene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2,6-Dinitrotoluene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Acetylaminofluorene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Acetylaminofluorene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Acetylaminofluorene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Chloronaphthalene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Chloronaphthalene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Chloronaphthalene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Chlorophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Chlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Chlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Methylnaphthalene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Methylnaphthalene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Methylnaphthalene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Methylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Methylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Methylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Naphthylamine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Naphthylamine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Naphthylamine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC

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NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Nitroaniline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
2-Nitroaniline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Nitroaniline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Nitrophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Nitrophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Nitrophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
2-Picoline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
2-Picoline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
2-Picoline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
3,3-Dichlorobenzidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
3,3-Dichlorobenzidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
3,3-Dichlorobenzidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
3-Methylchloroanthrene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
3-Methylchloroanthrene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
3-Methylchloroanthrene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
3-Methylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
3-Methylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
3-Methylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
3-Nitroaniline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
3-Nitroaniline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
3-Nitroaniline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Aminobiphenyl	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Aminobiphenyl	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Aminobiphenyl	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Bromophenyl-phenylether	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Bromophenyl-phenylether	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
4-Bromophenyl-phenylether	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Chloro-3-methylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Chloro-3-methylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Chloro-3-methylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Chloroaniline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Chloroaniline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Chloroaniline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Methylphenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Methylphenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Methylphenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Nitroaniline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Nitroaniline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Nitroaniline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Nitrophenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Nitrophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Nitrophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
5-Nitro-o-toluidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
5-Nitro-o-toluidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
5-Nitro-o-toluidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Acenaphthene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Acenaphthene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Acenaphthene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
Acenaphthylene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Acenaphthylene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Acenaphthylene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Acetophenone	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Acetophenone	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Acetophenone	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Aniline	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Aniline	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Aniline	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Anthracene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Anthracene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Anthracene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Aramite (peak 1)	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Aramite (peak 1)	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Aramite (peak 1)	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Aramite (peak 2)	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Aramite (peak 2)	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Aramite (peak 2)	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Benzo(a)anthracene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Benzo(a)anthracene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Benzo(a)anthracene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Benzo(a)pyrene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Benzo(a)pyrene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Benzo(a)pyrene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Benzo(b)fluoranthene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Benzo(b)fluoranthene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Benzo(b)fluoranthene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Benzo(g,h,i)perylene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Benzo(g,h,i)perylene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Benzo(g,h,i)perylene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Benzo(k)fluoranthene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.									
Type = Field Duplicate (ug/kg), cont.									
Benzo(k)fluoranthene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Benzo(k)fluoranthene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Benzyl alcohol	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Benzyl alcohol	9303-AE-01-01	9303-AE-01-02	847.8		677.2		762.5	120.6	22
Benzyl alcohol	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Butylbenzylphthalate	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Butylbenzylphthalate	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Butylbenzylphthalate	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Chlorobenzilate	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Chlorobenzilate	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Chlorobenzilate	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Chrysene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Chrysene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Chrysene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Di-n-butylphthalate	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Di-n-butylphthalate	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Di-n-butylphthalate	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Di-n-octyphthalate	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Di-n-octyphthalate	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Di-n-octyphthalate	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Diallate (peak 1)	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Diallate (peak 1)	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Diallate (peak 1)	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Diallate (peak 2)	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Diallate (peak 2)	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Diallate (peak 2)	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Dibenz(a,h)anthracene	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
Dibenz(a,h)anthracene	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Dibenz(a,h)anthracene	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
Dibenzofuran	9303-AC-01-01	9303-AC-01-02	79.1	(J)	64.8	(J)	71.95	10.1	20

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Dibenzofuran	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
Dibenzofuran	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Diethylphthalate	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Diethylphthalate	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Diethylphthalate	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Dimethylphenethyamine	9303-AC-01-01	9303-AC-01-02	< 1786	< 1370	NC	NC	NC
Dimethylphenethyamine	9303-AE-01-01	9303-AE-01-02	< 3125	< 2655	NC	NC	NC
Dimethylphenethyamine	9303-FLH-03-01	9303-FLH-03-02	< 3509	< 1604	NC	NC	NC
Dimethylphthalate	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Dimethylphthalate	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Dimethylphthalate	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Diphenylamine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Diphenylamine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Diphenylamine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Ethylmethanesulfonate	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Ethylmethanesulfonate	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Ethylmethanesulfonate	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Fluoranthene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Fluoranthene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Fluoranthene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Fluorene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Fluorene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Fluorene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Hexachlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Hexachlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Hexachlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Hexachlorobutadiene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Hexachlorobutadiene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Hexachlorobutadiene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Hexachlorocyclopentadiene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Hexachlorocyclopentadiene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachlorocyclopentadiene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
Hexachloroethane	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Hexachloroethane	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Hexachloroethane	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Hexachlorophene	9303-AC-01-01	9303-AC-01-02	< 30208	< 23174	NC	NC	NC
Hexachlorophene	9303-AE-01-01	9303-AE-01-02	< 52865	< 44912	NC	NC	NC
Hexachlorophene	9303-FLH-03-01	9303-FLH-03-02	< 59357	< 27139	NC	NC	NC
Hexachloropropene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Hexachloropropene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Hexachloropropene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Isophorone	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Isophorone	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Isophorone	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Isosafrole	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Isosafrole	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Isosafrole	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Methapyrilene	9303-AC-01-01	9303-AC-01-02	< 744	< 571	NC	NC	NC
Methapyrilene	9303-AE-01-01	9303-AE-01-02	< 1302	< 1106	NC	NC	NC
Methapyrilene	9303-FLH-03-01	9303-FLH-03-02	< 1462	< 668	NC	NC	NC
Methylmethanesulfonate	9303-AC-01-01	9303-AC-01-02	< 744	< 571	NC	NC	NC
Methylmethanesulfonate	9303-AE-01-01	9303-AE-01-02	< 1302	< 1106	NC	NC	NC
Methylmethanesulfonate	9303-FLH-03-01	9303-FLH-03-02	< 1462	< 668	NC	NC	NC
Naphthalene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Naphthalene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Naphthalene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Nitrobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Nitrobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Nitrobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pentachlorobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
Pentachlorobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pentachlorobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pentachloroethane	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Pentachloroethane	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pentachloroethane	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pentachloronitrobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Pentachloronitrobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pentachloronitrobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pentachlorophenol	9303-AC-01-01	9303-AC-D1-02	< 149	< 114	NC	NC	NC
Pentachlorophenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pentachlorophenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Phenactin	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Phenactin	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Phenactin	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Phenanthrene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Phenanthrene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Phenanthrene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Phenol	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Phenol	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Phenol	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pronamide	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Pronamide	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pronamide	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pyrene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Pyrene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pyrene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Pyridine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
Pyridine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
Pyridine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Safrole	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIDTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
Safrole	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.									
Type = Field Duplicate (ug/kg), cont.									
Safrole	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
bis(2-Chloroethyl)ether	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
bis(2-Chloroethyl)ether	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
bis(2-Chloroethyl)ether	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AC-01-01	9303-AC-01-02	14514		6666.6		10590.75	5549.6	74
bis(2-Ethylhexyl)phthalate	9303-AE-01-01	9303-AE-01-02	1644.		1752.1		1698.5	75.8	6
bis(2-Ethylhexyl)phthalate	9303-FLH-03-01	9303-FLH-03-02	33620		14223.		23921.85	13715.3	81
n-Nitroso-di-n-butylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AE-01-01	9303-AE-01-02	7071		8405.2		7738.1	943.4	17
n-Nitroso-di-n-propylamine	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
n-Nitrosodiethylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitrosodiethylamine	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
n-Nitrosodiethylamine	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
n-Nitrosodimethylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitrosodimethylamine	9303-AE-01-01	9303-AE-01-02	96	(J)	149.1	(J)	122.55	37.5	43
n-Nitrosodimethylamine	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
n-Nitrosodiphenylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitrosodiphenylamine	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC
n-Nitrosodiphenylamine	9303-FLH-03-01	9303-FLH-03-02	< 292		< 134		NC	NC	NC
n-Nitrosomethylethylamine	9303-AC-01-01	9303-AC-01-02	< 149		< 114		NC	NC	NC
n-Nitrosomethylethylamine	9303-AE-01-01	9303-AE-01-02	< 260		< 221		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosomethylethylamine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Field Duplicate (ug/kg), cont.							
n-Nitrosomorpholine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
n-Nitrosomorpholine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
n-Nitrosomorpholine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
n-Nitrosopiperidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
n-Nitrosopiperidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
n-Nitrosopiperidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
n-Nitrosopyrrolidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
n-Nitrosopyrrolidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
n-Nitrosopyrrolidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
o-Toluidine	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
o-Toluidine	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
o-Toluidine	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AC-01-01	9303-AC-01-02	< 149	< 114	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AE-01-01	9303-AE-01-02	< 260	< 221	NC	NC	NC
p-Dimethylaminoazobenzene	9303-FLH-03-01	9303-FLH-03-02	< 292	< 134	NC	NC	NC
Type = Laboratory Replicate (ug/kg)							
1,2,4,5-Tetrachlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Ouplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,4,5-Tetrachlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,2,4,5-Tetrachlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,2,4,5-Tetrachlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,2,4-Trichlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,2,4-Trichlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,2,4-Trichlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,2,4-Trichlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,2,4-Trichlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,2,4-Trichlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,4-Trichlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,2,4-Trichlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,2,4-Trichlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,2,4-Trichlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,2,4-Trichlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,2,4-Trichlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,2,4-Trichlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,2,4-Trichlorobenzene	9303-NLS-01-01	9303-NLS-01-01	2104.	< 336	NC	NC	NC
1,2-Dichlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,2-Dichlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,2-Dichlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,2-Dichlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,2-Dichlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,2-Dichlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,2-Dichlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,2-Dichlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,2-Dichlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,2-Dichlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,2-Dichlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,2-Dichlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,2-Dichlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,2-Dichlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,2-Dichlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,2-Dichlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,2-Dichlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,2-Dichlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,2-Dichlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,2-Dichlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,2-Dichlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,2-Dichlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,2-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2-Dichlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Method = SW827D - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,2-Dichlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,2-Dichlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,3-Dichlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,3-Dichlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,3-Dichlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,3-Dichlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,3-Dichlorobenzene	9303-ADT-01-01	9303-ADT-D1-01	< 467	< 382	NC	NC	NC
1,3-Dichlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,3-Dichlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,3-Dichlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,3-Dichlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,3-Dichlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,3-Dichlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,3-Dichlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,3-Dichlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,3-Dichlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,3-Dichlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,3-Dichlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,3-Dichlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,3-Dichlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,3-Dichlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,3-Dichlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,3-Dichlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,3-Dichlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,3-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,3-Dichlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,3-Dichlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,3-Dichlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,3-Dinitrobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,3-Dinitrobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,3-Dinitrobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,3-Dinitrobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,3-Dinitrobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,3-Dinitrobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,3-Dinitrobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,3-Dinitrobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,3-Dinitrobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,3-Dinitrobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,3-Dinitrobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,3-Dinitrobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,3-Dinitrobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,3-Dinitrobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,3-Dinitrobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,3-Dinitrobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,3-Dinitrobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,3-Dinitrobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,3-Dinitrobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,3-Dinitrobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,3-Dinitrobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,3-Dinitrobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,3-Dinitrobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,3-Dinitrobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,3-Dinitrobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,3-Dinitrobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,4-Dichlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,4-Dichlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,4-Dichlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,4-Dichlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,4-Dichlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,4-Dichlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,4-Dichlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,4-Dichlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,4-Dichlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,4-Dichlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,4-Dichlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,4-Dichlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,4-Dichlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,4-Dichlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,4-Dichlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,4-Dichlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,4-Dichlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,4-Dichlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,4-Dichlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,4-Dichlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,4-Dichlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,4-Dichlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,4-Dichlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,4-Dichlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,4-Dichlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,4-Dichlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,4-Naphthoquinone	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,4-Naphthoquinone	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,4-Naphthoquinone	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,4-Naphthoquinone	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,4-Naphthoquinone	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,4-Naphthoquinone	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,4-Naphthoquinone	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,4-Naphthoquinone	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,4-Naphthoquinone	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,4-Naphthoquinone	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,4-Naphthoquinone	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,4-Naphthoquinone	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,4-Naphthoquinone	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,4-Naphthoquinone	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,4-Naphthoquinone	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,4-Naphthoquinone	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,4-Naphthoquinone	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1,4-Naphthoquinone	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1,4-Naphthoquinone	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,4-Naphthoquinone	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,4-Naphthoquinone	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,4-Naphthoquinone	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,4-Naphthoquinone	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,4-Naphthoquinone	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,4-Naphthoquinone	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,4-Naphthoquinone	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1,4-Phenylenediamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1,4-Phenylenediamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1,4-Phenylenediamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1,4-Phenylenediamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1,4-Phenylenediamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1,4-Phenylenediamine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1,4-Phenylenediamine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1,4-Phenylenediamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1,4-Phenylenediamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1,4-Phenylenediamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1,4-Phenylenediamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1,4-Phenylenediamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1,4-Phenylenediamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1,4-Phenylenediamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1,4-Phenylenediamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1,4-Phenylenediamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1,4-Phenylenediamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,4-Phenylenediamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1,4-Phenylenediamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1,4-Phenylenediamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1,4-Phenylenediamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1,4-Phenylenediamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
1,4-Phenylenediamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
1,4-Phenylenediamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1,4-Phenylenediamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1,4-Phenylenediamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
1-Naphthylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
1-Naphthylamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
1-Naphthylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
1-Naphthylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
1-Naphthylamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
1-Naphthylamine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
1-Naphthylamine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
1-Naphthylamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
1-Naphthylamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
1-Naphthylamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
1-Naphthylamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
1-Naphthylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
1-Naphthylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
1-Naphthylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
1-Naphthylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
1-Naphthylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
1-Naphthylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
1-Naphthylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
1-Naphthylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
1-Naphthylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
1-Naphthylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
1-Naphthylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1-Naphthylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
1-Naphthylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
1-Naphthylamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
1-Naphthylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,3,4,6-Tetrachlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,4,5-Trichlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4,5-Trichlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,4,5-Trichlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,4,5-Trichlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,4,5-Trichlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,4,5-Trichlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,4,5-Trichlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,4,5-Trichlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,4,5-Trichlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,4,5-Trichlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,4,5-Trichlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,4,5-Trichlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,4,5-Trichlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,4,5-Trichlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,4,5-Trichlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,4,5-Trichlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,4,5-Trichlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,4,5-Trichlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,4,5-Trichlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,4,5-Trichlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,4,5-Trichlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,4,5-Trichlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,4,5-Trichlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,4,5-Trichlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,4,5-Trichlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,4,5-Trichlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,4,6-Trichlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,4,6-Trichlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,4,6-Trichlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,4,6-Trichlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,4,6-Trichlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,4,6-Trichlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4,6-Trichlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,4,6-Trichlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,4,6-Trichlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,4,6-Trichlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,4,6-Trichlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,4,6-Trichlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,4,6-Trichlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,4,6-Trichlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,4,6-Trichlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,4,6-Trichlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,4,6-Trichlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,4,6-Trichlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,4,6-Trichlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,4,6-Trichlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,4,6-Trichlorophenol	9303-FLH-01-01	9303-FLH-01-D1	< 133	< 166	NC	NC	NC
2,4,6-Trichlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,4,6-Trichlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,4,6-Trichlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,4,6-Trichlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,4,6-Trichlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,4-Dichlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,4-Dichlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,4-Dichlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,4-Dichlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,4-Dichlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,4-Dichlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,4-Dichlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,4-Dichlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,4-Dichlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,4-Dichlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,4-Dichlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4-Dichlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,4-Dichlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,4-Dichlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,4-Dichlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,4-Dichlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,4-Dichlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,4-Dichlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,4-Dichlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,4-Dichlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,4-Dichlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,4-Dichlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,4-Dichlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,4-Dichlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,4-Dichlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,4-Dichlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,4-Dimethylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,4-Dimethylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,4-Dimethylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,4-Dimethylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,4-Dimethylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,4-Dimethylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,4-Dimethylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,4-Dimethylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,4-Dimethylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,4-Dimethylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,4-Dimethylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,4-Dimethylphenol	93D3-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,4-Dimethylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,4-Dimethylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,4-Dimethylphenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,4-Dimethylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4-Dimethylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,4-Dimethylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,4-Dimethylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,4-Dimethylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,4-Dimethylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,4-Dimethylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,4-Dimethylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,4-Dimethylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,4-Dimethylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,4-Dimethylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,4-Dinitrophenol	9303-AA-01-01	9303-AA-01-01	< 334	< 329	NC	NC	NC
2,4-Dinitrophenol	9303-AC-01-01	9303-AC-01-01	< 298	< 364	NC	NC	NC
2,4-Dinitrophenol	9303-AC-01-02	9303-AC-01-02	< 228	< 326	NC	NC	NC
2,4-Dinitrophenol	9303-AD-01-01	9303-AD-01-01	< 302	< 333	NC	NC	NC
2,4-Dinitrophenol	9303-ADT-01-01	9303-ADT-01-01	< 935	< 763	NC	NC	NC
2,4-Dinitrophenol	9303-AE-01-01	9303-AE-01-01	< 521	< 469	NC	NC	NC
2,4-Dinitrophenol	9303-AE-01-02	9303-AE-01-02	< 442	< 546	NC	NC	NC
2,4-Dinitrophenol	9303-AF-01-01	9303-AF-01-01	< 316	< 262	NC	NC	NC
2,4-Dinitrophenol	9303-AG-01-01	9303-AG-01-01	< 314	< 337	NC	NC	NC
2,4-Dinitrophenol	9303-ALH-01-01	9303-ALH-01-01	< 455	< 610	NC	NC	NC
2,4-Dinitrophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,4-Dinitrophenol	9303-ALH-03-01	9303-ALH-03-01	< 680	< 625	NC	NC	NC
2,4-Dinitrophenol	9303-ALS-01-01	9303-ALS-01-01	< 1563	< 1316	NC	NC	NC
2,4-Dinitrophenol	9303-ALS-02-01	9303-ALS-02-01	< 633	< 541	NC	NC	NC
2,4-Dinitrophenol	9303-BA-01-01	9303-BA-01-01	< 4292	< 4587	NC	NC	NC
2,4-Dinitrophenol	9303-BDT-01-01	9303-BDT-01-01	< 2128	< 2941	NC	NC	NC
2,4-Dinitrophenol	9303-BE-01-01	9303-BE-01-01	< 1550	< 2660	NC	NC	NC
2,4-Dinitrophenol	9303-FDT-02-01	9303-FDT-02-01	< 228	< 212	NC	NC	NC
2,4-Dinitrophenol	9303-FDT-03-01	9303-FDT-03-01	< 190	< 178	NC	NC	NC
2,4-Dinitrophenol	9303-FG-01-01	9303-FG-01-01	< 249	< 246	NC	NC	NC
2,4-Dinitrophenol	9303-FLH-01-01	9303-FLH-01-01	< 266	< 332	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,4-Dinitrophenol	9303-FLH-02-01	9303-FLH-02-01	< 329	< 441	NC	NC	NC
Method = SWB270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,4-Dinitrophenol	9303-FLH-03-01	9303-FLH-03-01	< 585	< 699	NC	NC	NC
2,4-Dinitrophenol	9303-GLS-01-01	9303-GLS-01-01	< 658	< 657	NC	NC	NC
2,4-Dinitrophenol	9303-IDT-01-01	9303-IDT-01-01	< 756	< 555	NC	NC	NC
2,4-Dinitrophenol	9303-NLS-01-01	9303-NLS-01-01	< 1073	< 672	NC	NC	NC
2,4-Dinitrotoluene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,4-Dinitrotoluene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,4-Dinitrotoluene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,4-Dinitrotoluene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,4-Dinitrotoluene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,4-Dinitrotoluene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,4-Dinitrotoluene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,4-Dinitrotoluene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,4-Dinitrotoluene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,4-Dinitrotoluene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,4-Dinitrotoluene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,4-Dinitrotoluene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,4-Dinitrotoluene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,4-Dinitrotoluene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,4-Dinitrotoluene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,4-Dinitrotoluene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,4-Dinitrotoluene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,4-Dinitrotoluene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,4-Dinitrotoluene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,4-Dinitrotoluene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,4-Dinitrotoluene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,4-Dinitrotoluene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,4-Dinitrotoluene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,4-Dinitrotoluene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,4-Dinitrotoluene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,4-Dinitrotoluene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample ID	Value	Ouplicate Value	Mean Value	Standard Deviation	RPD (%)
2,6-Dichlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,6-Dichlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,6-Dichlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,6-Dichlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,6-Dichlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2,6-Dichlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2,6-Dichlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,6-Dichlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,6-Dichlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,6-Dichlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,6-Dichlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,6-Dichlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,6-Dichlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,6-Dichlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,6-Dichlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,6-Dichlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,6-Dichlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,6-Dichlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,6-Dichlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,6-Dichlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,6-Dichlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,6-Dichlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,6-Dichlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,6-Dichlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,6-Dichlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,6-Dichlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2,6-Dinitrotoluene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2,6-Dinitrotoluene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2,6-Dinitrotoluene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2,6-Dinitrotoluene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2,6-Dinitrotoluene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,6-Dinitrotoluene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Method = SW827D - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2,6-Dinitrotoluene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2,6-Dinitrotoluene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2,6-Dinitrotoluene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2,6-Dinitrotoluene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2,6-Dinitrotoluene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2,6-Dinitrotoluene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2,6-Dinitrotoluene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2,6-Dinitrotoluene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2,6-Dinitrotoluene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2,6-Dinitrotoluene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2,6-Dinitrotoluene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2,6-Dinitrotoluene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2,6-Dinitrotoluene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2,6-Dinitrotoluene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2,6-Dinitrotoluene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2,6-Dinitrotoluene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2,6-Dinitrotoluene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2,6-Dinitrotoluene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2,6-Dinitrotoluene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2,6-Dinitrotoluene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Acetylaminofluorene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Acetylaminofluorene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Acetylaminofluorene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Acetylaminofluorene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Acetylaminofluorene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Acetylaminofluorene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Acetylaminofluorene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Acetylaminofluorene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Acetylaminofluorene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Acetylaminofluorene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Acetylaminofluorene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Acetylaminofluorene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Acetylaminofluorene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Acetylaminofluorene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Acetylaminofluorene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Acetylaminofluorene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Acetylaminofluorene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Acetylaminofluorene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Acetylaminofluorene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Acetylaminofluorene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Acetylaminofluorene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Acetylaminofluorene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Acetylaminofluorene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Acetylaminofluorene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Acetylaminofluorene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Acetylaminofluorene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Chloronaphthalene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Chloronaphthalene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Chloronaphthalene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Chloronaphthalene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Chloronaphthalene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Chloronaphthalene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Chloronaphthalene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Chloronaphthalene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Chloronaphthalene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Chloronaphthalene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Chloronaphthalene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Chloronaphthalene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Chloronaphthalene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Chloronaphthalene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Chloronaphthalene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Chloronaphthalene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Chloronaphthalene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Chloronaphthalene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Chloronaphthalene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Chloronaphthalene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Chloronaphthalene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Chloronaphthalene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Chloronaphthalene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Chloronaphthalene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Chloronaphthalene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Chloronaphthalene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Chlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Chlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Chlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Chlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Chlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Chlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Chlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Chlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Chlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Chlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Chlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Chlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Chlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Chlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Chlorophenol	9303-BA-D1-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Chlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Chlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Chlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Chlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Chlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Chlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Chlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Chlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Chlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Chlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Chlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Methylnaphthalene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Methylnaphthalene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Methylnaphthalene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Methylnaphthalene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Methylnaphthalene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Methylnaphthalene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Methylnaphthalene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Methylnaphthalene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Methylnaphthalene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Methylnaphthalene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Methylnaphthalene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Methylnaphthalene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Methylnaphthalene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Methylnaphthalene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Methylnaphthalene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Methylnaphthalene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Methylnaphthalene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Methylnaphthalene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Methylnaphthalene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Methylnaphthalene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Methylnaphthalene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Methylnaphthalene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Methylnaphthalene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Methylnaphthalene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Methylnaphthalene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Methylnaphthalene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Methylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Methylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Methylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Methylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Methylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Methylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Methylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Methylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Methylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Methylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Methylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Methylphenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Methylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Methylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Methylphenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Methylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Methylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Methylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Methylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Methylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Methylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Methylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Methylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Methylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Methylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Methylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Naphthylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Naphthylamine	93D3-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Naphthylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Naphthylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Naphthylamine	9303-ADT-01-01	9303-ADT-01-01	< 467		< 382	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.								
Type = Laboratory Replicate (ug/kg), cont.								
2-Naphthylamine	9303-AE-01-01	9303-AE-01-01	< 260		< 235	NC	NC	NC
2-Naphthylamine	9303-AE-01-02	9303-AE-01-02	< 221		< 273	NC	NC	NC
2-Naphthylamine	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
2-Naphthylamine	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC
2-Naphthylamine	9303-ALH-01-01	9303-ALH-01-01	< 227		< 305	NC	NC	NC
2-Naphthylamine	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299	NC	NC	NC
2-Naphthylamine	9303-ALH-03-01	9303-ALH-03-01	< 340		< 313	NC	NC	NC
2-Naphthylamine	9303-ALS-01-01	9303-ALS-01-01	< 781		< 658	NC	NC	NC
2-Naphthylamine	9303-ALS-02-01	9303-ALS-02-01	< 316		< 270	NC	NC	NC
2-Naphthylamine	9303-BA-01-01	9303-BA-01-01	< 2146		< 2294	NC	NC	NC
2-Naphthylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064		< 1471	NC	NC	NC
2-Naphthylamine	9303-BE-01-01	9303-BE-01-01	377.8	(J)	< 1330	NC	NC	NC
2-Naphthylamine	9303-FDT-02-01	9303-FDT-02-01	< 114		< 106	NC	NC	NC
2-Naphthylamine	9303-FDT-03-01	9303-FDT-03-01	< 95		< 89	NC	NC	NC
2-Naphthylamine	9303-FG-01-01	9303-FG-01-01	< 125		< 123	NC	NC	NC
2-Naphthylamine	9303-FLH-01-01	9303-FLH-01-01	< 133		< 166	NC	NC	NC
2-Naphthylamine	9303-FLH-02-01	9303-FLH-02-01	< 164		< 220	NC	NC	NC
2-Naphthylamine	9303-FLH-03-01	9303-FLH-03-01	< 292		< 350	NC	NC	NC
2-Naphthylamine	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328	NC	NC	NC
2-Naphthylamine	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277	NC	NC	NC
2-Naphthylamine	9303-NLS-01-01	9303-NLS-01-01	< 536		< 336	NC	NC	NC
2-Nitroaniline	9303-AA-01-01	9303-AA-01-01	< 167		< 164	NC	NC	NC
2-Nitroaniline	9303-AC-01-01	9303-AC-01-01	< 149		< 182	NC	NC	NC
2-Nitroaniline	9303-AC-01-02	9303-AC-01-02	< 114		< 163	NC	NC	NC
2-Nitroaniline	9303-AD-01-01	9303-AD-01-01	< 151		< 167	NC	NC	NC
2-Nitroaniline	9303-ADT-01-01	9303-ADT-01-01	< 467		< 382	NC	NC	NC
2-Nitroaniline	9303-AE-01-01	9303-AE-01-01	< 260		< 235	NC	NC	NC
2-Nitroaniline	9303-AE-01-02	9303-AE-01-02	< 221		< 273	NC	NC	NC
2-Nitroaniline	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
2-Nitroaniline	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Nitroaniline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Nitroaniline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Nitroaniline	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Nitroaniline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Nitroaniline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Nitroaniline	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Nitroaniline	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Nitroaniline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Nitroaniline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Nitroaniline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Nitroaniline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Nitroaniline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Nitroaniline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Nitroaniline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Nitroaniline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Nitroaniline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Nitroaniline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Nitrophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Nitrophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Nitrophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Nitrophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Nitrophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Nitrophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Nitrophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Nitrophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Nitrophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Nitrophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Nitrophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Nitrophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Nitrophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Nitrophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Nitrophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Nitrophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
2-Nitrophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Nitrophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Nitrophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
2-Nitrophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
2-Nitrophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Nitrophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Nitrophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Nitrophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Nitrophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Nitrophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
2-Picoline	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
2-Picoline	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
2-Picoline	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
2-Picoline	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
2-Picoline	9303-ADT-D1-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
2-Picoline	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
2-Picoline	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
2-Picoline	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
2-Picoline	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
2-Picoline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
2-Picoline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
2-Picoline	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
2-Picoline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
2-Picoline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
2-Picoline	9303-BA-01-D1	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
2-Picoline	9303-BDT-01-01	9303-BDT-D1-01	< 1064	< 1471	NC	NC	NC
2-Picoline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
2-Picoline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
2-Picoline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2-Picoline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
2-Picoline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
2-Picoline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
2-Picoline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
2-Picoline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
2-Picoline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
2-Picoline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
3,3-Dichlorobenzidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
3,3-Dichlorobenzidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
3,3-Dichlorobenzidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
3,3-Dichlorobenzidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
3,3-Dichlorobenzidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
3,3-Dichlorobenzidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
3,3-Dichlorobenzidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
3,3-Dichlorobenzidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
3,3-Dichlorobenzidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
3,3-Dichlorobenzidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
3,3-Dichlorobenzidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
3,3-Dichlorobenzidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
3,3-Dichlorobenzidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
3,3-Dichlorobenzidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
3,3-Dichlorobenzidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
3,3-Dichlorobenzidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
3,3-Dichlorobenzidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
3,3-Dichlorobenzidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
3,3-Dichlorobenzidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
3,3-Dichlorobenzidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
3,3-Dichlorobenzidine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
3,3-Dichlorobenzidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
3,3-Dichlorobenzidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
3,3-Dichlorobenzidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
3,3-Dichlorobenzidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
3,3-Dichlorobenzidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
3,3-Dimethoxybenzidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
3,3-Dimethoxybenzidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
3,3-Dimethoxybenzidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
3,3-Dimethoxybenzidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
3,3-Dimethoxybenzidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
3,3-Dimethoxybenzidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
3,3-Dimethoxybenzidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
3,3-Dimethoxybenzidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
3,3-Dimethoxybenzidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
3-Methylchloroanthrene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
3-Methylchloroanthrene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
3-Methylchloroanthrene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
3-Methylchloroanthrene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
3-Methylchloroanthrene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
3-Methylchloroanthrene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
3-Methylchloroanthrene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
3-Methylchloroanthrene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
3-Methylchloroanthrene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
3-Methylchloroanthrene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
3-Methylchloroanthrene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
3-Methylchloroanthrene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
3-Methylchloroanthrene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
3-Methylchloroanthrene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
3-Methylchloroanthrene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
3-Methylchloroanthrene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
3-Methylchloroanthrene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
3-Methylchloroanthrene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
3-Methylchloroanthrene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
3-Methylchloroanthrene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
3-Methylchloroanthrene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
3-Methylchloroanthrene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
3-Methylchloroanthrene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
3-Methylchloroanthrene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
3-Methylchloroanthrene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
3-Methylchloroanthrene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
3-Methylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
3-Methylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
3-Methylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
3-Methylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
3-Methylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
3-Methylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
3-Methylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
3-Methylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
3-Methylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
3-Methylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
3-Methylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
3-Methylphenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
3-Methylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
3-Methylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
3-Methylphenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
3-Methylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
3-Methylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
3-Methylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
3-Methylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
3-Methylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
3-Methylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
3-Methylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
3-Methylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
3-Methylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
3-Methylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
3-Methylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
3-Nitroaniline	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
3-Nitroaniline	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
3-Nitroaniline	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
3-Nitroaniline	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
3-Nitroaniline	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
3-Nitroaniline	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
3-Nitroaniline	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
3-Nitroaniline	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
3-Nitroaniline	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
3-Nitroaniline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
3-Nitroaniline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
3-Nitroaniline	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
3-Nitroaniline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
3-Nitroaniline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
3-Nitroaniline	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
3-Nitroaniline	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
3-Nitroaniline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
3-Nitroaniline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
3-Nitroaniline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
3-Nitroaniline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
3-Nitroaniline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
3-Nitroaniline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
3-Nitroaniline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
3-Nitroaniline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
3-Nitroaniline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
3-Nitroaniline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4,6-Dinitro-2-methylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4,6-Dinitro-2-methylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4,6-Dinitro-2-methylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Aminobiphenyl	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Aminobiphenyl	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Aminobiphenyl	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Aminobiphenyl	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Aminobiphenyl	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Aminobiphenyl	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Aminobiphenyl	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Aminobiphenyl	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Aminobiphenyl	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Aminobiphenyl	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Aminobiphenyl	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Aminobiphenyl	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Aminobiphenyl	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Aminobiphenyl	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Aminobiphenyl	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Aminobiphenyl	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Aminobiphenyl	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Aminobiphenyl	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Aminobiphenyl	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Aminobiphenyl	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Aminobiphenyl	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Aminobiphenyl	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Aminobiphenyl	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Aminobiphenyl	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Aminobiphenyl	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Aminobiphenyl	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Bromophenyl-phenylether	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Bromophenyl-phenylether	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Bromophenyl-phenylether	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Bromophenyl-phenylether	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Bromophenyl-phenylether	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Bromophenyl-phenylether	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Bromophenyl-phenylether	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Bromophenyl-phenylether	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Bromophenyl-phenylether	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Bromophenyl-phenylether	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Bromophenyl-phenylether	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Bromophenyl-phenylether	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Bromophenyl-phenylether	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Bromophenyl-phenylether	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Bromophenyl-phenylether	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Bromophenyl-phenylether	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Bromophenyl-phenylether	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Bromophenyl-phenylether	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Bromophenyl-phenylether	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Bromophenyl-phenylether	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Bromophenyl-phenylether	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Bromophenyl-phenylether	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Bromophenyl-phenylether	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Bromophenyl-phenylether	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Bromophenyl-phenylether	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Bromophenyl-phenylether	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Chloro-3-methylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Chloro-3-methylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Chloro-3-methylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Chloro-3-methylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Chloro-3-methylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Chloro-3-methylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Chloro-3-methylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Chloro-3-methylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Chloro-3-methylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Chloro-3-methylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Chloro-3-methylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Chloro-3-methylphenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Chloro-3-methylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Chloro-3-methylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Chloro-3-methylphenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Chloro-3-methylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Chloro-3-methylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Chloro-3-methylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Chloro-3-methylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Chloro-3-methylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Chloro-3-methylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Chloro-3-methylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Chloro-3-methylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Chloro-3-methylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Chloro-3-methylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Chloro-3-methylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Chloroaniline	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Chloroaniline	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Chloroaniline	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Chloroaniline	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Chloroaniline	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Chloroaniline	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Chloroaniline	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Chloroaniline	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Chloroaniline	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Chloroaniline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Chloroaniline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Chloroaniline	9803-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Chloroaniline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Chloroaniline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Chloroaniline	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Chloroaniline	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Chloroaniline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Chloroaniline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Chloroaniline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Chloroaniline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Chloroaniline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Chloroaniline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Chloroaniline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Chloroaniline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Chloroaniline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Chloroaniline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Chlorophenyl-phenylether	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Chlorophenyl-phenylether	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Chlorophenyl-phenylether	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Chlorophenyl-phenylether	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Chlorophenyl-phenylether	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Chlorophenyl-phenylether	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Chlorophenyl-phenylether	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Chlorophenyl-phenylether	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Chlorophenyl-phenylether	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Chlorophenyl-phenylether	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Chlorophenyl-phenylether	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Chlorophenyl-phenylether	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Chlorophenyl-phenylether	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Chlorophenyl-phenylether	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Methylphenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Methylphenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Methylphenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Methylphenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Methylphenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Methylphenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Methylphenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Methylphenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Methylphenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Methylphenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Methylphenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Methylphenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Methylphenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Methylphenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Methylphenol	9303-BA-D1-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Methylphenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Methylphenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Methylphenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Methylphenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Methylphenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Methylphenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Methylphenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Methylphenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Methylphenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Methylphenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Methylphenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Nitroaniline	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Nitroaniline	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Nitroaniline	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Nitroaniline	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Nitroaniline	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Nitroaniline	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Nitroaniline	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Nitroaniline	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Nitroaniline	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Nitroaniline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Nitroaniline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Nitroaniline	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Nitroaniline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Nitroaniline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Nitroaniline	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Nitroaniline	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Nitroaniline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Nitroaniline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Nitroaniline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Nitroaniline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Nitroaniline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Nitroaniline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Nitroaniline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Nitroaniline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Nitroaniline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Nitroaniline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Nitrophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
4-Nitrophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
4-Nitrophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Nitrophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Nitrophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Nitrophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Nitrophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Nitrophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Nitrophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Nitrophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Nitrophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Nitrophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Nitrophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Nitrophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Nitrophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Nitrophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Nitrophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Nitrophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Nitrophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Nitrophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Nitrophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Nitrophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Nitrophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Nitrophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Nitrophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Nitrophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
4-Nitroquinoline-1-oxide	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
4-Nitroquinoline-1-oxide	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
4-Nitroquinoline-1-oxide	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
5-Nitro-o-toluidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
5-Nitro-o-toluidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
5-Nitro-o-toluidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
5-Nitro-o-toluidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
5-Nitro-o-toluidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
5-Nitro-o-toluidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
5-Nitro-o-toluidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
5-Nitro-o-toluidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
5-Nitro-o-toluidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
5-Nitro-o-toluidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
5-Nitro-o-toluidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
5-Nitro-o-toluidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
5-Nitro-o-toluidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
5-Nitro-o-toluidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
5-Nitro-o-toluidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
5-Nitro-o-toluidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
5-Nitro-o-toluidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
5-Nitro-o-toluidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
5-Nitro-o-toluidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
5-Nitro-o-toluidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
5-Nitro-o-toluidine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
5-Nitro-o-toluidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
5-Nitro-o-toluidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
5-Nitro-o-toluidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
5-Nitro-o-toluidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
5-Nitro-o-toluidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
7,12-Dimethylbenz(a)anthracene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
7,12-Dimethylbenz(a)anthracene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
7,12-Dimethylbenz(a)anthracene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Acenaphthene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Acenaphthene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Acenaphthene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Acenaphthene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Acenaphthene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Acenaphthene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Acenaphthene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Acenaphthene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Acenaphthene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Acenaphthene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Acenaphthene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Acenaphthene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Acenaphthene	93D3-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Acenaphthene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Acenaphthene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Acenaphthene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Acenaphthene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Acenaphthene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Acenaphthene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Acenaphthene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Acenaphthene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Acenaphthene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Acenaphthene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Acenaphthene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Acenaphthene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Acenaphthene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Acenaphthylene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Acenaphthylene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Acenaphthylene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Acenaphthylene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Acenaphthylene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Acenaphthylene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Acenaphthylene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Acenaphthylene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Acenaphthylene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Acenaphthylene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Acenaphthylene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Acenaphthylene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Acenaphthylene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Acenaphthylene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Acenaphthylene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Acenaphthylene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Acenaphthylene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Acenaphthylene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Acenaphthylene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Acenaphthylene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Acenaphthylene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Acenaphthylene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Acenaphthylene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Acenaphthylene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Acenaphthylene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Acenaphthylene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Acetophenone	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Acetophenone	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Acetophenone	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Acetophenone	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Acetophenone	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Acetophenone	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Acetophenone	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Acetophenone	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Acetophenone	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Acetophenone	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Acetophenone	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Acetophenone	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Acetophenone	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Acetophenone	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Acetophenone	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Acetophenone	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Acetophenone	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Acetophenone	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Acetophenone	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Acetophenone	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Acetophenone	9303-FLH-01-01	9303-FLH-01-01	767.5	< 166	NC	NC	NC
Acetophenone	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Acetophenone	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Acetophenone	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Acetophenone	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Acetophenone	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Aniline	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Aniline	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Aniline	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Aniline	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Aniline	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Aniline	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Aniline	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Aniline	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Aniline	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Aniline	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Aniline	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Aniline	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Aniline	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Aniline	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Aniline	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Aniline	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Aniline	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Aniline	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Aniline	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Aniline	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Aniline	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Aniline	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Aniline	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Aniline	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Aniline	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Aniline	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Anthracene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Anthracene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Anthracene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Anthracene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Anthracene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Anthracene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Anthracene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Anthracene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Anthracene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Anthracene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Anthracene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Anthracene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Anthracene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Anthracene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Anthracene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Anthracene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Anthracene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Anthracene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Anthracene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Anthracene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Anthracene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Anthracene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Anthracene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Anthracene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Anthracene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Anthracene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Aramite (peak 1)	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Aramite (peak 1)	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Aramite (peak 1)	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Aramite (peak 1)	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Aramite (peak 1)	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Aramite (peak 1)	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Aramite (peak 1)	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Aramite (peak I)	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Aramite (peak 1)	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Aramite (peak I)	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Aramite (peak 1)	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Aramite (peak 1)	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Aramite (peak 1)	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Aramite (peak 1)	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Aramite (peak 1)	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Aramite (peak 1)	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Aramite (peak 1)	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Aramite (peak 1)	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Aramite (peak 1)	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Aramite (peak 1)	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Aramite (peak 1)	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Aramite (peak 1)	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Aramite (peak 1)	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Aramite (peak 1)	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Aramite (peak 1)	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Aramite (peak 1)	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Aramite (peak 2)	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Aramite (peak 2)	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Aramite (peak 2)	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Aramite (peak 2)	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Aramite (peak 2)	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Aramite (peak 2)	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Aramite (peak 2)	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Aramite (peak 2)	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Aramite (peak 2)	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Aramite (peak 2)	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Aramite (peak 2)	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Aramite (peak 2)	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Aramite (peak 2)	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Aramite (peak 2)	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Aramite (peak 2)	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Aramite (peak 2)	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Aramite (peak 2)	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Aramite (peak 2)	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Aramite (peak 2)	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Aramite (peak 2)	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Aramite (peak 2)	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Aramite (peak 2)	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Aramite (peak 2)	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Aramite (peak 2)	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Aramite (peak 2)	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Aramite (peak 2)	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Benzo(a)anthracene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Benzo(a)anthracene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzo(a)anthracene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzo(a)anthracene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Benzo(a)anthracene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Benzo(a)anthracene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Benzo(a)anthracene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Benzo(a)anthracene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzo(a)anthracene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Benzo(a)anthracene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Benzo(a)anthracene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzo(a)anthracene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzo(a)anthracene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzo(a)anthracene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Benzo(a)anthracene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Benzo(a)anthracene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzo(a)anthracene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzo(a)anthracene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzo(a)anthracene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzo(a)anthracene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Benzo(a)anthracene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Benzo(a)anthracene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzo(a)anthracene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzo(a)anthracene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzo(a)anthracene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Benzo(a)anthracene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Benzo(a)pyrene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Benzo(a)pyrene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzo(a)pyrene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzo(a)pyrene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Benzo(a)pyrene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Benzo(a)pyrene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Benzo(a)pyrene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Benzo(a)pyrene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzo(a)pyrene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Benzo(a)pyrene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Benzo(a)pyrene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzo(a)pyrene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzo(a)pyrene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzo(a)pyrene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Benzo(a)pyrene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Benzo(a)pyrene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzo(a)pyrene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzo(a)pyrene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzo(a)pyrene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzo(a)pyrene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Benzo(a)pyrene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Benzo(a)pyrene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzo(a)pyrene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzo(a)pyrene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzo(a)pyrene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Benzo(a)pyrene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Benzo(b)fluoranthene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Benzo(b)fluoranthene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzo(b)fluoranthene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzo(b)fluoranthene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Benzo(b)fluoranthene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Benzo(b)fluoranthene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Benzo(b)fluoranthene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Benzo(b)fluoranthene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzo(b)fluoranthene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Benzo(b)fluoranthene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Benzo(b)fluoranthene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzo(b)fluoranthene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzo(b)fluoranthene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzo(b)fluoranthene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Benzo(b)fluoranthene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Benzo(b)fluoranthene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzo(b)fluoranthene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzo(b)fluoranthene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzo(b)fluoranthene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzo(b)fluoranthene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Benzo(b)fluoranthene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Benzo(b)fluoranthene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzo(b)fluoranthene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzo(b)fluoranthene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzo(b)fluoranthene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Benzo(b)fluoranthene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Benzo(g,h,i)perylene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Benzo(g,h,i)perylene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzo(g,h,i)perylene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzo(g,h,i)perylene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Benzo(g,h,i)perylene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Benzo(g,h,i)perylene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Benzo(g,h,i)perylene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Benzo(g,h,i)perylene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzo(g,h,i)perylene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Benzo(g,h,i)perylene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Benzo(g,h,i)perylene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzo(g,h,i)perylene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzo(g,h,i)perylene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzo(g,h,i)perylene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Benzo(g,h,i)perylene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Benzo(g,h,i)perylene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzo(g,h,i)perylene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzo(g,h,i)perylene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzo(g,h,i)perylene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzo(g,h,i)perylene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Benzo(g,h,i)perylene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Benzo(g,h,i)perylene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzo(g,h,i)perylene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzo(g,h,i)perylene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzo(g,h,i)perylene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Benzo(g,h,i)perylene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Benzo(k)fluoranthene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Benzo(k)fluoranthene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzo(k)fluoranthene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzo(k)fluoranthene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Benzo(k)fluoranthene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Benzo(k)fluoranthene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Benzo(k)fluoranthene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Benzo(k)fluoranthene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzo(k)fluoranthene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Benzo(k)fluoranthene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Benzo(k)fluoranthene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzo(k)fluoranthene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzo(k)fluoranthene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzo(k)fluoranthene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Benzo(k)fluoranthene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Benzo(k)fluoranthene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzo(k)fluoranthene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzo(k)fluoranthene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzo(k)fluoranthene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzo(k)fluoranthene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Benzo(k)fluoranthene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Benzo(k)fluoranthene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzo(k)fluoranthene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzo(k)fluoranthene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzo(k)fluoranthene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Benzo(k)fluoranthene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Benzyl alcohol	9303-AA-01-01	9303-AA-01-01	< 167	694.6	NC	NC	NC
Benzyl alcohol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Benzyl alcohol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Benzyl alcohol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Benzyl alcohol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Benzyl alcohol	9303-AE-01-01	9303-AE-01-01	847.8	< 235	NC	NC	NC
Benzyl alcohol	9303-AE-01-02	9303-AE-01-02	677.2	< 273	NC	NC	NC
Benzyl alcohol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Benzyl alcohol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Benzyl alcohol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Benzyl alcohol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Benzyl alcohol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Benzyl alcohol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Benzyl alcohol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Benzyl alcohol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Benzyl alcohol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Benzyl alcohol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Benzyl alcohol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Benzyl alcohol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Benzyl alcohol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Benzyl alcohol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Benzyl alcohol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Benzyl alcohol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Benzyl alcohol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Benzyl alcohol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Benzyl alcohol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Butylbenzylphthalate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Butylbenzylphthalate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Butylbenzylphthalate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Butylbenzylphthalate	9303-AD-01-01	9303-AO-01-01	< 151	< 167	NC	NC	NC
Butylbenzylphthalate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Butylbenzylphthalate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Butylbenzylphthalate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Butylbenzylphthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Butylbenzylphthalate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Butylbenzylphthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Butylbenzylphthalate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Butylbenzylphthalate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Butylbenzylphthalate	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Butylbenzylphthalate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Butylbenzylphthalate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Butylbenzylphthalate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Butylbenzylphthalate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Butylbenzylphthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Butylbenzylphthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC

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Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Butylbenzylphthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Butylbenzylphthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Butylbenzylphthalate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Butylbenzylphthalate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Butylbenzylphthalate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Butylbenzylphthalate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Butylbenzylphthalate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Chlorobenzilate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Chlorobenzilate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Chlorobenzilate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Chlorobenzilate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Chlorobenzilate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Chlorobenzilate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Chlorobenzilate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Chlorobenzilate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Chlorobenzilate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Chlorobenzilate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Chlorobenzilate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Chlorobenzilate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Chlorobenzilate	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Chlorobenzilate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Chlorobenzilate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Chlorobenzilate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Chlorobenzilate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Chlorobenzilate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Chlorobenzilate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Chlorobenzilate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Chlorobenzilate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Chlorobenzilate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Chlorobenzilate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Chlorobenzilate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Chlorobenzilate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Method = SW8270 - Semivolatile Drganics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Chlorobenzilate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Chrysene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Chrysene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Chrysene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Chrysene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Chrysene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Chrysene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Chrysene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Chrysene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Chrysene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Chrysene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Chrysene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Chrysene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Chrysene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Chrysene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Chrysene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Chrysene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Chrysene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Chrysene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Chrysene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Chrysene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Chrysene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Chrysene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Chrysene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Chrysene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Chrysene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Chrysene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Di-n-butylphthalate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Di-n-butylphthalate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Di-n-butylphthalate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Di-n-butylphthalate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Di-n-butylphthalate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Di-n-butylphthalate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Di-n-butylphthalate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Di-n-butylphthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Di-n-butylphthalate	9303-AG-01-01	9303-AG-01-01	< 157	170.3	NC	NC	NC
Di-n-butylphthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Di-n-butylphthalate	9303-ALH-02-D1	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Di-n-butylphthalate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Di-n-butylphthalate	9303-ALS-01-01	9303-ALS-01-01	1942.	< 658	NC	NC	NC
Di-n-butylphthalate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Di-n-butylphthalate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Di-n-butylphthalate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Di-n-butylphthalate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Di-n-butylphthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Di-n-butylphthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Di-n-butylphthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Di-n-butylphthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Di-n-butylphthalate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Di-n-butylphthalate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Di-n-butylphthalate	9303-GLS-01-01	9303-GLS-01-01	832.7	2515.2	1673.95	1189.7	101
Di-n-butylphthalate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Di-n-butylphthalate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Di-n-octyphthalate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Di-n-octyphthalate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Di-n-octyphthalate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Di-n-octyphthalate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Di-n-octyphthalate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Di-n-octyphthalate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Di-n-octyphthalate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Di-n-octyphthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Di-n-octyphthalate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Di-n-octyphthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Di-n-octyphthalate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Di-n-octyphthalate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Di-n-octyphthalate	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Di-n-octyphthalate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Di-n-octyphthalate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Di-n-octyphthalate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Di-n-octyphthalate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Di-n-octyphthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Di-n-octyphthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Di-n-octyphthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Di-n-octyphthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Di-n-octyphthalate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Di-n-octyphthalate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Di-n-octyphthalate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Di-n-octyphthalate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Di-n-octyphthalate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Diallate (peak 1)	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Diallate (peak 1)	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Diallate (peak 1)	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Diallate (peak 1)	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Diallate (peak I)	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Diallate (peak 1)	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Diallate (peak 1)	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Diallate (peak 1)	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Diallate (peak 1)	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Diallate (peak 1)	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Diallate (peak 1)	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Diallate (peak 1)	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Diallate (peak 1)	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Diallate (peak 1)	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Diallate (peak 1)	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Diallate (peak 1)	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Diallate (peak 1)	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Diallate (peak 1)	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Diallate (peak 1)	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Diallate (peak 1)	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Diallate (peak 1)	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Diallate (peak 1)	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Diallate (peak 1)	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Diallate (peak 1)	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Diallate (peak 1)	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Diallate (peak 1)	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Diallate (peak 2)	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Diallate (peak 2)	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Diallate (peak 2)	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Diallate (peak 2)	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Diallate (peak 2)	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Diallate (peak 2)	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Diallate (peak 2)	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Diallate (peak 2)	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Diallate (peak 2)	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Diallate (peak 2)	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Diallate (peak 2)	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Diallate (peak 2)	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Diallate (peak 2)	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Diallate (peak 2)	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Diallate (peak 2)	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Diallate (peak 2)	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Diallate (peak 2)	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Diallate (peak 2)	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Diallate (peak 2)	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Diallate (peak 2)	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Diallate (peak 2)	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Diallate (peak 2)	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Diallate (peak 2)	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Diallate (peak 2)	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Diallate (peak 2)	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Diallate (peak 2)	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Dibenz(a,h)anthracene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Dibenz(a,h)anthracene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Dibenz(a,h)anthracene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Dibenz(a,h)anthracene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Dibenz(a,h)anthracene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Dibenz(a,h)anthracene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Dibenz(a,h)anthracene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Dibenz(a,h)anthracene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Dibenz(a,h)anthracene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Dibenz(a,h)anthracene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Dibenz(a,h)anthracene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Dibenz(a,h)anthracene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Dibenz(a,h)anthracene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Dibenz(a,h)anthracene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Dibenz(a,h)anthracene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Dibenz(a,h)anthracene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Dibenz(a,h)anthracene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Dibenz(a,h)anthracene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Dibenz(a,h)anthracene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Dibenz(a,h)anthracene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Dibenz(a,h)anthracene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Dibenz(a,h)anthracene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Dibenz(a,h)anthracene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Dibenz(a,h)anthracene	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328	NC	NC	NC

Method = SW8270 - Semivolatile Organics, cont.

Type = Laboratory Replicate (ug/kg), cont.

Dibenz(a,h)anthracene	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277	NC	NC	NC
Dibenz(a,h)anthracene	9303-NLS-01-01	9303-NLS-01-01	< 536		< 336	NC	NC	NC
Dibenzofuran	9303-AA-01-01	9303-AA-01-01	< 167		< 164	NC	NC	NC
Dibenzofuran	9303-AC-01-01	9303-AC-01-01	79.1	(J)	< 182	NC	NC	NC
Dibenzofuran	9303-AC-01-02	9303-AC-01-02	64.8	(J)	< 163	NC	NC	NC
Dibenzofuran	9303-AD-01-01	9303-AD-01-01	< 151		< 167	NC	NC	NC
Dibenzofuran	9303-ADT-01-01	9303-ADT-01-01	< 467		< 382	NC	NC	NC
Dibenzofuran	9303-AE-01-01	9303-AE-01-01	< 260		< 235	NC	NC	NC
Dibenzofuran	9303-AE-01-02	9303-AE-01-02	< 221		< 273	NC	NC	NC
Dibenzofuran	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
Dibenzofuran	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC
Dibenzofuran	9303-ALH-01-01	9303-ALH-01-01	< 227		< 305	NC	NC	NC
Dibenzofuran	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299	NC	NC	NC
Dibenzofuran	9303-ALH-03-01	9303-ALH-03-01	< 340		< 313	NC	NC	NC
Dibenzofuran	9303-ALS-01-01	9303-ALS-01-01	< 781		< 658	NC	NC	NC
Dibenzofuran	9303-ALS-02-01	9303-ALS-02-01	< 316		< 270	NC	NC	NC
Dibenzofuran	9303-BA-01-01	9303-BA-01-01	< 2146		< 2294	NC	NC	NC
Dibenzofuran	9303-BDT-01-01	9303-BDT-01-01	< 1064		< 1471	NC	NC	NC
Dibenzofuran	9303-BE-01-01	9303-BE-01-01	< 775		< 1330	NC	NC	NC
Dibenzofuran	9303-FDT-02-01	9303-FDT-02-01	< 114		< 106	NC	NC	NC
Dibenzofuran	9303-FDT-03-01	9303-FDT-03-01	< 95		< 89	NC	NC	NC
Dibenzofuran	9303-FG-01-01	9303-FG-01-01	< 125		< 123	NC	NC	NC
Dibenzofuran	9303-FLH-01-01	9303-FLH-01-01	< 133		< 166	NC	NC	NC
Dibenzofuran	9303-FLH-02-01	9303-FLH-02-01	< 164		< 220	NC	NC	NC
Dibenzofuran	9303-FLH-03-01	9303-FLH-03-01	< 292		< 350	NC	NC	NC
Dibenzofuran	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328	NC	NC	NC
Dibenzofuran	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277	NC	NC	NC
Dibenzofuran	9303-NLS-01-01	9303-NLS-01-01	< 536		< 336	NC	NC	NC
Diethylphthalate	9303-AA-01-01	9303-AA-01-01	< 167		< 164	NC	NC	NC
Diethylphthalate	9303-AC-01-01	9303-AC-01-01	< 149		< 182	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Diethylphthalate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Diethylphthalate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Diethylphthalate	9303-ADT-01-01	9303-ADT-01-01	859	< 382	NC	NC	NC
Diethylphthalate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Diethylphthalate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Diethylphthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Diethylphthalate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Diethylphthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Diethylphthalate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Diethylphthalate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Diethylphthalate	9303-ALS-01-01	9303-ALS-01-01	< 781	1193.2	NC	NC	NC
Diethylphthalate	9303-ALS-02-01	9303-ALS-02-01	< 316	1947	NC	NC	NC
Diethylphthalate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Diethylphthalate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Diethylphthalate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Diethylphthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Diethylphthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Diethylphthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Diethylphthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Diethylphthalate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Diethylphthalate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Diethylphthalate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Diethylphthalate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Diethylphthalate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Dimethylphenethyamine	9303-AA-01-01	9303-AA-01-01	< 2007	< 1974	NC	NC	NC
Dimethylphenethyamine	9303-AC-01-01	9303-AC-01-01	< 1786	< 2182	NC	NC	NC
Dimethylphenethyamine	9303-AC-01-02	9303-AC-01-02	< 1370	< 1954	NC	NC	NC
Dimethylphenethyamine	9303-AD-01-01	9303-AD-01-01	< 1813	< 2000	NC	NC	NC
Dimethylphenethyamine	9303-ADT-01-01	9303-ADT-01-01	< 5607	< 4580	NC	NC	NC
Dimethylphenethyamine	9303-AE-01-01	9303-AE-01-01	< 3125	< 2817	NC	NC	NC
Dimethylphenethyamine	9303-AE-01-02	9303-AE-01-02	< 2655	< 3279	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Dimethylphenethyamine	9303-AF-01-01	9303-AF-01-01	< 1899	< 1571	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Dimethylphenethyamine	9303-AG-01-01	9303-AG-01-01	< 1887	< 2020	NC	NC	NC
Dimethylphenethyamine	9303-ALH-01-01	9303-ALH-01-01	< 2727	< 3659	NC	NC	NC
Dimethylphenethyamine	9303-ALH-02-01	9303-ALH-02-01	< 3175	< 3593	NC	NC	NC
Dimethylphenethyamine	9303-ALH-03-01	9303-ALH-03-01	< 4082	< 3750	NC	NC	NC
Dimethylphenethyamine	9303-ALS-01-01	9303-ALS-01-01	< 9375	< 7895	NC	NC	NC
Dimethylphenethyamine	9303-ALS-02-01	9303-ALS-02-01	< 3797	< 3243	NC	NC	NC
Dimethylphenethyamine	9303-BA-01-01	9303-BA-01-01	< 25751	< 27523	NC	NC	NC
Dimethylphenethyamine	9303-BDT-01-01	9303-BDT-01-01	< 12766	< 17647	NC	NC	NC
Dimethylphenethyamine	9303-BE-01-01	9303-BE-01-01	< 9302	< 15957	NC	NC	NC
Dimethylphenethyamine	9303-FDT-02-01	9303-FDT-02-01	< 1367	< 1271	NC	NC	NC
Dimethylphenethyamine	9303-FDT-03-01	9303-FDT-03-01	< 1141	< 1068	NC	NC	NC
Dimethylphenethyamine	9303-FG-01-01	9303-FG-01-01	< 1496	< 1478	NC	NC	NC
Dimethylphenethyamine	9303-FLH-01-01	9303-FLH-01-01	< 1596	< 1993	NC	NC	NC
Dimethylphenethyamine	9303-FLH-02-01	9303-FLH-02-01	< 1974	< 2643	NC	NC	NC
Dimethylphenethyamine	9303-FLH-03-01	9303-FLH-03-01	< 3509	< 4196	NC	NC	NC
Dimethylphenethyamine	9303-GLS-01-01	9303-GLS-01-01	< 3947	< 3940	NC	NC	NC
Dimethylphenethyamine	9303-IDT-01-01	9303-IDT-01-01	< 4539	< 3328	NC	NC	NC
Dimethylphenethyamine	9303-NLS-01-01	9303-NLS-01-01	< 6438	< 4032	NC	NC	NC
Dimethylphthalate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Dimethylphthalate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Dimethylphthalate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Dimethylphthalate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Dimethylphthalate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Dimethylphthalate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Dimethylphthalate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Dimethylphthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Dimethylphthalate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Dimethylphthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Dimethylphthalate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Dimethylphthalate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Dimethylphthalate	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Dimethylphthalate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Dimethylphthalate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Dimethylphthalate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Dimethylphthalate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Dimethylphthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Dimethylphthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Dimethylphthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Dimethylphthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Dimethylphthalate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Dimethylphthalate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Dimethylphthalate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Dimethylphthalate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Dimethylphthalate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Diphenylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Diphenylamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Diphenylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Diphenylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Diphenylamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Diphenylamine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Diphenylamine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Diphenylamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Diphenylamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Diphenylamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Diphenylamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Diphenylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Diphenylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Diphenylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Diphenylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Diphenylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Diphenylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Diphenylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Diphenylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Diphenylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Diphenylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Diphenylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Diphenylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Diphenylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Diphenylamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Diphenylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Ethylmethanesulfonate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Ethylmethanesulfonate	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Ethylmethanesulfonate	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Ethylmethanesulfonate	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Ethylmethanesulfonate	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Ethylmethanesulfonate	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Ethylmethanesulfonate	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Ethylmethanesulfonate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Ethylmethanesulfonate	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Ethylmethanesulfonate	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Ethylmethanesulfonate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Ethylmethanesulfonate	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Ethylmethanesulfonate	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Ethylmethanesulfonate	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Ethylmethanesulfonate	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Ethylmethanesulfonate	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Ethylmethanesulfonate	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Ethylmethanesulfonate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Ethylmethanesulfonate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Ethylmethanesulfonate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Ethylmethanesulfonate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Ethylmethanesulfonate	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Ethylmethanesulfonate	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Ethylmethanesulfonate	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Ethylmethanesulfonate	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Ethylmethanesulfonate	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Fluoranthene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Fluoranthene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Fluoranthene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Fluoranthene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Fluoranthene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Fluoranthene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Fluoranthene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Fluoranthene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Fluoranthene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Fluoranthene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Fluoranthene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Fluoranthene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Fluoranthene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Fluoranthene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Fluoranthene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Fluoranthene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Fluoranthene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Fluoranthene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Fluoranthene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Fluoranthene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Fluoranthene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Fluoranthene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Fluoranthene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Fluoranthene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Fluoranthene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Fluoranthene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Fluorene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Fluorene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Fluorene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Fluorene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Fluorene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Fluorene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Fluorene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Fluorene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Fluorene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Fluorene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Fluorene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Fluorene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Fluorene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Fluorene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Fluorene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Fluorene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Fluorene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Fluorene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Fluorene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Fluorene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Fluorene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Fluorene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Fluorene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Fluorene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Fluorene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Fluorene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Hexachlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Hexachlorobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Hexachlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Hexachlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Hexachlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Hexachlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Hexachlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Hexachlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Hexachlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Hexachlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Hexachlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Hexachlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Hexachlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Hexachlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Hexachlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Hexachlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Hexachlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Hexachlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Hexachlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Hexachlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Hexachlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Hexachlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Hexachlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Hexachlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Hexachlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Hexachlorobutadiene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Hexachlorobutadiene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Hexachlorobutadiene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Hexachlorobutadiene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Hexachlorobutadiene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Hexachlorobutadiene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Hexachlorobutadiene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Hexachlorobutadiene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Hexachlorobutadiene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Hexachlorobutadiene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Hexachlorobutadiene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachlorobutadiene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Hexachlorobutadiene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Hexachlorobutadiene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Hexachlorobutadiene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Hexachlorobutadiene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Hexachlorobutadiene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Hexachlorobutadiene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Hexachlorobutadiene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Hexachlorobutadiene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Hexachlorobutadiene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Hexachlorobutadiene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Hexachlorobutadiene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Hexachlorobutadiene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Hexachlorobutadiene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Hexachlorobutadiene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Hexachlorocyclopentadiene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Hexachlorocyclopentadiene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Hexachlorocyclopentadiene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Hexachlorocyclopentadiene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Hexachlorocyclopentadiene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Hexachlorocyclopentadiene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Hexachlorocyclopentadiene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Hexachlorocyclopentadiene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Hexachlorocyclopentadiene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Hexachlorocyclopentadiene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Hexachlorocyclopentadiene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Hexachlorocyclopentadiene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Hexachlorocyclopentadiene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Hexachlorocyclopentadiene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Hexachlorocyclopentadiene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Hexachlorocyclopentadiene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachlorocyclopentadiene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Hexachlorocyclopentadiene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Hexachlorocyclopentadiene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Hexachlorocyclopentadiene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Hexachlorocyclopentadiene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Hexachlorocyclopentadiene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Hexachlorocyclopentadiene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Hexachlorocyclopentadiene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Hexachlorocyclopentadiene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Hexachlorocyclopentadiene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Hexachloroethane	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Hexachloroethane	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Hexachloroethane	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Hexachloroethane	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Hexachloroethane	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Hexachloroethane	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Hexachloroethane	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Hexachloroethane	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Hexachloroethane	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Hexachloroethane	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Hexachloroethane	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Hexachloroethane	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Hexachloroethane	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Hexachloroethane	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Hexachloroethane	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Hexachloroethane	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Hexachloroethane	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Hexachloroethane	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Hexachloroethane	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Hexachloroethane	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Hexachloroethane	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachloroethane	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Hexachloroethane	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Hexachloroethane	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Hexachloroethane	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Hexachloroethane	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Hexachlorophene	9303-AA-01-01	9303-AA-01-01	< 33946	< 33388	NC	NC	NC
Hexachlorophene	9303-AC-01-01	9303-AC-01-01	< 30208	< 36909	NC	NC	NC
Hexachlorophene	9303-AC-01-02	9303-AC-01-02	< 23174	< 33062	NC	NC	NC
Hexachlorophene	9303-AD-01-01	9303-AD-01-01	< 30665	< 33833	NC	NC	NC
Hexachlorophene	9303-ADT-01-01	9303-ADT-01-01	< 94860	< 77481	NC	NC	NC
Hexachlorophene	9303-AE-01-01	9303-AE-01-01	< 52865	< 47653	NC	NC	NC
Hexachlorophene	9303-AE-01-02	9303-AE-01-02	< 44912	< 55464	NC	NC	NC
Hexachlorophene	9303-AF-01-01	9303-AF-01-01	< 32120	< 26571	NC	NC	NC
Hexachlorophene	9303-AG-01-01	9303-AG-01-01	< 31918	< 34175	NC	NC	NC
Hexachlorophene	9303-ALH-01-01	9303-ALH-01-01	< 46136	< 61890	NC	NC	NC
Hexachlorophene	9303-ALH-02-01	9303-ALH-02-01	< 53704	< 60778	NC	NC	NC
Hexachlorophene	9303-ALH-03-01	9303-ALH-03-01	< 69048	< 63438	NC	NC	NC
Hexachlorophene	9303-ALS-01-01	9303-ALS-01-01	< 158594	< 133553	NC	NC	NC
Hexachlorophene	9303-ALS-02-01	9303-ALS-02-01	< 64241	< 54865	NC	NC	NC
Hexachlorophene	9303-BA-01-01	9303-BA-01-01	< 435622	< 465596	NC	NC	NC
Hexachlorophene	9303-BDT-01-01	9303-BDT-01-01	< 215957	< 298529	NC	NC	NC
Hexachlorophene	9303-BE-01-01	9303-BE-01-01	< 157364	< 269947	NC	NC	NC
Hexachlorophene	9303-FDT-02-01	9303-FDT-02-01	< 23121	< 21504	NC	NC	NC
Hexachlorophene	9303-FDT-03-01	9303-FDT-03-01	< 19297	< 18060	NC	NC	NC
Hexachlorophene	9303-FG-01-01	9303-FG-01-01	< 25312	< 25000	NC	NC	NC
Hexachlorophene	9303-FLH-01-01	9303-FLH-01-01	< 26995	< 33721	NC	NC	NC
Hexachlorophene	9303-FLH-02-01	9303-FLH-02-01	< 33388	< 44714	NC	NC	NC
Hexachlorophene	9303-FLH-03-01	9303-FLH-03-01	< 59357	< 70979	NC	NC	NC
Hexachlorophene	9303-GLS-01-01	9303-GLS-01-01	< 66776	< 66645	NC	NC	NC
Hexachlorophene	9303-IDT-01-01	9303-IDT-01-01	< 76778	< 56295	NC	NC	NC
Hexachlorophene	9303-NLS-01-01	9303-NLS-01-01	< 108906	< 68212	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Hexachloropropene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Hexachloropropene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Hexachloropropene	9303-AC-D1-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Hexachloropropene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Hexachloropropene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Hexachloropropene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Hexachloropropene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Hexachloropropene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Hexachloropropene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Hexachloropropene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Hexachloropropene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Hexachloropropene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Hexachloropropene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Hexachloropropene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Hexachloropropene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Hexachloropropene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Hexachloropropene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Hexachloropropene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Hexachloropropene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Hexachloropropene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Hexachloropropene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Hexachloropropene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Hexachloropropene	9303-FLH-03-D1	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Hexachloropropene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Hexachloropropene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Hexachloropropene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Indeno(1,2,3-cd)pyrene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Indeno(1,2,3-cd)pyrene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Indeno(1,2,3-cd)pyrene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Isophorone	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Isophorone	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Isophorone	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Isophorone	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Isophorone	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Isophorone	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Isophorone	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Isophorone	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Isophorone	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Isophorone	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Isophorone	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Isophorone	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Isophorone	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Isophorone	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Isophorone	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Isophorone	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Isophorone	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Isophorone	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Isophorone	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Isophorone	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Isophorone	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Isophorone	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Isophorone	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Isophorone	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Isophorone	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Isophorone	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Isosafrole	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Isosafrole	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Isosafrole	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Isosafrole	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Isosafrole	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Isosafrole	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Isosafrole	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Isosafrole	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Isosafrole	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Isosafrole	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Isosafrole	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Isosafrole	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Isosafrole	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Isosafrole	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Isosafrole	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Isosafrole	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Isosafrole	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Isosafrole	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Isosafrole	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Isosafrole	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Isosafrole	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Isosafrole	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Isosafrole	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Isosafrole	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Isosafrole	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Isosafrole	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Methapyrilene	9303-AA-01-01	9303-AA-01-01	< 836	< 822	NC	NC	NC
Methapyrilene	9303-AC-01-01	9303-AC-01-01	< 744	< 909	NC	NC	NC
Methapyrilene	9303-AC-01-02	9303-AC-01-02	< 571	< 814	NC	NC	NC
Methapyrilene	9303-AD-01-01	9303-AD-01-01	< 755	< 833	NC	NC	NC
Methapyrilene	9303-ADT-01-01	9303-ADT-01-01	< 2336	< 1908	NC	NC	NC
Methapyrilene	9303-AE-01-01	9303-AE-01-01	< 1302	< 1174	NC	NC	NC
Methapyrilene	9303-AE-01-02	9303-AE-01-02	< 1106	< 1366	NC	NC	NC
Methapyrilene	9303-AF-01-01	9303-AF-01-01	< 791	< 654	NC	NC	NC
Methapyrilene	9303-AG-01-01	9303-AG-01-01	< 786	< 842	NC	NC	NC
Methapyrilene	9303-ALH-01-01	9303-ALH-01-01	< 1136	< 1524	NC	NC	NC
Methapyrilene	9303-ALH-02-01	9303-ALH-02-01	< 1323	< 1497	NC	NC	NC
Methapyrilene	9303-ALH-03-01	9303-ALH-03-01	< 1701	< 1563	NC	NC	NC
Methapyrilene	9303-ALS-01-01	9303-ALS-01-01	< 3906	< 3289	NC	NC	NC
Methapyrilene	9303-ALS-02-01	9303-ALS-02-01	< 1582	< 1351	NC	NC	NC
Methapyrilene	9303-BA-01-01	9303-BA-01-01	< 10730	< 11468	NC	NC	NC
Methapyrilene	9303-BDT-01-01	9303-BDT-01-01	< 5319	< 7353	NC	NC	NC
Methapyrilene	9303-BE-01-01	9303-BE-01-01	< 3876	< 6649	NC	NC	NC
Methapyrilene	9303-FDT-02-01	9303-FDT-02-01	< 569	< 530	NC	NC	NC
Methapyrilene	9303-FDT-03-01	9303-FDT-03-01	< 475	< 445	NC	NC	NC
Methapyrilene	9303-FG-01-01	9303-FG-01-01	< 623	< 616	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Methapyrilene	9303-FLH-01-01	9303-FLH-01-01	< 665	< 831	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Methapyrilene	9303-FLH-02-01	9303-FLH-02-01	< 822	< 1101	NC	NC	NC
Methapyrilene	9303-FLH-03-01	9303-FLH-03-01	< 1462	< 1748	NC	NC	NC
Methapyrilene	9303-GLS-01-01	9303-GLS-01-01	< 1645	< 1641	NC	NC	NC
Methapyrilene	9303-IDT-01-01	9303-IDT-01-01	< 1891	< 1387	NC	NC	NC
Methapyrilene	9303-NLS-01-01	9303-NLS-01-01	< 2682	< 1680	NC	NC	NC
Methylmethanesulfonate	9303-AA-01-01	9303-AA-01-01	< 836	< 822	NC	NC	NC
Methylmethanesulfonate	9303-AC-01-01	9303-AC-01-01	< 744	< 909	NC	NC	NC
Methylmethanesulfonate	9303-AC-01-02	9303-AC-01-02	< 571	< 814	NC	NC	NC
Methylmethanesulfonate	9303-AD-01-01	9303-AD-01-01	< 755	< 833	NC	NC	NC
Methylmethanesulfonate	9303-ADT-01-01	9303-ADT-01-01	< 2336	< 1908	NC	NC	NC
Methylmethanesulfonate	9303-AE-01-01	9303-AE-01-01	< 1302	< 1174	NC	NC	NC
Methylmethanesulfonate	9303-AE-01-02	9303-AE-01-02	< 1106	< 1366	NC	NC	NC
Methylmethanesulfonate	9303-AF-01-01	9303-AF-01-01	< 791	< 654	NC	NC	NC
Methylmethanesulfonate	9303-AG-01-01	9303-AG-01-01	< 786	< 842	NC	NC	NC
Methylmethanesulfonate	9303-ALH-01-01	9303-ALH-01-01	< 1136	< 1524	NC	NC	NC
Methylmethanesulfonate	9303-ALH-02-01	9303-ALH-02-01	< 1323	< 1497	NC	NC	NC
Methylmethanesulfonate	9303-ALH-03-01	9303-ALH-03-01	< 1701	< 1563	NC	NC	NC
Methylmethanesulfonate	9303-ALS-01-01	9303-ALS-01-01	< 3906	< 3289	NC	NC	NC
Methylmethanesulfonate	9303-ALS-02-01	9303-ALS-02-01	< 1582	< 1351	NC	NC	NC
Methylmethanesulfonate	9303-BA-01-01	9303-BA-01-01	< 10730	< 11468	NC	NC	NC
Methylmethanesulfonate	9303-BDT-01-01	9303-BDT-01-01	< 5319	< 7353	NC	NC	NC
Methylmethanesulfonate	9303-BE-01-01	9303-BE-01-01	< 3876	< 6649	NC	NC	NC
Methylmethanesulfonate	9303-FDT-02-01	9303-FDT-02-01	< 569	< 530	NC	NC	NC
Methylmethanesulfonate	9303-FDT-03-01	9303-FDT-03-01	< 475	< 445	NC	NC	NC
Methylmethanesulfonate	9303-FG-01-01	9303-FG-01-01	< 623	< 616	NC	NC	NC
Methylmethanesulfonate	9303-FLH-01-01	9303-FLH-01-01	< 665	< 831	NC	NC	NC
Methylmethanesulfonate	9303-FLH-02-01	9303-FLH-02-01	< 822	< 1101	NC	NC	NC
Methylmethanesulfonate	9303-FLH-03-01	9303-FLH-03-01	< 1462	< 1748	NC	NC	NC
Methylmethanesulfonate	9303-GLS-01-01	9303-GLS-01-01	< 1645	< 1641	NC	NC	NC
Methylmethanesulfonate	9303-IDT-01-01	9303-IDT-01-01	< 1891	< 1387	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Methylmethanesulfonate	9303-NLS-01-01	9303-NLS-01-01	< 2682	< 1680	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Naphthalene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Naphthalene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Naphthalene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Naphthalene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Naphthalene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Naphthalene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Naphthalene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Naphthalene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Naphthalene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Naphthalene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Naphthalene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Naphthalene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Naphthalene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Naphthalene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Naphthalene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Naphthalene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Naphthalene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Naphthalene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Naphthalene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Naphthalene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Naphthalene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Naphthalene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Naphthalene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Naphthalene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Naphthalene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Naphthalene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Nitrobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Nitrobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Nitrobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Nitrobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Nitrobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Nitrobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Nitrobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Nitrobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Nitrobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Nitrobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Nitrobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Nitrobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Nitrobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Nitrobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Nitrobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Nitrobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Nitrobenzene	9303-BE-01-01	9303-BE-D1-01	< 775	< 1330	NC	NC	NC
Nitrobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Nitrobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Nitrobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Nitrobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Nitrobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Nitrobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Nitrobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Nitrobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Nitrobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pentachlorobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pentachlorobenzene	93D3-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pentachlorobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pentachlorobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pentachlorobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pentachlorobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pentachlorobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pentachlorobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pentachlorobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pentachlorobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pentachlorobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pentachlorobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pentachlorobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pentachlorobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Pentachlorobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pentachlorobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pentachlorobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pentachlorobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pentachlorobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Pentachlorobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pentachlorobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pentachlorobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pentachlorobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pentachlorobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Pentachlorobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pentachlorobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pentachloroethane	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pentachloroethane	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pentachloroethane	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pentachloroethane	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pentachloroethane	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pentachloroethane	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pentachloroethane	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pentachloroethane	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pentachloroethane	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pentachloroethane	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pentachloroethane	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pentachloroethane	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pentachloroethane	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pentachloroethane	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pentachloroethane	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pentachloroethane	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pentachloroethane	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pentachloroethane	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pentachloroethane	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Pentachloroethane	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pentachloroethane	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pentachloroethane	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pentachloroethane	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pentachloroethane	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Pentachloroethane	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pentachloroethane	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pentachloronitrobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pentachloronitrobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pentachloronitrobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pentachloronitrobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pentachloronitrobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pentachloronitrobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pentachloronitrobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pentachloronitrobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pentachloronitrobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pentachloronitrobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pentachloronitrobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pentachloronitrobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pentachloronitrobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pentachloronitrobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Pentachloronitrobenzene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pentachloronitrobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pentachloronitrobenzene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pentachloronitrobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pentachloronitrobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pentachloronitrobenzene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pentachloronitrobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pentachloronitrobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pentachloronitrobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pentachloronitrobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Pentachloronitrobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pentachloronitrobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pentachlorophenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pentachlorophenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pentachlorophenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pentachlorophenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pentachlorophenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pentachlorophenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pentachlorophenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pentachlorophenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pentachlorophenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pentachlorophenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pentachlorophenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pentachlorophenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pentachlorophenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pentachlorophenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Pentachlorophenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pentachlorophenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pentachlorophenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pentachlorophenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pentachlorophenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Pentachlorophenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pentachlorophenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pentachlorophenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pentachlorophenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pentachlorophenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLDMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pentachlorophenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pentachlorophenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Phenactin	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Phenactin	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Phenactin	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Phenactin	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Phenactin	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Phenactin	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Phenactin	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Phenactin	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Phenactin	93D3-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Phenactin	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Phenactin	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Phenactin	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Phenactin	93D3-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Phenactin	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Phenactin	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Phenactin	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Phenactin	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Phenactin	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Phenactin	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Phenactin	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Phenactin	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Phenactin	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Phenactin	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Phenactin	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Phenactin	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Phenactin	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Phenanthrene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Phenanthrene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Phenanthrene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Phenanthrene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Phenanthrene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Phenanthrene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Phenanthrene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Phenanthrene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Phenanthrene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Phenanthrene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Phenanthrene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Phenanthrene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Phenanthrene	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Phenanthrene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Phenanthrene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Phenanthrene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Phenanthrene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Phenanthrene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Phenanthrene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Phenanthrene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Phenanthrene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Phenanthrene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Phenanthrene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Phenanthrene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Phenanthrene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Phenanthrene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Phenol	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Phenol	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Phenol	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Phenol	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Phenol	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Phenol	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Phenol	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Phenol	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Ouplicate Value	Mean Value	Standard Deviation	RPD (%)
Phenol	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Phenol	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Phenol	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Phenol	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Phenol	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Phenol	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Phenol	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Phenol	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Phenol	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Phenol	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Phenol	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Phenol	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Phenol	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Phenol	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Phenol	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Phenol	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Phenol	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Phenol	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pronamide	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pronamide	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pronamide	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pronamide	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pronamide	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pronamide	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pronamide	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pronamide	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pronamide	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pronamide	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pronamide	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pronamide	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pronamide	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pronamide	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pronamide	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pronamide	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pronamide	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pronamide	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pronamide	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Pronamide	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pronamide	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pronamide	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pronamide	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pronamide	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Pronamide	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pronamide	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pyrene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pyrene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pyrene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pyrene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pyrene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pyrene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pyrene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pyrene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pyrene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pyrene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pyrene	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Pyrene	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pyrene	9303-ALS-D1-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pyrene	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Pyrene	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pyrene	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pyrene	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pyrene	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pyrene	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pyrene	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pyrene	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pyrene	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pyrene	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Pyrene	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Pyrene	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pyrene	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Pyridine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Pyridine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Pyridine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Pyridine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Pyridine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Pyridine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Pyridine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Pyridine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Pyridine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Pyridine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Pyridine	9303-ALH-02-01	9303-ALH-02-01	1370.	< 299	NC	NC	NC
Pyridine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Pyridine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Pyridine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Pyridine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Pyridine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Pyridine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Pyridine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Pyridine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Pyridine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Pyridine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Pyridine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Pyridine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Pyridine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
Pyridine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Pyridine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
Safrole	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Safrole	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
Safrole	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Safrole	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
Safrole	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
Safrole	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Safrole	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
Safrole	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Safrole	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
Safrole	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
Safrole	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
Safrole	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Safrole	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Safrole	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
Safrole	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
Safrole	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
Safrole	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Safrole	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Safrole	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
Safrole	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
Safrole	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
Safrole	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Safrole	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Safrole	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
Safrole	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
Safrole	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
bis(2-Chloroethoxy)methane	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
bis(2-Chloroethoxy)methane	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
bis(2-Chloroethoxy)methane	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
bis(2-Chloroethyl)ether	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
bis(2-Chloroethyl)ether	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
bis(2-Chloroethyl)ether	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
bis(2-Chloroethyl)ether	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
bis(2-Chloroethyl)ether	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
bis(2-Chloroethyl)ether	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
bis(2-Chloroethyl)ether	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
bis(2-Chloroethyl)ether	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
bis(2-Chloroethyl)ether	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
bis(2-Chloroethyl)ether	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
bis(2-Chloroethyl)ether	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-ALH-01-01	9303-ALH-01-D1	< 227	< 305	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
bis(2-Chloroisopropyl)ether	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
bis(2-Chloroisopropyl)ether	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
bis(2-Chloroisopropyl)ether	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AC-01-01	9303-AC-01-01	14514	4941	9727.95	6769.8	98
bis(2-Ethylhexyl)phthalate	9303-AC-01-02	9303-AC-01-02	6666.	5022.2	5844.4	1162.8	28
bis(2-Ethylhexyl)phthalate	9303-AD-01-01	9303-AD-01-01	2018.	< 167	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-ADT-01-01	9303-ADT-01-01	1679.	< 382	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AE-01-01	9303-AE-01-01	1644.	1723.1	1684	55.3	5
bis(2-Ethylhexyl)phthalate	9303-AE-01-02	9303-AE-01-02	1752.	< 273	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-AG-01-01	9303-AG-01-01	< 157	866.1	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-ALH-01-01	9303-ALH-01-01	< 227	1534.7	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-ALH-03-01	9303-ALH-03-01	2317.	< 313	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-ALS-01-01	9303-ALS-01-01	1669.	2120.8	1895	319.3	24
bis(2-Ethylhexyl)phthalate	9303-ALS-02-01	9303-ALS-02-01	1851.	< 270	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-BA-01-01	9303-BA-01-01	17411	53309.	35360.75	25383.5	102
bis(2-Ethylhexyl)phthalate	9303-BDT-01-01	9303-BDT-01-01	2996.	< 1471	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-BE-01-01	9303-BE-01-01	26009	15693.	20851.65	7294.9	49

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
bis(2-Ethylhexyl)phthalate	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
bis(2-Ethylhexyl)phthalate	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-FLH-02-01	9303-FLH-02-01	3486.	< 220	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-FLH-03-01	9303-FLH-03-01	33620	< 350	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-GLS-01-01	9303-GLS-01-01	< 329	8879.3	NC	NC	NC
bis(2-Ethylhexyl)phthalate	9303-IDT-01-01	9303-IDT-01-01	20413	7938.2	14176	8821.6	88
bis(2-Ethylhexyl)phthalate	9303-NLS-01-01	9303-NLS-01-01	12930	12854.	12892.55	53.4	1
n-Nitroso-di-n-butylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Ouplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitroso-di-n-butylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
n-Nitroso-di-n-butylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitroso-di-n-butylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AE-01-01	9303-AE-01-01	7071	< 235	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AE-01-02	9303-AE-01-02	8405.	< 273	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitroso-di-n-propylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
n-Nitrosodiethylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosodiethylamine	9303-AC-01-01	9303-AC-01-01	< 149		< 182	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.								
Type = Laboratory Replicate (ug/kg), cont.								
n-Nitrosodiethylamine	93D3-AC-01-02	9303-AC-01-02	< 114		< 163	NC	NC	NC
n-Nitrosodiethylamine	9303-AD-01-01	9303-AD-01-01	< 151		< 167	NC	NC	NC
n-Nitrosodiethylamine	9303-ADT-01-01	9303-ADT-01-01	< 467		< 382	NC	NC	NC
n-Nitrosodiethylamine	9303-AE-01-01	9303-AE-01-01	< 260		< 235	NC	NC	NC
n-Nitrosodiethylamine	9303-AE-01-02	9303-AE-01-02	< 221		< 273	NC	NC	NC
n-Nitrosodiethylamine	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
n-Nitrosodiethylamine	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC
n-Nitrosodiethylamine	9303-ALH-01-01	9303-ALH-01-01	< 227		< 305	NC	NC	NC
n-Nitrosodiethylamine	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299	NC	NC	NC
n-Nitrosodiethylamine	9303-ALH-03-01	9303-ALH-03-01	< 340		< 313	NC	NC	NC
n-Nitrosodiethylamine	9303-ALS-01-01	9303-ALS-01-01	< 781		< 658	NC	NC	NC
n-Nitrosodiethylamine	9303-ALS-02-01	9303-ALS-02-01	< 316		< 270	NC	NC	NC
n-Nitrosodiethylamine	9303-BA-01-01	9303-BA-01-01	< 2146		< 2294	NC	NC	NC
n-Nitrosodiethylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064		< 1471	NC	NC	NC
n-Nitrosodiethylamine	9303-BE-01-01	9303-BE-01-01	< 775		< 1330	NC	NC	NC
n-Nitrosodiethylamine	9303-FDT-02-01	9303-FDT-02-01	< 114		< 106	NC	NC	NC
n-Nitrosodiethylamine	9303-FDT-03-01	9303-FDT-03-01	< 95		< 89	NC	NC	NC
n-Nitrosodiethylamine	9303-FG-01-01	9303-FG-01-01	< 125		< 123	NC	NC	NC
n-Nitrosodiethylamine	9303-FLH-01-01	9303-FLH-01-01	< 133		< 166	NC	NC	NC
n-Nitrosodiethylamine	93D3-FLH-02-01	9303-FLH-02-01	< 164		< 220	NC	NC	NC
n-Nitrosodiethylamine	9303-FLH-03-01	9303-FLH-03-01	< 292		< 350	NC	NC	NC
n-Nitrosodiethylamine	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328	NC	NC	NC
n-Nitrosodiethylamine	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277	NC	NC	NC
n-Nitrosodiethylamine	93D3-NLS-01-01	9303-NLS-01-01	< 536		< 336	NC	NC	NC
n-Nitrosodimethylamine	9303-AA-01-01	9303-AA-01-01	< 167		< 164	NC	NC	NC
n-Nitrosodimethylamine	9303-AC-01-01	9303-AC-01-01	< 149		< 182	NC	NC	NC
n-Nitrosodimethylamine	9303-AC-01-02	9303-AC-01-02	< 114		< 163	NC	NC	NC
n-Nitrosodimethylamine	9303-AD-01-01	9303-AD-01-01	< 151		< 167	NC	NC	NC
n-Nitrosodimethylamine	9303-ADT-01-01	9303-AOT-01-01	< 467		< 382	NC	NC	NC
n-Nitrosodimethylamine	9303-AE-01-01	9303-AE-01-01	96	(J)	< 235	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosodimethylamine	9303-AE-01-02	9303-AE-01-02	149.1	(J)	< 273	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.								
Type = Laboratory Replicate (ug/kg), cont.								
n-Nitrosodimethylamine	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
n-Nitrosodimethylamine	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC
n-Nitrosodimethylamine	9303-ALH-01-01	9303-ALH-01-01	< 227		< 305	NC	NC	NC
n-Nitrosodimethylamine	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299	NC	NC	NC
n-Nitrosodimethylamine	9303-ALH-03-01	9303-ALH-03-01	< 340		< 313	NC	NC	NC
n-Nitrosodimethylamine	9303-ALS-01-01	9303-ALS-01-01	< 781		< 658	NC	NC	NC
n-Nitrosodimethylamine	9303-ALS-02-01	9303-ALS-02-01	< 316		< 270	NC	NC	NC
n-Nitrosodimethylamine	9303-BA-01-01	9303-BA-01-01	< 2146		< 2294	NC	NC	NC
n-Nitrosodimethylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064		< 1471	NC	NC	NC
n-Nitrosodimethylamine	9303-BE-01-01	9303-BE-01-01	< 775		< 1330	NC	NC	NC
n-Nitrosodimethylamine	9303-FDT-02-01	9303-FDT-02-01	< 114		< 106	NC	NC	NC
n-Nitrosodimethylamine	9303-FDT-03-01	9303-FDT-03-01	< 95		< 89	NC	NC	NC
n-Nitrosodimethylamine	9303-FG-01-01	9303-FG-01-01	< 125		< 123	NC	NC	NC
n-Nitrosodimethylamine	9303-FLH-01-01	9303-FLH-01-01	< 133		< 166	NC	NC	NC
n-Nitrosodimethylamine	9303-FLH-02-01	9303-FLH-02-01	< 164		< 220	NC	NC	NC
n-Nitrosodimethylamine	9303-FLH-03-01	9303-FLH-03-01	< 292		< 350	NC	NC	NC
n-Nitrosodimethylamine	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328	NC	NC	NC
n-Nitrosodimethylamine	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277	NC	NC	NC
n-Nitrosodimethylamine	9303-NLS-01-01	9303-NLS-01-01	< 536		< 336	NC	NC	NC
n-Nitrosodiphenylamine	9303-AA-01-01	9303-AA-01-01	< 167		< 164	NC	NC	NC
n-Nitrosodiphenylamine	9303-AC-01-01	9303-AC-01-01	< 149		< 182	NC	NC	NC
n-Nitrosodiphenylamine	9303-AC-01-02	9303-AC-01-02	< 114		< 163	NC	NC	NC
n-Nitrosodiphenylamine	9303-AD-01-01	9303-AD-01-01	< 151		< 167	NC	NC	NC
n-Nitrosodiphenylamine	9303-ADT-01-01	9303-ADT-01-01	< 467		< 382	NC	NC	NC
n-Nitrosodiphenylamine	9303-AE-01-01	9303-AE-01-01	< 260		< 235	NC	NC	NC
n-Nitrosodiphenylamine	9303-AE-01-02	9303-AE-01-02	< 221		< 273	NC	NC	NC
n-Nitrosodiphenylamine	9303-AF-01-01	9303-AF-01-01	< 158		< 131	NC	NC	NC
n-Nitrosodiphenylamine	9303-AG-01-01	9303-AG-01-01	< 157		< 168	NC	NC	NC
n-Nitrosodiphenylamine	9303-ALH-01-01	9303-ALH-01-01	< 227		< 305	NC	NC	NC
n-Nitrosodiphenylamine	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosodiphenylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
n-Nitrosodiphenylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitrosodiphenylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitrosodiphenylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitrosodiphenylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitrosodiphenylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitrosodiphenylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitrosodiphenylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitrosodiphenylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitrosodiphenylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitrosodiphenylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
n-Nitrosodiphenylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitrosodiphenylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitrosodiphenylamine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitrosodiphenylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
n-Nitrosomethylethylamine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
n-Nitrosomethylethylamine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitrosomethylethylamine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitrosomethylethylamine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitrosomethylethylamine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
n-Nitrosomethylethylamine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
n-Nitrosomethylethylamine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
n-Nitrosomethylethylamine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitrosomethylethylamine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitrosomethylethylamine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitrosomethylethylamine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitrosomethylethylamine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitrosomethylethylamine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitrosomethylethylamine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitrosomethylethylamine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitrosomethylethylamine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC

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NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Ouplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosomethylethylamine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
n-Nitrosomethylethylamine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitrosomethylethylamine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitrosomethylethylamine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitrosomethylethylamine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitrosomethylethylamine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
n-Nitrosomethylethylamine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitrosomethylethylamine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitrosomethylethylamine	9303-1DT-01-01	9303-1DT-01-01	< 378	< 277	NC	NC	NC
n-Nitrosomethylethylamine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
n-Nitrosomorpholine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
n-Nitrosomorpholine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitrosomorpholine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitrosomorpholine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitrosomorpholine	9303-ADT-01-01	9303-AOT-01-01	< 467	< 382	NC	NC	NC
n-Nitrosomorpholine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
n-Nitrosomorpholine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
n-Nitrosomorpholine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitrosomorpholine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitrosomorpholine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitrosomorpholine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitrosomorpholine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitrosomorpholine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitrosomorpholine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitrosomorpholine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitrosomorpholine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitrosomorpholine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitrosomorpholine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitrosomorpholine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitrosomorpholine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitrosomorpholine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosomorpholine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
n-Nitrosomorpholine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitrosomorpholine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitrosomorpholine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitrosomorpholine	9303-NLS-D1-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
n-Nitrosopiperidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
n-Nitrosopiperidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitrosopiperidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitrosopiperidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitrosopiperidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
n-Nitrosopiperidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
n-Nitrosopiperidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
n-Nitrosopiperidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitrosopiperidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitrosopiperidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitrosopiperidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitrosopiperidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitrosopiperidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitrosopiperidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitrosopiperidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitrosopiperidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitrosopiperidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitrosopiperidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitrosopiperidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitrosopiperidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitrosopiperidine	9303-FLH-01-D1	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitrosopiperidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
n-Nitrosopiperidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitrosopiperidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitrosopiperidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitrosopiperidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
n-Nitrosopyrrolidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
n-Nitrosopyrrolidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
n-Nitrosopyrrolidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
n-Nitrosopyrrolidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
n-Nitrosopyrrolidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
n-Nitrosopyrrolidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
n-Nitrosopyrrolidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
n-Nitrosopyrrolidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
n-Nitrosopyrrolidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
n-Nitrosopyrrolidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
n-Nitrosopyrrolidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
n-Nitrosopyrrolidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
n-Nitrosopyrrolidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
n-Nitrosopyrrolidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
n-Nitrosopyrrolidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
n-Nitrosopyrrolidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
n-Nitrosopyrrolidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
n-Nitrosopyrrolidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
n-Nitrosopyrrolidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
n-Nitrosopyrrolidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
n-Nitrosopyrrolidine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
n-Nitrosopyrrolidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
n-Nitrosopyrrolidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
n-Nitrosopyrrolidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
n-Nitrosopyrrolidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
n-Nitrosopyrrolidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
o-Toluidine	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
o-Toluidine	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
o-Toluidine	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
o-Toluidine	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
o-Toluidine	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
o-Toluidine	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
Method = SW8270 - Semivolatile Organics, cont.							
Type = Laboratory Replicate (ug/kg), cont.							
o-Toluidine	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
o-Toluidine	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
o-Toluidine	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
o-Toluidine	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC
o-Toluidine	9303-ALH-02-01	9303-ALH-02-01	< 265	< 299	NC	NC	NC
o-Toluidine	9303-ALH-03-01	9303-ALH-03-01	< 340	< 313	NC	NC	NC
o-Toluidine	9303-ALS-01-01	9303-ALS-01-01	< 781	< 658	NC	NC	NC
o-Toluidine	9303-ALS-02-01	9303-ALS-02-01	< 316	< 270	NC	NC	NC
o-Toluidine	9303-BA-01-01	9303-BA-01-01	< 2146	< 2294	NC	NC	NC
o-Toluidine	9303-BDT-01-01	9303-BDT-01-01	< 1064	< 1471	NC	NC	NC
o-Toluidine	9303-BE-01-01	9303-BE-01-01	< 775	< 1330	NC	NC	NC
o-Toluidine	9303-FDT-02-01	9303-FDT-02-01	< 114	< 106	NC	NC	NC
o-Toluidine	9303-FDT-03-01	9303-FDT-03-01	< 95	< 89	NC	NC	NC
o-Toluidine	9303-FG-01-01	9303-FG-01-01	< 125	< 123	NC	NC	NC
o-Toluidine	9303-FLH-01-01	9303-FLH-01-01	< 133	< 166	NC	NC	NC
o-Toluidine	9303-FLH-02-01	9303-FLH-02-01	< 164	< 220	NC	NC	NC
o-Toluidine	9303-FLH-03-01	9303-FLH-03-01	< 292	< 350	NC	NC	NC
o-Toluidine	9303-GLS-01-01	9303-GLS-01-01	< 329	< 328	NC	NC	NC
o-Toluidine	9303-IDT-01-01	9303-IDT-01-01	< 378	< 277	NC	NC	NC
o-Toluidine	9303-NLS-01-01	9303-NLS-01-01	< 536	< 336	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AA-01-01	9303-AA-01-01	< 167	< 164	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AC-01-01	9303-AC-01-01	< 149	< 182	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AC-01-02	9303-AC-01-02	< 114	< 163	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AD-01-01	9303-AD-01-01	< 151	< 167	NC	NC	NC
p-Dimethylaminoazobenzene	9303-ADT-01-01	9303-ADT-01-01	< 467	< 382	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AE-01-01	9303-AE-01-01	< 260	< 235	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AE-01-02	9303-AE-01-02	< 221	< 273	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AF-01-01	9303-AF-01-01	< 158	< 131	NC	NC	NC
p-Dimethylaminoazobenzene	9303-AG-01-01	9303-AG-01-01	< 157	< 168	NC	NC	NC
p-Dimethylaminoazobenzene	9303-ALH-01-01	9303-ALH-01-01	< 227	< 305	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
p-Dimethylaminoazobenzene	9303-ALH-02-01	9303-ALH-02-01	< 265		< 299		NC	NC	NC
Method = SW8270 - Semivolatile Drganics, cont.									
Type = Laboratory Replicate (ug/kg), cont.									
p-Dimethylaminoazobenzene	9303-ALH-03-01	9303-ALH-03-01	< 340		< 313		NC	NC	NC
p-Dimethylaminoazobenzene	9303-ALS-01-01	9303-ALS-01-01	< 781		< 658		NC	NC	NC
p-Dimethylaminoazobenzene	9303-ALS-02-01	9303-ALS-02-01	< 316		< 270		NC	NC	NC
p-Dimethylaminoazobenzene	9303-BA-01-01	9303-BA-01-01	< 2146		< 2294		NC	NC	NC
p-Dimethylaminoazobenzene	9303-BDT-01-01	9303-BDT-01-01	< 1064		< 1471		NC	NC	NC
p-Dimethylaminoazobenzene	9303-BE-01-01	9303-BE-01-01	< 775		< 1330		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FDT-02-01	9303-FDT-02-01	< 114		< 106		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FDT-03-01	9303-FDT-03-01	< 95		< 89		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FG-01-01	9303-FG-01-01	< 125		< 123		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FLH-01-01	9303-FLH-01-01	< 133		< 166		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FLH-02-01	9303-FLH-02-01	< 164		< 220		NC	NC	NC
p-Dimethylaminoazobenzene	9303-FLH-03-01	9303-FLH-03-01	< 292		< 350		NC	NC	NC
p-Dimethylaminoazobenzene	9303-GLS-01-01	9303-GLS-01-01	< 329		< 328		NC	NC	NC
p-Dimethylaminoazobenzene	9303-IDT-01-01	9303-IDT-01-01	< 378		< 277		NC	NC	NC
p-Dimethylaminoazobenzene	9303-NLS-01-01	9303-NLS-01-01	< 536		< 336		NC	NC	NC
Type = Matrix Spike (%)									
1,2,4-Trichlorobenzene	9303-AE-01-01 MS	9303-AE-01-01 MSD	107.8		118.6		113.2	7.6	10
1,2,4-Trichlorobenzene	9303-AE-01-01 MS	9303-AE-01-01 MSD	88.7		191	(Q)	139.85	72.3	73
1,2,4-Trichlorobenzene	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	83.8		168.4	(Q)	126.1	59.8	67
1,4-Dichlorobenzene	9303-AE-01-01 MS	9303-AE-01-01 MSD	89.2		90.5		89.85	0.9	1
1,4-Dichlorobenzene	9303-AE-01-01 MS	9303-AE-01-01 MSD	73.4		168.7	(Q)	121.05	67.4	79
1,4-Dichlorobenzene	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	78.9		159	(Q)	118.95	56.6	67
2,4-Dinitrotoluene	9303-AE-01-01 MS	9303-AE-01-01 MSD	73.8		113.9		93.85	28.4	43
2,4-Dinitrotoluene	9303-AE-01-01 MS	9303-AE-01-01 MSD	89.7		43.5		66.6	32.7	69
2,4-Dinitrotoluene	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	112.4		117		114.7	3.3	4
2-Chlorophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	109.9		53.2		81.55	40.1	70
2-Chlorophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	90.4		98.5		94.45	5.7	9
2-Chlorophenol	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	115.4		117.4		116.4	1.4	2
4-Chloro-3-methylphenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	84.4		86.8		85.6	1.7	3

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGDONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
4-Chloro-3-methylphenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	102.6		47.6		75.1	38.9	73
Method = SW8270 - Semivolatile Organics, cont.									
Type = Matrix Spike (%), cont.									
4-Chloro-3-methylphenol	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	89.2		94.5		91.85	3.7	6
4-Nitrophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	38.6		33.6		36.1	3.5	14
4-Nitrophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	46.9		16.8		31.85	21.3	95
4-Nitrophenol	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	7.4		5.3		6.35	1.5	33
Acenaphthene	9303-AE-01-01 MS	9303-AE-01-01 MSD	82.8		163.8	(Q)	123.3	57.3	66
Acenaphthene	9303-AE-01-01 MS	9303-AE-01-01 MSD	100.6		104.2		102.4	2.5	4
Acenaphthene	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	83.8		157.2	(Q)	120.5	51.9	61
Pentachlorophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	99		42.9		70.95	39.7	79
Pentachlorophenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	81.5		50.3		65.9	22.1	47
Pentachlorophenol	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	29.6		46.2		37.9	11.7	44
Phenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	90.8		42.1		66.45	34.4	73
Phenol	9303-AE-01-01 MS	9303-AE-01-01 MSD	74.7		85.3		80	7.5	13
Phenol	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	112.3	(Q)	134.9	(Q)	123.6	16.0	18
Pyrene	9303-AE-01-01 MS	9303-AE-01-01 MSD	82.1		41.2		61.65	28.9	66
Pyrene	9303-AE-01-01 MS	9303-AE-01-01 MSD	67.6		89		78.3	15.1	27
Pyrene	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	89.4		67.5		78.45	15.5	28
n-Nitroso-di-n-propylamine	9303-AE-01-01 MS	9303-AE-01-01 MSD	82.6		55.3		68.95	19.3	40
n-Nitroso-di-n-propylamine	9303-AE-01-01 MS	9303-AE-01-01 MSD	81.3		179.4		130.35	69.4	75
n-Nitroso-di-n-propylamine	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	83.9		209.2		146.55	88.6	85
Method = SW8290 - Dioxins and Furans									
Type = Field Duplicate (pg/g)									
1,2,3,4,6,7,8-HpCDD	9303-AC-01-01	9303-AC-01-02	< 1.027		< 0.317		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AE-01-01	9303-AE-01-02	< 3.523		6.81		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-FLH-03-01	9303-FLH-03-02	< 0.52		< 0.479		NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AC-01-01	9303-AC-01-02	< 2.571		< 6.744		NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AE-01-01	9303-AE-01-02	< 2.427		< 1.3675		NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.513		< 0.506		NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AC-01-01	9303-AC-01-02	< 3.232		< 9.255		NC	NC	NC

Compiled: 27 September 1993

NC = Not Calculable ND = Not Detected () = Data Flag * - Value considered suspect, Refer to QC Report

TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
1,2,3,4,7,8,9-HpCDF	9303-AE-01-01	9303-AE-01-02	< 3.382		< 1.7191		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.									
Type = Field Duplicate (pg/g), cont.									
1,2,3,4,7,8,9-HpCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.691		< 0.594		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AC-01-01	9303-AC-01-02	< 4.135		< 2.113		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AE-01-01	9303-AE-01-02	< 2.909		< 2.1994		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FLH-03-01	9303-FLH-03-02	< 0.246		< 1.079		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AC-01-01	9303-AC-01-02	< 1.475		15.16	(J)	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AE-01-01	9303-AE-01-02	< 2.217		< 0.7845		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.361		< 0.381		NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AC-01-01	9303-AC-01-02	< 1.614		< 4.447		NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AE-01-01	9303-AE-01-02	< 2.958		< 0.8585		NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FLH-03-01	9303-FLH-03-02	< 1.059		< 1.097		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AC-01-01	9303-AC-01-02	< 1.393		< 12.26		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AE-01-01	9303-AE-01-02	< 2.114		< 0.7409		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-02	0.28	(J)	< 0.349		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AC-01-01	9303-AC-01-02	< 1.585		< 1.6		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AE-01-01	9303-AE-01-02	< 2.903		< 0.8430		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FLH-03-01	9303-FLH-03-02	< 0.245		0.19	(J)	NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AC-01-01	9303-AC-01-02	< 1.087		< 0.489		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AE-01-01	9303-AE-01-02	< 2.251		< 0.5781		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.363		< 0.377		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AC-01-01	9303-AC-01-02	< 2.915		< 7.822		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AE-01-01	9303-AE-01-02	< 2.954		< 1.5505		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FLH-03-01	9303-FLH-03-02	< 0.508		< 0.57		NC	NC	NC
1,2,3,7,8-PeCDF	9303-AC-01-01	9303-AC-01-02	< 1.893		< 14.735		NC	NC	NC
1,2,3,7,8-PeCDF	9303-AE-01-01	9303-AE-01-02	< 1.244		< 1.0069		NC	NC	NC
1,2,3,7,8-PeCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.321		< 0.443		NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AC-01-01	9303-AC-01-02	< 3.222		< 2.785		NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AE-01-01	9303-AE-01-02	< 2.702		< 1.7138		NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.482		< 1.517		NC	NC	NC
2,3,4,7,8-PeCDF	9303-AC-01-01	9303-AC-01-02	< 1.216		< 3.036		NC	NC	NC
2,3,4,7,8-PeCDF	9303-AE-01-01	9303-AE-01-02	< 1.308		< 0.6468		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
2,3,4,7,8-PeCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.349		< 0.477		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.									
Type = Field Duplicate (pg/g), cont.									
2,3,7,8-TCDD	9303-AC-01-01	9303-AC-01-02	< 1.512		1.28	(J)	NC	NC	NC
2,3,7,8-TCDD	9303-AE-01-01	9303-AE-01-02	< 3.418		< 0.8042		NC	NC	NC
2,3,7,8-TCDD	9303-FLH-03-01	9303-FLH-03-02	0.12		< 0.244		NC	NC	NC
2,3,7,8-TCDF	9303-AC-01-01	9303-AC-01-02	< 1.963		< 1.922		NC	NC	NC
2,3,7,8-TCDF	9303-AE-01-01	9303-AE-01-02	4.92		< 1.0441		NC	NC	NC
2,3,7,8-TCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.375		< 0.492		NC	NC	NC
OCDD	9303-AC-01-01	9303-AC-01-02	9.91		5.98		7.945	2.8	49
OCDD	9303-AE-01-01	9303-AE-01-02	2.79	(J)	101.44		52.115	69.8	189
OCDD	9303-FLH-03-01	9303-FLH-03-02	3.91		3.26		3.585	0.5	18
OCDF	9303-AC-01-01	9303-AC-01-02	2.74		< 0.813		NC	NC	NC
OCDF	9303-AE-01-01	9303-AE-01-02	< 5.316		2.18	(J)	NC	NC	NC
OCDF	9303-FLH-03-01	9303-FLH-03-02	< 0.406		< 0.614		NC	NC	NC
Type = Laboratory Replicate (pg/g)									
1,2,3,4,6,7,8-HpCDD	9303-AA-01-01	9303-AA-01-01	< 0.3383		< 0.9287		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AC-01-01	9303-AC-01-01	< 1.027		< 0.11		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AC-01-02	9303-AC-01-02	< 0.317		< 0.8360		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AD-01-01	9303-AD-01-01	< 0.591		< 2.3038		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AE-01-01	9303-AE-01-01	< 3.523		< 0.5791		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AE-01-02	9303-AE-01-02	6.81		< 2.1115		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AF-01-01	9303-AF-01-01	< 0.354		< 0.7161		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-AG-01-01	9303-AG-01-01	1.73		0.85		1.29	0.6	68
1,2,3,4,6,7,8-HpCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.433		0.69		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-ALH-02-01	9303-ALH-02-01	< 1.628		0.74		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-ALH-03-01	9303-ALH-03-01	< 6.735		< 0.5985		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-ALS-01-01	9303-ALS-01-01	< 3.697		< 4.726		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-BA-01-01	9303-BA-01-01	12.76		17.22		14.99	3.2	30
1,2,3,4,6,7,8-HpCDD	9303-BDT-01-01	9303-BDT-01-01	< 1.459		< 3.028		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.215		< 0.111		NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-FDT-03-01	9303-FDT-03-01	< 0.802		< 0.155		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,3,4,6,7,8-HpCDD	9303-FG-01-01	9303-FG-01-01	< 0.057	< 0.11	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.							
Type = Laboratory Replicate (pg/g), cont.							
1,2,3,4,6,7,8-HpCDD	9303-FLH-01-01	9303-FLH-01-01	< 0.742	< 3.5202	NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-FLH-03-01	9303-FLH-03-01	< 0.52	< 1.107	NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-FLH-03-02	9303-FLH-03-02	< 0.479	< 0.263	NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.33	< 0.66	NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-IDT-01-01	9303-IDT-01-01	< 0.71	< 0.73	NC	NC	NC
1,2,3,4,6,7,8-HpCDD	9303-NLS-01-01	9303-NLS-01-01	< 0.563	< 1.236	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AA-01-01	9303-AA-01-01	< 0.6166	< 0.6751	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AC-01-01	9303-AC-01-01	< 2.571	< 0.604	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AC-01-02	9303-AC-01-02	< 6.744	< 0.5977	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AD-01-01	9303-AD-01-01	< 1.855	< 1.1616	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AE-01-01	9303-AE-01-01	< 2.427	< 0.6598	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AE-01-02	9303-AE-01-02	< 1.3675	< 1.7630	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AF-01-01	9303-AF-01-01	< 0.666	< 0.4573	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-AG-01-01	9303-AG-01-01	< 0.206	< 0.5	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-ALH-01-01	9303-ALH-01-01	3.06	1.07	2.065	1.4	96
1,2,3,4,6,7,8-HpCDF	9303-ALH-02-01	9303-ALH-02-01	< 1.32	< 0.376	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-ALH-03-01	9303-ALH-03-01	< 4.305	< 0.4014	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-ALS-01-01	9303-ALS-01-01	< 4.183	< 10.08	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-BA-01-01	9303-BA-01-01	< 2.08	< 2.91	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-BDT-01-01	9303-BDT-01-01	< 1.539	< 4.858	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.381	< 0.506	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FDT-03-01	9303-FDT-03-01	< 1.01	< 0.351	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FG-01-01	9303-FG-01-01	< 0.151	< 1.052	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.248	< 3.7594	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.513	< 2.013	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.506	< 0.391	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-GLS-01-01	9303-GLS-01-01	0.62	< 0.41	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.56	< 0.53	NC	NC	NC
1,2,3,4,6,7,8-HpCDF	9303-NLS-01-01	9303-NLS-01-01	1.24	2.02	1.63	0.6	48
1,2,3,4,7,8,9-HpCDF	9303-AA-01-01	9303-AA-01-01	< 0.7845	< 1.0511	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,3,4,7,8,9-HpCDF	9303-AC-01-01	9303-AC-01-01	< 3.232	< 0.509	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.							
Type = Laboratory Replicate (pg/g), cont.							
1,2,3,4,7,8,9-HpCDF	9303-AC-01-02	9303-AC-01-02	< 9.255	< 0.9448	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AD-01-01	9303-AD-01-01	< 1.678	< 1.8159	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AE-01-01	9303-AE-01-01	< 3.382	< 0.9313	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AE-01-02	9303-AE-01-02	< 1.7191	< 2.6060	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AF-01-01	9303-AF-01-01	< 0.92	< 0.6838	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-AG-01-01	9303-AG-01-01	< 0.255	< 0.7035	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-ALH-01-01	9303-ALH-01-01	< 1.132	< 1.0888	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-ALH-02-01	9303-ALH-02-01	< 1.721	< 0.533	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-ALH-03-01	9303-ALH-03-01	< 9.733	< 0.5617	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-ALS-01-01	9303-ALS-01-01	< 3.271	< 3.944	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-BA-01-01	9303-BA-01-01	< 2.84	< 4.16	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-BDT-01-01	9303-BDT-01-01	< 4.462	< 6.145	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.516	< 0.625	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FDT-03-01	9303-FDT-03-01	< 1.488	< 0.31	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FG-01-01	9303-FG-01-01	< 0.215	< 0.307	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.344	< 5.5716	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.691	< 2.711	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.594	< 0.627	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.44	< 1.82	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.82	< 0.73	NC	NC	NC
1,2,3,4,7,8,9-HpCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.64	< 2.474	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AA-01-01	9303-AA-01-01	< 0.2638	< 1.2145	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AC-01-01	9303-AC-01-01	< 4.135	< 0.407	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AC-01-02	9303-AC-01-02	< 2.113	< 1.5818	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AD-01-01	9303-AD-01-01	< 0.672	< 1.9176	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AE-01-01	9303-AE-01-01	< 2.909	< 0.9285	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AE-01-02	9303-AE-01-02	< 2.1994	< 1.8266	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AF-01-01	9303-AF-01-01	< 0.524	< 0.8296	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-AG-01-01	9303-AG-01-01	0.7	< 0.7226	NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.17	< 1.1935	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
1,2,3,4,7,8-HxCDD	9303-ALH-02-01	9303-ALH-02-01	< 0.957		< 0.676		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.									
Type = Laboratory Replicate (pg/g), cont.									
1,2,3,4,7,8-HxCDD	9303-ALH-03-01	9303-ALH-03-01	< 4.47		< 1.3161		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-ALS-01-01	9303-ALS-01-01	< 4.444		< 4.394		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-BA-01-01	9303-BA-01-01	< 3.71		< 2.9		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-BDT-01-01	9303-BDT-01-01	< 1		< 9.206		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.723		< 0.496		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FDT-03-01	9303-FDT-03-01	< 1.537		< 0.385		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FG-01-01	9303-FG-01-01	< 0.34		< 0.142		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FLH-01-01	9303-FLH-01-01	< 4.993		< 4.2689		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FLH-03-01	9303-FLH-03-01	< 0.246		< 1.539		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-FLH-03-02	9303-FLH-03-02	< 1.079		< 0.526		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.75		< 0.41		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-IDT-01-01	9303-IDT-01-01	< 0.82		< 0.53		NC	NC	NC
1,2,3,4,7,8-HxCDD	9303-NLS-01-01	9303-NLS-01-01	0.24	(J)	< 1.241		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AA-01-01	9303-AA-01-01	< 0.3476		< 0.8059		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AC-01-01	9303-AC-01-01	< 1.475		< 0.527		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AC-01-02	9303-AC-01-02	15.16	(J)	0.15	(J)	7.655	10.6	196
1,2,3,4,7,8-HxCDF	9303-AD-01-01	9303-AD-01-01	< 2.858		< 1.6197		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AE-01-01	9303-AE-01-01	< 2.217		< 0.55		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AE-01-02	9303-AE-01-02	< 0.7845		< 1.7484		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AF-01-01	9303-AF-01-01	< 0.739		< 0.2503		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-AG-01-01	9303-AG-01-01	0.96		0.93		0.945	0.0	3
1,2,3,4,7,8-HxCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.23		< 0.2388		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-ALH-02-01	9303-ALH-02-01	< 1.024		< 0.772		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-ALH-03-01	9303-ALH-03-01	< 4.451		< 0.1735		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-ALS-01-01	9303-ALS-01-01	13.86		< 15.645		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-BA-01-01	9303-BA-01-01	< 2.72		< 2.76		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-BDT-01-01	9303-BDT-01-01	< 1.02		2.45	(J)	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.479		< 0.197		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-FDT-03-01	9303-FDT-03-01	< 1.004		< 0.093		NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-FG-01-01	9303-FG-01-01	< 0.042		< 0.143		NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,3,4,7,8-HxCDF	9303-FLH-01-01	9303-FLH-01-01	< 4.079	< 5.2702	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.							
Type = Laboratory Replicate (pg/g), cont.							
1,2,3,4,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.361	< 0.889	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.381	< 0.327	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.47	0.36	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.54	< 0.49	NC	NC	NC
1,2,3,4,7,8-HxCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.648	< 0.827	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AA-01-01	9303-AA-01-01	< 0.2760	< 1.2456	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AC-01-01	9303-AC-01-01	< 1.614	< 0.379	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AC-01-02	9303-AC-01-02	< 4.447	< 1.5925	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AD-01-01	9303-AD-01-01	< 1.217	< 2.1530	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AE-01-01	9303-AE-01-01	< 2.958	< 0.9521	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AE-01-02	9303-AE-01-02	< 0.8585	< 1.8072	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AF-01-01	9303-AF-01-01	< 0.531	< 0.8323	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-AG-01-01	9303-AG-01-01	< 0.122	< 0.7078	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.165	< 1.0923	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-ALH-02-01	9303-ALH-02-01	< 0.411	< 0.693	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-ALH-03-01	9303-ALH-03-01	< 3.659	< 1.3455	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-ALS-01-01	9303-ALS-01-01	< 3.521	< 4.33	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-BA-01-01	9303-BA-01-01	< 3.87	2.49	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-BDT-01-01	9303-BDT-01-01	< 6.294	< 9.579	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.729	< 0.503	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FDT-03-01	9303-FDT-03-01	< 0.521	< 0.117	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FG-01-01	9303-FG-01-01	< 0.34	< 0.351	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FLH-01-01	9303-FLH-01-01	< 4.826	< 4.1810	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FLH-03-01	9303-FLH-03-01	< 1.059	< 2.176	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-FLH-03-02	9303-FLH-03-02	< 1.097	< 0.527	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.79	< 0.5	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-IDT-01-01	9303-IDT-01-01	< 0.85	< 0.53	NC	NC	NC
1,2,3,6,7,8-HxCDD	9303-NLS-01-01	9303-NLS-01-01	< 0.541	< 0.986	NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AA-01-01	9303-AA-01-01	< 0.3553	< 0.7129	NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AC-01-01	9303-AC-01-01	< 1.393	< 0.472	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
1,2,3,6,7,8-HxCDF	9303-AC-01-02	9303-AC-01-02	< 12.26		< 0.6464		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.									
Type = Laboratory Replicate (pg/g), cont.									
1,2,3,6,7,8-HxCDF	9303-AD-01-01	9303-AD-01-01	< 2.468		< 1.5309		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AE-01-01	9303-AE-01-01	< 2.114		< 0.5335		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AE-01-02	9303-AE-01-02	< 0.7409		< 1.6745		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AF-01-01	9303-AF-01-01	< 0.339		< 0.2334		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-AG-01-01	9303-AG-01-01	< 0.113		0.83		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.215		< 0.6476		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-ALH-02-01	9303-ALH-02-01	< 0.724		< 0.178		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-ALH-03-01	9303-ALH-03-01	< 4.23		0.62		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-ALS-01-01	9303-ALS-01-01	< 19.683		< 6.918		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-BA-01-01	9303-BA-01-01	< 2.6		< 1.71		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-BDT-01-01	9303-BDT-01-01	< 6.791		< 6.992		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.427		< 0.453		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FDT-03-01	9303-FDT-03-01	< 0.962		< 0.083		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FG-01-01	9303-FG-01-01	< 0.166		< 0.18		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FLH-01-01	9303-FLH-01-01	1.17	(J)	< 4.9364		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-01	0.28	(J)	< 0.81		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.349		< 0.304		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-GLS-01-01	9303-GLS-01-01	0.42		< 0.34		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.66		< 0.43		NC	NC	NC
1,2,3,6,7,8-HxCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.44		0.58	(J)	NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AA-01-01	9303-AA-01-01	< 0.2708		< 1.2224		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AC-01-01	9303-AC-01-01	< 1.585		< 0.113		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AC-01-02	9303-AC-01-02	< 1.6		< 1.5633		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AD-01-01	9303-AD-01-01	< 1.194		< 2.1132		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AE-01-01	9303-AE-01-01	< 2.903		< 0.9346		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AE-01-02	9303-AE-01-02	< 0.8430		< 1.7739		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AF-01-01	9303-AF-01-01	< 0.522		< 0.8169		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-AG-01-01	9303-AG-01-01	< 0.12		< 0.6949		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.162		< 1.0723		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-ALH-02-01	9303-ALH-02-01	< 0.403		< 0.68		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
1,2,3,7,8,9-HxCDD	9303-ALH-03-01	9303-ALH-03-01	< 3.591		< 0.5529		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.									
Type = Laboratory Replicate (pg/g), cont.									
1,2,3,7,8,9-HxCDD	9303-ALS-01-01	9303-ALS-01-01	< 3.456		< 4.155		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-BA-01-01	9303-BA-01-01	< 1.97		< 1.65		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-BDT-01-01	9303-BDT-01-01	< 0.995		< 9.402		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.715		< 0.257		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FDT-03-01	9303-FDT-03-01	< 0.511		0.21		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FG-01-01	9303-FG-01-01	< 0.334		< 0.344		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FLH-01-01	9303-FLH-01-01	< 4.737		< 4.1040		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FLH-03-01	9303-FLH-03-01	< 0.245		0.55	(J)	NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-FLH-03-02	9303-FLH-03-02	0.19	(J)	< 0.517		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.34		< 0.4		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-IDT-01-01	9303-IDT-01-01	< 0.84		< 0.52		NC	NC	NC
1,2,3,7,8,9-HxCDD	9303-NLS-01-01	9303-NLS-01-01	< 0.531		< 0.968		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AA-01-01	9303-AA-01-01	< 0.3154		< 0.4385		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AC-01-01	9303-AC-01-01	< 1.087		< 0.199		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AC-01-02	9303-AC-01-02	< 0.489		< 0.3944		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AD-01-01	9303-AD-01-01	< 0.34		< 1.7188		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AE-01-01	9303-AE-01-01	< 2.251		< 0.2098		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AE-01-02	9303-AE-01-02	< 0.5781		0.93	(J)	NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AF-01-01	9303-AF-01-01	< 0.366		< 0.2134		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-AG-01-01	9303-AG-01-01	1.26		1.86		1.56	0.4	38
1,2,3,7,8,9-HxCDF	9303-ALH-01-01	9303-ALH-01-01	1.32		< 0.2394		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-ALH-02-01	9303-ALH-02-01	< 0.972		< 0.171		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-ALH-03-01	9303-ALH-03-01	< 5.398		< 0.1669		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-ALS-01-01	9303-ALS-01-01	8.4		3.15		5.775	3.7	91
1,2,3,7,8,9-HxCDF	9303-BA-01-01	9303-BA-01-01	< 1.99		2.69		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-BDT-01-01	9303-BDT-01-01	< 0.883		< 2.836		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-FDT-02-01	9303-FDT-02-01	0.34		< 0.194		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-FDT-03-01	9303-FDT-03-01	< 0.9		< 0.093		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-FG-01-01	9303-FG-01-01	< 0.043		< 0.182		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-FLH-01-01	9303-FLH-01-01	< 1		< 4.2256		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value		Mean Value	Standard Deviation	RPD (%)
1,2,3,7,8,9-HxCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.363	< 0.913		NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.								
Type = Laboratory Replicate (pg/g), cont.								
1,2,3,7,8,9-HxCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.377	< 0.152		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.25	< 0.37		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.56	< 0.56		NC	NC	NC
1,2,3,7,8,9-HxCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.477	< 0.853		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AA-01-01	9303-AA-01-01	< 0.5808	< 1.6370		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AC-01-01	9303-AC-01-01	< 2.915	< 0.316		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AC-01-02	9303-AC-01-02	< 7.822	< 2.0993		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AD-01-01	9303-AD-01-01	< 0.94	< 2.3106		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AE-01-01	9303-AE-01-01	< 2.954	< 0.6895		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AE-01-02	9303-AE-01-02	< 1.5505	< 3.9418		NC	NC	NC
1,2,3,7,8-PeCDD	9303-AF-01-01	9303-AF-01-01	< 0.684	< 0.71		NC	NC	NC
1,2,3,7,8-PeCDO	9303-AG-01-01	9303-AG-01-01	< 0.379	< 0.7		NC	NC	NC
1,2,3,7,8-PeCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.634	< 1.0782		NC	NC	NC
1,2,3,7,8-PeCDD	9303-ALH-02-01	9303-ALH-02-01	< 1.645	< 0.732		NC	NC	NC
1,2,3,7,8-PeCDD	9303-ALH-03-01	9303-ALH-03-01	< 8.622	< 1.3845		NC	NC	NC
1,2,3,7,8-PeCDD	9303-ALS-01-01	9303-ALS-01-01	< 0.602	< 5.148		NC	NC	NC
1,2,3,7,8-PeCDD	9303-BA-01-01	9303-BA-01-01	< 2.39	< 2.65		NC	NC	NC
1,2,3,7,8-PeCDD	9303-BDT-01-01	9303-BDT-01-01	< 3.716	< 6.837		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.492	< 0.513		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FDT-03-01	9303-FDT-03-01	< 1.135	< 0.158		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FG-01-01	9303-FG-01-01	< 0.182	< 0.257		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FLH-01-01	9303-FLH-01-01	< 2.368	< 6.0797		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FLH-03-01	9303-FLH-03-01	< 0.508	< 1.539		NC	NC	NC
1,2,3,7,8-PeCDD	9303-FLH-03-02	9303-FLH-03-02	< 0.57	< 0.315		NC	NC	NC
1,2,3,7,8-PeCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.43	< 0.91		NC	NC	NC
1,2,3,7,8-PeCDD	9303-IDT-01-01	9303-IDT-01-01	< 1.01	< 0.56		NC	NC	NC
1,2,3,7,8-PeCDD	9303-NLS-01-01	9303-NLS-01-01	< 0.809	0.27	(J)	NC	NC	NC
1,2,3,7,8-PeCDF	9303-AA-01-01	9303-AA-01-01	< 0.4317	< 0.8551		NC	NC	NC
1,2,3,7,8-PeCDF	9303-AC-01-01	9303-AC-01-01	< 1.893	< 0.116		NC	NC	NC
1,2,3,7,8-PeCDF	9303-AC-01-02	9303-AC-01-02	< 14.735	< 0.9691		NC	NC	NC

Compiled: 27 September 1993

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,3,7,8-PeCDF	9303-AD-01-01	9303-AO-01-01	< 0.977	< 0.9011	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.							
Type = Laboratory Replicate (pg/g), cont.							
1,2,3,7,8-PeCDF	9303-AE-01-01	9303-AE-01-01	< 1.244	< 0.3675	NC	NC	NC
1,2,3,7,8-PeCDF	9303-AE-01-02	9303-AE-01-02	< 1.0069	< 1.8357	NC	NC	NC
1,2,3,7,8-PeCDF	9303-AF-01-01	9303-AF-01-01	< 0.771	< 0.4488	NC	NC	NC
1,2,3,7,8-PeCDF	9303-AG-01-01	9303-AG-01-01	< 0.142	< 0.5468	NC	NC	NC
1,2,3,7,8-PeCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.437	< 0.6988	NC	NC	NC
1,2,3,7,8-PeCDF	9303-ALH-02-01	9303-ALH-02-01	< 0.642	< 0.318	NC	NC	NC
1,2,3,7,8-PeCDF	9303-ALH-03-01	9303-ALH-03-01	< 3.086	< 0.7691	NC	NC	NC
1,2,3,7,8-PeCDF	9303-ALS-01-01	9303-ALS-01-01	< 2.98	2.36 (J)	NC	NC	NC
1,2,3,7,8-PeCDF	9303-BA-01-01	9303-BA-01-01	< 3.06	< 3.1	NC	NC	NC
1,2,3,7,8-PeCDF	9303-BDT-01-01	9303-BDT-01-01	< 1.367	< 4.198	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.347	< 0.27	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FDT-03-01	9303-FDT-03-01	< 0.51	< 0.196	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FG-01-01	9303-FG-D1-01	< 0.104	< 0.168	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.178	< 2.7878	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.321	< 0.98	NC	NC	NC
1,2,3,7,8-PeCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.443	< 0.447	NC	NC	NC
1,2,3,7,8-PeCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.51	< 0.63	NC	NC	NC
1,2,3,7,8-PeCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.71	< 1.03	NC	NC	NC
1,2,3,7,8-PeCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.815	< 1.013	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AA-01-01	9303-AA-01-01	< 0.2996	< 1.0570	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AC-01-01	9303-AC-01-01	< 3.222	< 0.127	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AC-01-02	9303-AC-01-02	< 2.785	< 0.8925	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AD-01-01	9303-AD-01-01	< 0.902	< 2.3421	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AE-01-01	9303-AE-01-01	< 2.702	< 0.6241	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AE-01-02	9303-AE-01-02	< 1.7138	< 2.2454	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AF-01-01	9303-AF-01-01	< 0.999	< 0.4173	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-AG-01-01	9303-AG-01-01	1.23	1.68	1.455	0.3	31
2,3,4,6,7,8-HxCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.408	< 0.8664	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-ALH-02-01	9303-ALH-02-01	< 2.179	< 0.219	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-ALH-03-01	9303-ALH-03-01	< 10.543	< 0.6669	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,3,4,6,7,8-HxCDF	9303-ALS-01-01	9303-ALS-01-01	< 1.351	< 3.271	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.							
Type = Laboratory Replicate (pg/g), cont.							
2,3,4,6,7,8-HxCDF	9303-BA-01-01	9303-BA-01-01	< 3.35	< 3.48	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-BDT-01-01	9303-BDT-01-01	< 1.209	< 9.962	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.623	< 0.702	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FDT-03-01	9303-FDT-03-01	< 1.291	< 0.182	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FG-01-01	9303-FG-01-01	< 0.262	< 0.176	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.258	< 5.4770	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.482	< 1.208	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-FLH-03-02	9303-FLH-03-02	< 1.517	< 0.422	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.31	< 1.21	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.89	< 0.57	NC	NC	NC
2,3,4,6,7,8-HxCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.861	< 1.013	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AA-01-01	9303-AA-01-01	< 0.4896	< 0.9370	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AC-01-01	9303-AC-01-01	< 1.216	< 0.105	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AC-01-02	9303-AC-01-02	< 3.036	< 1.0055	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AD-01-01	9303-AD-01-01	< 0.626	< 0.9560	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AE-01-01	9303-AE-01-01	< 1.308	< 0.3890	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AE-01-02	9303-AE-01-02	< 0.6468	< 1.8103	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AF-01-01	9303-AF-01-01	< 0.844	< 0.4038	NC	NC	NC
2,3,4,7,8-PeCDF	9303-AG-01-01	9303-AG-01-01	< 0.156	< 0.5410	NC	NC	NC
2,3,4,7,8-PeCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.484	< 0.7894	NC	NC	NC
2,3,4,7,8-PeCDF	9303-ALH-02-01	9303-ALH-02-01	< 0.688	< 0.632	NC	NC	NC
2,3,4,7,8-PeCDF	9303-ALH-03-01	9303-ALH-03-01	< 3.332	< 0.8058	NC	NC	NC
2,3,4,7,8-PeCDF	9303-ALS-01-01	9303-ALS-01-01	< 1.006	< 3.829	NC	NC	NC
2,3,4,7,8-PeCDF	9303-BA-01-01	9303-BA-01-01	< 3.19	< 3.09	NC	NC	NC
2,3,4,7,8-PeCDF	9303-BDT-01-01	9303-BDT-01-01	< 1.473	< 6.52	NC	NC	NC
2,3,4,7,8-PeCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.358	< 0.32	NC	NC	NC
2,3,4,7,8-PeCDF	9303-FDT-03-01	9303-FDT-03-01	< 0.562	< 0.208	NC	NC	NC
2,3,4,7,8-PeCDF	9303-FG-01-01	9303-FG-01-01	< 0.109	< 0.179	NC	NC	NC
2,3,4,7,8-PeCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.728	< 3.0310	NC	NC	NC
2,3,4,7,8-PeCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.349	< 1.081	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,3,4,7,8-PeCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.477		< 0.481	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.								
Type = Laboratory Replicate (pg/g), cont.								
2,3,4,7,8-PeCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.52		< 0.71	NC	NC	NC
2,3,4,7,8-PeCDF	9303-IDT-01-01	9303-IDT-01-01	< 1.09		< 0.92	NC	NC	NC
2,3,4,7,8-PeCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.9		< 1.036	NC	NC	NC
2,3,7,8-TCDD	9303-AA-01-01	9303-AA-01-01	< 0.7627		< 2.1070	NC	NC	NC
2,3,7,8-TCDD	9303-AC-01-01	9303-AC-01-01	< 1.512		< 0.127	NC	NC	NC
2,3,7,8-TCDD	9303-AC-01-02	9303-AC-01-02	1.28	(J)	< 2.4724	NC	NC	NC
2,3,7,8-TCDD	9303-AD-01-01	9303-AD-01-01	< 0.366		< 3.3793	NC	NC	NC
2,3,7,8-TCDD	9303-AE-01-01	9303-AE-01-01	< 3.418		< 1.3461	NC	NC	NC
2,3,7,8-TCDD	9303-AE-01-02	9303-AE-01-02	< 0.8042		< 8.5860	NC	NC	NC
2,3,7,8-TCDD	9303-AF-01-01	9303-AF-01-01	< 0.462		< 2.2234	NC	NC	NC
2,3,7,8-TCDD	9303-AG-01-01	9303-AG-01-01	< 0.074		< 1.7085	NC	NC	NC
2,3,7,8-TCDD	9303-ALH-01-01	9303-ALH-01-01	< 0.373		< 2.0111	NC	NC	NC
2,3,7,8-TCDD	9303-ALH-02-01	9303-ALH-02-01	< 3.168		< 1.261	NC	NC	NC
2,3,7,8-TCDD	9303-ALH-03-01	9303-ALH-03-01	< 10.507		< 0.7227	NC	NC	NC
2,3,7,8-TCDD	9303-ALS-01-01	9303-ALS-01-01	< 0.99		< 7.744	NC	NC	NC
2,3,7,8-TCDD	9303-BA-01-01	9303-BA-01-01	< 3.96		< 3.04	NC	NC	NC
2,3,7,8-TCDD	9303-BDT-01-01	9303-BDT-01-01	< 5.653		< 2.92	NC	NC	NC
2,3,7,8-TCDD	9303-FDT-02-01	9303-FDT-02-01	< 0.128		< 0.175	NC	NC	NC
2,3,7,8-TCDD	9303-FDT-03-01	9303-FDT-03-01	< 0.599		< 0.084	NC	NC	NC
2,3,7,8-TCDD	9303-FG-01-01	9303-FG-01-01	< 0.057		< 0.074	NC	NC	NC
2,3,7,8-TCDD	9303-FLH-01-01	9303-FLH-01-D1	< 3.168		< 7.9608	NC	NC	NC
2,3,7,8-TCDD	9303-FLH-03-01	9303-FLH-03-01	0.12		< 2.62	NC	NC	NC
2,3,7,8-TCDD	9303-FLH-03-02	9303-FLH-03-02	< 0.244		< 0.156	NC	NC	NC
2,3,7,8-TCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.11		< 0.16	NC	NC	NC
2,3,7,8-TCDD	9303-IDT-01-01	9303-IDT-01-01	< 0.18		< 0.16	NC	NC	NC
2,3,7,8-TCDD	9303-NLS-01-01	9303-NLS-01-01	< 0.188		< 1.363	NC	NC	NC
2,3,7,8-TCDF	9303-AA-01-01	9303-AA-01-01	4.22		4.38	4.3	0.1	4
2,3,7,8-TCDF	9303-AC-01-01	9303-AC-01-01	< 1.963		< 0.078	NC	NC	NC
2,3,7,8-TCDF	9303-AC-01-02	9303-AC-01-02	< 1.922		< 1.2496	NC	NC	NC
2,3,7,8-TCDF	9303-AD-01-01	9303-AD-01-01	< 1.14		3.68	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES; HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value		Mean Value	Standard Deviation	RPD (%)
2,3,7,8-TCDF	9303-AE-01-01	9303-AE-01-01	4.92		4.19		4.555	0.5	16

Method = SW8290 - Dioxins and Furans, cont.

Type = Laboratory Replicate (pg/g), cont.

2,3,7,8-TCDF	9303-AE-01-02	9303-AE-01-02	< 1.0441		< 4.9042		NC	NC	NC
2,3,7,8-TCDF	9303-AF-01-01	9303-AF-01-01	< 0.701		< 1.5734		NC	NC	NC
2,3,7,8-TCDF	9303-AG-01-01	9303-AG-01-01	< 0.115		0.62		NC	NC	NC
2,3,7,8-TCDF	9303-ALH-01-01	9303-ALH-01-01	< 0.483		< 1.6611		NC	NC	NC
2,3,7,8-TCDF	9303-ALH-02-01	9303-ALH-02-01	< 1.355		< 1.084		NC	NC	NC
2,3,7,8-TCDF	9303-ALH-03-01	9303-ALH-03-01	< 3.961		< 1.8007		NC	NC	NC
2,3,7,8-TCDF	9303-ALS-01-01	9303-ALS-01-01	< 0.613		< 6.979		NC	NC	NC
2,3,7,8-TCDF	9303-BA-01-01	9303-BA-01-01	< 2.34		< 1.7		NC	NC	NC
2,3,7,8-TCDF	9303-BDT-01-01	9303-BDT-01-01	< 4.252		< 8.206		NC	NC	NC
2,3,7,8-TCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.655		< 0.618		NC	NC	NC
2,3,7,8-TCDF	9303-FDT-03-01	9303-FDT-03-01	< 1.097		< 0.28		NC	NC	NC
2,3,7,8-TCDF	9303-FG-01-01	9303-FG-01-01	< 0.241		< 0.242		NC	NC	NC
2,3,7,8-TCDF	9303-FLH-01-01	9303-FLH-01-01	< 3.097		< 5.6189		NC	NC	NC
2,3,7,8-TCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.375		< 1.238		NC	NC	NC
2,3,7,8-TCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.492		0.09	(J)	NC	NC	NC
2,3,7,8-TCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.36		< 0.67		NC	NC	NC
2,3,7,8-TCDF	9303-IDT-01-01	9303-IDT-01-01	< 0.77		< 0.73		NC	NC	NC
2,3,7,8-TCDF	9303-NLS-01-01	9303-NLS-01-01	< 0.797		< 1.225		NC	NC	NC
OCDD	9303-AA-01-01	9303-AA-01-01	4.33		9.28		6.805	3.5	73
OCDD	9303-AC-01-01	9303-AC-01-01	9.91		6.95		8.43	2.1	35
OCDD	9303-AC-01-02	9303-AC-01-02	5.98		8.45		7.215	1.7	34
OCDD	9303-AD-01-01	9303-AD-01-01	4.92		9.6		7.26	3.3	64
OCDD	9303-AE-01-01	9303-AE-01-01	2.79	(J)	4.74		3.765	1.4	52
OCDD	9303-AE-01-02	9303-AE-01-02	101.4		5.47		53.455	67.9	180
OCDD	9303-AF-01-01	9303-AF-01-01	2.21		2.78		2.495	0.4	23
OCDD	9303-AG-01-01	9303-AG-01-01	6.02		3.37		4.695	1.9	56
OCDD	9303-ALH-01-01	9303-ALH-01-01	10.38		5.06		7.72	3.8	69
OCDD	9303-ALH-02-01	9303-ALH-02-01	< 2.14		6.03		NC	NC	NC
OCDD	9303-ALH-03-01	9303-ALH-03-01	18.69	(J)	4.97		11.83	9.7	116
OCDD	9303-ALS-01-01	9303-ALS-01-01	< 6.629		< 6.143		NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
OCDD	9303-BA-01-01	9303-BA-01-01	100.0		166.07	133.04	46.7	50
Method = SW8290 - Dioxins and Furans, cont.								
Type = Laboratory Replicate (pg/g), cont.								
OCDD	9303-BDT-01-01	9303-BDT-01-01	31.26		39.28	35.27	5.7	23
OCDD	9303-FDT-02-01	9303-FDT-02-01	4.39		6.06	5.225	1.2	32
OCDD	9303-FDT-03-01	9303-FDT-03-01	48.67		10.23	29.45	27.2	131
OCDD	9303-FG-01-01	9303-FG-01-01	< 0.344		< 0.465	NC	NC	NC
OCDD	9303-FLH-01-01	9303-FLH-01-01	7.41		13.8	10.605	4.5	60
OCDD	9303-FLH-03-01	9303-FLH-03-01	3.91		7.01	5.46	2.2	57
OCDD	9303-FLH-03-02	9303-FLH-03-02	3.26		< 1.21	NC	NC	NC
OCDD	9303-GLS-01-01	9303-GLS-01-01	< 0.76		< 0.93	NC	NC	NC
OCDD	9303-IDT-01-01	9303-IDT-01-01	8.81		8.44	8.625	0.3	4
OCDD	9303-NLS-01-01	9303-NLS-01-01	3.98		7.38	5.68	2.4	60
OCOF	9303-AA-01-01	9303-AA-01-01	< 0.7439		< 2.5271	NC	NC	NC
OCDF	9303-AC-01-01	9303-AC-01-01	2.74		< 0.243	NC	NC	NC
OCDF	9303-AC-01-02	9303-AC-01-02	< 0.813		< 1.1357	NC	NC	NC
OCDF	9303-AD-01-01	9303-AD-01-01	< 0.945		< 4.0162	NC	NC	NC
OCDF	9303-AE-01-01	9303-AE-01-01	< 5.316		< 0.5758	NC	NC	NC
OCDF	9303-AE-01-02	9303-AE-01-02	2.18	(J)	< 2.5945	NC	NC	NC
OCDF	9303-AF-01-01	9303-AF-01-01	0.6	(J)	1.35	0.975	0.5	77
OCDF	9303-AG-01-01	9303-AG-01-01	3.7		< 0.425	NC	NC	NC
OCDF	9303-ALH-01-01	9303-ALH-01-01	< 1.097		< 0.8705	NC	NC	NC
OCDF	9303-ALH-02-01	9303-ALH-02-01	< 5.378		< 0.665	NC	NC	NC
OCDF	9303-ALH-03-01	9303-ALH-03-01	11.22	(J)	< 0.8022	NC	NC	NC
OCDF	9303-ALS-01-01	9303-ALS-01-01	< 3.376		< 5.218	NC	NC	NC
OCDF	9303-BA-01-01	9303-BA-01-01	< 6.01		< 4.98	NC	NC	NC
OCDF	9303-BDT-01-01	9303-BDT-01-01	< 6.902		< 7.329	NC	NC	NC
OCDF	9303-FDT-02-01	9303-FDT-02-01	< 0.716		1.22	NC	NC	NC
OCDF	9303-FDT-03-01	9303-FDT-03-01	< 3.25		< 0.563	NC	NC	NC
OCDF	9303-FG-01-01	9303-FG-01-01	< 0.106		< 0.482	NC	NC	NC
OCDF	9303-FLH-01-01	9303-FLH-01-01	< 1.598		< 3.4513	NC	NC	NC
OCDF	9303-FLH-03-01	9303-FLH-03-01	< 0.406		< 5.83	NC	NC	NC
OCDF	9303-FLH-03-02	9303-FLH-03-02	< 0.614		< 0.674	NC	NC	NC

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
OCDF	9303-GLS-01-01	9303-GLS-01-01	< 0.53		< 0.78	NC	NC	NC
Method = SW8290 - Dioxins and Furans, cont.								
Type = Laboratory Replicate (pg/g), cont.								
OCDF	9303-IDT-01-01	9303-IDT-01-01	< 2.05		< 1.14	NC	NC	NC
OCDF	9303-NLS-01-01	9303-NLS-01-01	1.52		< 1.96	NC	NC	NC
Type = Matrix Spike (%)								
1,2,3,4,6,7,8-HpCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	108		109	108.5	0.7	1
1,2,3,4,6,7,8-HpCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	110		108	109	1.4	2
1,2,3,4,6,7,8-HpCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	107		100	103.5	4.9	7
1,2,3,4,6,7,8-HpCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	107		119	113	8.5	11
1,2,3,4,6,7,8-HpCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	117		159	138	29.7	30
1,2,3,4,6,7,8-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	131	(Q)	121	126	7.1	8
1,2,3,4,6,7,8-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	127	(Q)	133	130	4.2	5
1,2,3,4,6,7,8-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	127	(Q)	99	113	19.8	25
1,2,3,4,7,8,9-HpCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	106		129	117.5	16.3	20
1,2,3,4,7,8,9-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	127	(Q)	126	126.5	0.7	1
1,2,3,4,7,8,9-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	126	(Q)	118	122	5.7	7
1,2,3,4,7,8,9-HpCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	126	(Q)	94	110	22.6	29
1,2,3,4,7,8-HxCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	106		108	107	1.4	2
1,2,3,4,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	102		94	98	5.7	8
1,2,3,4,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	107		103	105	2.8	4
1,2,3,4,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	102		144	123	29.7	34
1,2,3,4,7,8-HxCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	107		116	111.5	6.4	8
1,2,3,4,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	115		112	113.5	2.1	3
1,2,3,4,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	118		115	116.5	2.1	3
1,2,3,4,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	115		104	109.5	7.8	10
1,2,3,6,7,8-HxCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	106		102	104	2.8	4
1,2,3,6,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	103		93	98	7.1	10
1,2,3,6,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	103		102	102.5	0.7	1
1,2,3,6,7,8-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	103		134	118.5	21.9	26
1,2,3,6,7,8-HxCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	114		116	115	1.4	2
1,2,3,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	117		112	114.5	3.5	4

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGOONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
1,2,3,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	111		108	109.5	2.1	3
Method = SW8290 - Dioxins and Furans, cont.								
Type = Matrix Spike (%), cont.								
1,2,3,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	111		103	107	5.7	7
1,2,3,7,8,9-HxCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	103		111	107	5.7	7
1,2,3,7,8,9-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	112		100	106	8.5	11
1,2,3,7,8,9-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	105		80	92.5	17.7	27
1,2,3,7,8,9-HxCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	112		143	127.5	21.9	24
1,2,3,7,8,9-HxCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	108		116	112	5.7	7
1,2,3,7,8,9-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	119		114	116.5	3.5	4
1,2,3,7,8,9-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	113		107	110	4.2	5
1,2,3,7,8,9-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	113		100	106.5	9.2	12
1,2,3,7,8-PeCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	113		98	105.5	10.6	14
1,2,3,7,8-PeCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	97		87	92	7.1	11
1,2,3,7,8-PeCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	98		92	95	4.2	6
1,2,3,7,8-PeCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	97		127	112	21.2	27
1,2,3,7,8-PeCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	116		124	120	5.7	7
1,2,3,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	108		109	108.5	0.7	1
1,2,3,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	118		119	118.5	0.7	1
1,2,3,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	118		131	124.5	9.2	10
2,3,4,6,7,8-HxCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	111		119	115	5.7	7
2,3,4,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	124	(Q)	125	124.5	0.7	1
2,3,4,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	120		112	116	5.7	7
2,3,4,6,7,8-HxCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	120		110	115	7.1	9
2,3,4,7,8-PeCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	119		111	115	5.7	7
2,3,4,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	109		115	112	4.2	5
2,3,4,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	117		110	113.5	4.9	6
2,3,4,7,8-PeCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	117		124	120.5	4.9	6
2,3,7,8-TCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	84		81	82.5	2.1	4
2,3,7,8-TCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	85		81	83	2.8	5
2,3,7,8-TCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	79		76	77.5	2.1	4
2,3,7,8-TCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	79		103	91	17.0	26
2,3,7,8-TCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	117		110	113.5	4.9	6

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TABLE B3 DETAILED LISTING OF DUPLICATE RESULTS, BIOTA SAMPLES, HOLLOMAN SEWAGE LAGDONS AND LAKES INVESTIGATION

Parameter	Sample ID	Duplicate Sample ID	Value		Duplicate Value	Mean Value	Standard Deviation	RPD (%)
2,3,7,8-TCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	102		88	95	9.9	15
Method = SW8290 - Dioxins and Furans, cont.								
Type = Matrix Spike (%), cont.								
2,3,7,8-TCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	100		107	103.5	4.9	7
2,3,7,8-TCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	102		128	115	18.4	23
OCDD	9303-AE-01-01 MS	9303-AE-01-01 MSD	109		114	111.5	3.5	4
OCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	112		106	109	4.2	6
OCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	111		111	111	0.0	0
OCDD	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	112		140	126	19.8	22
OCDF	9303-AE-01-01 MS	9303-AE-01-01 MSD	131	(Q)	120	125.5	7.8	9
OCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	118		110	114	5.7	7
OCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD	130	(Q)	131	130.5	0.7	1
OCDF	9303-FDT-01-01 MS	9303-FDT-01-01 MSD/DU	118		150	134	22.6	24
Method = SW846 - Percent Moisture								
Type = Field Duplicate (%)								
Percent moisture (metals)	9303-AC-01-01	9303-AC-01-D2	94.6			47.3	66.9	200
Percent moisture (metals)	9303-AE-01-01	9303-AE-01-02	97.7		97.7	97.7	0.0	0
Percent moisture (metals)	9303-FLH-03-01	9303-FLH-03-02	20.7		20	20.35	0.5	3
Type = Laboratory Replicate (%)								
Percent moisture (metals)	9303-AA-01-01	9303-AA-01-01	96.5		96.5	96.5	0.0	0
Percent moisture (metals)	9303-AC-01-01	9303-AC-01-01	94.6		94.6	94.6	0.0	0
Percent moisture (metals)	9303-AD-01-01	9303-AD-01-01	95.2		95.2	95.2	0.0	0
Percent moisture (metals)	9303-AE-01-01	9303-AE-01-01	97.7		97.7	97.7	0.0	0
Percent moisture (metals)	9303-AE-01-02	9303-AE-01-02	97.7		97.7	97.7	0.0	0
Percent moisture (metals)	9303-AF-01-01	9303-AF-01-01	94.9		94.9	94.9	0.0	0
Percent moisture (metals)	9303-AG-01-D1	9303-AG-01-01	94.2		94.2	94.2	0.0	0
Percent moisture (metals)	9303-ALH-01-01	9303-ALH-01-01	97.9		97.9	97.9	0.0	0
Percent moisture (metals)	9303-ALH-02-01	9303-ALH-02-01	97.1		97.1	97.1	0.0	0
Percent moisture (metals)	9303-ALH-03-01	9303-ALH-03-01	97.7		97.7	97.7	0.0	0
Percent moisture (metals)	9303-ALS-01-01	9303-ALS-01-01	97.8		97.8	97.8	0.0	0

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Parameter	Sample ID	Duplicate Sample ID	Value	Duplicate Value	Mean Value	Standard Deviation	RPD (%)
Percent moisture (metals)	9303-ALS-02-01	9303-ALS-02-01	97.9	97.9	97.9	0.0	0
Method = SW846 - Percent Moisture, cont.							
Type = Laboratory Replicate (%), cont.							
Percent moisture (metals)	9303-BE-01-01	9303-BE-01-01	89.8	89.8	89.8	0.0	0
Percent moisture (metals)	9303-FDT-01-01	9303-FDT-01-01	21.8	21.8	21.8	0.0	0
Percent moisture (metals)	9303-FDT-01-01.1	9303-FDT-01-01.1	21.8	21.8	21.8	0.0	0
Percent moisture (metals)	9303-FDT-01-01.2	9303-FDT-01-01.2	21.8	21.8	21.8	0.0	0
Percent moisture (metals)	9303-FDT-02-01	9303-FDT-02-01	21	21	21	0.0	0
Percent moisture (metals)	9303-FDT-03-01	9303-FDT-03-01	22.1	22.1	22.1	0.0	0
Percent moisture (metals)	9303-FG-01-01	9303-FG-01-01	22.3	22.3	22.3	0.0	0
Percent moisture (metals)	9303-FLH-01-01	9303-FLH-01-01	18.3	18.3	18.3	0.0	0
Percent moisture (metals)	9303-FLH-02-01	9303-FLH-02-01	19.8	19.8	19.8	0.0	0
Percent moisture (metals)	9303-FLH-03-01	9303-FLH-03-01	20.7	20.7	20.7	0.0	0
Percent moisture (metals)	9303-FLH-03-02	9303-FLH-03-02	20	20	20	0.0	0
Percent moisture (metals)	9303-GLS-01-01	9303-GLS-01-01	93.2	93.2	93.2	0.0	0
Percent moisture (metals)	9303-IDT-01-01	9303-IDT-01-01	80.3	80.3	80.3	0.0	0
Percent moisture (metals)	9303-NLS-01-01	9303-NLS-01-01	92.9	92.9	92.9	0.0	0

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