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U. S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
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Date: September 30, 1996
Refer to: EM/ER:96-493

Ms. Barbara Hoditschek
NMED-HRMB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: AMENDED TA-35 TSL 85 SURFACE IMPOUNDMENT CLOSURE REPORT

Dear Ms. Hoditschek:

Enclosed please find 2 copies of the amended closure report, which contains final closure documentation to support clean closure of the Technical Area (TA) 35, Ten Site Laboratory (TSL) 85 surface impoundment. Within this report, you will find the necessary documentation to support our conclusion that this unit meets requirements necessary to demonstrate clean closure equivalency. Certification of the closure can be found in Section 4 of the Amended Closure Report.

This closure was performed to meet requirements specified in the final Amended Closure Plan for TA-35 TSL 85 surface impoundment that was approved by the New Mexico Environment Department on September 18, 1996. All supporting documentation pertaining to this closure is currently on file with Los Alamos National Laboratory's Environmental Restoration Project Office.

Should you have any questions concerning this amended closure report, please call Dave McInroy at (505) 667-0819 or Mat Johansen at (505) 667-0575.

Sincerely,

Thomas E. Baca, Division Director
LANL/EM Division

Sincerely,

Theodore J. Taylor, Program Manager
DOE/LAAO

JJ/TT/bp

Enclosure: Amended TA-35 TSL 85 Surface Impoundment Closure Report

5252

SCANNED

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B. Garcia, NMED-HRMB
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AMENDED CLOSURE CERTIFICATION REPORT FOR THE TECHNICAL AREA 35, TEN SITE LABORATORY 85 SURFACE IMPOUNDMENT

Facility ID No.:	NM0890010515
Facility Name:	Los Alamos National Laboratory
Legal Owner:	United States Department of Energy
Legal Operators:	United States Department of Energy Los Alamos Area Office 528 35th Street Los Alamos, New Mexico 87545 University of California P.O. Box 1663 Los Alamos, New Mexico 87545
Contact Person:	Mr. Joseph C. Vozella Assistant Area Manager Office of Environment and Projects U.S. Department of Energy Los Alamos Area Office (505) 665-5027 Mr. David J. McInroy Project Manager Environmental Restoration Project Los Alamos National Laboratory (505) 667-0819
Date:	September 1996

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List of Abbreviations/Acronyms

CRDL	Contract Required Detection Limit
EDL	estimated detection limit
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ESH	Environment, Safety, and Health Division
EQL	estimated quantitation limit
FID	flame ionization detector
g/day	gram per day
IRIS	Integrated Risk Information System
kg	kilogram
LANL	Los Alamos National Laboratory
LATA	Los Alamos Technical Associates
LOQ	limit of quantitation
mg/day	milligram per day
mg/kg	milligram per kilogram
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NOD	Notice of Deficiency
PCB	polychlorinated biphenyl
P.E.	Professional Engineer
PID	photoionization detector
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RfD	reference dose
RLWTF	Radioactive Liquid Waste Treatment Facility
RME	reasonable maximum exposure
RPD	relative percent difference
SF	slope factor
SVOC	semivolatile organic compounds
SW-846	EPA Test Methods for Evaluating Solid Waste
TA	Technical Area
TIC	tentatively identified compound
TSL	Ten Site Laboratory
UCL	upper confidence limit
UST	underground storage tank
UTL	upper tolerance limit
VOC	volatile organic compounds

Executive Summary

This report summarizes the Phase VI closure activities performed at the Technical Area (TA) 35, Ten Site Laboratory (TSL) 85 surface impoundment at Los Alamos National Laboratory (LANL) to meet the closure requirements specified in the New Mexico Environment Department (NMED)-Approved Closure Plan (NMED, 1996).

Prior to formal NMED approval of a closure plan, and following informal discussions with NMED staff, LANL decided to proceed with the closure of the TA-35, TSL-85 surface impoundment to prevent any further releases from the unit. All actions were performed to meet the requirements for clean closure. Closure was achieved through the removal and proper disposal of all wastes contained within the surface impoundment; decontamination and/or removal and proper disposal of the surface impoundment, its associated structures, contaminated soil underlying the impoundment area, and the inactive underground storage tank and associated piping; backfilling of all excavations will clean soil; sampling and analysis of soil to determine the presence and concentrations of any hazardous constituents remaining in the soil at the site; and demonstration through risk assessment that any constituents remaining in the soil at the site pose no threat to human health and the environment.

The "Closure Certification Report, TA-35 TSL-85 Surface Impoundment" (BEC, 1991a), including a signed professional engineering certification of the closure activities associated with Phases I through V and the "Interim Status Closure Plan, TA-35 TSL-85 Surface Impoundment" (BEC, 1991b), was submitted to NMED in December, 1991. NMED subsequently disapproved this closure plan and denied the clean closure equivalency demonstration. NMED provided a list of reasons why the closure plan was disapproved and identified that the analytical data for the majority of the soil samples collected during Phases I through V of the closure activities were not determined adequate due to missed holding times, surrogate recovery results outside the U.S. Environmental Protection Agency's limits, and elevated detection limits due to analytical interference from nonhazardous constituents. Responses to NMED's reasons and an "Amendment to the Closure Plan for Technical Area 35, TSL-85 Surface Impoundment" (IT, 1993), proposing Phase VI sampling activities, were submitted to NMED in October 1993. NMED then issued a Notice of Deficiency (NOD) on the amendment to the closure plan. Responses to the NOD were submitted to

NMED in June, 1994. NMED subsequently prepared the "TA-35, TSL-85 Amended Closure Plan" (NMED, 1996). The responses to the NOD were not addressed in the "TA-35, TSL-85 Amended Closure Plan." Following negotiations with LANL regarding the list of constituents for which the Phase VI soil samples were to be analyzed for, NMED approved the "TA-35, TSL-85 Amended Closure Plan" on September 18, 1996; hereafter, referred to as the NMED-Approved Closure Plan. Phase VI sampling and analysis activities were conducted in July, 1996 in accordance with the requirements of the NMED-Approved Closure Plan.

The NMED-Approved Closure Plan specifies Phase VI sampling activities to obtain analytical data of good quality that is representative of the soil sampled previously below the surface impoundment (i.e., Phase I samples), beneath the former underground storage tank and associated piping (i.e., Phase III samples), and along the Mortandad Canyon spill path (i.e., Phase IV samples), in order to verify clean closure of the TA-35, TSL-85 surface impoundment.

Phase VI sampling and analysis activities were conducted in July, 1996. All actions were performed to verify clean closure of the TA-35, TSL-85 surface impoundment. Phase VI activities were accomplished through:

- Sampling and analysis of soil to determine the presence or absence of any hazardous constituents remaining in the soil at the TA-35, TSL-85 surface impoundment site.
- Demonstration through a risk assessment that any constituents remaining in the soil at the site pose no threat to human health and the environment.

The risk assessment was performed using the data accumulated from the Phase VI samples as well as the Phase V corehole verification sample results. The health-based action levels were calculated for the reported constituents based on oral slope factor and oral reference dose information in the most recent Integrated Risk Information System (IRIS). Those constituents with no published toxicity criteria in the IRIS and those constituents not specified for analysis in the NMED-Approved Closure Plan were eliminated from further consideration. All other detected constituents as well as undetected constituents with one half of the constituent

specific limit of quantitation (LOQ) greater than the calculated health-based action level were evaluated.

The aggregate risk and hazard index were calculated separately for each assessment area (i.e., the surface impoundment area, the underground storage tank (UST) and piping area, and the Mortandad Canyon spill path area) in accordance with the NMED-Approved Closure Plan. For each area assessed, the aggregate risk and hazard index were calculated for a hypothetical adult residential scenario, a hypothetical child residential scenario, and a realistic, site-specific adult industrial scenario. For each scenario, in each area, the aggregate risk and hazard index were calculated to include all valid detected constituents. Additionally, a separate aggregate risk and hazard index were calculated for each scenario to include all valid detected constituents as well as all undetected constituents with one half the constituent specific LOQ greater than the health-based action level. This additional calculation was prepared in order to evaluate the increase in aggregate risk due to the inclusion of these undetected constituents. These constituents are not expected to be present at the site.

The results of the risk assessment determined that the hazard indices for all areas and scenarios were less than value of 1. However, the aggregate risks for the adult and child residential scenarios for the UST and piping area and the spill path area were determined to be greater than the threshold of 1.0×10^{-6}. The aggregate risks for the residential scenarios in the impoundment area were less than 1.0×10^{-6}. As specified in the NMED-Approved Closure Plan, a realistic exposure assessment was performed. The aggregate risk for all of the realistic, site-specific industrial scenarios were less than 1.0×10^{-6}. Therefore, the risk assessment results indicate that the site does not pose a significant risk to human health and the environment, and thus, clean closure has been demonstrated.

AMENDED CLOSURE CERTIFICATION REPORT FOR THE TECHNICAL AREA 35, TEN SITE LABORATORY 85 SURFACE IMPOUNDMENT

1.0 Introduction

1.1 Background

Prior to formal New Mexico Environment Department (NMED) approval of a closure plan, and following informal discussions with NMED staff, the Los Alamos National Laboratory (LANL) decided to proceed with the closure of the Technical Area (TA) 35, Ten Site Laboratory (TSL) 85 surface impoundment to prevent any further releases from the unit. All actions were performed to meet the requirements for clean closure. Closure was achieved through the removal and proper disposal of all wastes contained within the surface impoundment; decontamination and/or removal and proper disposal of the surface impoundment, its associated structures, contaminated soil underlying the impoundment area, and the inactive underground storage tank and associated piping; backfilling of all excavations will clean soil; sampling and analysis of soil to determine the presence and concentrations of any hazardous constituents remaining in the soil at the site; and demonstration through risk assessment that any constituents remaining in the soil at the site pose no threat to human health and the environment.

The "Closure Certification Report, TA-35 TSL-85 Surface Impoundment" (BEC, 1991a), including a signed professional engineering (P.E.) certification of the closure activities associated with Phases I through V and the "Interim Status Closure Plan, TA-35 TSL-85 Surface Impoundment" (BEC, 1991b), was submitted to NMED in December, 1991. NMED subsequently disapproved this closure plan and denied the clean closure equivalency demonstration. NMED provided a list of reasons why the closure plan was disapproved and identified that the analytical data for the majority of the soil samples collected during Phases I through V of the closure activities were not determined adequate due to missed holding times, surrogate recovery results outside the U.S. Environmental Protection Agency's (EPA) limits, and elevated detection limits due to analytical interference from nonhazardous constituents. Responses to NMED's reasons and an "Amendment to the Closure Plan for Technical

Area 35, TSL-85 Surface Impoundment" (IT, 1993), proposing Phase VI sampling activities, were submitted to NMED in October 1993. NMED then issued a Notice of Deficiency (NOD) on the amendment to the closure plan. Responses to the NOD were submitted to NMED in June, 1994. NMED subsequently prepared the "TA-35, TSL-85 Amended Closure Plan" (NMED, 1996). The responses to the NOD were not addressed in the "TA-35, TSL-85 Amended Closure Plan." Following negotiations with LANL regarding the list of constituents for which the Phase VI samples were to be analyzed for, NMED approved the "TA-35, TSL-85 Amended Closure Plan" on September 18, 1996; hereafter, referred to as the NMED-Approved Closure Plan. Phase VI sampling and analysis activities were conducted in July, 1996 in accordance with the requirements of the NMED-Approved Closure Plan.

1.2 Purpose

The purpose of this report is to demonstrate that the Phase VI closure activities at the TA-35, TSL-85 surface impoundment were achieved in accordance with the NMED-Approved Closure Plan. This report describes the closure activities associated with Phase VI, including justifications for any variances from the NMED-Approved Closure Plan. In accordance with Title 20 of the New Mexico Administrative Code, Chapter 4, Part 1 (20 NMAC 4.1), Subpart V, §264.115, revised November 1, 1995, this report also contains a certification, signed by an independent registered P.E., attesting that the Phase VI closure activities were conducted in accordance with the specifications of the NMED-Approved Closure Plan.

1.3 Report Organization

The report is organized by sections as follows. Section 1.0 presents a review of the closure activities associated with the site; the purpose of the closure certification report; and a description of the site, the process, and the waste previously stored in the surface impoundment. Section 2.0 includes a brief discussion of the closure activities conducted during Phases I through V; a discussion of Phase VI sampling and analysis procedures and results; justification for any variances from the NMED-Approved Closure Plan; a discussion of data quality and a description of the location of supporting documentation. Section 3.0 presents the results of the risk assessment based on the analytical date from the Phase VI samples as well as the Phase V corehole verification samples. Section 4.0 presents the certification of accuracy for this report and the independent P.E. certification. Section 5.0 contains the references for this report.

The appendices are organized as follows. Appendix A of this report includes the analytical results and quality assurance/quality control (QA/QC) documentation of the Phase VI sampling. Appendix B presents a letter from Paragon Analytics, Inc. addressing data analysis variations from the NMED-Approved Closure Plan. Appendix C contains the baseline validation results obtained from Los Alamos Technical Associates (LATA), Inc. Appendix D contains a summary of the findings resulting from the in-depth baseline validation conducted by LATA, Inc. Appendix E presents a memorandum from LATA, Inc. detailing the baseline criteria used to assess the data for nonroutine constituents. Appendix F presents a statement of adequacy of the QA/QC for the performance of Phase VI closure activities. Appendix G presents a memorandum addressing the frequency of industrial exposure at the site. Appendix H contains the results of the risk assessment completed by Neptune and Company, Inc.

1.4 Site Description

LANL is located in north-central New Mexico, approximately 60 miles north-northeast of Albuquerque, and 25 miles northwest of Santa Fe (Figure 1-1). LANL, which occupies an area of 43 square miles, and the associated resident areas of Los Alamos and White Rock are situated on the Pajarito Plateau. The plateau consists of a series of finger-like mesas separated by deep east-west trending canyons. The mesa tops range in elevation from approximately 7,800 feet at the flank of the Jemez Mountains, located west of Los Alamos, to about 6,200 feet at their eastern extent, where they terminate above the Rio Grande Valley.

LANL is divided into 48 active TAs (Figure 1-2). TA-35 is one of the largest active TAs at LANL, with approximately 300 designated structures. Most of the research and development work performed at TA-35 is related to lasers and laser fusion, and involves the development, fabrication, and operation of lasers and laser targets. TA-35 activities also include nuclear safeguards standards and development of assay instrumentation.

TA-35 is located in the center of active LANL TAs, adjacent to TA-55 and TA-50. TA-55 is a plutonium facility responsible for the fabrication of plutonium metal components and plutonium processing. TA-50 includes LANL's radioactive liquid waste treatment facility (RLWTF), a mixed waste landfill, and the size reduction complex. TA-35, Building 85 is centrally located on the northern edge of TA-35 (Figure 1-3). The surface impoundment was situated just northeast of the building, near the rim of Mortandad Canyon (Figure 1-4).

The present and future land use for the TA-35, TSL-85 surface impoundment site is currently, and will remain, industrial under a continued LANL operations scenario. The location of this site will prohibit the development of any future residential land use.

1.4.1 Surface Impoundment

The surface impoundment was approximately 34 feet in length, 24 feet in width, and 4 feet deep. The surface impoundment covered an area of approximately 816 square feet and had an effective capacity (with a 2-foot freeboard) of 7,640 gallons. The impoundment sides were sloped at a ratio of one to one (horizontal to vertical) and were constructed of wire mesh sprayed with approximately 4 inches of gunite. The bottom of the impoundment consisted of a 4-inch-thick steel-wire reinforced gunite slab, the surface of which was protected with a 0.6-inch-thick waterproof coating.

1.4.2 Piping and Associated Structures

Two 6-inch schedule 40 polyvinyl chloride (PVC) pipes drained into the surface impoundment on its west side. The PVC pipes tapered down into the impoundment without penetrating the gunite slab. One pipe originated at a drain in a bermed storage pad located on the east side of Building 85. This storage pad contained a 15,000 gallon above-ground Marx® tank. The second pipe was connected to an inactive underground storage tank (UST) located to the west of the surface impoundment.

1.5 Process Description

The waste stream associated with the TA-35, TSL-85 surface impoundment was largely generated from activities within Building 85, and possibly from activities within Building 188. Building 85 is used for developing electron guns and related laser assemblies/equipment for a laser technology research program at LANL. Equipment utilized in the building requires the use of nonhazardous insulating oil. Building 188 was used as a high voltage test area for a short period of time before becoming a facility utilized for the chemical analysis of gases and as a machine shop. Based on consultation with LANL personnel, the wastes generated from Building 188 are believed to have been similar to those generated from Building 85.

The UST, formerly located to the west of the surface impoundment, is a past possible intermediate receptor of waste from Building 85 and Building 188. Whether, Building 188

historically contributed to the surface impoundment waste stream is not clear. It is considered a possible source because lines that may have been connected to the UST at one time were traced to Building 188. At the time closure activities began, the UST was connected to the surface impoundment with a PVC drain pipe; therefore, waste entering the UST eventually drained into the surface impoundment.

The surface impoundment normally received liquids from the floor drain in the bermed storage pad located outside of Building 85. The floor drain in the bermed storage pad area captured spills from the Marx® tank located on the storage pad, rainfall, and rinsate from equipment- and floor-cleaning activities and insulating oil spills that may have occurred inside Building 85. These fluids emptied directly from the floor drain to the surface impoundment through a PVC drain pipe.

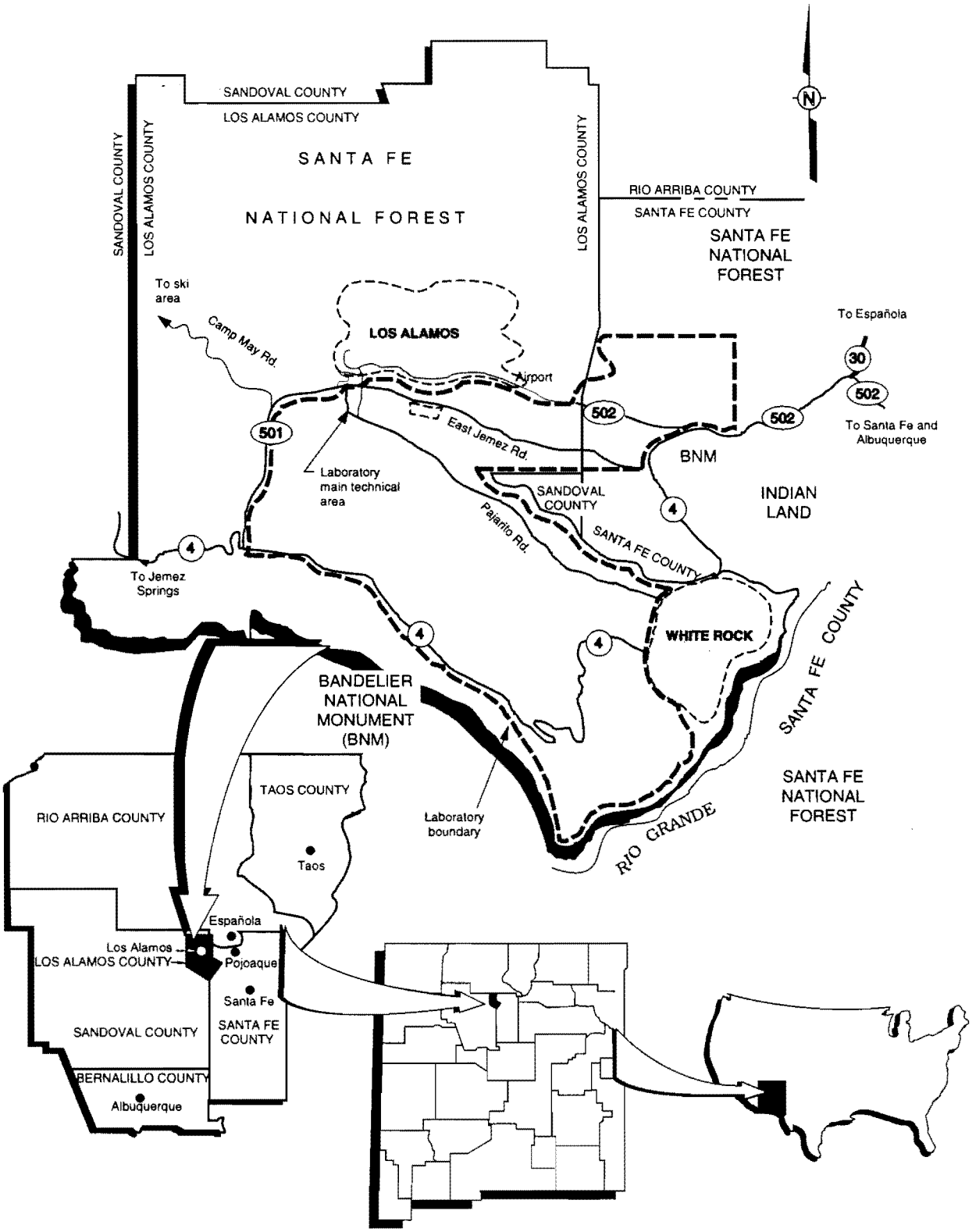
The accumulated liquid waste in the surface impoundment typically formed two phases, an upper oil phase underlain by an aqueous phase. The two phases were pumped out separately, and based on analytical results, the liquids were transported off site for either recycling or disposal at hazardous waste permitted facilities, as appropriate.

1.6 Waste Description

The surface impoundment is subject to regulation as a hazardous waste management unit because of the suspected introduction of degreasing solvents into the waste stream during cleaning and maintenance of the floors and equipment parts in Building 85. It is possible that degreasing solvents entered the surface impoundment through the PVC pipe exiting the floor drain in the bermed storage pad.

Analytical results of a grab sample of liquid and sludge collected from the surface impoundment on June 9, 1988 confirmed the presence of degreasers. The liquid and sludge were analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC), metals, polychlorinated biphenyls (PCB), and radionuclide activity. The results of the VOC analyses indicated the presence of a cleaning degreaser profile with concentrations of 1,1,2-trichloro-1,2,2-trifluoroethane and acetone. The SVOC results were inconclusive due to the presence of an oil phase in the sample which caused analytical interference. No Extraction Procedure Toxicity concentrations of metals were detected in the liquid sample.

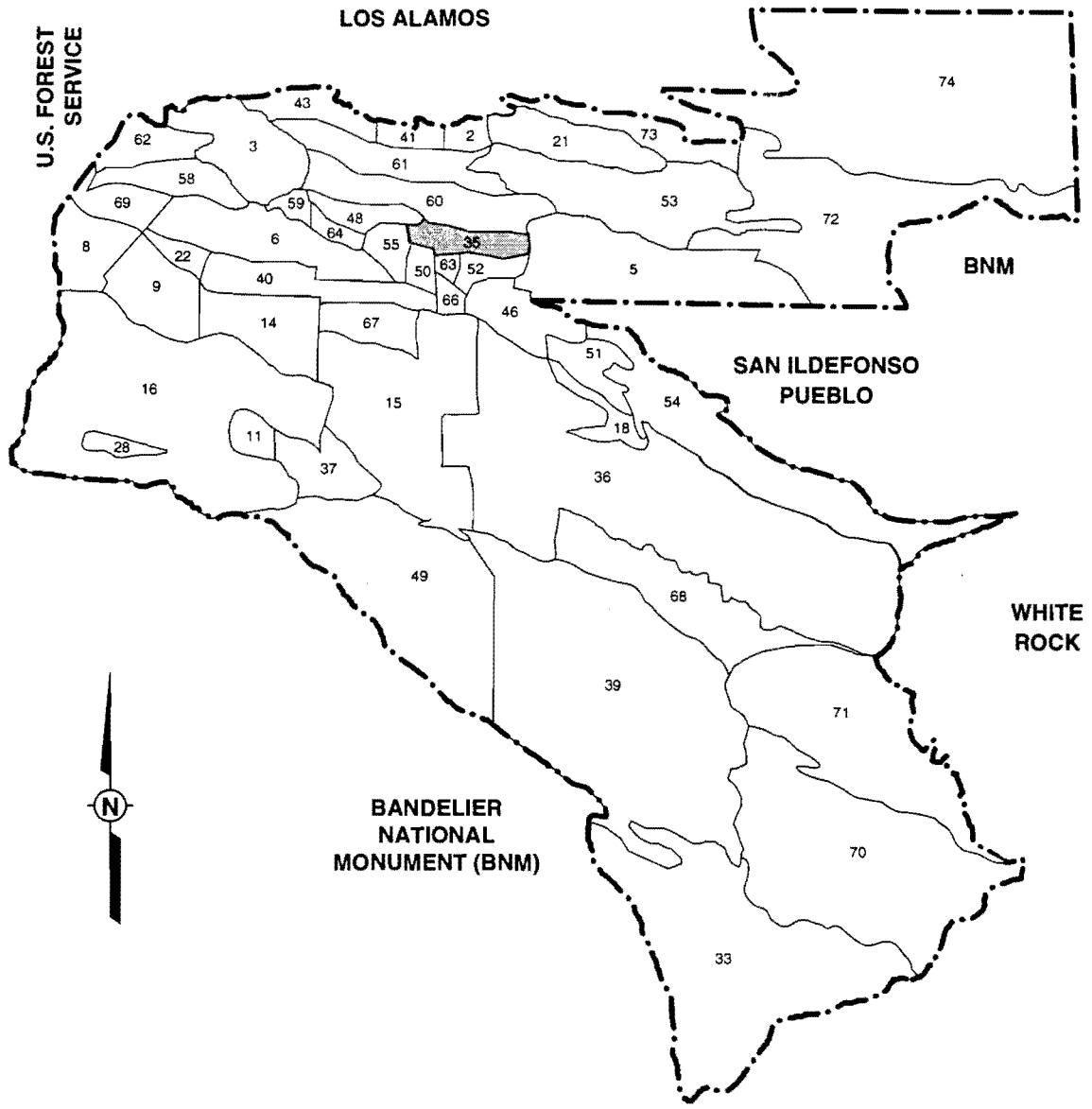
However, the sludge sample contained a total lead concentration of 5.2 parts per million (ppm) (NMED, 1996). Radiological analyses of the sample indicated that alpha, beta, and gamma activities were below both background concentrations at Mortandad Canyon and the maximum contaminant concentration of 15 pico Curies per liter for drinking water established by EPA. The analytical results from surface impoundment oil/water grab samples collected on June 9, 1988 and previous dates indicated no detectable levels of PCBs (NMED, 1996).



Reference: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 1-1

Regional Location Map of Los Alamos National Laboratory and Surrounding Land Use



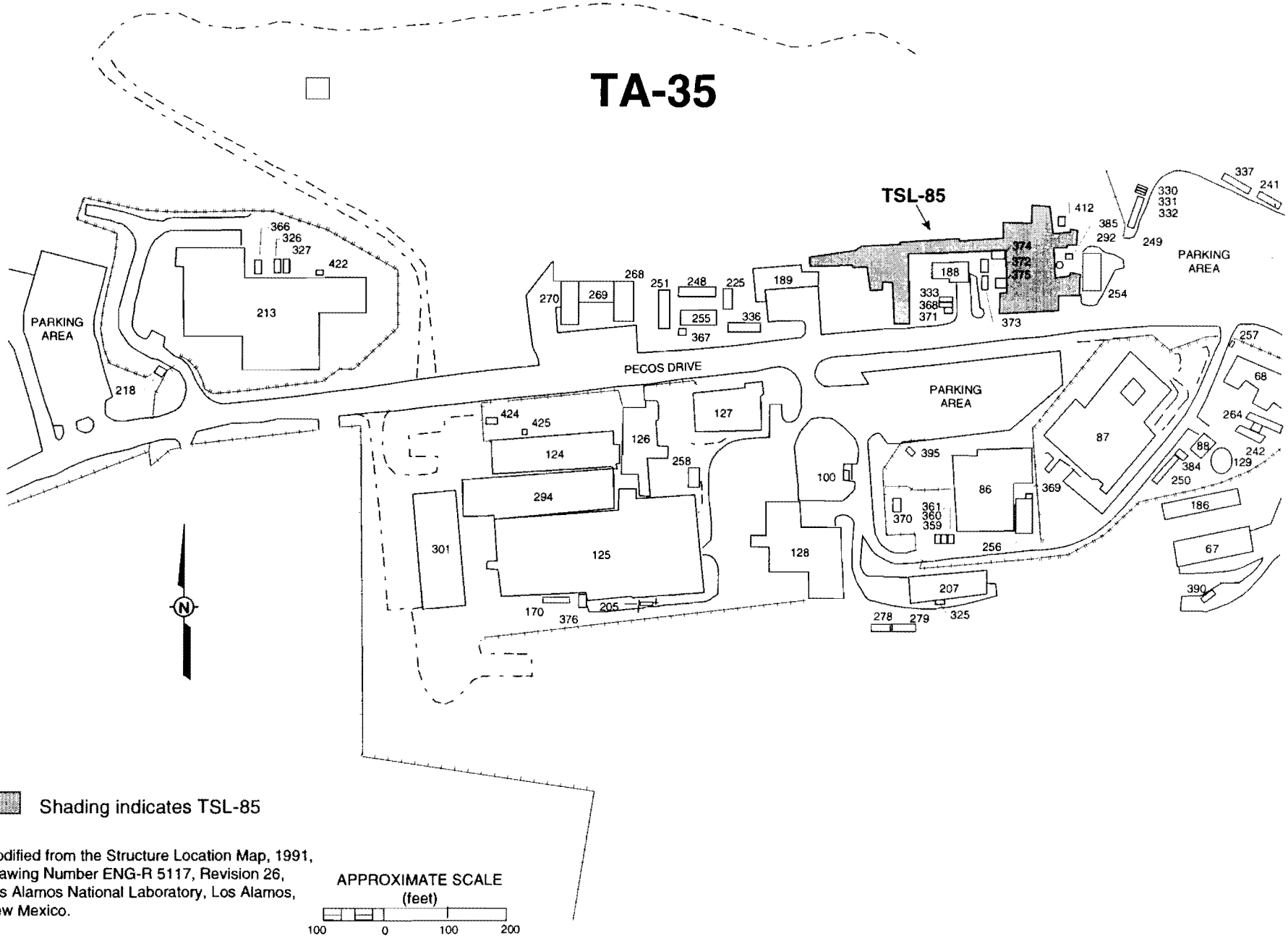
Shading indicates Technical Area 35

4800 0 4800
Scale in Feet

Modified from: "Environmental Surveillance at Los Alamos During 1992," 1994, LA-12764-ENV, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 1-2
Location Map of Los Alamos National Laboratory Technical Areas

763833.02 A7



Modified from the Structure Location Map, 1991, Drawing Number ENG-R 5117, Revision 26, Los Alamos National Laboratory, Los Alamos, New Mexico.

Figure 1-3
Technical Area (TA) 35, Ten Site Laboratory (TSL) 85 Structure Location Map

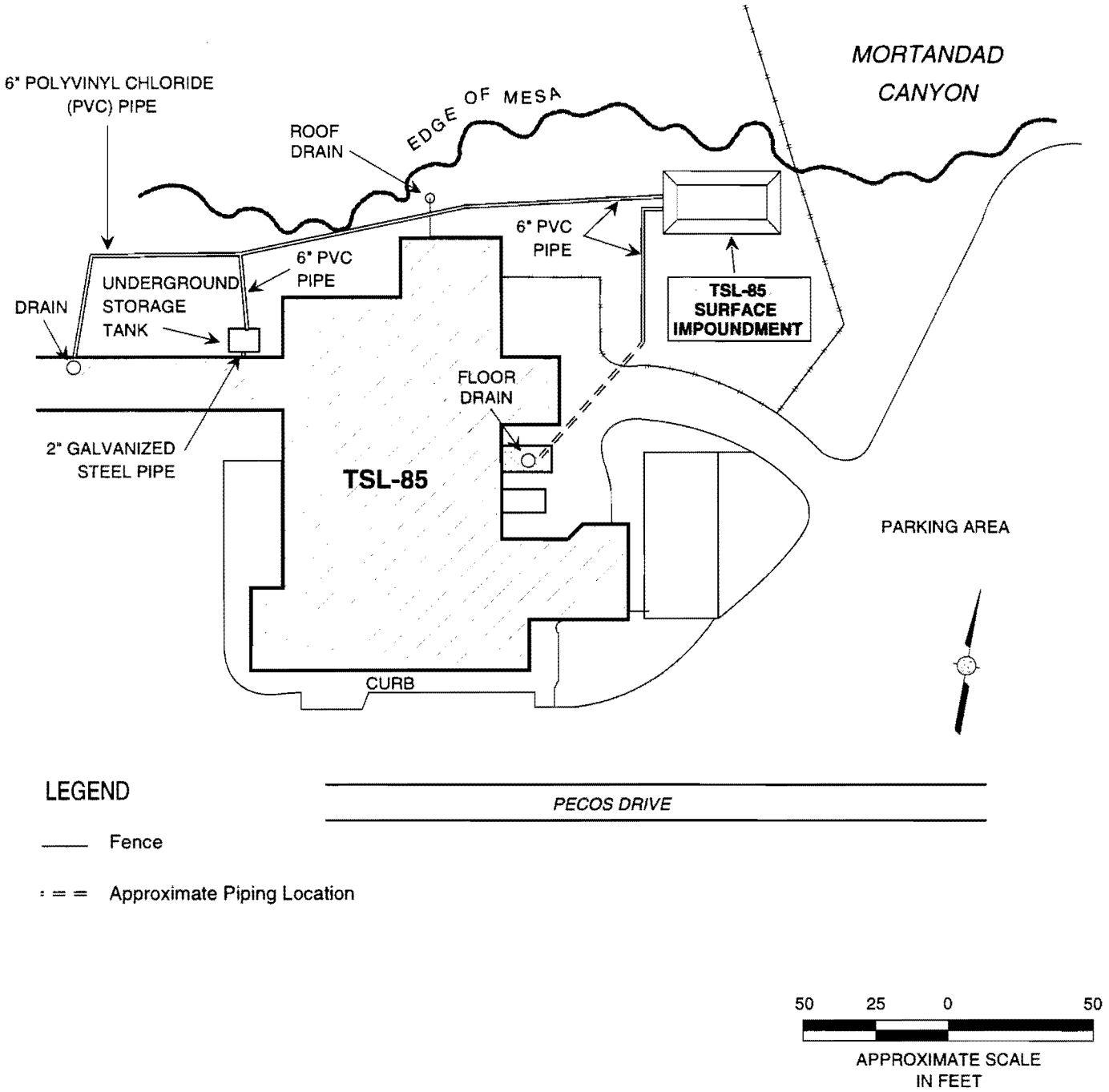


Figure 1-4
Location Map of the Technical Area 35, Ten Site Laboratory (TSL) 85 Surface Impoundment and Associated Piping Prior to Phases I through V

2.0 Performance of Closure

2.1 Closure Activities

Details of the closure activities and sampling and analysis procedures associated with Phases I through V of the TA-35, TSL-85 surface impoundment closure, including:

- Removal of liquid and residue waste contained within the surface impoundment
- Decontamination and removal of the surface impoundment liner
- Decontamination and removal of the inactive UST and piping
- Soil removal
- Sampling and analytical results,

are presented in the "Closure Certification Report, TA-35 TSL-85 Surface Impoundment" (BEC, 1991a).

2.2 Phase VI Sampling and Analysis Procedures

The Phase VI sampling and analytical effort was initiated to verify clean closure of the TA-35, TSL-85 surface impoundment, including the associated UST and ancillary piping. In order to establish clean closure, representative analytical data must document the absence of regulated hazardous constituents at concentrations above health-based action levels or at concentrations that pose an unacceptable risk to human health or the environment. Phase VI sampling obtained analytical data of good quality, representative of the soils sampled previously below the surface impoundment (Phase I), beneath the UST and associated piping (Phase III), and along the Mortandad Canyon spill path (Phase IV). Analytical results and QA/QC documentation from Phase VI sampling are presented in Appendix A.

During Phase VI, the NMED-Approved Closure Plan was followed for specified procedures and for the list of constituents for which analyses were performed along with the associated analytical methods. Phase VI sampling locations were derived based on the proposed Phase VI sampling locations identified in the NMED-Approved Closure Plan; photographs taken during Phases I through V of the closure; existing field stakes indicating the location of a limited number of Phase I, III, and IV sampling locations; and input from LANL personnel involved in the sampling activities of Phases I, III, and IV.

After initial attempts to locate the sample locations from Phases I, III, and IV based solely on the figures in the NMED-Approved Closure Plan, it was determined that these figures had not been drawn to scale and that the original sampling locations had not been surveyed. To best ensure that the Phase VI sampling locations were properly selected to be representative of Phase I, III, and IV sampling locations, the additional sources available (i.e., photographs, personnel, and field stakes associated with Phases I through V of the closure) were utilized. Phase VI sampling locations were derived objectively based on all the information available, and sampling was completed as comprehensive representation of the Phase I, III, and IV samples, and thus meets the intent of the NMED-Approved Closure Plan. (Figure 2-1 illustrates the Phase VI sampling locations and the location identification numbers. Table 2-1 correlates each location identification number with the laboratory sample identification number.)

Paragon Analytics, Inc. analyzed the samples for select VOCs (Table 2-2), SVOCs (Table 2-3), pesticides and herbicides (Table 2-4), and inorganics (Table 2-5). Roy F. Weston, Inc. analyzed the samples for select dioxins and furans (Table 2-6). All samples were handled, preserved, and documented in accordance with EPA methods as outlined in the NMED-Approved Closure Plan. All analyses, QA, and QC were conducted in accordance with LANL Environmental Restoration (ER) criteria and "Test Methods for Evaluating Solid Waste" (*SW-846*) (EPA, 1992). All samples were accompanied by the proper chain-of-custody and request for analysis forms. These forms are included in Appendix A.

2.2.1 Phase VI Sampling of Soils Beneath Location of Former TA-35, TSL-85 Surface Impoundment

Six Phase VI soil samples and one duplicate were collected from beneath the former surface impoundment at locations representative of the samples collected during Phase I. The samples were collected at a depth of 28 to 36 inches below grade at the interface between the fill and the original volcanic tuff, at the locations shown on Figure 2-1. The soil samples were collected with a hand auger in accordance with the procedure described in Section 5.4.1.2 of the NMED-Approved Closure Plan, packaged, and preserved appropriately (see Table 2-7).

Analytical results of the samples obtained from beneath the former surface impoundment revealed the presence of methylene chloride in all seven samples in concentrations of 3 to 14

parts per billion (ppb) and chloroform in one sample in a concentration of 2 ppb. The detected result for methylene chloride in one sample was deemed indistinguishable from blank contamination during the baseline validation of the data, indicating analytical laboratory contamination. The detected concentrations of both compounds were compared to the health-based action levels. The detected levels of methylene chloride are four orders of magnitude less than the health-based action level. The detected level of chloroform is five orders of magnitude less than the health-based action level. However, to be conservative, these compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Although EPA Method 3650 analytical clean-up techniques were used to reduce potential dielectric oil interferences and achieve the lowest possible detection limits, four compounds, n-nitrosodimethylamine, n-nitroso-di-n-propylamine, hexachlorobenzene, and benzo[a]pyrene were reported with limits of quantitation (LOQ) higher than their respective health-based action levels in all six samples. 3,3'-Dichlorobenzidine reported a higher LOQ in one sample. All five compounds were undetected in the samples. These compounds are addressed in the risk assessment presented in Section 3.0.

Acenaphthene and di-n-butylphthalate were each reported in one sample with a "J" flag designation, indicating an estimated concentration below reporting limits but above the method detection limit. The reporting limits are four orders of magnitude less than their health-based action levels. These compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Bis(2-ethylhexyl)phthalate was reported in all of the samples with "J" flag designations. However, all of the detected results were deemed indistinguishable from blank contamination during the baseline validation; therefore, bis(2-ethylhexyl)phthalate is not included in the calculation of aggregate risk and hazard index for this area.

Thallium was reported as undetected or in concentrations less than the Contract Required Detection Limit (CRDL) in all of the samples. The baseline validation determined the concentrations below the CRDL to be less than five times the concentration of the related constituent in the blank and were not detected above the reported estimated quantitation limit

(EQL); therefore, thallium is not included in the calculation of aggregate risk and hazard index for this area.

2.2.2 Phase VI Sampling of Soils Beneath Location of Former UST and Associated Piping

Twelve Phase VI soil samples were collected from beneath the location of the former UST and associated piping at locations representative of the Phase III samples. The samples were collected at a depth of 6 to 8 feet at the interface between the fill and the original tuff, at the locations shown on Figure 2-1. Sampling personnel collected these samples below the approximate location of the twelve joints in the former PVC pipe that connected the UST and Building 85 to the surface impoundment. The soil samples were collected with a hand auger in accordance with the procedure described in Section 5.4.1.2 of the NMED-Approved Closure Plan, packaged, and preserved appropriately (see Table 2-7).

One sample, sample number 0835-96-0019 (i.e., location 35-10026 on Figure 2-1), was rejected during the baseline validation of the data. The sample was rejected due to low recoveries in two of the surrogates, with one surrogate having a recovery of less than 10 percent. Additionally, a large hydrocarbon peak was observed in the chromatogram and interfered with the identification and quantification of target constituents. The peak was not identified as a target constituent, nor were any elevated organic readings encountered when screening for contamination during sampling activities.

Analytical results of the samples obtained from beneath the former UST and associated piping revealed the presence of methylene chloride in all of the samples in concentrations of 3 to 77 ppb; acetone in six of the samples in concentrations of 20 to 330 ppb; and chloroform in two of the samples in concentrations of 6 and 11 ppb. The detected concentrations of these compounds were compared to the health-based action levels. The detected levels of methylene chloride are four orders of magnitude less than the health-based action level. The detected levels of acetone and chloroform are five orders of magnitude less than their respective health-based action levels. However, to be conservative, these compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

In one sample, benzene, chlorobenzene, 1,3-dichloropropane, 1,1,1-trichloroethane, isopropylbenzene, styrene, xylene (meta and para), and xylene (ortho) were reported with "J" flag designations in concentrations of 6 to 14 ppb. Toluene was reported with "J" flag designations in five samples in concentrations of 2 to 6 ppb. Information on 1,3-dichloropropane and 1,1,1-trichloroethane is not available in the most recent Integrated Risk Information System (IRIS) database; therefore, these compounds are not included in the calculation of aggregate risk and hazard index. All other compounds were reported in concentrations below their respective health-based action levels. These compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Although EPA Method 3650 analytical clean-up techniques were used to reduce potential dielectric oil interferences and achieve the lowest possible detection limits, five compounds, n-nitrosodimethylamine, n-nitroso-di-n-propylamine, hexachlorobenzene, 3,3'-dichlorobenzidine, and benzo[a]pyrene were reported with LOQs higher than health-based action levels. All of these compounds, except hexachlorobenzene, were undetected in the samples. These compounds are addressed in the risk assessment presented in Section 3.0.

Hexachlorobenzene was detected in two of the samples in concentrations of 280 and 2,600 ppb. The health-based action level for hexachlorobenzene is 438 ppb. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Bis(2-ethylhexyl)phthalate was reported with "J" flag designation in seven of the samples and in concentrations of 490 to 2,800 ppb in two of the samples. The detected results for bis(2-ethylhexyl)phthalate in four of the samples were deemed indistinguishable from blank contamination during the baseline validation. The reporting limits for this compound are two orders of magnitude below the health-based action level of 50,000 ppb. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Naphthalene was reported with a "J" flag designation in one sample in a concentration of 29 ppb. Information on naphthalene is not available in the most recent IRIS database; therefore, Naphthalene is not included in the calculation of aggregate risk and hazard index.

Arochlor 1260 was detected in three samples in concentrations of 17, 20, and 372 ppb. The health-based action level for all Arochlors is 90 ppb. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Thallium was reported as undetected, in concentration below the background upper tolerance limit (UTL) value, or in concentrations less than the CRDL in all of the samples. The baseline validation determined the concentrations below the CRDL to be less than five times the concentration of the related constituent in the blank and were not detected above the EQL; therefore, thallium is not included in the calculation of aggregate risk and hazard index for this area.

2.2.3 Phase VI Sampling of Soils Along Mortandad Canyon Spill Path

Eleven Phase VI soil samples were collected along the Mortandad Canyon spill path at locations representative of the Phase IV samples. The samples were collected at a depth of 0 to 6 inches at the locations shown on Figure 2-1. The samples were collected using a disposable teflon trowel or scoop in accordance with the procedure described in Section 5.4.1.1 of the NMED-Approved Closure Plan, packaged, and preserved appropriately (see Table 2-7).

Analytical results of the samples obtained from the spill path revealed the presence of methylene chloride in all of the samples in concentrations of 4 to 10 ppb and acetone in three of the samples in concentrations of 15 to 20 ppb. The detected results for methylene chloride in seven of the samples were deemed indistinguishable from blank contamination during the baseline validation. The detected levels of methylene chloride are four orders of magnitude less than the health-based action level. The detected levels of acetone are five orders of magnitude less than the health-based action level. However, to be conservative, these compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Toluene was detected in five samples in concentrations of 3 to 6 ppb. Benzoic acid was reported with "J" flag designations in two samples in concentrations of 180 and 210 ppb. The reported concentrations for these compounds are four and six orders of magnitude less than the health-based action levels for toluene and benzoic acid, respectfully. These compounds are included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Although EPA Method 3650 analytical clean-up techniques were used to reduce potential dielectric oil interferences and achieve the lowest possible detection limits, four compounds, n-nitrosodimethylamine, n-nitroso-di-n-propylamine, hexachlorobenzene, and benzo[a]pyrene were reported with LOQs higher than the health-based action levels. All of the compounds, except hexachlorobenzene, were undetected in the samples. These compounds are addressed in the risk assessment presented in Section 3.0.

Hexachlorobenzene was detected in one sample in a concentration of 480 ppb. The health-based action level for hexachlorobenzene is 438 ppb. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Bis(2-ethylhexyl)phthalate was reported with "J" flag designations in five of the samples and in a concentration of 2,200 ppb in one sample. The detected results for bis(2-ethylhexyl)phthalate in three of the samples were deemed indistinguishable from blank contamination during the baseline validation. The reporting limits for this compound are two levels of magnitude below the health-based action level of 50,000 ppb. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

In one sample, p,p'-DDT was reported with a "J" flag designation in a concentration of 1.6 ppb. The reported concentration for this compound is three orders of magnitude less than the health-based action level. This compound is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Arochlor 1260 was detected in five samples in concentrations of 77, 94, 230, 270, and 413 ppb. The health-based action level for all Arochlors is 90 ppb. This compound is

included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

Thallium was reported at levels that exceed the background UTL value. Therefore, thallium is included in the calculation of aggregate risk and hazard index for this area, as presented in Section 3.0.

2.3 Disposition of Waste Generated from Phase VI

Phase VI closure activities consisted only of sampling and analysis; therefore, a minimal amount of investigation derived waste was generated during Phase VI. Efforts were made by the Environment, Safety, and Health Division (ESH) 19 Waste Site Studies sampling team to collect only the amount of soil necessary to conduct the appropriate analyses. Any excess soil remaining after all analyses are completed will be returned to the sampling team. Based on the analytical results of the samples, the soil medium and the containers will be properly disposed of with the appropriate waste profiles. All soil medium containers emptied during analysis will be washed and/or disposed of by Paragon Analytics, Inc. based on the analytical results of the samples.

The sampling team utilized discrete sampling equipment at each sample location and thus eliminated the generation of equipment-wash water and equipment-rinsate at the site. After sampling activities and prior to transporting the equipment off-site, all equipment was screened for contamination using a photoionization detector (PID), a flame ionization detector (FID), a beta/gamma detector, and an alpha detector. Upon the determination that high levels of contamination (i.e., 1 ppm/minute or greater as indicated by the PID or FID; 5,000 counts/minute or greater as indicated by the beta/gamma detector; or 500 counts/minute or greater as indicated by the alpha detector) did not exist on the equipment, the equipment was transported to ESH at TA-59 and decontaminated in accordance with EPA guidelines and ESH-19 standard operating procedures.

The polyethylene gloves used during Phase VI were disposed of by the sampling team with the appropriate waste profiles based on the analytical results of the soil samples. All other personal protective equipment utilized during Phase VI was sent to TA-50, LANL's RLWTF, to be washed.

2.4 Site Restoration

Site restoration at the TA-35, TSL-85 surface impoundment was completed as part of the original closure activities (i.e., Phases I through V). Phase VI sampling activities resulted in minimal soil disturbances. Any soil displaced during Phase VI was immediately replaced as sampling activities were completed at each location.

2.5 Variances from NMED-Approved Closure Plan

The Phase VI closure activities associated with the TA-35, TSL-85 surface impoundment were performed substantially in accordance with the NMED-Approved Closure Plan, with the exception of the following variances:

- Section 5.2 specifies that the twelve Phase VI soil samples below the former UST and associated piping will be collected at a depth of 3.5 to 4.5 feet. However, based on photographs and field logs generated during Phase III closure activities, soil under the UST and piping had been removed to a depth of approximately 6 feet. Therefore, in order to adequately sample the soils beneath the former UST and associated piping, and to avoid sampling the clean backfill, Phase VI soil samples were taken at depths of 6 to 8 feet at the interface between the fill and the original volcanic tuff.

- Section 5.5 specifies that, prior to use, equipment will be rinsed with distilled water and a representative sample of the wash water and rinsate will be collected, preserved, and analyzed. Phase VI sampling was completed using discrete sampling equipment at each sample location. Because equipment was used only once, at one location, the need to wash equipment between uses was eliminated. This procedure was adopted to ensure clean equipment for each sample and to eliminate the need to sample and dispose of wash water and rinsate.

- Sections 5.4.2 and 5.4.2.1 specify that a composite liquid waste sampler be used to sample rinsate from equipment cleaning and that the sampler be cleaned before each use. Because discrete sampling equipment was used at each sample location, equipment-cleaning rinsate was not generated and the need to sample rinsate eliminated. Composite liquid waste samplers were not used.

- The "List of Appendix IX Compounds and Assorted Others" to be analyzed for during Phase VI analyses specifies isobutyl alcohol, 2,6-dichlorophenol, a,a-dimethylphenethyl amine, and vinyl acetate to be reported as normal SW-846 Method 8260 and Method 8270 compounds. As detailed in a letter from

Paragon Analytics, Inc., and presented in Appendix B three of the compounds (i.e., isobutyl alcohol, 2,6-dichlorophenol, and a,a-dimethyl-phenethyl amine) were reported as tentatively identified compounds (TIC) because their calibrations had exceeded the laboratory's one-year threshold. The thresholds were exceeded during the delay between discussions of the laboratory's Appendix IX compound capabilities (October, 1995–April, 1996) and the receipt of the samples (July, 1996). All three compounds were reported as not found in all sample results. Vinyl acetate was incorrectly reported as a TIC. Vinyl acetate was analyzed as a normal Method 8260 compound with a detection limit of 5 ppb. Vinyl acetate was not detected in any of the samples.

- The "List of Appendix IX Compounds and Assorted Others" to be analyzed for during Phase VI analyses specifies cyanide to be analyzed using SW-846 Method 9012 and sulfide to be analyzed using SW-846 Method 376.2. As detailed in a letter from Paragon Analytics, Inc., and presented in Appendix B, these methods apply to analyses on water samples. The laboratory analyzed the samples using the SW-846 Interim Guidance for Reactive Cyanide and the SW-846 Interim Guidance for Reactive Sulfide, the appropriate soils method for determining whether a soil sample contains hazardous concentrations of cyanide or sulfide.

- The "List of Appendix IX Compounds and Assorted Others" to be analyzed for during Phase VI analyses specifies organochlorine pesticides to be analyzed using SW-846 Method 8081. As detailed in a letter from Paragon Analytics, Inc., and presented in Appendix B, the analyses for organochlorine pesticides were performed using SW-846 Method 8081 and inadvertently reported as being performed using SW-846 Method 8080.

2.6 Data Quality

A baseline validation was conducted on all applicable constituents analyzed for as a result of the Phase VI sampling. The baseline validation was conducted by LATA, Inc. in order to verify that the data obtained are of good quality and representative of the soils sampled. Appendix C contains the completed baseline validation forms.

An in-depth baseline validation, using the EPA National Functional Guidelines Validation criteria, was completed by LATA, Inc. to substantiate the qualifiers used in the baseline validation and to establish data usability for those items noted as not meeting the baseline validation criteria. A summary of the findings resulting from the in-depth baseline validation are presented in Appendix D.

The analyses of VOCs, SVOCs, and organochlorine pesticides were baseline validated in accordance with established LANL ER baseline validation criteria. Criteria from the appropriate SW-846 Methods, under which the constituents were analyzed, were used as the baseline requirements.

The following items were noted as not meeting the baseline validation criteria for the analyses of VOCs and were reevaluated during the in-depth baseline validation.

- The internal standard area is out of control in sample 0835-96-0001, indicating an increased potential for false negative results and possibly other problems with sample quantitation. The sample results were rejected due to the deficiencies and the inability to analyze the sample. Sample 0835-96-0001 was reanalyzed with the internal standard in control. The reanalysis missed the LANL contractually-required holding time by one day. Currently, the EPA National Functional Guidelines for Organic Data Review has not established technical holding times for soil samples. As detailed in the in-depth baseline validation, it is unlikely that missing the contractual holding time by one day in any way compromises the technical integrity of the reanalyzed sample.

- The internal standard area is out of control in samples 0835-96-0008, 0835-96-0025, 0835-96-0026, and 0835-96-0030, which greatly increases the potential for false negative results. The analytical results of samples 0835-96-0008 and 0835-96-0030 show all VOCs to be nondetect. The analytical results of samples 0835-96-0025 and 0835-96-0026 show all VOCs, except for Toluene, to be nondetect. Using the current EPA National Functional Guidelines, all results are considered approximate; however, as detailed in the in-depth baseline validation, it is unlikely that other target constituents are present in the sample.

The following items were noted as not meeting the validation criteria for the analyses of SVOCs and were reevaluated during the in-depth baseline validation.

- The internal standard area is out of control in sample 0835-96-0008, which greatly increases the potential for false negative results. The analytical results show all SVOCs to be nondetect. Using the current EPA National Functional Guidelines, all results are considered approximate; however, as detailed in the in-depth baseline validation, it is unlikely that the target constituents are present in the sample. The sample was reanalyzed at a 10 times dilution with the internal

standard in control. The analytical results from the reanalysis also show all SVOCs to be nondetect.

- Sample 0835-96-0019 has two surrogates out of control with one surrogate in the related fraction having a recovery of less than 10 percent. Additionally, a large hydrocarbon peak was observed in the chromatogram, interfering with target constituent identification and quantification. Although the analytical results show all SVOCs to be nondetect, the results were rejected. Sample 0835-96-0019 is not included in the risk assessment.

No items were noted as not meeting the baseline validation criteria for the analyses of organochlorine pesticides.

No ER validation criteria have been established for organophosphorus pesticides; therefore, the analyses of organophosphorus pesticides were reviewed using criteria established for the ER baseline validation of organochlorine pesticides. Criteria from SW-846 Method 8141 were used as the baseline requirements. (Please refer to Appendix E for details on the criteria examined during the baseline validation.)

The following item was noted as not meeting the baseline validation criteria for the analyses of organophosphorus pesticides and was reevaluated during the in-depth baseline validation.

- A retention time is out of control in sample 0835-96-0020. As detailed in the in-depth baseline validation, the retention time window for organophosphorus pesticides is approximately twice as long as the retention time window for organochlorine pesticides, the criteria used in the baseline validation. A review of the chromatogram for sample 0835-96-0020 revealed no confirmable peaks; therefore, it is unlikely that any target constituents are present in this sample.

No ER validation criteria have been established for herbicides; therefore, the analyses of herbicides were reviewed using criteria established for the ER baseline validation of organochlorine pesticides. Criteria from SW-846 Method 8150 were used as the baseline requirements. (Please refer to Appendix E for details on the criteria examined during the baseline validation.) No items were noted as not meeting the baseline validation criteria for the analyses of herbicides.

No ER validation criteria have been established for dioxins and furans; therefore, the analyses of dioxins and furans were reviewed using criteria established for the ER baseline validation of SVOCs. Criteria from SW-846 Method 8280 were used as the baseline requirements. (Please refer to Appendix E for details on the criteria examined during the baseline validation.)

The following items were noted as not meeting the baseline validation criteria for the analyses of dioxins and furans; however, the results were deemed acceptable for use as qualified in this validation.

- The method blank shows a low internal standard recovery for two of the internal standards. However, Method 8280 is an isotope dilution method that takes the internal standard recovery into account in the reported estimated detection limit (EDL). The EDLs for the melted blank are raised because of the low recovery of the internal standard. There are no detections in the other samples. Therefore, the raised EDLs in the blank are not a data quality problem. The results are acceptable for use as qualified.

- The internal standard area is out of control in sample 0835-96-0010, indicating an increased potential for false negative results and possible other problems with sample quantitation. However, because of the nature of Method 8280, the data are not rejected following the semivolatile criteria. Method 8280 is an isotope dilution method that takes the internal standard recovery into account in the reported EDL. For this sample, the EDLs are raised due to the low recovery of the internal standard. The results are acceptable for use as qualified.

The analyses of inorganics were validated in accordance with established ER baseline validation criteria. Criteria from the SW-846 Method 6010 were used as the baseline requirements.

The following items were noted as not meeting the validation criteria for the analyses of inorganics and were reevaluated during the in-depth baseline validation:

- The matrix spike recovery for antimony is out of control in all of the samples. As detailed in the in-depth baseline validation, the results suggest that the low spike recovery was not caused by loss of constituent in the preparation. Therefore, low matrix spike recovery was most likely due to matrix interference.

Based on the information provided in the data package, the spike recovery was not significantly lower than the EPA control criteria for antimony and the matrix effect was minimal. A review of the raw data indicated the samples' baselines were stable. All sample duplicate analysis for antimony were less than the EQL and the instrument detection limit. It is very likely that the nondetect results reported for all of the samples and duplicates are the correct result.

- The matrix spike recovery for barium is out of control in the duplicate and in samples 0835-96-0015 through 0835-96-0022. However, the serial dilution was in control for barium and suggests that matrix interference was not present. As detailed in the in-depth baseline validation, if the matrix spike is calculated from the duplicate sample, the spike recovery is 98.8 percent. The above observations are a result of the samples not being homogeneous; therefore, a bias was introduced when the laboratory took a subsample. It is unclear if the samples in this data set are biased high or low. The results reported in this data package are likely within plus or minus 50 percent of the reported value. The results range from 79.5 to 286 ppm. The health-based action level for barium is 5,600 ppm.

- In samples 0835-96-0001 through 0835-96-0014, the results for lead indicate an interference. As detailed in the in-depth baseline validation, laboratory variability arising from subsampling of heterogeneous soil samples is a common occurrence. For data assessment purposes, a more appropriate criteria for soil samples, as suggested by the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, issued February of 1994, of a percent relative percent difference (RPD) of 35 percent can be used. The percent RPD for lead in these samples is in control using this criteria.

  A second indication of the reliability of the lead value is that the field samples 0835-96-0002 and 0835-96-0003 are duplicates of each other and the percent RPD for lead fall well below the method criteria of less than 20 percent.

No ER validation criteria have been established for reactive cyanide or reactive sulfide; therefore, the analyses of reactive cyanide and reactive sulfide were reviewed using criteria established for the ER baseline validation of inorganics. (Please refer to Appendix E for details on the criteria examined during the baseline validation.) No items were noted as not meeting the baseline validation criteria for the analyses of reactive cyanide or reactive sulfide.

A review of the sampling and shipping procedures, the analytical data, and the data validations has determined that the data are of acceptable quality and should therefore be

accepted as valid and used to demonstrate clean closure equivalency. Appendix F contains a statement of the adequacy of the QA/QC for the performance of Phase VI closure activities of the TA-35, TSL-85 surface impoundment.

2.7 Location of Supporting Documentation

As required by the NMED-Approved Closure Plan, a file containing field documentation including field logs, laboratory sample analysis reports, QA/QC documentation, and chain of custody records is currently located at the Environmental Restoration Records Processing Facility, 2101 Trinity Drive, Suite L, Room 140 in Los Alamos, New Mexico.

Table 2-1

Phase VI Sampling Locations

Date	Depth	Technique	Location Identification	Sample Identification
Beneath Former Technical Area 35, Ten Site Laboratory Surface Impoundment				
7/15/96	28-36 inches	Hand Auger	35-10001	0835-96-0001
7/15/96	28-36 inches	Hand Auger	35-10002	0835-96-0002
7/15/96	28-36 inches	DUPLICATE	35-10002	0835-96-0003
7/15/96	28-36 inches	Hand Auger	35-10003	0835-96-0004
7/15/96	28-36 inches	Hand Auger	35-10004	0835-96-0005
7/15/96	28-36 inches	Hand Auger	35-10005	0835-96-0006
7/15/96	28-36 inches	Hand Auger	35-10006	0835-96-0007
Mortandad Canyon Spill Path				
7/15/96	0-6 inches	Surface Soil	35-10007	0835-96-0008
7/18/96	0-6 inches	Surface Soil	35-10008	0835-96-0023
7/18/96	0-6 inches	Surface Soil	35-10009	0835-96-0024
7/18/96	0-6 inches	Surface Soil	35-10010	0835-96-0025
7/18/96	0-6 inches	Surface Soil	35-10011	0835-96-0026
7/15/96	0-6 inches	Surface Soil	35-10012	0835-96-0009
7/18/96	0-6 inches	Surface Soil	35-10013	0835-96-0027
7/15/96	0-6 inches	Surface Soil	35-10014	0835-96-0010
7/18/96	0-6 inches	Surface Soil	35-10015	0835-96-0028
7/18/96	0-6 inches	Surface Soil	35-10016	0835-96-0029
7/18/96	0-6 inches	Surface Soil	35-10017	0835-96-0030
Beneath Former Underground Storage Tank and Associated Piping				
7/15/96	6 feet-fill	Hand Auger	35-10018	0835-96-0011
7/15/96	6 feet-fill	Hand Auger	35-10019	0835-96-0012
7/15/96	6 feet-fill	Hand Auger	35-10020	0835-96-0013
7/15/96	6 feet-fill	Hand Auger	35-10021	0835-96-0014
7/17/96	6 feet-fill	Hand Auger	35-10022	0835-96-0015
7/18/96	6 feet-fill	Hand Auger	35-10023	0835-96-0016
7/18/96	6 feet-fill	Hand Auger	35-10024	0835-96-0017
7/18/96	6 feet-fill	Hand Auger	35-10025	0835-96-0018
7/18/96	6 feet-fill	Hand Auger	35-10026	0835-96-0019
7/18/96	6 feet-fill	Hand Auger	35-10027	0835-96-0020
7/18/96	8 feet-fill	Hand Auger	35-10028	0835-96-0021
7/18/96	8 feet-fill	Hand Auger	35-10029	0835-96-0022

Table 2-2

Volatile Organic Compounds Analyzed for During Phase VI Closure Activities by *SW-846*[a] Method 8260

Acetone	Dichloromethane
Acetonitrile	1,2-Dichloropropane
Acrolein	1,3-Dichloro-2-propanol
Acrylonitrile	cis-1,3-Dichloropropene
Allyl alcohol	trans-1,3-Dichloropropene
Allyl chloride	1,2,3,4-Diepoxybutane
Benzene	Diethyl ether
Benzyl chloride	Ethylbenzene
Bromoacetone	Ethylene oxide
Bromodichloromethane	Ethyl methacrylate
Bromoform	Hexachlorobutadiene
Bromomethane	2-Hexanone
n-Butanol	Iodomethane
2-Butanone	Isobutyl alcohol
Carbon disulfide	Isopropyl benzene
Carbon tetrachloride	Malononitrile
Chloral hydrate	Methacrylonitrile
Chlorobenzene	Methyl methacrylate
2-Chloro-1,3-butadiene	4-Methyl-2-pentanone
Chlorodibromomethane	2-Nitropropane
Chloroethane	Pentachloroethane
2-Chloroethanol	Propargyl alcohol
bis-(2-Chloroethyl) sulfide	beta-Proloactone
2-Chloroethyl vinyl ether	Propionitrile
Chloroform	n-Propylamine
Chloromethane	Styrene
Chloroprene	1,1,1,2-Tetrachloroethane
3-Chloroprene	1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane	Tetrachloroethylene
1,2-Dibromoethane	Toluene
Dibromomethane	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
cis-1,4-Dichloro-2-butene	Trichlorofluoromethane
trans-1,4-Dichloro-2-butene	1,2,3-Trichloropropane
Dichlorodifluoromethane	Vinyl acetate
1,1-Dichloroethane	Vinyl chloride
1,2-Dichloroethane	Xylenes (total)
1,1-Dichloroethene	Xylenes (total meta and para)
trans-1,2-Dichloroethene	Xylenes (ortho)

[a] "SW-846" refers to "Test Methods for Evaluating Solid Waste" (U.S. Environmental Protection Agency, 1992).

Table 2-3

Semivolatile Organic Compounds Analyzed for During Phase VI Closure Activities by *SW-846*[a] Method 8270

Acenapthene
Acenapthylene
Acetophenone
2-Acetylaminofluorene
4-Aminobiphenyl
Aniline
Anthracene
Aramite
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(g,h,i)perylene
Benzo(a)pyrene
Benzoic acid
Benzyl alcohol
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
2-sec-Butyl-4,6-dinitrophenol
4-Chloroaniline
Chlorobenzilate
bis(2-Chloroethoxy) methane
bis(2-Chloroethyl) ether
bis(2-Chloro-1-methylethyl) ether
4-Chloro-3-methylphenol
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
m-cresol (3-methylphenol)
o-cresol (2-methylphenol)
p-cresol (4-methylphenol)
2-Cyclohexyl-4,6-dinitrophenol
Diallate
Dibenz(a,j)acridine
Dibenzo(a,h)anthracene
Dibenzofuran
Di-n-butyl phthalate
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Diethyl phthalate
Dimethoate
3,3'-Dimethoxybenzidine
p-Dimethylaminoazobenzene
7,12-Dimethylbenz(a)anthracene
3,3'-Dimethylbenzidine
a,a-Dimethylphenethyl amine
2,4-Dimethyl phenol
Dimethyl phthalate
4,6-Dinitro-2-methylphenol
1,3-Dinitrobenzene
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Dinoseb
Di-n-octyl phthalate
1,4-Dioxane
Diphenylamine
1,2-Diphenyl hydrazine
Disulfoton
bis(2-Ethylhexyl) phthalate
Ethyl methanesulfonate
Famphur
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachlorophene
Hexachloropropene
Indeno(1,2,3-c,d)pyrene
Isodrin
Isophorone
Isosafrole
Kepone
Methapyrilene
3-Methylcholanthrene
2-Methyl-4,6-dinitrophenol
Methyl methanesulfonate
2-Methylnaphthalene
2-Methyl-5-nitroaniline
2-Methylpyridine
Naphthalene
1,4-Naphthoquinone
1-Naphthylamine
2-Naphthylamine
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline

Refer to footnotes at end of table.

Table 2-3 (Continued)

Semivolatile Organic Compounds Analyzed for During Phase VI Closure Activities by *SW-846*[a] Method 8270

Nitrobenzene	Phenol
2-Nitrophenol	p-Phenylenediamine
4-Nitrophenol	2-Picoline
4-Nitroquinoline-1-oxide	Pronamide
N-Nitrosodi-n-butylamine	Pyrene
N-Nitrosodiethylamine	Pyridine
N-Nitrosodimethylamine	Safrole
N-Nitrosodiphenylamine	1,2,4,5-Tetrachlorobenzene
n-Nitroso-n-propylamine	2,3,4,6-Tetrachlorophenol
N-Nitrosodipropylamine	Tetraethyl dithiopyrophosphate
N-Nitrosomethylethylamine	Tetraethyl pyrophosphate
N-Nitrosomorpholine	Thionazin
N-Nitrosopiperdine	Thiophenol
N-Nitrosopyrrolidine	o-Toluidine
5-Nitro-o-toluidine	1,2,4-Trichlorobenzene
Parathion methyl	2,4,5-Trichlorophenol
Pentachlorobenzene	2,4,6-Trichlorophenol
Pentachloronitrobenzene	Tris(2,3-dibromoo-propyl)phosphate
Pentachlorophenol	O,O,O-Triethyl phosphorothionate
Phenacetin	1,3,5-Trinitrobenzene
Phenanthrene	

[a] "SW-846" refers to "Test Methods for Evaluating Solid Waste" (U.S. Environmental Protection Agency, 1992).

Table 2-4

Pesticides and Herbicides Analyzed for During Phase VI Closure Activities by *SW-846*[a] Methods 8080, 8041, and 8150

Method 8080

Aldrin
Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
alpha-Benzene hexachloride
beta-Benzene hexachloride
delta-Benzene hexachloride
gamma-Benzene hexachloride (Lindane)
alpha-Chlordane (see Chlordane)
gamma-Chlordane (see Chlordane)
Chlordane (total)
p,p'-DDD
p,p'-DDE
p,p'-DDT
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aidehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Methoxychlor (Mariate)
Toxaphene

Method 8141

Ethyl parathion
Methyl parathion
Phorate
Sulfotepp

Method 8150

Dalapon
Dicamba
2-4-Dichlorophenoxyacetic acid
Dichlorprop
MCPA
MCPP
2,4,5-TP (Silvex)
2,4,5-Trichlorophenoxy acetic acid

[a] "SW-846" refers to "Test Methods for Evaluating Solid Waste" (U.S. Environmental Protection Agency, 1992).

Table 2-5

Inorganics
Analyzed for During Phase VI Closure Activities
by *SW-846*[a] Methods 6010, 7471A, and Interim Guidance Procedures

Method 6010

Aluminum
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Nickel
Selenium
Silver
Thallium
Tin
Vanadium
Zinc

Method 7471A

Mercury

Interim Guidance for Reactive Cyanide

Cyanide

Interim Guidance for Reactive Sulfide

Sulfide

[a] "SW-846" refers to "Test Methods for Evaluating Solid Waste" (U.S. Environmental Protection Agency, 1992).

Table 2-6

Dioxins and Furans Analyzed for During Phase VI Closure Activities by SW-846[a] Method 8280

2378 - TCDD
Total TCDD
Total TCDF
Total HxCDD
Total HxCDF
Total PeCDD
Total PeCDF

[a] "SW-846" refers to "Test Methods for Evaluating Solid Waste" (U.S. Environmental Protection Agency, 1992).

Table 2-7

Soil Sample Containers and Preservatives

Constituent	Container Type	Container Size	Preservative
Volatile Organic Compounds	Glass, silica/teflon septa	(2) 40 ml[a]	Cool to 4°C[b]
Semivolatile Organic Compounds	Glass, silica/teflon septa	250 ml	Cool to 4°C
Inorganics	Glass, silica/teflon septa	250 ml	Cool to 4°C

[a] "ml" refers to milliliters.
[b] "°C" refers to degrees Celsius.

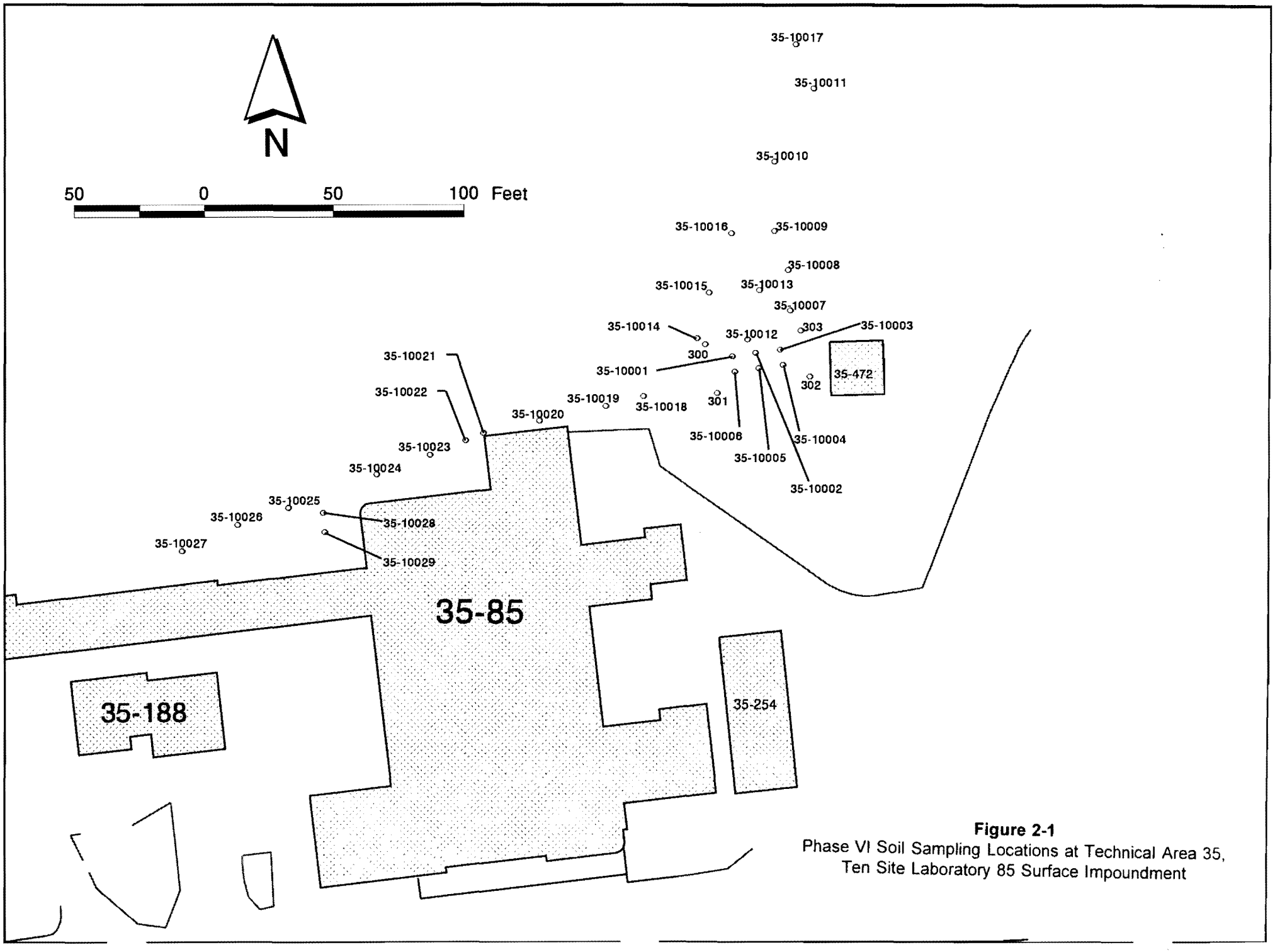


Figure 2-1
Phase VI Soil Sampling Locations at Technical Area 35, Ten Site Laboratory 85 Surface Impoundment

3.0 Human Health Risk Assessment

The human health risk assessment of the TA-35, TSL-85 surface impoundment was performed in accordance with the general guidance provided in Section 6.0 of the NMED-Approved Closure Plan. The assessment was performed using the entire Phase VI data set, excluding sample number 0835-96-0019, as well as the Phase V corehole verification sample results. The purpose of this evaluation is to assess the potential for residual site contamination and to elicit adverse systemic or carcinogenic effects under resident exposure scenarios. In addition, a realistic, site-specific exposure assessment for an industrial scenario has been performed.

3.1 Exposure Assessment

The TA-35, TSL-85 surface impoundment site is located immediately northwest of Building 85 at TA-35. The present and future land use for the TA-35, TSL-85 surface impoundment site is currently, and will remain, industrial under a continued LANL operations scenario. TA-35 is one of the largest active TAs at LANL, with approximately 300 designated structures. Most of the research and development work performed at TA-35 is related to lasers and laser fusion, and involves the development, fabrication, and operation of lasers and laser targets. TA-35 activities also include nuclear safeguards standards and the development of assay instrumentation. TA-35 is located adjacent to TA-55 and TA-50. TA-55 is a plutonium facility responsible for the fabrication of plutonium metal components and plutonium processing. The structures associated with TA-50 include a radioactive liquid waste treatment facility, a mixed waste landfill, and the size reduction complex. The location of this site will prohibit the development of any future residential land use.

The current actual exposure scenario for the TA-35, TSL-85 surface impoundment would consist of a limited, light industrial usage, including maintenance and inspection of a bermed holding tank and air conditioning unit located adjacent to the site. There are no current occupational traffic patterns (i.e., walking paths) or recreational uses for the site. Based on a memorandum from the Facility Manager at TA-35 (see Appendix G), it is not anticipated that work will be conducted at the site for more than 20 days per year.

A part of the risk assessment process is the designation of exposure units at the site for use in the risk assessment. The TA-35, TSL-85 surface impoundment site contains three general assessment areas which include the original impoundment area; the UST and piping area; and a spill path into Mortandad Canyon. Soil samples were collected from the impoundment area at a depth of 28 to 36 inches below the surface; from the UST and piping area at depths of 6 to 8 feet below the surface; and from within the spill path at a depth of 0 to 6 inches (i.e., surface soil). At the impoundment area and UST and piping area, samples were collected below the interfaces between the clean fill and native volcanic tuff. Generally, for the evaluation of a soil ingestion pathway, contaminant concentrations within the surface soil interval (e.g., 0 to 12 inches) are used to define the exposure unit and estimate the exposure concentration. For the purpose of this report, all sample concentrations have been evaluated as if they represent surface exposure concentrations regardless of their actual sampling interval. This will generally result in a conservative, over-estimation of contaminant intake.

The three assessment areas of this site have been individually evaluated in this report. All constituents identified as potential constituents of concern from the screening process have been evaluated under resident adult, resident child, and industrial adult exposure scenarios.

3.2 Health-Based Soil Action Levels

The health-based soil action levels were calculated for the reported constituents based on oral slope factor (SF) and oral reference dose (RfD) information in the most recent IRIS database. All detected constituents as well as undetected constituents with LOQs greater than the calculated health-based action levels have been evaluated.

The health-based action levels were calculated for the soil ingestion pathway using procedures and assumptions outlined in the proposed Resource Conservation and Recovery Act, Subpart S (Federal Register, Volume 55, No. 145) and the NMED-Approved Closure Plan. In accordance with EPA guidance, health-based action levels were calculated assuming the receptor to be a child for systemic toxicants and an adult for carcinogenic constituents.

The governing equation for the calculation of health-based action levels for systemic toxicants is:

$$C = (RfD * W) / (I * AF)$$

where:

C = health-based action level in soil (milligrams per kilogram [mg/kg])
RfD= IRIS reference dose (constituent specific, mg/kg - day)
W = body weight (16 kilogram [kg] child)
I = soil intake (0.2 gram per day [g/day])
AF = absorption factor (default, 1)

The governing equation for the calculation of health-based action levels for carcinogenic constituents is:

$$C = (R * W * LT) / (SF * Intake * ED * AF)$$

where:

C = health-based action level in soil (mg/kg)
R = Assumed risk level (dimensionless; 10^{-6} for Class A and B, 10^{-5} for Class C carcinogens)
W = body weight (70 kg adult)
LT = lifetime (assumed 70 years)
SF = IRIS carcinogenic slope factor (constituent specific, mg/kg-day)
I = soil intake (0.1 g/day)
ED = exposure duration (70 years)
AF = absorption factor (default, 1)

The health-based action level calculations are presented in Appendix H.

3.3 Identification of Potential Constituents of Concern

3.3.1 Inorganics

The inorganics data was initially screened against LANL background UTL values as described in the "Application of LANL Background Data to ER Project Decision-Making" (Longmire, 1996). Four inorganic constituents (i.e., copper, lead, mercury, and thallium) were reported at

levels that exceed their background UTL value. None of the inorganics exceeded health-based action levels. In accordance with the NMED-Approved Closure Plan, copper, lead, and mercury were eliminated from further consideration because there are no published toxicity criteria for these constituents in the current IRIS database. Thallium is included in the calculation of aggregate risk and hazard index (see Appendix H).

Beryllium was reported in site samples at levels that exceed the health-based action level. However, beryllium was not detected in any sample at a level that exceeds the LANL background UTL. Based on the background comparison, beryllium is not a potential constituent of concern; therefore, beryllium was eliminated from further consideration.

3.3.2 Organics

All reported organic constituent values, either positive detects or analytical LOQ values, were screened against specific health-based action levels developed per the closure plan. Health-based action levels were calculated for all reported constituents with listed SF and/or RfD information available in the current IRIS database.

Sixteen organic compounds were reported as detected in at least one of the thirty soil samples collected. Two of these compounds, Aroclor 1260 (8 detects) and hexachlorobenzene (3 detects) were reported as present in at least one sample above their health-based action level. Fourteen of these compounds, acenaphthene (1 detect), acetone (9 detects), benzene (1 detect), benzoic acid (2 detects), bis (2-ethylhexyl)phthalate (7 detects), chlorobenzene (1 detect), chloroform (5 detects, 2 of which are from the Phase V corehole verification samples), p,p'-DDT (1 detect), di-n-butyl phthalate (1 detect), isopropylbenzene (1 detect), methylene chloride (22 detects), styrene (1 detect), toluene (10 detects), and xylenes [mixed] (1 detect), were reported at concentrations less than their health-based action level. These sixteen compounds are included in the calculation of aggregate risk and hazard index (see Appendix H).

Table 3-1 identifies the organic and inorganic constituents detected at each assessment area and included in the calculations for aggregate risk and hazard index. The table summarizes the number of detects per total number of samples collected at each area and lists the values

used as exposure point concentrations in the calculations of contaminant intake associated with site exposure.

Three additional organic compounds, 1,3-dichloropropane (1 detect), naphthalene (1 detect), and 1,1,1-trichloroethane (1 detect) were also detected in site samples. These compounds either do not have current toxicity information listed in IRIS or are under review and toxicity criteria have been withdrawn from IRIS. These compounds were therefore eliminated from further consideration, per the NMED-Approve Closure Plan.

Four SVOCs, 3,3'-dichlorobenzidine, n-nitrosodimethylamine, n-nitroso-di-n-propylamine, and benzo[a]pyrene, were not detected in any sample. However, one half the constituent specific LOQ was greater than the health-based action level for each compound. The industrial uses of these SVOC constituents were identified from sources including the "Handbook of Toxic and Hazardous Chemicals and Carcinogens" (Sittig, 1991).

- 3,3'-Dichlorobenzidine is used in the manufacture of pigments for printing ink, textiles, plastics and crayons, and is a curing agent for solid urethane plastics.

- n-Nitrosodimethylamine was formerly used in the manufacture of dimethylhydrazine (i.e., rocket fuel). It is presently used as an antioxidant, as an additive to lubricants, and as a softener of copolymers.

- n-Nitroso-di-n-propylamine is inadvertently produced during some manufacturing processes as an impurity in commonly available dinitroaniline based weed killers and during the manufacture of specific rubber products. It has been identified as a common contaminant in the herbicide, Treflan, in concentrations up to 150 ppm.

- Benzo[a]pyrene is a by-product of combustion. It is estimated that 1.8 million pounds per year are released from stationary sources including coal refuse piles, outcrops, and abandoned mines; resident coal combustion; and coke manufacturing. It is associated with coal tar processing, petroleum refining, shale refining, coal and coke processing, kerosene processing, and heat and power generating.

Consultation with LANL personnel concerning the use, past or present, of the above listed SVOCs indicates that these substances have not been and are not currently being used in conjunction with laser research operations conducted in Building 85.

The potential contribution of Building 188 to the TA-35, TSL-85 surface impoundment waste stream is uncertain, necessitating the review of its known operational process history. Consultation with LANL personnel concerning the use, past or present, of the above listed SVOCs indicates that these substances have not been and are not currently being used in Building 188 (BEC, 1991c). Building 188 was intended to be used as a high-voltage test area and was used for that purpose for a short time before becoming a facility for the analysis of chemical gases and a machine shop.

There is no reason to believe that these five SVOCs are operationally associated with the site or would be present. Therefore, in accordance with the NMED-Approved Closure Plan, these constituents are not included in the risk assessment. However, to maintain conservative management of the site, these constituents have been included in an additional, separate estimation of aggregate risk, and hazard index for each scenario evaluated.

3.4 Concentrations of Potential Constituents of Concern

Arochlor 1260 and hexachlorobenzene were reported in site samples at levels that exceeded their health-based action levels. These constitutes were statistically evaluated with mean and 95 percent upper confidence limits (UCL) of the mean determined for the entire data set and each area of concern as follows:

Mean and 95 Percent UCL Values for the Spill Path (ppm)

	Mean	95 Percent UCL
Arochlor	0.106	0.210
Hexachlorobenzene	0.366	0.422

Mean and 95 Percent UCL Values for the UST and Piping Area (ppm)

	Mean	95 Percent UCL
Arochlor	0.052	0.116
Hexachlorobenzene	0.594	1.003

For Aroclor 1260, the 95 percent UCL for the UST and piping area was derived based on a normal distribution of the data. The spill path area UCL was derived based on a log normal distribution of the data. All of the analytical results for Aroclor 1260 for the impoundment area were nondetects with health-based action levels greater than one half the constituent specific LOQ. Therefore, Aroclor 1260 is reported as nondetected in the impoundment area.

For hexachlorobenzene, the 95 percent UCL value for the UST and piping area was derived based on a normal distribution of the data. The spill path area UCL value was derived based on a log normal distribution of the data. All of the analytical results for hexachlorobenzene in the impoundment area were nondetects with health-based action levels greater than one half the constituent specific LOQ. Therefore, hexachlorobenzene is reported as nondetected in the impoundment area.

In general, the statistical evaluation of the data for these constituents was governed by the limited number of detects and represents a conservative upper bound estimate of the contaminant concentration.

The 95 percent UCL values were incorporated into each scenario as exposure point concentrations for Aroclor and hexachlorobenzene. The exposure point concentrations for all other detected constituents evaluated in the risk assessment were based on the maximum observed concentration in each assessment area. This conservative approach was adopted due to the limited number of detects in each area, the low overall level of site contamination, and the low overall relative toxicity due to these constituents.

For the evaluation of the SVOCs that were undetected in all samples at levels above their health-based action level, the mean and 95 percent UCL values were determined based on a normal distribution of the constituent specific LOQ for each assessment area. The following values have been utilized in the estimation of aggregate risk and hazard index for undetected constituents of concern at the site.

Mean and 95 Percent UCL Values for the Impoundment Area (ppm)

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.721	0.733
n-Nitrosodimethylamine	0.361	0.364
n-Nitrosodi-n-propylamine	0.361	0.364
Benzo[a]pyrene	0.361	0.364

Mean and 95 Percent UCL Values for the UST and Piping Area (ppm)

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.838	0.935
n-Nitrosodimethylamine	0.419	0.468
n-Nitrosodi-n-propylamine	0.419	0.468
Benzo[a]pyrene	0.419	0.468

Mean and 95 Percent UCL Values for the Spill Path (ppm)

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.706	0.753
n-Nitrosodimethylamine	0.356	0.381
n-Nitrosodi-n-propylamine	0.356	0.381
Benzo[a]pyrene	0.356	0.381

3.5 Estimation of Contaminant Intake

Contaminant intake was generally calculated based on conservative default reasonable maximum exposure (RME) parameters for resident adult, resident child, and industrial adult exposure scenarios. The industrial adult exposure scenario has been modified by the utilization of a 20 day per year exposure frequency. This realistic, site-specific deviation is based on the review of area activities and is a conservative estimate of the actual occupational exposure frequency at the site (see Appendix G).

The governing equation for the calculation of intake in accordance with EPA guidance (EPA, 1989) is:

Intake (mg/kg-day) = (CS*IR*CF*FI*EF*ED) / (W*AT)

where:

CS = exposure concentration of the constituent in soil
IR = ingestion rate (milligram per day [mg/day])
CF = conversion factor (1E-06 kg/mg)
FI = fraction ingested (default, 1)
EF = exposure frequency (days/year)
ED = exposure duration (years)
W = body weight (kg)
AT = averaging time (days).

The three exposure scenarios evaluated, resident adult, resident child, and industrial adult incorporated the following scenario specific input parameters:

Resident Adult

IR = ingestion rate (100 mg/day)
EF = exposure frequency (365 days/year)
ED = exposure duration (70 years)
W = body weight (70 kg)
AT = averaging time (carcinogenic and systemic effects, 25550 days)

Resident Child

IR = ingestion rate (200 mg/day)
EF = exposure frequency (365 days/year)
ED = exposure duration (6 years)
W = body weight (16 kg)
AT = averaging time (carcinogenic effects, 25550 days; systemic effects, 2190 days)

Industrial Adult

IR = ingestion rate (100 mg/day)
EF = exposure frequency (20 days/year)
ED = exposure duration (25 years)
W = body weight (70 kg)
AT = averaging time (carcinogenic effects, 25550 days; systemic effects, 9125 days)

The hazard quotient for systemic toxicants is calculated from:

$$HQ = Intake/RfD$$

where the intake is calculated as shown above, and RfD is the constituent-specific value obtained from the current IRIS database.

The carcinogenic risk is calculated from:

$$Risk = Intake * SF$$

where the intake is calculated as shown above, and SF is the constituent-specific value from the current IRIS database.

The formula to calculate the aggregate noncancer hazard index for chronic exposure is:

$$\text{Hazard Index} = \Sigma\ HQ_i$$

where:

HQ_i = Hazard quotient for the ith toxicant.

Aggregate risk is calculated from:

$$\text{Aggregate Risk} = \Sigma\ \text{Risk}_i$$

where Risk_i = risk estimate for the ith carcinogenic substance.

The hazard quotient and aggregate hazard index for constituent specific systemic effects, as well as constituent specific carcinogenic aggregate risk and hazard index have been calculated for each scenario and area of concern (see Appendix H). Two sets of results are presented for each assessment area and scenario evaluated, the detected potential constituents of concern and the detected potential constituents of concern plus the undetected potential constituents of concern with one half their LOQs greater than the health-based action levels.

3.6 Risk Characterization

The aggregate risk for the resident adult exposure at the site results in area risks of 3.6×10^{-6} for the UST and piping area; 3.3×10^{-6} for the spill path area; and 1.7×10^{-10} for the impoundment area. The aggregate risk for the resident child exposure at the site results in area risks of 2.7×10^{-6} for the UST and piping area; 2.5×10^{-6} for the spill path area; and 1.3×10^{-10} for the impoundment area. The values for the residential exposure scenarios are summarized in Table 3-2.

The hazard indices for the resident scenarios in all of the assessed areas are less than the threshold of 1, indicating little potential for adverse systemic effects due to exposure at the site. The aggregate risk values for resident adult and child in the impoundment area are less than the threshold value of 1.0×10^{-6} specified in the NMED-Approved Closure Plan. However, the aggregate risk values for the UST and piping area and spill path area exceed 1.0×10^{-6}. Therefore, in accordance with the NMED-Approved Closure Plan, a realistic, site-specific exposure scenario was evaluated.

The aggregate risk for the industrial adult exposure at the site results in area risks of 7.1×10^{-8} for the UST and piping area; 6.5×10^{-8} for the spill path area; and 3.3×10^{-12} for the impoundment area. The values for the industrial adult exposure scenario are summarized in Table 3-3.

The hazard indices for the industrial adult scenario in all of the assessed areas are less than the threshold of 1, indicating little potential for adverse systemic effects due to exposure at the site. All aggregate risk values for the industrial adult scenario in all assessed areas are less than the threshold value of 1.0×10^{-6} and indicate that the site does not pose an unacceptable risk under the realistic exposure scenario and conservative current use.

As previously stated, aggregate risk and hazard indices have also been calculated for all scenarios and areas of concern with the inclusion of the four undetected SVOCs evaluated at the 95 percent UCL of one half the constituent specific LOQ. The results of this additional evaluation for all scenarios are summarized in Table 3-4.

Comparison of these values to the results excluding the four SVOCs indicates that inclusion of these constituents increases the aggregate risk by approximately one order of magnitude at each area; however, the aggregate risk for the industrial adult scenario still does not exceed 1×10^{-6}. All hazard indices remain under the threshold of 1. The aggregate risk for the industrial adult exposure at the site results in area risks of 9.4×10^{-7} at the UST and piping area; 7.7×10^{-7} for the spill path area; and 6.7×10^{-7} at the impoundment area. Therefore, even if the four undetected SVOCs are assumed to be present, they do not pose a significant risk to human health and the environment.

3.7 Assessment of Uncertainty

Uncertainty is inherent in the risk assessment process and arises from a lack of knowledge in areas such as site conditions, toxicology of potential constituents of concern, and exposure assumptions. Uncertainty, which may have an impact on estimates of exposure risk, and noncarcinogenic hazards, is quantitatively discussed in this section.

The environmental data used to characterize site conditions was collected and analyzed in a manner to ensure a reliable valid characterization of site conditions. The selection of sampling points which ultimately constitute the exposure area for receptors can result in an over- or under-estimate of total exposure, hazard, and/or risk. The investigation of the TA-35, TSL-85 surface impoundment resulted in the selection of samples from areas which would be expected to show positive analytical bias. This, in conjunction with the 95 percent

UCL and maximum values utilized in the hazard and risk estimates, would likely result in an over-estimate of site risk. Uncertainty in sampling strategy and estimates of environmental considerations do exist.

The residential exposure parameters employed in the assessment provide conservative RME estimates. The industrial parameters represent RME estimates with the exception of the conservative, site-specific exposure frequency. These parameters tend to provide an over-estimate of potential site risks; however, the actual duration, frequency, and degree of contact with media at the site is uncertain.

The oral RfD and SF values utilized in this assessment represent current conservative values from the IRIS database. These toxicity criteria are generally derived from effects observed in animals and extrapolated for humans. Due to the potential physiologic and metabolic differences, extrapolation uncertainty factors of 10 times or more are applied to human toxicity values and result in conservative estimates of risk.

3.8 Conclusion

The TA-35, TSL-85 surface impoundment is a small site located in an industrial area. In this most recent investigation, Phase VI sampling, the site has been characterized by the collection and analysis of 30 soil samples distributed throughout three areas of concern. Analytical results for the samples generally report a large number of nondetects for individual constituents.

The risk assessment has evaluated very conservative resident and site-specific industrial exposure scenarios that incorporate conservative RME exposure parameters and assumed surface contamination. These conservative assumptions tend to maximize the calculated potential risk. The aggregate risk for the resident exposure scenarios fall within the EPA risk range of 1×10^{-4} to 1×10^{-6}. The aggregate risk for the realistic industrial exposure scenarios is less than 1×10^{-6}.

Based on the limited degree of overall contamination at the site, the lack of significant exposure at the site, and the limited risk under all scenarios, clean closure demonstration of the site has been achieved.

Table 3-1

Constituents Detected During Phase VI Closure Activities and Included in the Risk Assessment

	Impoundment Area		UST/Piping Area		Spill Path Area	
	Detects	Concentration (ppm)[a]	Detects	Concentration (ppm)	Detects	Concentration (ppm)
Acenaphthene[b]	1/7	0.15	0/12	ND[c]	0/11	ND
Acetone[b]	0/7	ND	6/12	0.33	3/11	0.02
Aroclor 1260[d]	0/7	ND	3/12	0.116	5/11	0.21
Benzene[b]	0/7	ND	1/12	0.012	0/11	ND
Benzoic acid[b]	0/7	ND	0/12	ND	2/11	0.21
Bis(2-ethylhexyl) phthalate[b]	7/7	ND	7/12	2.8	6/11	2.2
Chlorobenzene[b]	0/7	ND	1/12	0.007	0/11	ND
Chloroform[b]	1/7	0.002	2/12	0.011	0/11	ND
DDT (p,p')[b]	0/7	ND	0/12	ND	1/11	0.002
Di-n-butyl phthalate[b]	1/7	0.44	0/12	ND	0/11	ND
Hexachlorobenzene[d]	0/7	ND	2/12	1.003	1/11	0.48
Isopropylbenzene[b]	0/7	ND	1/12	0.007	0/11	ND
Methylene chloride[b]	7/7	0.014	12/12	0.077	11/11	0.01
Styrene[b]	0/7	ND	1/12	0.006	0/11	ND
Thallium[b]	7/7	ND	12/12	ND	1/11	2.7
Toluene[b]	0/7	ND	5/12	0.039	5/11	0.006
Xylenes (mixed)[b]	0/7	ND	1/12	0.022	0/11	ND

[a] ppm = parts per million
[b] The listed concentration represents the maximum reported value.
[c] The ND indicates that the constituent was not detected in the area samples or was reported in concentrations below the background upper tolerance limit or contract required detection limit, or was indistinguishable from laboratory blank contamination.
[d] The listed concentration represents the 95 percent upper confidence limit.

Table 3-2

Risk Assessment Summary for Residential Exposure Scenarios

Area	Resident Adult		Resident Child	
	Hazard Index	Aggregate Risk	Hazard Index	Aggregate Risk
Impoundment	<0.001	1.7×10^{-10}	<0.001	1.3×10^{-10}
UST\Piping	0.002	3.6×10^{-6}	0.018	2.7×10^{-6}
Spill Path	0.049	3.3×10^{-6}	0.43	2.5×10^{-6}

Table 3-3

Risk Assessment Summary for Industrial Exposure Scenario

Area	Industrial Adult	
	Hazard Index	Aggregate Risk
Impoundment	<0.001	3.3×10^{-12}
UST/Piping	<0.001	7.1×10^{-8}
Spill Path	0.003	6.5×10^{-8}

Table 3-4

Risk Assessment Summary Including Undetected Constituents of Concern

Area	Resident Adult	Resident Child	Industrial Adult
	Aggregate Risk	Aggregate Risk	Aggregate Risk
Impoundment	3.4×10^{-5}	2.6×10^{-5}	6.7×10^{-7}
UST/Piping	4.8×10^{-5}	3.6×10^{-5}	9.4×10^{-7}
Spill Path	3.9×10^{-5}	3.0×10^{-5}	7.7×10^{-7}

4.0 Certifications

4.1 Certification of Accuracy

I certify under penalty of law that these documents and all appendices were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violation.

Document title:

Amended Closure Certification Report for the
Technical Area 35, Ten Site Laboratory 85 Surface Impoundment

Name: _____ Date: 9/27/96
Tom Baca, Program Director
Environment Management
Los Alamos National Laboratory

Name: _____ Date: 9/27/96
Theodore J. Taylor
Program Manager
Environmental Restoration Program
U.S. Department of Energy—Los Alamos Area Office

OR

Joseph C. Vozella
Assistant Area Manager
Office of Environment and Projects
U.S. Department of Energy—Los Alamos Area Office

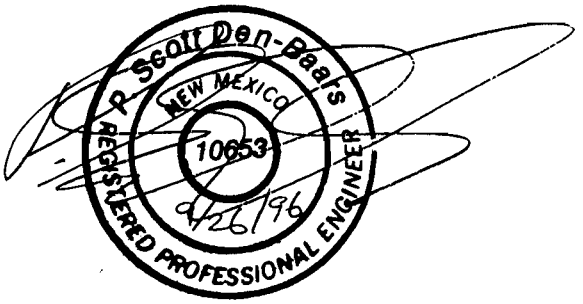
4.2 Independent Professional Engineering Certification

This certification was prepared in accordance with generally accepted professional engineering principles and practice pursuant to the requirements of 20 NMAC 4.1, Subpart V, § 264.115, revised November 1, 1995, for an independent registered P.E. certification. These services have been performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions at the same time and in the same or in a similar locality. We make no other warranty either expressed or implied. The finding and certification are based on (1) reviewing the NMED-Approved Closure Plan (NMED, 1996); (2) reviewing the original closure certification report (BEC, 1991a); (3) performing various site visits during Phase VI closure and sampling activities; (4) reviewing the analytical results from the Phase VI samples; and (5) reviewing the risk assessment conducted by Neptune and Company, Inc.

With the signature and seal below, I certify that, except for the variances presented in Section 2.5, the closure of the TA-35, TSL-85 surface impoundment was conducted substantially in accordance with the NMED-Approved Closure Plan. The information presented in this report is, to the best of my knowledge and belief, true, accurate, and complete.

Respectfully,

IT Corporation



P. Scott Den-Baars, P.E.
New Mexico Registered Professional Engineer No. 10653
Expires December 31, 1997

Date: September 26, 1996

5.0 References

BEC, see Benchmark Environmental Corporation.

Benchmark Environmental Corporation (BEC), 1991a, "Closure Certification Report, TA-35 TSL-85 Surface Impoundment," prepared for Los Alamos National Laboratory, Los Alamos, New Mexico.

Benchmark Environmental Corporation (BEC), 1991b, "Interim Status Closure Plan, TA-35 TSL-85 Surface Impoundment," Rev. 3, prepared for Los Alamos National Laboratory, Los Alamos, New Mexico.

Benchmark Environmental Corporation (BEC), 1991c, Record of Telephone Call with Jerry Umphres, Building 188 Process Knowledge, Benchmark Environmental Corporation, Los Alamos, New Mexico.

EPA, see U.S. Environmental Protection Agency.

IT Corporation (IT), 1993, "Amendment to the Closure Plan for the Technical Area 35, TSL-85 Surface Impoundment," prepared for Los Alamos National Laboratory, Los Alamos, New Mexico.

Longmire, P. A., McDonald, E. V., and Ruti, R., 1996, "Application of LANL Background Data to ER Project Decision-Making," Part I: Inorganics, LA-UR-96-1534, Los Alamos National Laboratory, Los Alamos, New Mexico.

New Mexico Environment Department (NMED), 1996, "TA-35, TSL-85 Amended Closure Plan," prepared for Los Alamos National Laboratory, Los Alamos, New Mexico.

NMED, see New Mexico Environment Department.

Sittig, Marshall, 1991, "Handbook of Toxic and Hazardous Chemicals and Carcinogens," 3rd Edition, Noyes Publications, Park Ridge, New Jersey.

U.S. Environmental Protection Agency (EPA), 1992, "Test Methods for Evaluating Solid Waste," Physical/Chemical Methods, SW-846, Third Edition, Final Update I and Proposed Update II, Office of Solid Waste and Emergency Response, U.S. Government Printing Office, Washington, D.C.

U.S. Environmental Protection Agency (EPA), 1989, "Risk Assessment Guidance for Superfund," Volume I, Human Health Evaluation Manual, Part A, EPA/600/8-89/043, Interim Final, Office of Solid Waste and Emergency Response, Washington, D.C.

APPENDIX A

Analytical Results and Quality Assurance/Quality Control Documentation for Phase VI Sampling

AUG
RECEIVED

REPORT OF ANALYSES

DETERMINATION OF VOLATILE ORGANICS BY METHOD 8260 (1994 SW-846)

FIELD COPY

Project Req. # 2407

Prepared for:

LOS ALAMOS NATIONAL LABS
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

Report Sent To:
Approved By:
Date Sent: 8/13/96

July 31, 1996

REPORT OF ANALYSES

Client: **Los Alamos National Labs**
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Volatile Organics by Method 8260 (1994 SW-846)

TABLE OF CONTENTS:

Section 1: Sample Numbers, Dates of Receipt, Collection and Analysis
Section 2: Case Narrative
Section 3: Chain of Custody
Section 4: QC Summary
Section 5: Data
Section 6: Standards Data
Section 7: QC Data

Appendix A: Instrument Logs
Appendix B: Nonconformance and Corrective Action reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Paragon	LANL	Date Received
96-07-113-01	0835-96-0001 06	07-16-96
96-07-113-02	0835-96-0002 06	07-16-96
96-07-113-03	0835-96-0003 06	07-16-96
96-07-113-04	0835-96-0004 06	07-16-96
96-07-113-05	0835-96-0005 06	07-16-96
96-07-113-06	0835-96-0006 06	07-16-96
96-07-113-07	0835-96-0007 06	07-16-96
96-07-113-08	0835-96-0008 06	07-16-96
96-07-113-09	0835-96-0009 06	07-16-96
96-07-113-10	0835-96-0010 06	07-16-96
96-07-113-11	0835-96-0011 06	07-16-96
96-07-113-12	0835-96-0012 06	07-16-96
96-07-113-13	0835-96-0013 06	07-16-96
96-07-113-14	0835-96-0014 06	07-16-96

Section 2: Case Narrative

2.1 Sample Logistics

Fourteen soil samples were analyzed for volatile organics by Method 8260 (1994 SW-846). Samples were received in one shipment on the date shown in Table 1. The samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Volatile Organics by Method 8260 (1994 SW-846)

The matrix spike and matrix spike duplicates were spiked with the full list of compounds. However, only the compounds on form 3 were reported as per SW-846 protocol.

2.3 These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the samples were prepared by purging a heated 5 grams of sample mixed with 5 mls of reagent water. The calibration curve was also prepared using the heated purge. This procedure, including the heating step, is based on Method 5030.

2.4 The samples were analyzed using GC/MS with a DB-624 capillary column according to protocols based on SW-846 Method 8260. As specified by the method, all positive results were quantitated with the average of quadratic response of the initial calibration standards using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

2.5 All samples were analyzed within the established holding times. Only the re-analysis of sample 96-07-113-01 was performed outside the established hold time. Both sets of data have been reported.

2.6 All method blanks had methylene chloride at levels less than the reporting limit.

2.7 All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

2.8 All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

2.9 All surrogate recoveries were within acceptance criteria

2.10 The internal standards in sample 96-07-113-01 were outside the control limits. The sample was re-analyzed outside the holding time. The results showed internal standards that met criteria. Both sets of data have been reported. The internal standard, DCB, was outside the control limits in sample 96-07-113-08. The sample was re-analyzed with similar results which indicates matrix effects are present. Both sets of data have been provided.

2.11 All initial and continuing calibration criteria were within acceptance criteria for positively identified compounds. A library search was performed to identify any compounds from the appendix IX list that are not on the standard 8260 list. No compounds were detected.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

for Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/96
Date

Request No. 2407
VOC's

Section 3: Chain of Custody

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

96-07-113

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2407 per agreement number 7794L0014-9S

ORGANIC TO ATI, 30 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 30 Days

Screening:

Approx.Report Due Date: 15-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 42

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0001	03	Soil	07/15/96	
HERB	STD	0835-96-0001	04	Soil	07/15/96	
PEST	STD	0835-96-0001	04	Soil	07/15/96	-01
SEMI	STD	0835-96-0001	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0001	06	Soil	07/15/96	
PCB	STD	0835-96-0002	03	Soil	07/15/96	
HERB	STD	0835-96-0002	04	Soil	07/15/96	
PEST	STD	0835-96-0002	04	Soil	07/15/96	-02
SEMI	STD	0835-96-0002	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0002	06	Soil	07/15/96	
PCB	STD	0835-96-0003	03	Soil	07/15/96	
HERB	STD	0835-96-0003	04	Soil	07/15/96	
PEST	STD	0835-96-0003	04	Soil	07/15/96	-03
SEMI	STD	0835-96-0003	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0003	06	Soil	07/15/96	
PCB	STD	0835-96-0004	03	Soil	07/15/96	
HERB	STD	0835-96-0004	04	Soil	07/15/96	-04
PEST	STD	0835-96-0004	04	Soil	07/15/96	
SEMI	STD	0835-96-0004	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0004	06	Soil	07/15/96	
PCB	STD	0835-96-0005	03	Soil	07/15/96	-05

Cont.

July 15, 1996 Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
HERB	STD	0835-96-0005	04	Soil	07/15/96	
PEST	STD	0835-96-0005	04	Soil	07/15/96	-05 cont
SEMI	STD	0835-96-0005	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0005	06	Soil	07/15/96	
PCB	STD	0835-96-0006	03	Soil	07/15/96	
HERB	STD	0835-96-0006	04	Soil	07/15/96	
PEST	STD	0835-96-0006	04	Soil	07/15/96	-06
SEMI	STD	0835-96-0006	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0006	06	Soil	07/15/96	* Jar cracked.
PCB	STD	0835-96-0007	03	Soil	07/15/96	
HERB	STD	0835-96-0007	04	Soil	07/15/96	
PEST	STD	0835-96-0007	04	Soil	07/15/96	-07
SEMI	STD	0835-96-0007	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0007	06	Soil	07/15/96	
PCB	STD	0835-96-0008	03	Soil	07/15/96	
HERB	STD	0835-96-0008	04	Soil	07/15/96	
PEST	STD	0835-96-0008	04	Soil	07/15/96	-08
SEMI	STD	0835-96-0008	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0008	06	Soil	07/15/96	
PCB	STD	0835-96-0009	03	Soil	07/15/96	
HERB	STD	0835-96-0009	04	Soil	07/15/96	
PEST	STD	0835-96-0009	04	Soil	07/15/96	-09
SEMI	STD	0835-96-0009	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0009	06	Soil	07/15/96	
PCB	STD	0835-96-0010	03	Soil	07/15/96	
HERB	STD	0835-96-0010	04	Soil	07/15/96	
PEST	STD	0835-96-0010	04	Soil	07/15/96	
SEMI	STD	0835-96-0010	04	Soil	07/15/96	-10
VOAGCMS	STD	0835-96-0010	06	Soil	07/15/96	
PCB	STD	0835-96-0011	03	Soil	07/15/96	
HERB	STD	0835-96-0011	04	Soil	07/15/96	
PEST	STD	0835-96-0011	04	Soil	07/15/96	
SEMI	STD	0835-96-0011	04	Soil	07/15/96	-11
VOAGCMS	STD	0835-96-0011	06	Soil	07/15/96	
PCB	STD	0835-96-0012	03	Soil	07/15/96	
HERB	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
PEST	STD	0835-96-0012	04	Soil	07/15/96	

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SEMI	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
VOAGCMS	STD	0835-96-0012	06	Soil	07/15/96	
PCB	STD	0835-96-0013	03	Soil	07/15/96	
HERB	STD	0835-96-0013	04	Soil	07/15/96	
PEST	STD	0835-96-0013	04	Soil	07/15/96	
SEMI	STD	0835-96-0013	04	Soil	07/15/96	-13
VOAGCMS	STD	0835-96-0013	06	Soil	07/15/96	
PCB	STD	0835-96-0014	03	Soil	07/15/96	
HERB	STD	0835-96-0014	04	Soil	07/15/96	
PEST	STD	0835-96-0014	04	Soil	07/15/96	-14
SEMI	STD	0835-96-0014	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0014	06	Soil	07/15/96	

Section 4: Data

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-23-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b315.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	4	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK01 07-23-96	**Method Blank**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	94	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	87	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-23-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b315.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Lab Name:	Paragon Analytics, Inc.		
Client Name:	LANL-SMO		
Lab Sample ID:	VBLK01 07-23-96	Method Blank	n/a
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b315.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0001 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-01		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b318.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	8.6

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	ND	6	U
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-01	**0835-96-0001 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	91	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	92	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0001 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-01		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b318.d	Dilution Factor:	1
		Percent Moisture:	8.6

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Meth. 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	0835-96-0001 06	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-01	0835-96-0001 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b318.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0001 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-01R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b412.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	8.6

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	14	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	2	6	J
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-01R	**0835-96-0001 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	106	80-120
Toluene-d8	94	81-117
4-Bromofluorobenzene	111	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0001 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-01R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b412.d	Dilution Factor:	1
		Percent Moisture:	8.6

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**0835-96-0001 06**	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-01R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b412 d	Dilution Factor:	1
		Percent Moisture:	8.6

# of TICS Found **0**	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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PARAGON ANALYTICS, INC.

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0002 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-02		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b319.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	7.4

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	9	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-02	0835-96-0002 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	94	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0002 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-02		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b319.d	Dilution Factor:	1
		Percent Moisture:	7.4

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0002 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-02	0835-96-0002 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b319.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0003 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-03		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b320.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	6.5

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	21	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	9	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	21	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	21	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-03	0835-96-0003 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	21	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	97	81-117
4-Bromofluorobenzene	96	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0003 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-03		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b320.d	Dilution Factor:	1
		Percent Moisture:	6.5

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0003 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-03	0835-96-0003 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b320.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0004 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-04		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b321.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	9.8

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	9	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-04	**0835-96-0004 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	96	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	92	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0004 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-04		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b321.d	Dilution Factor:	1
		Percent Moisture:	9.8

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0004 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-04	0835-96-0004 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b321.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0005 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-05		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b[illegible].d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	4.69

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	21	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	7	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	21	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	21	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-05	0835-96-0005 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	21	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	94	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0005 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-05		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b322.d	Dilution Factor:	1
		Percent Moisture:	4.69

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	0835-96-0005 06	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-05	0835-96-0005 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b322.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0006 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-06R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b340.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	8.6

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	3	6	J
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-06R	**0835-96-0006 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	96	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	93	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0006 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-06R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b340.d	Dilution Factor:	1
		Percent Moisture:	8.6

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2407		0835-96-0006 06
Lab Sample ID:	96-07-113-06R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b340.d	Dilution Factor:	1
		Percent Moisture:	8.6

# of TICS Found 0	Compound Name	RT	Est. 0	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobuyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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PARAGON ANALYTICS, INC.

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0007 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-07		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b324.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	7.29

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	9	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-07	**0835-96-0007 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	99	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	97	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2407	0835-96-0007 06	
Lab Sample ID:	96-07-113-07		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b324.d	Dilution Factor:	1
		Percent Moisture:	7.29

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0007 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-07	0835-96-0007 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b324.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0008 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-08R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b341.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	9.2

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	4	6	J
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-08R	**0835-96-0008 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	104	80-120
Toluene-d8	94	81-117
4-Bromofluorobenzene	107	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2407		0835-96-0008 06
Lab Sample ID:	96-07-113-08R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b341.d	Dilution Factor:	1
		Percent Moisture:	9.2

# of TICS Found 0	Compound Name	T	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0008 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-08R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b341.d	Dilution Factor:	1
		Percent Moisture:	9.2

# of TICS Found 0	Compound Name	RT	Est. 0	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobuyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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PARAGON ANALYTICS, INC.

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0009 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-09R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b346.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	8.37

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	15	22	J
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	8	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-09R	0835-96-0009 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	103	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	94	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0009 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-09R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b346.d	Dilution Factor:	1
		Percent Moisture:	8.37

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0009 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-09R		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b346.d	Dilution Factor:	1
		Percent Moisture:	8.37

# of TICS Found 0	Compound Name	RT	Est. 0	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobuyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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PARAGON ANALYTICS, INC.

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0010 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-10		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b329.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	7.07

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	8	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-10	0835-96-0010 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	100	80-120
Toluene-d8	95	81-117
4-Bromofluorobenzene	95	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0010 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-10		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b329.d	Dilution Factor:	1
		Percent Moisture:	7.07

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0010 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-10	0835-96-0010 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b329.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2407	0835-96-0011 06	
Lab Sample ID:	96-07-113-11		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b330.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	12.77

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	8	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-11	**0835-96-0011 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	92	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0011 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-11		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b330.d	Dilution Factor:	1
		Percent Moisture:	12.77

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0011 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-11	0835-96-0011 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	o330.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0012 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-12		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b331.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	14.53

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	9	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-12	0835-96-0012 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	96	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	94	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2407	**0835-96-0012 06**	
Lab Sample ID:	96-07-113-12		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b331.d	Dilution Factor:	1
		Percent Moisture:	14.53

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0012 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-12	0835-96-0012 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b331.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0013 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-13		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b332.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	9.89

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	8	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-13	0835-96-0013 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	99	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	95	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0013 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-13		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b332.d	Dilution Factor:	1
		Percent Moisture:	9.89

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0013 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-13	0835-96-0013 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b332.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0014 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-14		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b333.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	14.77

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	37	23	
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	31	6	
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-113-14	0835-96-0014 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	108	80-120
Toluene-d8	94	81-117
4-Bromofluorobenzene	102	74-121

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0014 06	
Client Project ID:	2407		
Lab Sample ID:	96-07-113-14		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b333.d	Dilution Factor:	1
		Percent Moisture:	14.77

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Method 8260	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Lab Name:	Paragon Analytics, Inc.	**0835-96-0014 06**	
Client Name:	LANL-SMO		
Lab Sample ID:	96-07-113-14	0835-96-0014 06	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-23-96
Lab File ID:	b333.d	Dilution Factor:	1
		Conc. (µg/kg)	Limit (µg/kg)

# of TICS Found **0**	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	3	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK01 07-24-96	**Method Blank**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	99	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	93	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. 0	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobuyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	Method Blank	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-30-96		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b409.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	3	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK01 07-30-96	Method Blank

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	112	80-120
Toluene-d8	103	81-117
4-Bromofluorobenzene	97	74-121

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PARAGON ANALYTICS, INC.

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-30-96		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b409.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

PARAGON ANALYTICS, INC.

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2407		
Lab Sample ID:	VBLK01 07-30-96		
Sample Matrix:	Soil	Date Collected:	07-15-96
Sample Weight(g):	5	Date Analyzed:	07-30-96
Lab File ID:	b409.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl Acetate			NF
17				
18				
19				
20				

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Section 5: QC Summary

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	100	87	94		0
02	BS	99	92	97		0
03	BSD	100	89	98		0
04	0835-96-0001 06	99	92	91		0
05	0835-96-0002 06	98	94	98		0
06	0835-96-0003 06	97	96	98		0
07	0835-96-0004 06	99	92	96		0
08	0835-96-0005 06	99	94	98		0
09	0835-96-0007 06	98	97	99		0
10	0835-96-0009 06MS	99	94	98		0
11	0835-96-0009 06MSD	98	93	99		0
12	0835-96-0010 06	95	95	100		0
13	0835-96-0011 06	99	92	98		0
14	0835-96-0012 06	99	94	96		0
15	0835-96-0013 06	100	95	99		0
16	0835-96-0014 06	94	102	108		0
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* values outside of contract required QC limits

3A

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Dilution Factor: 1
% Moisture: 8.37

Client Sample No.: 0835-96-0009 06

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % REC	QC Limit REC
1,1-Dichloroethene	54.6	< 5	59.7	109	59-172
Trichloroethene	54.6	< 5	62.0	114	62-137
Benzene	54.6	< 5	59.2	108	66-142
Toluene	54.6	< 5	58.1	106	59-139
Chlorobenzene	54.6	< 5	55.9	102	60-133

Compound	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	54.6	60.0	110	1	22	59-172
Trichloroethene	54.6	60.8	111	2	24	62-137
Benzene	54.6	58.0	106	2	21	66-142
Toluene	54.6	57.5	105	1	21	59-139
Chlorobenzene	54.6	57.2	105	2	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b315.d
Date Analyzed: 07-23-96

Lab Sample ID: VBLK01 07-23-96
Time Analyzed: 13:12

Matrix :

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1 07-23-96	b316.d	13:45
02	BSD	BS2 07-23-96	b317.d	14:18
03	0835-96-0001 06	96-07-113-01	b318.d	14:52
04	0835-96-0002 06	96-07-113-02	b319.d	15:25
05	0835-96-0003 06	96-07-113-03	b320.d	15:58
06	0835-96-0004 06	96-07-113-04	b321.d	16:32
07	0835-96-0005 06	96-07-113-05	b322.d	17:05
08	0835-96-0007 06	96-07-113-07	b324.d	18:12
09	0835-96-0009 06MS	96-07-113-09MS	b327.d	19:53
10	0835-96-0009 06MSD	96-07-113-09MSD	b328.d	20:27
11	0835-96-0010 06	96-07-113-10	b329.d	21:21
12	0835-96-0011 06	96-07-113-11	b330.d	21:55
13	0835-96-0012 06	96-07-113-12	b331.d	22:28
14	0835-96-0013 06	96-07-113-13	b332.d	23:01
15	0835-96-0014 06	96-07-113-14	b333.d	23:34
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b314.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-23-96
BFB Injection Time: 12:38

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	32.2
75	30.0 - 60.0 % of mass 95	58.5
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.5
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	62.5
175	5.0 - 9.0 % of mass 174	7.6
176	Greater than 95.0 %, < 101.0 % of mass 174	96.6
177	5.0 - 9.0 % of mass 176	6.4

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050 07-23-96 (1)	b314.d	07-23-96	12:38
02	Method Blank	VBLK01 07-23-96	b315.d	07-23-96	13:12
03	BS	BS1 07-23-96	b316.d	07-23-96	13:45
04	BSD	BS2 07-23-96	b317.d	07-23-96	14:18
05	0835-96-0001 06	96-07-113-01	b318.d	07-23-96	14:52
06	0835-96-0002 06	96-07-113-02	b319.d	07-23-96	15:25
07	0835-96-0003 06	96-07-113-03	b320.d	07-23-96	15:58
08	0835-96-0004 06	96-07-113-04	b321.d	07-23-96	16:32
09	0835-96-0005 06	96-07-113-05	b322.d	07-23-96	17:05
10	0835-96-0007 06	96-07-113-07	b324.d	07-23-96	18:12
11	0835-96-0009 06MS	96-07-113-09MS	b327.d	07-23-96	19:53
12	0835-96-0009 06MSD	96-07-113-09MSD	b328.d	07-23-96	20:27
13	0835-96-0010 06	96-07-113-10	b329.d	07-23-96	21:21
14	0835-96-0011 06	96-07-113-11	b330.d	07-23-96	21:55
15	0835-96-0012 06	96-07-113-12	b331.d	07-23-96	22:28
16	0835-96-0013 06	96-07-113-13	b332.d	07-23-96	23:01
17	0835-96-0014 06	96-07-113-14	b333.d	07-23-96	23:34

PARAGON ANALYTICS, INC.

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b337.d
Date Analyzed: 07-24-96

Lab Sample ID: VBLK01 07-24-96
Time Analyzed: 09:07

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1 07-24-96	b338.d	09:41
02	BSD	BS2 07-24-96	b339.d	10:14
03	0835-96-0006 06	96-07-113-06R	b340.d	10:48
04	0835-96-0008 06	96-07-113-08R	b341.d	11:22
05	0835-96-0009 06	96-07-113-09R	b346.d	14:10
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b336.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-24-96
BFB Injection Time: 08:34

Matrix: Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	31.5
75	30.0 - 60.0 % of mass 95	59.3
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	7.3
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	61.3
175	5.0 - 9.0 % of mass 174	7.4
176	Greater than 95.0 %, < 101.0 % of mass 174	95.9
177	5.0 - 9.0 % of mass 176	7.0

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050 07-24-96 (1)	b336.d	07-24-96	08:34
02	Method Blank	VBLK01 07-24-96	b337.d	07-24-96	09:07
03	BS	BS1 07-24-96	b338.d	07-24-96	09:41
04	BSD	BS2 07-24-96	b339.d	07-24-96	10:14
05	0835-96-0006 06	96-07-113-06R	b340.d	07-24-96	10:48
06	0835-96-0008 06	96-07-113-08R	b341.d	07-24-96	11:22
07	0835-96-0009 06	96-07-113-09R	b346.d	07-24-96	14:10
08					
09					
10					
11					
12					
13					
14					
15					

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Instrument ID: HP-VM 2 Lab File ID (Standard): b336.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	418615	13.12	671208	14.73	515295	19.71	238291	23.01
	UPPER LIMIT	837230	13.62	1342416	15.23	1030590	20.21	476582	23.51
	LOWER LIMIT	209308	12.62	335604	14.23	257648	19.21	119146	22.51
	SAMPLE ID								
01	Method Blank	395127	13.12	632123	14.74	502044	19.71	242089	[illegible]
02	BS	375129	13.12	602290	14.74	474025	19.71	220039	23.01
03	BSD	344796	13.12	563706	14.74	434967	19.71	196767	23.01
04	0835-96-0006 06	295175	13.12	475190	14.74	367412	19.71	170155	23.01
05	0835-96-0008 06	276890	13.12	448696	14.74	312653	19.71	113481*	23.01
06	0835-96-0009 06	294115	13.12	477820	14.74	368868	19.71	171042	23.01
07									
08									
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	103	97	112		0
02	BS	101	103	111		0
03	BSD	100	100	119		0
04	0835-96-0001 06	102	100	104		0
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS1, BS2

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS1 Concentration (µg/kg)	BS1 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	42.2	84	59-172
Trichloroethene	50.0	< 5	48.2	96	62-137
Benzene	50.0	< 5	47.5	95	66-142
Toluene	50.0	< 5	47.8	96	59-139
Chlorobenzene	50.0	< 5	47.6	95	60-133

Compound	Spike Added (µg/kg)	BS2 Concentration (µg/kg)	BS2 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	41.9	84	1	22	59-172
Trichloroethene	50.0	49.2	98	2	24	62-137
Benzene	50.0	47.2	94	1	21	66-142
Toluene	50.0	47.2	51	1	21	59-139
Chlorobenzene	50.0	47.8	96	0	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b409.d
Date Analyzed: 07-30-96

Lab Sample ID: VBLK01 07-30-96
Time Analyzed: 09:25

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1	b410.d	10:03
02	BSD	BS2	b411.d	10:40
03	0835-96-0001 06	96-07-113-01R	b412.d	11:18
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Lab File ID: b408.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-30-96
BFB Injection Time: 08:45

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	34.4
75	30.0 - 60.0 % of mass 95	59.1
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.0
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	61.8
175	5.0 - 9.0 % of mass 174	8.2
176	Greater than 95.0 %, < 101.0 % of mass 174	99.0
177	5.0 - 9.0 % of mass 176	6.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050	b408.d	07-30-96	08:45
02	Method Blank	VBLK01 07-30-96	b409.d	07-30-96	09:25
03	BS	BS1	b410.d	07-30-96	10:03
04	BSD	BS2	b411.d	07-30-96	10:40
05	0835-96-0001 06	96-07-113-01R	b412.d	07-30-96	11:18
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Instrument ID: HP-VM 2 Lab File ID (Standard): b408.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	270385	13.13	448258	14.74	374381	19.72	169629	23.01
	UPPER LIMIT	540770	13.63	896516	15.24	748762	20.22	339258	23.51
	LOWER LIMIT	135193	12.63	224129	14.24	187191	19.22	84815	22.51
	SAMPLE ID								
01	Method Blank	252056	13.13	421071	14.74	359638	19.72	180880	23.01
02	BS	275185	13.13	452481	14.75	381844	19.72	170827	23.02
03	BSD	220895	13.13	378559	14.75	322485	19.72	157749	23.02
04	0835-96-0001 06	229933	13.13	369067	14.74	303310	19.72	143482	23.01
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Instrument ID: HP-VM 2 Lab File ID (Standard): b314.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	427292	13.13	677475	14.74	532605	19.71	243828	23.01
	UPPER LIMIT	854584	13.63	1354950	15.24	1065210	20.21	487656	23.51
	LOWER LIMIT	213646	12.63	338738	14.24	266303	19.21	121914	22.51
	SAMPLE ID								
01	Method Blank	370192	13.12	576770	14.74	474678	19.71	247621	23.01
02	BS	402314	13.13	639212	14.75	512611	19.72	242611	23.01
03	BSD	348117	13.12	558158	14.74	459227	19.71	228485	23.01
04	0835-96-0001 06	27377*	13.12	43923*	14.74	34761*	19.71	16342*	23.01
05	0835-96-0002 06	289034	13.13	468509	14.74	362123	19.71	164127	23.01
06	0835-96-0003 06	301542	13.13	493876	14.74	381474	19.71	169759	23.01
07	0835-96-0004 06	295458	13.12	477392	14.74	379003	19.71	180123	23.01
08	0835-96-0005 06	313965	13.13	511563	14.74	404508	19.72	186824	23.01
09	0835-96-0007 06	289381	13.13	477996	14.74	370699	19.71	164338	23.01
10	0835-96-0009 06MS	282708	13.13	465311	14.74	380290	19.72	174998	23.01
11	0835-96-0009 06MSD	275826	13.13	461131	14.74	365237	19.71	172655	23.01
12	0835-96-0010 06	325785	13.13	527313	14.74	401043	19.71	176278	23.01
13	0835-96-0011 06	301610	13.13	492534	14.74	397764	19.71	188944	23.01
14	0835-96-0012 06	297946	13.13	484280	14.74	382027	19.71	177053	23.01
15	0835-96-0013 06	307151	13.13	497119	14.74	398787	19.72	181860	23.01
16	0835-96-0013 06	307151	13.13	497119	14.74	398787	19.72	181860	23.01
17	0835-96-0014 06	258014	13.13	440313	14.74	318729	19.72	127183	23.01

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4
UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	100	93	99		0
02	BS	98	96	100		0
03	BSD	97	94	104		0
04	0835-96-0006 06	99	93	96		0
05	0835-96-0008 06	94	107	104		0
06	0835-96-0009 06	98	94	103		0
07						
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28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2407

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS1, BS2

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS1 Concentration (µg/kg)	BS1 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	48.5	97	59-172
Trichloroethene	50.0	< 5	48.4	97	62-137
Benzene	50.0	< 5	51.1	102	66-142
Toluene	50.0	< 5	50.9	102	59-139
Chlorobenzene	50.0	< 5	50.0	100	60-13.

Compound	Spike Added (µg/kg)	BS2 Concentration (µg/kg)	BS2 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	52.4	105	8	22	59-172
Trichloroethene	50.0	51.5	103	6	24	62-137
Benzene	50.0	54.7	109	7	21	66-142
Toluene	50.0	54.4	109	7	21	59-139
Chlorobenzene	50.0	56.1	112	11	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

REPORT OF ANALYSES

DETERMINATION OF VOLATILE ORGANICS BY METHOD 8260 (1994 SW-846)

Project Req. # 2410

Prepared for:

LOS ALAMOS NATIONAL LABS
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

August 2, 1996

REPORT OF ANALYSES

Client: **Los Alamos National Labs**
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Volatile Organics by Method 8260 (1994 SW-846)

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Section 4: Form I's/Sample Raw Data (07/24/96 first analytical clock)
Section 5: QC Summary (07/24/96 first analytical clock)
Section 6: Form I's/Sample Raw Data (07/24/96 second analytical clock)
Section 7: QC Summary (07/24/96 second analytical clock)
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Section 10: Standards Data

Appendix A: Instrument Logs
Appendix B: Nonconformance and Corrective Action reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Paragon	LANL	Date Received
96-07-149-01	0835-96-0015 06	07-22-96
96-07-149-02	0835-96-0016 06	07-22-96
96-07-149-03	0835-96-0017 06	07-22-96
96-07-149-04	0835-96-0018 06	07-22-96
96-07-149-05	0835-96-0019 06	07-22-96
96-07-149-06	0835-96-0020 06	07-22-96
96-07-149-07	0835-96-0021 06	07-22-96
96-07-149-08	0835-96-0022 06	07-22-96

Section 2: Case Narrative

2.1 Sample Logistics

Eight soil samples were analyzed for volatile organics by Method 8260 (1994 SW-846). Samples were received in one shipment on the date shown in Table 1. The samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Volatile Organics by Method 8260 (1994 SW-846)

The matrix spike and matrix spike duplicates were spiked with the full list of compounds. However, only the compounds on form 3 were reported as per SW-846 protocol.

2.3 These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the samples were prepared by purging a heated 5 grams of sample mixed with 5 mls of reagent water. The calibration curve was also prepared using the heated purge. This procedure, including the heating step, is based on Method 5030.

2.4 The samples were analyzed using GC/MS with a DB-624 capillary column according to protocols based on SW-846 Method 8260. As specified by the method, all positive results were quantitated with the average of quadratic response of the initial calibration standards using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

2.5 All samples were analyzed within the established holding times.

2.6 All method blanks had methylene chloride at levels less than the reporting limit.

2.7 All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

2.8 All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

2.9 All surrogate recoveries were within acceptance criteria

2.10 Sample 96-07-149-06 was analyzed on 07/24/96, 07/26/96, and 07/27/96. The analysis performed on 07/24/96 and 07/26/96 were analyzed neat. High concentrations of trichlorotrifluoroethane were detected in both analyses. These concentrations exceeded the calibration range of the instrument. However, the concentrations were not similar. Due to the concentrations of acetone and trichlorotrifluoroethane the sample was analyzed at a ten fold dilution. This analysis was reported. In the diluted analysis, trichlorotrifluoroethane was not present. All data from the three analyses are included.

2.11 All initial and continuing calibration criteria were within acceptance criteria for positively identified compounds. A library search was performed to identify any compounds from the appendix IX list that are not on the standard 8260 list. No compounds were detected.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

for Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/95
Date

Request No. 2410
VOC's

Section 3: Chain of Custody

y 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-149

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2410 per agreement number 7794L0014-9S

15 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 20 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0015	03	Soil	07/17/96	
HERB	STD	0835-96-0015	04	Soil	07/17/96	
OPPEST	STD	0835-96-0015	04	Soil	07/17/96	-01
PEST	STD	0835-96-0015	04	Soil	07/17/96	
SEMI	STD	0835-96-0015	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0015	06	Soil	07/17/96	
PCB	STD	0835-96-0016	03	Soil	07/18/96	
HERB	STD	0835-96-0016	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0016	04	Soil	07/18/96	
PEST	STD	0835-96-0016	04	Soil	07/18/96	
SEMI	STD	0835-96-0016	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0016	06	Soil	07/18/96	
PCB	STD	0835-96-0017	03	Soil	07/18/96	03
HERB	STD	0835-96-0017	04	Soil	07/18/96	
OPPEST	STD	0835-96-0017	04	Soil	07/18/96	
PEST	STD	0835-96-0017	04	Soil	07/18/96	
SEMI	STD	0835-96-0017	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0017	06	Soil	07/18/96	
PCB	STD	0835-96-0018	03	Soil	07/18/96	04
HERB	STD	0835-96-0018	04	Soil	07/18/96	
OPPEST	STD	0835-96-0018	04	Soil	07/18/96	

000003

y 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0018	04	Soil	07/18/96	(04)
SEMI	STD	0835-96-0018	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0018	06	Soil	07/18/96	
PCB	STD	0835-96-0019	03	Soil	07/18/96	
HERB	STD	0835-96-0019	04	Soil	07/18/96	05
OPPEST	STD	0835-96-0019	04	Soil	07/18/96	
PEST	STD	0835-96-0019	04	Soil	07/18/96	
SEMI	STD	0835-96-0019	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0019	06	Soil	07/18/96	
PCB	STD	0835-96-0020	03	Soil	07/18/96	06
HERB	STD	0835-96-0020	04	Soil	07/18/96	
OPPEST	STD	0835-96-0020	04	Soil	07/18/96	
PEST	STD	0835-96-0020	04	Soil	07/18/96	
SEMI	STD	0835-96-0020	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0020	06	Soil	07/18/96	
PCB	STD	0835-96-0021	03	Soil	07/18/96	07
HERB	STD	0835-96-0021	04	Soil	07/18/96	
OPPEST	STD	0835-96-0021	04	Soil	07/18/96	
PEST	STD	0835-96-0021	04	Soil	07/18/96	
SEMI	STD	0835-96-0021	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0021	06	Soil	07/18/96	
PCB	STD	0835-96-0022	03	Soil	07/18/96	08
HERB	STD	0835-96-0022	04	Soil	07/18/96	
OPPEST	STD	0835-96-0022	04	Soil	07/18/96	
PEST	STD	0835-96-0022	04	Soil	07/18/96	
SEMI	STD	0835-96-0022	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0022	06	Soil	07/18/96	

000007

Section 4: Form I's/Sample Raw Data (07/24/96)

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK01 07-24-96	**Method Blank**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	99	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	93	74-121

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	3	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM I VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK01 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b337.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0015 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-01		
Sample Matrix:	Soil	Date Collected:	07-17-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b343.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	7.1

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	3	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-01	0835-96-0015 06

CAS Number	Analyte	Conc. (ug/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	100	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	99	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0015 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-01		
Sample Matrix:	Soil	Date Collected:	07-17-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b343.d	Dilution Factor:	1
		Percent Moisture:	7.1

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0015 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-01		
Sample Matrix:	Soil	Date Collected:	07-17-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b343.d	Dilution Factor:	1
		Percent Moisture:	7.1

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

Section 5: QC Summary (07/24/96 first analytical clock)

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	100	93	99		0
02	BS	98	96	100		0
03	BSD	97	94	104		0
04	0835-96-0015 06	98	99	100		0
05	0835-96-0015 06MS	96	101	105		0
06	0835-96-0015 06MSD	97	98	104		0
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of ract required QC limits

3A

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Dilution Factor: 1
% Moisture: 7.1

Client Sample No.: 0835-96-0015 06

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % REC	QC Limit REC
1,1-Dichloroethene	53.8	< 5	59.6	111	59-172
Trichloroethene	53.8	< 5	53.0	98	62-137
Benzene	53.8	< 5	58.2	108	66-142
Toluene	53.8	< 5	57.8	107	59-139
Chlorobenzene	53.8	< 5	58.0	108	60-133

Compound	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	53.8	58.6	109	2	22	59-172
Trichloroethene	53.8	51.8	96	2	24	62-137
Benzene	53.8	57.1	106	2	21	66-142
Toluene	53.8	55.7	103	4	21	59-139
Chlorobenzene	53.8	57.1	106	1	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS1, BS2

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS1 Concentration (µg/kg)	BS1 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	48.5	97	59-172
Trichloroethene	50.0	< 5	48.4	97	62-137
Benzene	50.0	< 5	51.1	102	66-142
Toluene	50.0	< 5	50.9	102	59-139
Chlorobenzene	50.0	< 5	50.0	100	60-133

Compound	Spike Added (µg/kg)	BS2 Concentration (µg/kg)	BS2 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	52.4	105	8	22	59-172
Trichloroethene	50.0	51.5	103	6	24	62-137
Benzene	50.0	54.7	109	7	21	66-142
Toluene	50.0	54.4	109	7	21	59-139
Chlorobenzene	50.0	56.1	112	11	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b337.d
Date Analyzed: 07-24-96

Lab Sample ID: VBLK01 07-24-96
Time Analyzed: 09:07

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1 07-24-96	b338.d	09:41
02	BSD	BS2 07-24-96	b339.d	10:14
03	0835-96-0015 06	96-07-149-01	b343.d	12:29
04	0835-96-0015 06MS	96-07-149-01MS	b344.d	13:02
05	0835-96-0015 06MSD	96-07-149-01MSD	b345.d	13:36
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b336.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-24-96
BFB Injection Time: 08:34

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	31.5
75	30.0 - 60.0 % of mass 95	59.3
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	7.3
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	61.3
175	5.0 - 9.0 % of mass 174	7.4
176	Greater than 95.0 %, < 101.0 % of mass 174	95.9
177	5.0 - 9.0 % of mass 176	7.0

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050 07-24-96 (1)	b336.d	07-24-96	08:34
02	Method Blank	VBLK01 07-24-96	b337.d	07-24-96	09:07
03	BS	BS1 07-24-96	b338.d	07-24-96	09:41
04	BSD	BS2 07-24-96	b339.d	07-24-96	10:14
05	0835-96-0015 06	96-07-149-01	b343.d	07-24-96	12:29
06	0835-96-0015 06MS	96-07-149-01MS	b344.d	07-24-96	13:02
07	0835-96-0015 06MSD	96-07-149-01MSD	b345.d	07-24-96	13:36
08					
09					
10					
11					
12					
13					
14					
15					

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Instrument ID: HP-VM 2 Lab File ID (Standard): b336.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	418615	13.12	671208	14.73	515295	19.71	238291	23.01
	UPPER LIMIT	837230	13.62	1342416	15.23	1030590	20.21	476582	23.51
	LOWER LIMIT	209308	12.62	335604	14.23	257648	19.21	119146	22.51
	SAMPLE ID								
01	Method Blank	395127	13.12	632123	14.74	502044	19.71	242089	[illegible]
02	BS	375129	13.12	602290	14.74	474025	19.71	220039	23.01
03	BSD	344796	13.12	563706	14.74	434967	19.71	196767	23.01
04	0835-96-0015 06	280877	13.12	460377	14.74	343044	19.71	148152	23.01
05	0835-96-0015 06MS	260998	13.12	426126	14.74	313373	19.71	129868	23.01
06	0835-96-0015 06MSD	271521	13.13	448258	14.74	333837	19.71	145028	23.01
07									
08									
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

Section 6: Form I's/Sample Raw Data (07/24/96 second analytical clock)

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	5	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Lab Sample ID: VBLK02 07-24-96

Sample ID
Method Blank

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	91	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM I VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0016 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b353.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	13.9

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	27	23	
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-02	0835-96-0016 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	102	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	97	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2410	0835-96-0016 06	
Lab Sample ID:	96-07-149-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b353.d	Dilution Factor:	1
		Percent Moisture:	13.9

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96- 16 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b353.d	Dilution Factor:	1
		Percent Moisture:	13.9

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0017 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b354.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	13.5

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	28	23	
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	3	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-03	**0835-96-0017 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	101	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	92	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0017 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b354.d	Dilution Factor:	1
		Percent Moisture:	13.5

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0017 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b354.d	Dilution Factor:	1
		Percent Moisture:	13.5

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0018 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b355.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	16.9

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	24	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	12	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	24	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563[illegible]3-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	24	U
108-88-3	Toluene	4	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-04	0835-96-0018 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	24	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	103	80-120
Toluene-d8	95	81-117
4-Bromofluorobenzene	99	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0018 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b355.d	Dilution Factor:	1
		Percent Moisture:	16.9

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0018 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b355.d	Dilution Factor:	1
		Percent Moisture:	16.9

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0019 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b356.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	15.85

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	24	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	9	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	24	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	24	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Lab Sample ID: 96-07-149-05

Sample ID
0835-96-0019 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	24	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	103	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	94	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0019 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b356.d	Dilution Factor:	1
		Percent Moisture:	15.85

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0019 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b356.d	Dilution Factor:	1
		Percent Moisture:	15.85

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0021 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b358.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	15.88

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	20	24	J
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	11	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	24	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	24	U
108-88-3	Toluene	2	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-07	0835-96-0021 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	24	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	103	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	93	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0021 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b358.d	Dilution Factor:	1
		Percent Moisture:	15.88

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2410	0835-96-0021 06	
Lab Sample ID:	96-07-149-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b358.d	Dilution Factor:	1
		Percent Moisture:	15.88

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0022 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b359.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	13.2

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	85	23	
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	3	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-08	**0835-96-0022 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	[illegible]	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	7	6	
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	101	80-120
Toluene-d8	99	81-117
4-Bromofluorobenzene	93	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0022 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b359.d	Dilution Factor:	1
		Percent Moisture:	13.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2410		0835-96-0022 06
Lab Sample ID:	96-07-149-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b359.d	Dilution Factor:	1
		Percent Moisture:	13.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

Section 7: QC Summary (07/24/96 second analytical clock)

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	100	91	98		0
02	BS	100	94	101		0
03	BSD	100	92	104		0
04	0835-96-0016 06	100	97	102		0
05	0835-96-0017 06	98	92	101		0
06	0835-96-0018 06	95	99	103		0
07	0835-96-0019 06	100	94	103		0
08	0835-96-0021 06	99	93	103		0
09	0835-96-0022 06	99	93	101		0
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS3, BS4

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS3 Concentration (µg/kg)	BS3 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	51.6	103	59-172
Trichloroethene	50.0	< 5	48.5	97	62-137
Benzene	50.0	< 5	52.8	106	66-142
Toluene	50.0	< 5	52.1	104	59-139
Chlorobenzene	50.0	< 5	51.8	104	60-13?

Compound	Spike Added (µg/kg)	BS4 Concentration (µg/kg)	BS4 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	51.4	103	0	22	59-172
Trichloroethene	50.0	47.1	94	3	24	62-137
Benzene	50.0	51.0	102	3	21	66-142
Toluene	50.0	50.9	102	2	21	59-139
Chlorobenzene	50.0	50.2	100	3	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b349.d
Date Analyzed: 07-24-96

Lab Sample ID: VBLK02 07-24-96
Time Analyzed: 15:30

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS3 07-24-96	b350.d	16:03
02	BSD	BS4 07-24-96	b351.d	16:36
03	0835-96-0016 06	96-07-149-02	b353.d	17:43
04	0835-96-0017 06	96-07-149-03	b354.d	18:17
05	0835-96-0018 06	96-07-149-04	b355.d	18:50
06	0835-96-0019 06	96-07-149-05	b356.d	19:23
07	0835-96-0021 06	96-07-149-07	b358.d	20:30
08	0835-96-0022 06	96-07-149-08	b359.d	21:04
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b348.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-24-96
BFB Injection Time: 14:57

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	34.4
75	30.0 - 60.0 % of mass 95	59.1
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.0
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	61.8
175	5.0 - 9.0 % of mass 174	8.2
176	Greater than 95.0 %, < 101.0 % of mass 174	99.0
177	5.0 - 9.0 % of mass 176	6.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050 07-24-96 (2)	b348.d	07-24-96	14:57
02	Method Blank	VBLK02 07-24-96	b349.d	07-24-96	15:30
03	BS	BS3 07-24-96	b350.d	07-24-96	16:03
04	BSD	BS4 07-24-96	b351.d	07-24-96	16:36
05	0835-96-0016 06	96-07-149-02	b353.d	07-24-96	17:43
06	0835-96-0017 06	96-07-149-03	b354.d	07-24-96	18:17
07	0835-96-0018 06	96-07-149-04	b355.d	07-24-96	18:50
08	0835-96-0019 06	96-07-149-05	b356.d	07-24-96	19:23
09	0835-96-0021 06	96-07-149-07	b358.d	07-24-96	20:30
10	0835-96-0022 06	96-07-149-08	b359.d	07-24-96	21:04
11					
12					
13					
14					
15					

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Instrument ID: HP-VM 2 Lab File ID (Standard): b348.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	366019	13.13	597886	14.74	469004	19.71	214430	23.01
	UPPER LIMIT	732038	13.63	1195772	15.24	938008	20.21	428860	23.51
	LOWER LIMIT	183010	12.63	298943	14.24	234502	19.21	107215	22.51
	SAMPLE ID								
01	Method Blank	341817	13.12	554704	14.74	436727	19.71	209686	23.01
02	BS	339203	13.13	548422	14.74	431036	19.72	196798	23.01
03	BSD	329397	13.13	541319	14.74	434676	19.71	209089	23.01
04	0835-96-0016 06	298263	13.13	493127	14.74	380551	19.71	170799	23.01
05	0835-96-0017 06	296683	13.13	490220	14.75	374650	19.72	174542	23.01
06	0835-96-0018 06	267510	13.13	445697	14.75	326546	19.72	136332	23.01
07	0835-96-0019 06	300944	13.13	493955	14.74	388108	19.71	177394	23.01
08	0835-96-0021 06	292046	13.13	485374	.4.74	381201	19.71	179483	23.01
09	0835-96-0022 06	277553	13.12	453179	14.74	356590	19.71	173307	23.01
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

Section 8: Form I's/Sample Raw Data (07/27/96)

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	4	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK	**Method Blank**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	101	81-117
4-Bromofluorobenzene	100	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2410		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0020 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-06DL10		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b392.d	Dilution Factor:	10
Results based on dry weight		Percent Moisture:	15.4

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	120	U
74-87-3	Chloromethane	ND	120	U
75-01-4	Vinyl chloride	ND	120	U
74-83-9	Bromomethane	ND	120	U
75-00-3	Chloroethane	ND	120	U
75-69-4	Trichlorofluoromethane	ND	60	U
75-35-4	1,1-Dichloroethene	ND	60	U
76-13-1	Trichlorotrifluoroethane	ND	60	U
67-64-1	Acetone	330	240	
74-88-4	Iodomethane	ND	60	U
75-15-0	Carbon Disulfide	ND	60	U
75-09-2	Methylene chloride	77	60	
156-60-5	trans-1,2-Dichloroethene	ND	60	U
75-34-3	1,1-Dichloroethane	ND	60	U
156-59-2	cis-1,2-Dichloroethene	ND	60	U
78-93-3	2-Butanone	ND	240	U
74-97-5	Bromochloromethane	ND	60	U
67-66-3	Chloroform	11	60	J
71-55-6	1,1,1-Trichloroethane	14	60	J
594-20-7	2,2-Dichloropropane	ND	60	U
56-23-5	Carbon tetrachloride	ND	60	U
563-58-6	1,1-Dichloropropene	ND	60	U
107-06-2	1,2-Dichloroethane	ND	60	U
71-43-2	Benzene	12	60	J
79-01-6	Trichloroethene	ND	60	U
78-87-5	1,2-Dichloropropane	ND	60	U
74-95-3	Dibromomethane	ND	60	U
75-27-4	Bromodichloromethane	ND	60	U
10061-01-5	cis-1,3-Dichloropropene	ND	60	U
108-10-1	4-Methyl-2-Pentanone	ND	240	U
108-88-3	Toluene	39	60	J
10061-02-6	trans-1,3-Dichloropropene	ND	60	U
79-00-5	1,1,2-Trichloroethane	ND	60	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-149-06DL10	**0835-96-0020 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	240	U
127-18-4	Tetrachloroethene	ND	60	U
142-28-9	1,3-Dichloropropane	14	60	J
124-48-1	Dibromochloromethane	ND	60	U
106-93-4	1,2-Dibromoethane	ND	60	U
108-90-7	Chlorobenzene	7	60	J
630-20-6	1,1,1,2-Tetrachloroethane	ND	60	U
100-41-4	Ethylbenzene	ND	60	U
108-3-3, 106-42-3	m,p-Xylene	14	60	J
95-47-6	o-Xylene	8	60	J
100-42-5	Styrene	6	60	J
75-25-2	Bromoform	ND	60	U
98-82-8	Isopropylbenzene	7	60	J
96-18-4	1,2,3-Trichloropropane	ND	60	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	60	U
108-86-1	Bromobenzene	ND	60	U
103-65-1	n-Propylbenzene	6	60	J
95-49-8	2-Chlorotoluene	7	60	J
108-67-8	1,3,5-Trimethylbenzene	7	60	J
106-43-4	4-Chlorotoluene	ND	60	U
98-08-6	tert-Butylbenzene	ND	60	U
95-63-6	1,2,4-Trimethylbenzene	ND	60	U
135-98-8	sec-Butylbenzene	7	60	J
541-73-1	1,3-Dichlorobenzene	ND	60	U
99-87-6	p-Isopropyltoluene	7	60	J
106-46-7	1,4-Dichlorobenzene	ND	60	U
104-51-8	n-Butylbenzene	8	60	J
95-50-1	1,2-Dichlorobenzene	ND	60	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	120	U
120-82-1	1,2,4-Trichlorobenzene	ND	60	U
87-68-3	Hexachlorobutadiene	ND	60	U
91-20-3	Naphthalene	29	60	J
87-61-6	1,2,3-Trichlorobenzene	ND	60	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	104	80-120
Toluene-d8	96	81-117
4-Bromofluorobenzene	117	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0020 06	
Client Project ID:	2410		
Lab Sample ID:	96-07-149-06DL10		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b392.d	Dilution Factor:	10
		Percent Moisture:	15.4

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

PARAGON ANALYTICS, INC.

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2410	0835-96-0020 06	
Lab Sample ID:	96-07-149-06DL10		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b392.d	Dilution Factor:	10
		Percent Moisture:	15.4

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

Section 9: QC Summary (07/27/96)

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	101	100	98		0
02	BS	100	102	101		0
03	BSD	102	102	104		0
04	0835-96-0020 06	96	117	104		0
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS1, BS2

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS1 Concentration (µg/kg)	BS1 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	43.1	86	59-172
Trichloroethene	50.0	< 5	44.3	89	62-137
Benzene	50.0	< 5	43.9	88	66-142
Toluene	50.0	< 5	42.8	86	59-139
Chlorobenzene	50.0	< 5	42.9	86	60-133

Compound	Spike Added (µg/kg)	BS2 Concentration (µg/kg)	BS2 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	42.4	85	2	22	59-172
Trichloroethene	50.0	45.5	91	3	24	62-137
Benzene	50.0	44.7	89	2	21	66-142
Toluene	50.0	44.2	88	3	21	59-139
Chlorobenzene	50.0	43.4	87	1	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b389.d
Date Analyzed: 07-27-96

Lab Sample ID: VBLK
Time Analyzed: 15:47

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1-072796-S	b390.d	16:20
02	BSD	BS2-072796-S	b391.d	16:53
03	0835-96-0020 06	96-07-149-06DL10	b392.d	17:27
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Lab File ID: b388.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-27-96
BFB Injection Time: 15:14

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	27.8
75	30.0 - 60.0 % of mass 95	55.9
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	7.0
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	66.6
175	5.0 - 9.0 % of mass 174	8.7
176	Greater than 95.0 %, < 101.0 % of mass 174	98.2
177	5.0 - 9.0 % of mass 176	6.9

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050	b388.d	07-27-96	15:14
02	Method Blank	VBLK	b389.d	07-27-96	15:47
03	BS	BS1-072796-S	b390.d	07-27-96	16:20
04	BSD	BS2-072796-S	b391.d	07-27-96	16:53
05	0835-96-0020 06	96-07-149-06DL10	b392.d	07-27-96	17:27
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2410

Instrument ID: HP-VM 2 Lab File ID (Standard): b388.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	352017	13.14	555345	14.75	425457	19.72	189450	23.02
	UPPER LIMIT	704034	13.64	1110690	15.25	850914	20.22	378900	23.52
	LOWER LIMIT	176009	12.64	277673	14.25	212729	19.22	94725	22.52
	SAMPLE ID								
01	Method Blank	356435	13.14	556748	14.75	437351	19.72	204754	[illegible]
02	BS	335235	13.13	530610	14.75	418414	19.72	185281	[illegible]
03	BSD	331982	13.14	531502	14.75	430050	19.72	191103	23.02
04	0835-96-0020 06	309783	13.13	500881	14.75	368075	19.72	137197	23.02
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

FORM VIII VOA

PARAGON ANALYTICS, INC.

000171

1/87 Rev.

AUG 1996
RECEIVED

REPORT OF ANALYSES

DETERMINATION OF VOLATILE ORGANICS BY METHOD 8260 (1994 SW-846)

FIELD COPY

Project Req. # 2413

Prepared for:

LOS ALAMOS NATIONAL LABS
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

Report Sent To:
Approved By:
Date Sent: 8/13/96

August 2, 1996

REPORT OF ANALYSES

Client: **Los Alamos National Labs**
SMO
Attn: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Volatile Organics by Method 8260 (1994 SW-846)

TABLE OF CONTENTS:

Section 1: Sample Numbers, Dates of Receipt, Collection and Analysis
Section 2: Case Narrative
Section 3: Chain of Custody
Section 4: Form I's/Sample Raw Data (07/24/96)
Section 5: QC Summary (07/24/96)
Section 6: Form I's/Sample Raw Data (07/27/96)
Section 7: QC Summary (07/27/96)
Section 8: Standards Data

Appendix A: Instrument Logs
Appendix B: Nonconformance and Corrective Action reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Paragon	LANL	Date Received
96-07-147-01	0835-96-0023 06	07-22-96
96-07-147-02	0835-96-0024 06	07-22-96
96-07-147-03	0835-96-0025 06	07-22-96
96-07-147-04	0835-96-0026 06	07-22-96
96-07-147-05	0835-96-0027 06	07-22-96
96-07-147-06	0835-96-0028 06	07-22-96
96-07-147-07	0835-96-0029 06	07-22-96
96-07-147-08	0835-96-0030 06	07-22-96

Section 2: Case Narrative

2.1 Sample Logistics

Eight soil samples were analyzed for volatile organics by Method 8260 (1994 SW-846). Samples were received in one shipment on the date shown in Table 1. The samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Volatile Organics by Method 8260 (1994 SW-846)

The matrix spike and matrix spike duplicates were spiked with the full list of compounds. However, only the compounds on form 3 were reported as per SW-846 protocol.

2.3 These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the samples were prepared by purging a heated 5 grams of sample mixed with 5 mls of reagent water. The calibration curve was also prepared using the heated purge. This procedure, including the heating step, is based on Method 5030.

2.4 The samples were analyzed using GC/MS with a DB-624 capillary column according to protocols based on SW-846 Method 8260. As specified by the method, all positive results were quantitated with the average of quadratic response of the initial calibration standards using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

2.5 All samples were analyzed within the established holding times.

2.6 All method blanks had methylene chloride at levels less than the reporting limit.

2.7 All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

2.8 All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

2.9 All surrogate recoveries were within acceptance criteria

2.10 The matrix of samples 96-07-147-03, 04, and 08 caused purging problems in both the original analyses and the re-analyses. As a result there were internal standards that were outside the control limits. Both the original and re-analyses data have been included.

2.11 All initial and continuing calibration criteria were within acceptance criteria for positively identified compounds. A library search was performed to identify any compounds from the appendix IX list that are not on the standard 8260 list. No compounds were detected.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

for Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/22/96
Date

Request No. 2413
VOC's

Section 3: Chain of Custody

July 19, 1996

Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-147

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2413 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0023	03	Soil	07/18/96	
HERB	STD	0835-96-0023	04	Soil	07/18/96	-01
OPPEST	STD	0835-96-0023	04	Soil	07/18/96	
PEST	STD	0835-96-0023	04	Soil	07/18/96	
SEMI	STD	0835-96-0023	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0023	06	Soil	07/18/96	
PCB	STD	0835-96-0024	03	Soil	07/18/96	
HERB	STD	0835-96-0024	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0024	04	Soil	07/18/96	
PEST	STD	0835-96-0024	04	Soil	07/18/96	
SEMI	STD	0835-96-0024	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0024	06	Soil	07/18/96	
PCB	STD	0835-96-0025	03	Soil	07/17/96	
HERB	STD	0835-96-0025	04	Soil	07/17/96	03
OPPEST	STD	0835-96-0025	04	Soil	07/17/96	
PEST	STD	0835-96-0025	04	Soil	07/17/96	
SEMI	STD	0835-96-0025	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0025	06	Soil	07/17/96	
PCB	STD	0835-96-0026	03	Soil	07/17/96	04
HERB	STD	0835-96-0026	04	Soil	07/17/96	
OPPEST	STD	0835-96-0026	04	Soil	07/17/96	

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0026	04	Soil	07/17/96	(04)
SEMI	STD	0835-96-0026	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0026	06	Soil	07/17/96	
PCB	STD	0835-96-0027	03	Soil	07/18/96	05
HERB	STD	0835-96-0027	04	Soil	07/18/96	
OPPEST	STD	0835-96-0027	04	Soil	07/18/96	
PEST	STD	0835-96-0027	04	Soil	07/18/96	
SEMI	STD	0835-96-0027	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0027	06	Soil	07/18/96	
PCB	STD	0835-96-0028	03	Soil	07/18/96	06
HERB	STD	0835-96-0028	04	Soil	07/18/96	
OPPEST	STD	0835-96-0028	04	Soil	07/18/96	
PEST	STD	0835-96-0028	04	Soil	07/18/96	
SEMI	STD	0835-96-0028	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0028	06	Soil	07/18/96	
PCB	STD	0835-96-0029	03	Soil	07/18/96	07
HERB	STD	0835-96-0029	04	Soil	07/18/96	
OPPEST	STD	0835-96-0029	04	Soil	07/18/96	
PEST	STD	0835-96-0029	04	Soil	07/18/96	
SEMI	STD	0835-96-0029	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0029	06	Soil	07/18/96	
PCB	STD	0835-96-0030	03	Soil	07/17/96	08
HERB	STD	0835-96-0030	04	Soil	07/17/96	
OPPEST	STD	0835-96-0030	04	Soil	07/17/96	
PEST	STD	0835-96-0030	04	Soil	07/17/96	
SEMI	STD	0835-96-0030	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0030	06	Soil	07/17/96	

Section 4: Form I's/Sample Raw Data (07/24/96)

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	5	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	VBLK02 07-24-96	**Method Blank**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	100	81-117
4-Bromofluorobenzene	91	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM I VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK02 07-24-96		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b349.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0024 06	
Lab Sample ID:	96-07-147-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b361.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	15.55

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	18	24	J
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	24	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	24	U
108-88-3	Toluene	6	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-02	**0835-96-0024 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	24	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	105	80-120
Toluene-d8	96	81-117
4-Bromofluorobenzene	102	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0024 06	
Lab Sample ID:	96-07-147-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b361.d	Dilution Factor:	1
		Percent Moisture:	15.55

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0024 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-02		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b361.d	Dilution Factor:	1
		Percent Moisture:	15.55

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0025 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b362.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	13.59

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	20	23	J
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	6	6	
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics. Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-03	0835-96-0025 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	107	80-120
Toluene-d8	92	81-117
4-Bromofluorobenzene	113	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0025 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b362.d	Dilution Factor:	1
		Percent Moisture:	13.59

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0025 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-03		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b362.d	Dilution Factor:	1
		Percent Moisture:	13.59

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

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VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0026 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b364.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	12.19

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	3	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-04	0835-96-0026 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	104	80-120
Toluene-d8	94	81-117
4-Bromofluorobenzene	113	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0026 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b364.d	Dilution Factor:	1
		Percent Moisture:	12.19

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0026 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-04		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-24-96
Lab File ID:	b364.d	Dilution Factor:	1
		Percent Moisture:	12.19

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0027 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b365.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	7.2

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	22	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	8	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	22	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	22	U
108-88-3	Toluene	6	5	
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Lab Sample ID: 96-07-147-05

Sample ID
0835-96-0027 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	22	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	104	80-120
Toluene-d8	92	81-117
4-Bromofluorobenzene	111	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0027 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b365.d	Dilution Factor:	1
		Percent Moisture:	7.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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1E

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0027 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-05		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b365.d	Dilution Factor:	1
		Percent Moisture:	7.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0028 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-06		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b366.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	13.7

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	12	U
74-87-3	Chloromethane	ND	12	U
75-01-4	Vinyl chloride	ND	12	U
74-83-9	Bromomethane	ND	12	U
75-00-3	Chloroethane	ND	12	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	5	6	J
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-06	0835-96-0028 06

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	12	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	107	80-120
Toluene-d8	91	81-117
4-Bromofluorobenzene	113	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0028 06	
Lab Sample ID:	96-07-147-06		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b366.d	Dilution Factor:	1
		Percent Moisture:	13.7

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0028 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-06		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-25-96
Lab File ID:	b366.d	Dilution Factor:	1
		Percent Moisture:	13.7

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

Section 5: QC Summary (07/24/96 first analytical clock)

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	100	91	98		0
02	BS	100	94	101		0
03	BSD	100	92	104		0
04	0835-96-0024 06	96	102	105		0
05	0835-96-0025 06	92	113	107		0
06	0835-96-0026 06	94	113	104		0
07	0835-96-0027 06	92	111	104		0
08	0835-96-0028 06	91	113	107		0
09						
10						
11						
12						
13						
14						
15						
16						
17						
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19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A
SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS3, BS4

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS3 Concentration (µg/kg)	BS3 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	51.6	103	59-172
Trichloroethene	50.0	< 5	48.5	97	62-137
Benzene	50.0	< 5	52.8	106	66-142
Toluene	50.0	< 5	52.1	104	59-139
Chlorobenzene	50.0	< 5	51.8	104	60-133

Compound	Spike Added (µg/kg)	BS4 Concentration (µg/kg)	BS4 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	51.4	103	0	22	59-172
Trichloroethene	50.0	47.1	94	3	24	62-137
Benzene	50.0	51.0	102	3	21	66-142
Toluene	50.0	50.9	102	2	21	59-139
Chlorobenzene	50.0	50.2	100	3	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Lab File ID: b349.d
Date Analyzed: 07-24-96

Lab Sample ID: VBLK02 07-24-96
Time Analyzed: 15:30

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS3 07-24-96	b350.d	16:03
02	BSD	BS4 07-24-96	b351.d	16:36
03	0835-96-0024 06	96-07-147-02	b361.d	22:10
04	0835-96-0025 06	96-07-147-03	b362.d	22:44
05	0835-96-0026 06	96-07-147-04	b364.d	23:38
06	0835-96-0027 06	96-07-147-05	b365.d	00:11
07	0835-96-0028 06	96-07-147-06	b366.d	00:44
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

FORM IV VOA

1/87 Rev

5A

VOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - BROMOFLUOROBENZENE (BFB)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Lab File ID: b348.d
Instrument ID: HP-VM 2

BFB Injection Date: 07-24-96
BFB Injection Time: 14:57

Matrix: Soil Level: Low Column: Cap

m/e	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0 % of mass 95	34.4
75	30.0 - 60.0 % of mass 95	59.1
95	Base peak, 100 % relative abundance	100.0
96	5.0 - 9.0 % of mass 95	6.0
173	Less than 2.0 % of mass 174	0.0
174	Greater than 50.0 % of mass 95	61.8
175	5.0 - 9.0 % of mass 174	8.2
176	Greater than 95.0 %, < 101.0 % of mass 174	99.0
177	5.0 - 9.0 % of mass 176	6.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	50 ppb VOA Standard	VSTD050 07-24-96 (2)	b348.d	07-24-96	14 57
02	Method Blank	VBLK02 07-24-96	b349.d	07-24-96	15 30
03	BS	BS3 07-24-96	b350.d	07-24-96	16 03
04	BSD	BS4 07-24-96	b351.d	07-24-96	16 36
05	0835-96-0024 06	96-07-147-02	b361.d	07-24-96	22 10
06	0835-96-0025 06	96-07-147-03	b362.d	07-24-96	22 44
07	0835-96-0026 06	96-07-147-04	b364.d	07-24-96	23 38
08	0835-96-0027 06	96-07-147-05	b365.d	07-25-96	00 11
09	0835-96-0028 06	96-07-147-06	b366.d	07-25-96	00 44
10					
11					
12					
13					
14					
15					

PARAGON ANALYTICS, INC.

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Instrument ID: HP-VM 2 Lab File ID (Standard): b348.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	366019	13.13	597886	14.74	469004	19.71	214430	23.01
	UPPER LIMIT	732038	13.63	1195772	15.24	938008	20.21	428860	23.51
	LOWER LIMIT	183010	12.63	298943	14.24	234502	19.21	107215	22.51
	SAMPLE ID								
01	Method Blank	341817	13.12	554704	14.74	436727	19.71	209686	23.01
02	BS	339203	13.13	548422	14.74	431036	19.72	196798	23.01
03	BSD	329397	13.13	541319	14.74	434676	19.71	209089	23.01
04	0835-96-0024 06	314647	13.12	517073	14.74	378773	19.71	156003	23.01
05	0835-96-0025 06	223244	13.13	359560	14.74	232881*	19.71	79455*	23.01
06	0835-96-0026 06	259257	13.12	408213	14.74	275370	19.71	91722*	23.01
07	0835-96-0027 06	276092	13.12	459099	14.74	317139	19.71	112439	23.01
08	0835-96-0028 06	278239	13.13	[illegible]504	14.74	311015	19.71	109086	23.01
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

Section 6: Form I's/Sample Raw Data (07/27/96)

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
Results based on wet weight		Percent Moisture:	0

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	10	U
74-87-3	Chloromethane	ND	10	U
75-01-4	Vinyl chloride	ND	10	U
74-83-9	Bromomethane	ND	10	U
75-00-3	Chloroethane	ND	10	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	20	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	4	5	J
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	20	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	20	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Lab Sample ID: VBLK

Sample ID
Method Blank

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	20	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	10	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	98	80-120
Toluene-d8	101	81-117
4-Bromofluorobenzene	100	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	**Method Blank**	
Client Project ID:	2413		
Lab Sample ID:	VBLK		
Sample Matrix:	Soil	Date Collected:	n/a
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b389.d	Dilution Factor:	1
		Percent Moisture:	0

# of TICS Found **0**	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0023 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-01		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b393.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	12.84

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	10	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-01	**0835-96-0023 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	105	80-120
Toluene-d8	98	81-117
4-Bromofluorobenzene	116	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413		0835-96-0023 06
Lab Sample ID:	96-07-147-01		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b393.d	Dilution Factor:	1
		Percent Moisture:	12.84

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

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VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0023 06	
Lab Sample ID:	96-07-147-01		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b393.d	Dilution Factor:	1
		Percent Moisture:	12.84

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0029 06	
Lab Sample ID:	96-07-147-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b396.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	6.58

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	5	U
75-35-4	1,1-Dichloroethene	ND	5	U
76-13-1	Trichlorotrifluoroethane	ND	5	U
67-64-1	Acetone	ND	21	U
74-88-4	Iodomethane	ND	5	U
75-15-0	Carbon Disulfide	ND	5	U
75-09-2	Methylene chloride	7	5	
156-60-5	trans-1,2-Dichloroethene	ND	5	U
75-34-3	1,1-Dichloroethane	ND	5	U
156-59-2	cis-1,2-Dichloroethene	ND	5	U
78-93-3	2-Butanone	ND	21	U
74-97-5	Bromochloromethane	ND	5	U
67-66-3	Chloroform	ND	5	U
71-55-6	1,1,1-Trichloroethane	ND	5	U
594-20-7	2,2-Dichloropropane	ND	5	U
56-23-5	Carbon tetrachloride	ND	5	U
563-58-6	1,1-Dichloropropene	ND	5	U
107-06-2	1,2-Dichloroethane	ND	5	U
71-43-2	Benzene	ND	5	U
79-01-6	Trichloroethene	ND	5	U
78-87-5	1,2-Dichloropropane	ND	5	U
74-95-3	Dibromomethane	ND	5	U
75-27-4	Bromodichloromethane	ND	5	U
10061-01-5	cis-1,3-Dichloropropene	ND	5	U
108-10-1	4-Methyl-2-Pentanone	ND	21	U
108-88-3	Toluene	ND	5	U
10061-02-6	trans-1,3-Dichloropropene	ND	5	U
79-00-5	1,1,2-Trichloroethane	ND	5	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-07	**0835-96-0029 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	21	U
127-18-4	Tetrachloroethene	ND	5	U
142-28-9	1,3-Dichloropropane	ND	5	U
124-48-1	Dibromochloromethane	ND	5	U
106-93-4	1,2-Dibromoethane	ND	5	U
108-90-7	Chlorobenzene	ND	5	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	U
100-41-4	Ethylbenzene	ND	5	U
108-3-3, 106-42-3	m,p-Xylene	ND	5	U
95-47-6	o-Xylene	ND	5	U
100-42-5	Styrene	ND	5	U
75-25-2	Bromoform	ND	5	U
98-82-8	Isopropylbenzene	ND	5	U
96-18-4	1,2,3-Trichloropropane	ND	5	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	U
108-86-1	Bromobenzene	ND	5	U
103-65-1	n-Propylbenzene	ND	5	U
95-49-8	2-Chlorotoluene	ND	5	U
108-67-8	1,3,5-Trimethylbenzene	ND	5	U
106-43-4	4-Chlorotoluene	ND	5	U
98-08-6	tert-Butylbenzene	ND	5	U
95-63-6	1,2,4-Trimethylbenzene	ND	5	U
135-98-8	sec-Butylbenzene	ND	5	U
541-73-1	1,3-Dichlorobenzene	ND	5	U
99-87-6	p-Isopropyltoluene	ND	5	U
106-46-7	1,4-Dichlorobenzene	ND	5	U
104-51-8	n-Butylbenzene	ND	5	U
95-50-1	1,2-Dichlorobenzene	ND	5	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	5	U
87-68-3	Hexachlorobutadiene	ND	5	U
91-20-3	Naphthalene	ND	5	U
87-61-6	1,2,3-Trichlorobenzene	ND	5	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	101	80-120
Toluene-d8	97	81-117
4-Bromofluorobenzene	115	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0029 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b396.d	Dilution Factor:	1
		Percent Moisture:	6.58

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM 1 VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0029 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-07		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b396.d	Dilution Factor:	1
		Percent Moisture:	6.58

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM I VOA-TIC REV 1/87

VOLATILE ORGANICS

Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0030 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b400.d	Dilution Factor:	1
Results based on dry weight		Percent Moisture:	11.2

CAS Number	Analyte	Conc. (µg/kg)	Detection Limit (µg/kg)	Qualifier
75-71-8	Dichlorodifluoromethane	ND	11	U
74-87-3	Chloromethane	ND	11	U
75-01-4	Vinyl chloride	ND	11	U
74-83-9	Bromomethane	ND	11	U
75-00-3	Chloroethane	ND	11	U
75-69-4	Trichlorofluoromethane	ND	6	U
75-35-4	1,1-Dichloroethene	ND	6	U
76-13-1	Trichlorotrifluoroethane	ND	6	U
67-64-1	Acetone	ND	23	U
74-88-4	Iodomethane	ND	6	U
75-15-0	Carbon Disulfide	ND	6	U
75-09-2	Methylene chloride	7	6	
156-60-5	trans-1,2-Dichloroethene	ND	6	U
75-34-3	1,1-Dichloroethane	ND	6	U
156-59-2	cis-1,2-Dichloroethene	ND	6	U
78-93-3	2-Butanone	ND	23	U
74-97-5	Bromochloromethane	ND	6	U
67-66-3	Chloroform	ND	6	U
71-55-6	1,1,1-Trichloroethane	ND	6	U
594-20-7	2,2-Dichloropropane	ND	6	U
56-23-5	Carbon tetrachloride	ND	6	U
563-58-6	1,1-Dichloropropene	ND	6	U
107-06-2	1,2-Dichloroethane	ND	6	U
71-43-2	Benzene	ND	6	U
79-01-6	Trichloroethene	ND	6	U
78-87-5	1,2-Dichloropropane	ND	6	U
74-95-3	Dibromomethane	ND	6	U
75-27-4	Bromodichloromethane	ND	6	U
10061-01-5	cis-1,3-Dichloropropene	ND	6	U
108-10-1	4-Methyl-2-Pentanone	ND	23	U
108-88-3	Toluene	ND	6	U
10061-02-6	trans-1,3-Dichloropropene	ND	6	U
79-00-5	1,1,2-Trichloroethane	ND	6	U

VOLATILE ORGANICS
Method 8260

		Sample ID
Lab Name:	Paragon Analytics, Inc.	
Client Name:	LANL-SMO	
Lab Sample ID:	96-07-147-08	**0835-96-0030 06**

CAS Number	Analyte	Conc. (µg/kg)	Limit (µg/kg)	Qualifier
591-78-6	2-Hexanone	ND	23	U
127-18-4	Tetrachloroethene	ND	6	U
142-28-9	1,3-Dichloropropane	ND	6	U
124-48-1	Dibromochloromethane	ND	6	U
106-93-4	1,2-Dibromoethane	ND	6	U
108-90-7	Chlorobenzene	ND	6	U
630-20-6	1,1,1,2-Tetrachloroethane	ND	6	U
100-41-4	Ethylbenzene	ND	6	U
108-3-3, 106-42-3	m,p-Xylene	ND	6	U
95-47-6	o-Xylene	ND	6	U
100-42-5	Styrene	ND	6	U
75-25-2	Bromoform	ND	6	U
98-82-8	Isopropylbenzene	ND	6	U
96-18-4	1,2,3-Trichloropropane	ND	6	U
79-34-5	1,1,2,2-Tetrachloroethane	ND	6	U
108-86-1	Bromobenzene	ND	6	U
103-65-1	n-Propylbenzene	ND	6	U
95-49-8	2-Chlorotoluene	ND	6	U
108-67-8	1,3,5-Trimethylbenzene	ND	6	U
106-43-4	4-Chlorotoluene	ND	6	U
98-08-6	tert-Butylbenzene	ND	6	U
95-63-6	1,2,4-Trimethylbenzene	ND	6	U
135-98-8	sec-Butylbenzene	ND	6	U
541-73-1	1,3-Dichlorobenzene	ND	6	U
99-87-6	p-Isopropyltoluene	ND	6	U
106-46-7	1,4-Dichlorobenzene	ND	6	U
104-51-8	n-Butylbenzene	ND	6	U
95-50-1	1,2-Dichlorobenzene	ND	6	U
96-12-8	1,2-Dibromo-3-chloropropane	ND	11	U
120-82-1	1,2,4-Trichlorobenzene	ND	6	U
87-68-3	Hexachlorobutadiene	ND	6	U
91-20-3	Naphthalene	ND	6	U
87-61-6	1,2,3-Trichlorobenzene	ND	6	U

SURROGATE RECOVERIES

Analyte	% Recovery	QC Limits
Dibromofluoromethane	105	80-120
Toluene-d8	96	81-117
4-Bromofluorobenzene	120	74-121

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	:nple ID	
Client Name:	LANL-SMO		
Client Project ID:	2413	0835-96-0030 06	
Lab Sample ID:	96-07-147-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b400.d	Dilution Factor:	1
		Percent Moisture:	11.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Acetonitrile (methyl cyanide)			NF
2	Acrolein			NF
3	Acrylonitrile			NF
4	Allyl alcohol			NF
5	Allyl chloride			NF
6	Benzyl Chloride			NF
7	Bromoacetone			NF
8	n-Butanol			NF
9	Chloral Hydrate			NF
10	2-Chloro-1,3-butadiene			NF
11	2-Chloroethanol			NF
12	bis-(2-chloroethyl) sulfide			NF
13	2-Chloroethyl vinyl ether			NF
14	Chloroprene			NF
15	3-Chloroprene			NF
16	cis-1,4-Dichloro-2-butene			NF
17	trans-1,4-Dichloro-2-butene			NF
18	1,3-Dichloro-2-propanol			NF
19	1,2,3,4-Diepoxybutane			NF
20	Diethyl Ether			NF

FORM I VOA-TIC REV 1/87

1E
VOLATILE ORGANICS
Method 8260

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL-SMO	0835-96-0030 06	
Client Project ID:	2413		
Lab Sample ID:	96-07-147-08		
Sample Matrix:	Soil	Date Collected:	07-18-96
Sample Weight(g):	5	Date Analyzed:	07-27-96
Lab File ID:	b400.d	Dilution Factor:	1
		Percent Moisture:	11.2

# of TICS Found 0	Compound Name	RT	Est. Conc. (µg/kg)	Q
1	Ethylene Oxide			NF
2	Ethyl methacrylate			NF
3	Hexachlorobutadiene			NF
4	Isopropyl benzene			NF
5	Malononitrile			NF
6	Methacrylonitrile			NF
7	Methyl methacrylate			NF
8	2-Nitropropane			NF
9	Pentachloroethane			NF
10	Propargyl Alcohol			NF
11	beta-Proloactone			NF
12	Propionitrile			NF
13	n-Propylamine			NF
14	1,2,4-Trichlorobenzene			NF
15	Isobutyl alcohol			NF
16	Vinyl acetate			NF
17				
18				
19				
20				

FORM 1 VOA-TIC REV 1/87

Section 7: QC Summary (07/27/96)

2A

SOIL VOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

	Client Sample ID	(TOL)#	(BFB)#	(DFM)#	OTHER	TOT OUT
01	Method Blank	101	100	98		0
02	BS	100	102	101		0
03	BSD	102	102	104		0
04	0835-96-0023 06	98	116	105		0
05	0835-96-0029 06	97	115	101		0
06	0835-96-0029 06MS	98	127	103		0
07	0835-96-0029 06MSD	97	126	104		0
08	0835-96-0030 06	96	120	105		0
09						
10						
11						
12						
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25						
26						
27						
28						
29						
30						

	QC Limits
S1 (TOL) = Toluene-d8	(81-117)
S2 (BFB) = 4-Bromofluorobenzene	(74-121)
S3 (DFM) = Dibromofluoromethane	(80-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits

3A

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Dilution Factor: 1
% Moisture: 6.58

Client Sample No.: 0835-96-0029

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % REC	QC Limit REC
1,1-Dichloroethene	53.5	< 5	55.3	103	59-172
Trichloroethene	53.5	< 5	53.9	101	62-137
Benzene	53.5	< 5	54.5	102	66-142
Toluene	53.5	< 5	54.1	101	59-139
Chlorobenzene	53.5	< 5	56.2	105	60-133

Compound	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	53.5	53.6	100	3	22	59-172
Trichloroethene	53.5	52.2	98	3	24	62-137
Benzene	53.5	52.1	97	5	21	66-142
Toluene	53.5	51.0	95	6	21	59-139
Chlorobenzene	53.5	55.3	103	2	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

3A

SOIL VOLATILE BLANK SPIKE/BLANK SPIKE DULICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Dilution Factor: 1
% Moisture: 0

Client Sample No.: BS1, BS2

Compound	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS1 Concentration (µg/kg)	BS1 % REC	QC Limit REC
1,1-Dichloroethene	50.0	< 5	43.1	86	59-172
Trichloroethene	50.0	< 5	44.3	89	62-137
Benzene	50.0	< 5	43.9	88	66-142
Toluene	50.0	< 5	42.8	86	59-139
Chlorobenzene	50.0	< 5	42.9	86	60-133

Compound	Spike Added (µg/kg)	BS2 Concentration (µg/kg)	BS2 % REC	RPD	QC Limit RPD	QC Limit REC
1,1-Dichloroethene	50.0	42.4	85	2	22	59-172
Trichloroethene	50.0	45.5	91	3	24	62-137
Benzene	50.0	44.7	89	2	21	66-142
Toluene	50.0	44.2	88	3	21	59-139
Chlorobenzene	50.0	43.4	87	1	21	60-133

* = Values outside of QC limits.

RPD: 0 out of 5 outside limits.
Spike Recovery: 0 out of 10 outside QC limits.

Comments

4A

VOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Lab File ID: b389.d
Date Analyzed: 07-27-96

Lab Sample ID: VBLK
Time Analyzed: 15:47

Matrix : Soil

Level(Low/Med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Time Analyzed
01	BS	BS1-072796-S	b390.d	16:20
02	BSD	BS2-072796-S	b391.d	16:53
03	0835-96-0023 06	96-07-147-01	b394.d	18:00
04	0835-96-0025 06	96-07-147-03R	b396.d	18:34
05	0835-96-0026 06	96-07-147-04R	b395.d	19:07
06	0835-96-0029 06	96-07-147-07	b396.d	19:41
07	0835-96-0029 06MS	96-07-147-07MS	b398.d	20:40
08	0835-96-0029 06MSD	96-07-147-07MSD	b399.d	21:13
09	0835-96-0030 06	96-07-147-08	b400.d	21:47
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Comments:

8A

VOLATILE INTERNAL STANDARD AREA SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL-SMO
Client Project ID: 2413

Instrument ID: HP-VM 2 Lab File ID (Standard): b388.d

		IS1 (PFP) AREA #	RT	IS2 (DFB) AREA #	RT	IS3 (CBZ) AREA #	RT	IS4 (DCB) AREA #	RT
	12 HOUR STD	352017	13.14	555345	14.75	425457	19.72	189450	23.02
	UPPER LIMIT	704034	13.64	1110690	15.25	850914	20.22	378900	23.52
	LOWER LIMIT	176009	12.64	277673	14.25	212729	19.22	94725	22.52
	SAMPLE ID								
01	Method Blank	356435	13.14	556748	14.75	437351	19.72	204754	[illegible]
02	BS	335235	13.13	530610	14.75	418414	19.72	185281	23.01
03	BSD	331982	13.14	531502	14.75	430050	19.72	191103	23.02
04	0835-96-0023 06	277378	13.14	437721	14.75	312102	19.72	117142	23.02
05	0835-96-0029 06	259769	13.14	410759	14.75	294359	19.72	111415	23.02
06	0835-96-0029 06MS	252160	13.13	405396	14.75	283692	19.72	89646*	23.01
07	0835-96-0029 06MSD	256266	13.14	410337	14.75	275542	19.72	88388*	23.01
08	0835-96-0030 06	248861	13.13	387437	14.75	266041	19.72	90004*	23.01
09									
10									
11									
12									
13									
14									
15									

IS1 (PFP) = Pentafluorobenzene
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5
IS4 (DCB) = 1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100 % of internal standard area
LOWER LIMIT = - 50 % of internal standard area
* = Outside QC limits.
# Column used to flag internal standard area values with an asterisk.

REPORT OF ANALYSES

DETERMINATION OF SEMIVOLATILES BY MODIFIED METHOD 8270

Prepared for:

Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

Request Number: 2407

July 31, 1996

REPORT OF ANALYSES

Client: Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Semivolatiles by EPA Method 8270

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Section 1: Sample Numbers and Dates of Receipt
Section 2: Case Narrative and Chain of Custody
Section 3: Analytical Results
Section 4: Supporting QA/QC Data
Section 5: Supporting Raw Data

Appendix A: Run Logs and Benchsheets

Table 1 : Sample Numbers and Dates of Receipt
Form 1 : Semivolatile Organics Analysis Data Sheet
Form 2 : Surrogate Recovery Results
Form 3 : MS/MSD Results
Form 4 : Method Blank Summary
Form 5 : DFTPP Tune Report
Form 6 : Initial Calibration Report
Form 7 : Continuing Calibration Report
Form 8 : Internal Standard Area Summary

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications		
Paragon	LANL	Date Received
96-07-113-01	0835-96-0001	07-16-96
96-07-113-02	0835-96-0002	07-16-96
96-07-113-03	0835-96-0003	07-16-96
96-07-113-04	0835-96-0004	07-16-96
96-07-113-05	0835-96-0005	07-16-96
96-07-113-06	0835-96-0006	07-16-96
96-07-113-07	0835-96-0007	07-16-96
96-07-113-08	0835-96-0008	07-16-96
96-07-113-09	0835-96-0009	07-16-96
96-07-113-10	0835-96-0010	07-16-96
96-07-113-11	0835-96-0011	07-16-96
96-07-113-12	0835-96-0012	07-16-96
96-07-113-13	0835-96-0013	07-16-96
96-07-113-14	0835-96-0014	07-16-96

Section 2: Case Narrative

2.1 Sample Logistics

Fourteen soil samples were received in one shipment on the date shown in Table 1. All samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Semivolatile Organics

The samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. Then all samples except for 09 were put through additional cleanup by Method 3650.

The samples were analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270B. As specified by the method, all positive results were quantitated with the response of the calibration curve using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

The samples were extracted within their required holding times.

The method blank had bis(2-ethylhexyl)phthalate compound at levels below 5 times the reporting limit. This compound was detected in all samples except for the GPC Reagent Blanks, 0835-96-0001 and 0835-96-0001DL10, so the data were flagged.

The matrix spike and matrix spike duplicate recoveries and RPD's met all QC criteria.

All surrogate recoveries were within acceptable limits with the following exceptions;

Sample	Surrogate
0835-96-0008DL10	all surrogates diluted out

All internal standard recoveries were within acceptance criteria except for sample 0835-96-0008. The neat analysis of this sample had one internal standard out of limits so a 1:10 analysis was also performed which had all internal standards within limits (The surrogates were diluted out). The detection limits have been adjusted accordingly for the diluted sample.

All initial and continuing calibration criteria were within acceptance criteria. Method 8270B does state that any compound exceeding 15% RSD is to be quantitated with a higher order curve. 4-methylphenol, hexachlorocyclopentadiene, 3-nitroaniline, 4-nitroaniline, pentachlorophenol, and carboazole were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

4-nitroaniline and carbazole exceeded the Lanl criteria (less than 30% RSD) in the initial curve on 07-28-96. There were no hits for these compounds so no further action was taken.

4-nitroaniline and carbazole exceeded the Lanl criteria (less than 30% RSD) in the daily standard 72396D01.D, 72696D01.D. There were no hits for these compounds so no further action was taken. Hexachlorocyclopentadiene exceeded the Lanl criteria (less than 30% RSD) in the daily standard 072896D02.D but there were no hits for these compounds so no further action was taken.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

Page 0000
8/29/96
Requested
24h

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

96-07-113

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2407 per agreement number 7794L0014-9S

ORGANIC TO ATI, 30 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 30 Days

Screening:

Approx.Report Due Date: 15-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers 42

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0001	03	Soil	07/15/96	
HERB	STD	0835-96-0001	04	Soil	07/15/96	
PEST	STD	0835-96-0001	04	Soil	07/15/96	-01
SEMI	STD	0835-96-0001	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0001	06	Soil	07/15/96	
PCB	STD	0835-96-0002	03	Soil	07/15/96	
HERB	STD	0835-96-0002	04	Soil	07/15/96	
PEST	STD	0835-96-0002	04	Soil	07/15/96	-02
SEMI	STD	0835-96-0002	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0002	06	Soil	07/15/96	
PCB	STD	0835-96-0003	03	Soil	07/15/96	
HERB	STD	0835-96-0003	04	Soil	07/15/96	-03
PEST	STD	0835-96-0003	04	Soil	07/15/96	
SEMI	STD	0835-96-0003	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0003	06	Soil	07/15/96	
PCB	STD	0835-96-0004	03	Soil	07/15/96	
HERB	STD	0835-96-0004	04	Soil	07/15/96	-04
PEST	STD	0835-96-0004	04	Soil	07/15/96	
SEMI	STD	0835-96-0004	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0004	06	Soil	07/15/96	
PCB	STD	0835-96-0005	03	Soil	07/15/96	-05

Request # 2407 SLC

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
HERB	STD	0835-96-0005	04	Soil	07/15/96	
PEST	STD	0835-96-0005	04	Soil	07/15/96	-05 cmt
SEMI	STD	0835-96-0005	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0005	06	Soil	07/15/96	
PCB	STD	0835-96-0006	03	Soil	07/15/96	
HERB	STD	0835-96-0006	04	Soil	07/15/96	
PEST	STD	0835-96-0006	04	Soil	07/15/96	-06
SEMI	STD	0835-96-0006	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0006	06	Soil	07/15/96	* Jar cracked.
PCB	STD	0835-96-0007	03	Soil	07/15/96	
HERB	STD	0835-96-0007	04	Soil	07/15/96	
PEST	STD	0835-96-0007	04	Soil	07/15/96	-07
SEMI	STD	0835-96-0007	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0007	06	Soil	07/15/96	
PCB	STD	0835-96-0008	03	Soil	07/15/96	
HERB	STD	0835-96-0008	04	Soil	07/15/96	
PEST	STD	0835-96-0008	04	Soil	07/15/96	-08
SEMI	STD	0835-96-0008	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0008	06	Soil	07/15/96	
PCB	STD	0835-96-0009	03	Soil	07/15/96	
HERB	STD	0835-96-0009	04	Soil	07/15/96	
PEST	STD	0835-96-0009	04	Soil	07/15/96	-09
SEMI	STD	0835-96-0009	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0009	06	Soil	07/15/96	
PCB	STD	0835-96-0010	03	Soil	07/15/96	
HERB	STD	0835-96-0010	04	Soil	07/15/96	
PEST	STD	0835-96-0010	04	Soil	07/15/96	
SEMI	STD	0835-96-0010	04	Soil	07/15/96	-10
VOAGCMS	STD	0835-96-0010	06	Soil	07/15/96	
PCB	STD	0835-96-0011	03	Soil	07/15/96	
HERB	STD	0835-96-0011	04	Soil	07/15/96	
PEST	STD	0835-96-0011	04	Soil	07/15/96	
SEMI	STD	0835-96-0011	04	Soil	07/15/96	-11
VOAGCMS	STD	0835-96-0011	06	Soil	07/15/96	
PCB	STD	0835-96-0012	03	Soil	07/15/96	
HERB	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
PEST	STD	0835-96-0012	04	Soil	07/15/96	

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SEMI	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
VOAGCMS	STD	0835-96-0012	06	Soil	07/15/96	
PCB	STD	0835-96-0013	03	Soil	07/15/96	
HERB	STD	0835-96-0013	04	Soil	07/15/96	
PEST	STD	0835-96-0013	04	Soil	07/15/96	-13
SEMI	STD	0835-96-0013	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0013	06	Soil	07/15/96	
PCB	STD	0835-96-0014	03	Soil	07/15/96	
HERB	STD	0835-96-0014	04	Soil	07/15/96	
PEST	STD	0835-96-0014	04	Soil	07/15/96	-14
SEMI	STD	0835-96-0014	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0014	06	Soil	07/15/96	

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL -SMO SHIPPING CONTAINER #: –

WORKORDER NO. 9607-113 INITIALS: TB DATE: 7/16/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many 4	N/A	(Yes)	No
3.	Are custody seals on sample containers intact?	(N/A)	(Yes)	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?	TB 7/16/96	(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples preserved correctly?	N/A	(Yes)	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample received on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	(No)
12.	Are samples requiring no headspace, headspace free?	N/A	(Yes)	No
13.	Do the samples require quarantine?		Yes	(No)
14.	Do samples require ATI disposal?		(Yes)	No
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14):

#11 – –06 bottle for voa was cracked.

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 6°C

Section 3: Analytical Results

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	**Reagent Blank**	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-20-96
Level (Low/Med):	Low	Lab File ID:	72396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	N	Date Analyzed:	07-23-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	330	U
62-75-9	n-Nitrosodimethylamine	330	U
62-53-3	Aniline	330	U
108-95-2	Phenol	330	U
111-44-4	Bis(2-chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	1300	U
108-60-1	Bis(2-chloroisopropyl)ether	330	U
95-48-7	2-Methylphenol	330	U
621-64-7	n-Nitroso-di-n-propylamine	330	U
106-44-5	4-Methylphenol	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	Bis(2-chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
65-85-0	Benzoic Acid	3300	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	1300	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	660	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	**Reagent Blank**	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-20-96
Level (Low/Med):	Low	Lab File ID:	72396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	N	Date Analyzed:	07-23-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl phenyl ether	330	U
100-01-6	4-Nitroaniline	600	U
103-33-3	Azobenzene	330	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	n-Nitrosodiphenylamine(1)	330	U
101-55-3	4-Bromophenyl phenyl ether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
56-55-3	Benzo[a]anthracene	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
218-01-9	Chrysene	330	U
117-81-7	Bis(2-ethylhexyl)phthalate	120	J
117-84-0	Di-n-octylphthalate	330	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	330	U
50-32-8	Benzo[a]pyrene	330	U
193-39-5	Indeno(1,2,3-c,d)pyrene	330	U
53-70-3	Dibenzo[a,h]anthracene	330	U
191-24-2	Benzo[g,h,i]perylene	330	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	69	25 - 121
2-Chlorophenol-d4	72	20 - 130
Phenol-d5	63	24 - 113
1,2-Dichlorobenzene-d4	85	20 - 130
Nitrobenzene-d5	89	23 - 120
2-Fluorobiphenyl	85	30 - 115
2,4,6-Tribromophenol	86	19 - 122
p-Terphenyl-d14	112	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: SRB1 07-20-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-23-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: SRB1 07-20-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-23-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	GPC Reagent Blank	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-27-96
Level (Low/Med):	Low	Lab File ID:	72896S75.D
% Moisture:	0	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	670	U
62-75-9	n-Nitrosodimethylamine	670	U
62-53-3	Aniline	670	U
108-95-2	Phenol	670	U
111-44-4	Bis(2-chloroethyl)ether	670	U
95-57-8	2-Chlorophenol	670	U
541-73-1	1,3-Dichlorobenzene	670	U
106-46-7	1,4-Dichlorobenzene	670	U
95-50-1	1,2-Dichlorobenzene	670	U
100-51-6	Benzyl Alcohol	2700	U
108-60-1	Bis(2-chloroisopropyl)ether	670	U
95-48-7	2-Methylphenol	670	U
621-64-7	n-Nitroso-di-n-propylamine	670	U
106-44-5	4-Methylphenol	670	U
67-72-1	Hexachloroethane	670	U
98-95-3	Nitrobenzene	670	U
78-59-1	Isophorone	670	U
88-75-5	2-Nitrophenol	670	U
105-67-9	2,4-Dimethylphenol	670	U
111-91-1	Bis(2-chloroethoxy)methane	670	U
120-83-2	2,4-Dichlorophenol	670	U
65-85-0	Benzoic Acid	6700	U
120-82-1	1,2,4-Trichlorobenzene	670	U
91-20-3	Naphthalene	670	U
106-47-8	4-Chloroaniline	2700	U
87-68-3	Hexachlorobutadiene	670	U
59-50-7	4-Chloro-3-methylphenol	1300	U
91-57-6	2-Methylnaphthalene	670	U
77-47-4	Hexachlorocyclopentadiene	670	U
88-06-2	2,4,6-Trichlorophenol	670	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	670	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	670	U
606-20-2	2,6-Dinitrotoluene	670	U
208-96-8	Acenaphthylene	670	U
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	670	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	670	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	GPC Reagent Blank	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-27-96
Level (Low/Med):	Low	Lab File ID:	72896S75.D
% Moisture:	0	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	670	U
84-66-2	Diethylphthalate	670	U
86-73-7	Fluorene	670	U
7005-72-3	4-Chlorophenyl phenyl ether	670	U
100-01-6	4-Nitroaniline	1200	U
103-33-3	Azobenzene	670	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	n-Nitrosodiphenylamine(1)	670	U
101-55-3	4-Bromophenyl phenyl ether	670	U
118-74-1	Hexachlorobenzene	670	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	670	U
120-12-7	Anthracene	670	U
86-74-8	Carbazole	670	U
84-74-2	Di-n-butylphthalate	670	U
206-44-0	Fluoranthene	670	U
129-00-0	Pyrene	670	U
85-68-7	Butylbenzylphthalate	670	U
56-55-3	Benzo[a]anthracene	670	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
218-01-9	Chrysene	670	U
117-81-7	Bis(2-ethylhexyl)phthalate	670	U
117-84-0	Di-n-octylphthalate	670	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	670	U
50-32-8	Benzo[a]pyrene	670	U
193-39-5	Indeno(1,2,3-c,d)pyrene	670	U
53-70-3	Dibenzo[a,h]anthracene	670	U
191-24-2	Benzo[g,h,i]perylene	670	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	N/A	25 - 121
2-Chlorophenol-d4	N/A	20 - 130
Phenol-d5	N/A	24 - 113
1,2-Dichlorobenzene-d4	N/A	20 - 130
Nitrobenzene-d5	N/A	23 - 120
2-Fluorobiphenyl	N/A	30 - 115
2,4,6-Tribromophenol	N/A	19 - 122
p-Terphenyl-d14	N/A	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: GPCRB 07-27-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
GPC Reagent Blank

Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: GPCRB 07-27-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
GPC Reagent Blank

Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	GPC Reagent Blank	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-25-96
Level (Low/Med):	Low	Lab File ID:	72696S05.D
% Moisture:	0	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	670	U
62-75-9	n-Nitrosodimethylamine	670	U
62-53-3	Aniline	670	U
108-95-2	Phenol	670	U
111-44-4	Bis(2-chloroethyl)ether	670	U
95-57-8	2-Chlorophenol	670	U
541-73-1	1,3-Dichlorobenzene	670	U
106-46-7	1,4-Dichlorobenzene	670	U
95-50-1	1,2-Dichlorobenzene	670	U
100-51-6	Benzyl Alcohol	2700	U
108-60-1	Bis(2-chloroisopropyl)ether	670	U
95-48-7	2-Methylphenol	670	U
621-64-7	n-Nitroso-di-n-propylamine	670	U
106-44-5	4-Methylphenol	670	U
67-72-1	Hexachloroethane	670	U
98-95-3	Nitrobenzene	670	U
78-59-1	Isophorone	670	U
88-75-5	2-Nitrophenol	670	U
105-67-9	2,4-Dimethylphenol	670	U
111-91-1	Bis(2-chloroethoxy)methane	670	U
120-83-2	2,4-Dichlorophenol	670	U
65-85-0	Benzoic Acid	6700	U
120-82-1	1,2,4-Trichlorobenzene	670	U
91-20-3	Naphthalene	670	U
106-47-8	4-Chloroaniline	2700	U
87-68-3	Hexachlorobutadiene	670	U
59-50-7	4-Chloro-3-methylphenol	1300	U
91-57-6	2-Methylnaphthalene	670	U
77-47-4	Hexachlorocyclopentadiene	670	U
88-06-2	2,4,6-Trichlorophenol	670	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	670	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	670	U
606-20-2	2,6-Dinitrotoluene	670	U
208-96-8	Acenaphthylene	670	U
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	670	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	670	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	**GPC Reagent Blank**	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-25-96
Level (Low/Med):	Low	Lab File ID:	72696S05.D
% Moisture:	0	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	670	U
84-66-2	Diethylphthalate	670	U
86-73-7	Fluorene	670	U
7005-72-3	4-Chlorophenyl phenyl ether	670	U
100-01-6	4-Nitroaniline	1200	U
103-33-3	Azobenzene	670	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	n-Nitrosodiphenylamine(1)	670	U
101-55-3	4-Bromophenyl phenyl ether	670	U
118-74-1	Hexachlorobenzene	670	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	670	U
120-12-7	Anthracene	670	U
86-74-8	Carbazole	670	U
84-74-2	Di-n-butylphthalate	670	U
206-44-0	Fluoranthene	670	U
129-00-0	Pyrene	670	U
85-68-7	Butylbenzylphthalate	670	U
56-55-3	Benzo[a]anthracene	670	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
218-01-9	Chrysene	670	U
117-81-7	Bis(2-ethylhexyl)phthalate	670	U
117-84-0	Di-n-octylphthalate	670	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	670	U
50-32-8	Benzo[a]pyrene	670	U
193-39-5	Indeno(1,2,3-c,d)pyrene	670	U
53-70-3	Dibenzo[a,h]anthracene	670	U
191-24-2	Benzo[g,h,i]perylene	670	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	N/A	25 - 121
2-Chlorophenol-d4	N/A	20 - 130
Phenol-d5	N/A	24 - 113
1,2-Dichlorobenzene-d4	N/A	20 - 130
Nitrobenzene-d5	N/A	23 - 120
2-Fluorobiphenyl	N/A	30 - 115
2,4,6-Tribromophenol	N/A	19 - 122
p-Terphenyl-d14	N/A	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: GPCRB 07-25-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
GPC Reagent Blank
Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: GPCRB 07-25-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
GPC Reagent Blank

Date Collected: N/A
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0001	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-01
Level (Low/Med):	Low	Lab File ID:	72696S02.D
% Moisture:	8.6	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	730	U
62-75-9	n-Nitrosodimethylamine	730	U
62-53-3	Aniline	730	U
108-95-2	Phenol	730	U
111-44-4	Bis(2-chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	730	U
95-48-7	2-Methylphenol	730	U
621-64-7	n-Nitroso-di-n-propylamine	730	U
106-44-5	4-Methylphenol	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	Bis(2-chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
65-85-0	Benzoic Acid	7300	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	730	U
606-20-2	2,6-Dinitrotoluene	730	U
208-96-8	Acenaphthylene	730	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	150	J
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	730	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0001	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-01
Level (Low/Med):	Low	Lab File ID:	72696S02.D
% Moisture:	8.6	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
86-73-7	Fluorene	730	U
7005-72-3	4-Chlorophenyl phenyl ether	730	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	730	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	730	U
101-55-3	4-Bromophenyl phenyl ether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
56-55-3	Benzo[a]anthracene	730	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	730	U
117-81-7	Bis(2-ethylhexyl)phthalate	730	U
117-84-0	Di-n-octylphthalate	730	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	730	U
50-32-8	Benzo[a]pyrene	730	U
193-39-5	Indeno(1,2,3-c,d)pyrene	730	U
53-70-3	Dibenzo[a,h]anthracene	730	U
191-24-2	Benzo[g,h,i]perylene	730	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	61	25 - 121
2-Chlorophenol-d4	67	20 - 130
Phenol-d5	61	24 - 113
1,2-Dichlorobenzene-d4	84	20 - 130
Nitrobenzene-d5	88	23 - 120
2-Fluorobiphenyl	93	30 - 115
2,4,6-Tribromophenol	85	19 - 122
p-Terphenyl-d14	107	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-413-01
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0001

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 8.60

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-01
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0001

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 8.60

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0002	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-02
Level (Low/Med):	Low	Lab File ID:	72896S05.D
% Moisture:	7.4	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	720	U
62-75-9	n-Nitrosodimethylamine	720	U
62-53-3	Aniline	720	U
108-95-2	Phenol	720	U
111-44-4	Bis(2-chloroethyl)ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
95-50-1	1,2-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	720	U
95-48-7	2-Methylphenol	720	U
621-64-7	n-Nitroso-di-n-propylamine	720	U
106-44-5	4-Methylphenol	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
111-91-1	Bis(2-chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
65-85-0	Benzoic Acid	7200	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	720	U
606-20-2	2,6-Dinitrotoluene	720	U
208-96-8	Acenaphthylene	720	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	720	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	720	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0002	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-02
Level (Low/Med):	Low	Lab File ID:	72896S05.D
% Moisture:	7.4	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
86-73-7	Fluorene	720	U
7005-72-3	4-Chlorophenyl phenyl ether	720	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	720	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	720	U
101-55-3	4-Bromophenyl phenyl ether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
86-74-8	Carbazole	720	U
84-74-2	Di-n-butylphthalate	720	U
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene	720	U
85-68-7	Butylbenzylphthalate	720	U
56-55-3	Benzo[a]anthracene	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	720	U
117-81-7	Bis(2-ethylhexyl)phthalate	220	J,B
117-84-0	Di-n-octylphthalate	720	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	720	U
50-32-8	Benzo[a]pyrene	720	U
193-39-5	Indeno(1,2,3-c,d)pyrene	720	U
53-70-3	Dibenzo[a,h]anthracene	720	U
191-24-2	Benzo[g,h,i]perylene	720	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	59	25 - 121
2-Chlorophenol-d4	64	20 - 130
Phenol-d5	65	24 - 113
1,2-Dichlorobenzene-d4	77	20 - 130
Nitrobenzene-d5	78	23 - 120
2-Fluorobiphenyl	81	30 - 115
2,4,6-Tribromophenol	75	19 - 122
p-Terphenyl-d14	112	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-02
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0002

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-02
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0002
Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0003	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-03
Level (Low/Med):	Low	Lab File ID:	72896S04.D
% Moisture:	6.5	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	710	U
62-75-9	n-Nitrosodimethylamine	710	U
62-53-3	Aniline	710	U
108-95-2	Phenol	710	U
111-44-4	Bis(2-chloroethyl)ether	710	U
95-57-8	2-Chlorophenol	710	U
541-73-1	1,3-Dichlorobenzene	710	U
106-46-7	1,4-Dichlorobenzene	710	U
95-50-1	1,2-Dichlorobenzene	710	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	710	U
95-48-7	2-Methylphenol	710	U
621-64-7	n-Nitroso-di-n-propylamine	710	U
106-44-5	4-Methylphenol	710	U
67-72-1	Hexachloroethane	710	U
98-[illegible]-3	Nitrobenzene	710	U
78-[illegible]-1	Isophorone	710	U
88-75-5	2-Nitrophenol	710	U
105-67-9	2,4-Dimethylphenol	710	U
111-91-1	Bis(2-chloroethoxy)methane	710	U
120-83-2	2,4-Dichlorophenol	710	U
65-85-0	Benzoic Acid	7100	U
120-82-1	1,2,4-Trichlorobenzene	710	U
91-20-3	Naphthalene	710	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	710	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	710	U
77-47-4	Hexachlorocyclopentadiene	710	U
88-06-2	2,4,6-Trichlorophenol	710	U
95-95-4	2,4,5-Trichlorophenol	3500	U
91-58-7	2-Chloronaphthalene	710	U
88-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethylphthalate	710	U
606-20-2	2,6-Dinitrotoluene	710	U
208-96-8	Acenaphthylene	710	U
99-09-2	3-Nitroaniline	3500	U
83-32-9	Acenaphthene	710	U
51-28-5	2,4-Dinitrophenol	3500	U
100-02-7	4-Nitrophenol	3500	U
132-64-9	Dibenzofuran	710	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0003	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-03
Level (Low/Med):	Low	Lab File ID:	72896S04.D
% Moisture:	6.5	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	710	U
84-66-2	Diethylphthalate	710	U
86-73-7	Fluorene	710	U
7005-72-3	4-Chlorophenyl phenyl ether	710	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	710	U
534-52-1	4,6-Dinitro-2-methylphenol	3500	U
86-30-6	n-Nitrosodiphenylamine(1)	710	U
101-55-3	4-Bromophenyl phenyl ether	710	U
118-74-1	Hexachlorobenzene	710	U
87-86-5	Pentachlorophenol	3500	U
85-01-8	Phenanthrene	710	U
120-12-7	Anthracene	710	U
86-74-8	Carbazole	710	U
84-74-2	Di-n-butylphthalate	710	U
206-44-0	Fluoranthene	710	U
129-00-0	Pyrene	710	U
85-68-7	Butylbenzylphthalate	710	U
56-55-3	Benzo[a]anthracene	710	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	710	U
117-81-7	Bis(2-ethylhexyl)phthalate	180	J,B
117-84-0	Di-n-octylphthalate	710	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	710	U
50-32-8	Benzo[a]pyrene	710	U
193-39-5	Indeno(1,2,3-c,d)pyrene	710	U
53-70-3	Dibenzo[a,h]anthracene	710	U
191-24-2	Benzo[g,h,i]perylene	710	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	70	25 - 121
2-Chlorophenol-d4	71	20 - 130
Phenol-d5	75	24 - 113
1,2-Dichlorobenzene-d4	89	20 - 130
Nitrobenzene-d5	84	23 - 120
2-Fluorobiphenyl	89	30 - 115
2,4,6-Tribromophenol	80	19 - 122
p-Terphenyl-d14	109	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-03
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0003

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 6.50

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-03
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0003

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 6.50

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0004	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-04
Level (Low/Med):	Low	Lab File ID:	72696S07.D
% Moisture:	9.8	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	740	U
62-75-9	n-Nitrosodimethylamine	740	U
62-53-3	Aniline	740	U
108-95-2	Phenol	740	U
111-44-4	Bis(2-chloroethyl)ether	740	U
95-57-8	2-Chlorophenol	740	U
541-73-1	1,3-Dichlorobenzene	740	U
106-46-7	1,4-Dichlorobenzene	740	U
95-50-1	1,2-Dichlorobenzene	740	U
100-51-6	Benzyl Alcohol	3000	U
108-60-1	Bis(2-chloroisopropyl)ether	740	U
95-48-7	2-Methylphenol	740	U
621-64-7	n-Nitroso-di-n-propylamine	740	U
106-44-5	4-Methylphenol	740	U
67-72-1	Hexachloroethane	740	U
98-95-3	Nitrobenzene	740	U
78-59-1	Isophorone	740	U
88-75-5	2-Nitrophenol	740	U
105-67-9	2,4-Dimethylphenol	740	U
111-91-1	Bis(2-chloroethoxy)methane	740	U
120-83-2	2,4-Dichlorophenol	740	U
65-85-0	Benzoic Acid	7400	U
120-82-1	1,2,4-Trichlorobenzene	740	U
91-20-3	Naphthalene	740	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	740	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	740	U
77-47-4	Hexachlorocyclopentadiene	740	U
88-06-2	2,4,6-Trichlorophenol	740	U
95-95-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	740	U
88-74-4	2-Nitroaniline	3700	U
131-11-3	Dimethylphthalate	740	U
606-20-2	2,6-Dinitrotoluene	740	U
208-96-8	Acenaphthylene	740	U
99-09-2	3-Nitroaniline	3700	U
83-32-9	Acenaphthene	740	U
51-28-5	2,4-Dinitrophenol	3700	U
100-02-7	4-Nitrophenol	3700	U
132-64-9	Dibenzofuran	740	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0004	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-04
Level (Low/Med):	Low	Lab File ID:	72696S07.D
% Moisture:	9.8	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	740	U
84-66-2	Diethylphthalate	740	U
86-73-7	Fluorene	740	U
7005-72-3	4-Chlorophenyl phenyl ether	740	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	740	U
534-52-1	4,6-Dinitro-2-methylphenol	3700	U
86-30-6	n-Nitrosodiphenylamine(1)	740	U
101-55-3	4-Bromophenyl phenyl ether	740	U
118-74-1	Hexachlorobenzene	740	U
87-86-5	Pentachlorophenol	3700	U
85-01-8	Phenanthrene	740	U
120-12-7	Anthracene	740	U
86-74-8	Carbazole	740	U
84-74-2	Di-n-butylphthalate	740	U
206-44-0	Fluoranthene	740	U
129-00-0	Pyrene	740	U
85-68-7	Butylbenzylphthalate	740	U
56-55-3	Benzo[a]anthracene	740	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	740	U
117-81-7	Bis(2-ethylhexyl)phthalate	220	J,B
117-84-0	Di-n-octylphthalate	740	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	740	U
50-32-8	Benzo[a]pyrene	740	U
193-39-5	Indeno(1,2,3-c,d)pyrene	740	U
53-70-3	Dibenzo[a,h]anthracene	740	U
191-24-2	Benzo[g,h,i]perylene	740	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	42	25 - 121
2-Chlorophenol-d4	48	20 - 130
Phenol-d5	41	24 - 113
1,2-Dichlorobenzene-d4	59	20 - 130
Nitrobenzene-d5	60	23 - 120
2-Fluorobiphenyl	65	30 - 115
2,4,6-Tribromophenol	62	19 - 122
p-Terphenyl-d14	76	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-04
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0004

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.80

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-04
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0004

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.80

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0005	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-05
Level (Low/Med):	Low	Lab File ID:	72996S02.D
% Moisture:	4.69	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	700	U
62-75-9	n-Nitrosodimethylamine	700	U
62-53-3	Aniline	700	U
108-95-2	Phenol	700	U
111-44-4	Bis(2-chloroethyl)ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
95-50-1	1,2-Dichlorobenzene	700	U
100-51-6	Benzyl Alcohol	2800	U
108-60-1	Bis(2-chloroisopropyl)ether	700	U
95-48-7	2-Methylphenol	700	U
621-64-7	n-Nitroso-di-n-propylamine	700	U
106-44-5	4-Methylphenol	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
111-91-1	Bis(2-chloroethoxy)methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
65-85-0	Benzoic Acid	7000	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	2800	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	700	U
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	3500	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethylphthalate	700	U
606-20-2	2,6-Dinitrotoluene	700	U
208-96-8	Acenaphthylene	700	U
99-09-2	3-Nitroaniline	3500	U
83-32-9	Acenaphthene	700	U
51-28-5	2,4-Dinitrophenol	3500	U
100-02-7	4-Nitrophenol	3500	U
132-64-9	Dibenzofuran	700	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0005	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-05
Level (Low/Med):	Low	Lab File ID:	72996S02.D
% Moisture:	4.69	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
86-73-7	Fluorene	700	U
7005-72-3	4-Chlorophenyl phenyl ether	700	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	700	U
534-52-1	4,6-Dinitro-2-methylphenol	3500	U
86-30-6	n-Nitrosodiphenylamine(1)	700	U
101-55-3	4-Bromophenyl phenyl ether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	3500	U
85-01-8	Phenanthrene	700	U
120-12-7	Anthracene	700	U
86-74-8	Carbazole	700	U
84-74-2	Di-n-butylphthalate	700	U
206-44-0	Fluoranthene	700	U
129-00-0	Pyrene	700	U
85-68-7	Butylbenzylphthalate	700	U
56-55-3	Benzo[a]anthracene	700	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	700	U
117-81-7	Bis(2-ethylhexyl)phthalate	190	J,B
117-84-0	Di-n-octylphthalate	700	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	700	U
50-32-8	Benzo[a]pyrene	700	U
193-39-5	Indeno(1,2,3-c,d)pyrene	700	U
53-70-3	Dibenzo[a,h]anthracene	700	U
191-24-2	Benzo[g,h,i]perylene	700	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	54	25 - 121
2-Chlorophenol-d4	56	20 - 130
Phenol-d5	55	24 - 113
1,2-Dichlorobenzene-d4	70	20 - 130
Nitrobenzene-d5	[illegible]	23 - 120
2-Fluorobiphenyl	74	30 - 115
2,4,6-Tribromophenol	67	19 - 122
p-Terphenyl-d14	98	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-05
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0005

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 4.69

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4.6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4.6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-05
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0005

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 4.69

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0006	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-06
Level (Low/Med):	Low	Lab File ID:	72896S03.D
% Moisture:	8.6	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	730	U
62-75-9	n-Nitrosodimethylamine	730	U
62-53-3	Aniline	730	U
108-95-2	Phenol	730	U
111-44-4	Bis(2-chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	730	U
95-48-7	2-Methylphenol	730	U
621-64-7	n-Nitroso-di-n-propylamine	730	U
106-44-5	4-Methylphenol	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	Bis(2-chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
65-85-0	Benzoic Acid	7300	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	730	U
606-20-2	2,6-Dinitrotoluene	730	U
208-96-8	Acenaphthylene	730	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	730	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	730	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0006	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-06
Level (Low/Med):	Low	Lab File ID:	72896S03.D
% Moisture:	8.6	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
86-73-7	Fluorene	730	U
7005-72-3	4-Chlorophenyl phenyl ether	730	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	730	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	730	U
101-55-3	4-Bromophenyl phenyl ether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
56-55-3	Benzo[a]anthracene	730	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	730	U
117-81-7	Bis(2-ethylhexyl)phthalate	290	J,B
117-84-0	Di-n-octylphthalate	730	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	730	U
50-32-8	Benzo[a]pyrene	730	U
193-39-5	Indeno(1,2,3-c,d)pyrene	730	U
53-70-3	Dibenzo[a,h]anthracene	730	U
191-24-2	Benzo[g,h,i]perylene	730	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	50	25 - 121
2-Chlorophenol-d4	54	20 - 130
Phenol-d5	56	24 - 113
1,2-Dichlorobenzene-d4	65	20 - 130
Nitrobenzene-d5	66	23 - 120
2-Fluorobiphenyl	77	30 - 115
2,4,6-Tribromophenol	64	19 - 122
p-Terphenyl-d14	107	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-06
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0006
Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 8.60

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-06
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0006

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 8.60

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0007	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-07
Level (Low/Med):	Low	Lab File ID:	72696S06.D
% Moisture:	7.29	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	720	U
62-75-9	n-Nitrosodimethylamine	720	U
62-53-3	Aniline	720	U
108-95-2	Phenol	720	U
111-44-4	Bis(2-chloroethyl)ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
95-50-1	1,2-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	720	U
95-48-7	2-Methylphenol	720	U
621-64-7	n-Nitroso-di-n-propylamine	720	U
106-44-5	4-Methylphenol	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
111-91-1	Bis(2-chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
65-85-0	Benzoic Acid	7200	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	720	U
606-20-2	2,6-Dinitrotoluene	720	U
208-96-8	Acenaphthylene	720	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	720	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	720	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0007	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-07
Level (Low/Med):	Low	Lab File ID:	72696S06.D
% Moisture:	7.29	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
86-73-7	Fluorene	720	U
7005-72-3	4-Chlorophenyl phenyl ether	720	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	720	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	720	U
101-55-3	4-Bromophenyl phenyl ether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
86-74-8	Carbazole	720	U
84-74-2	Di-n-butylphthalate	440	J
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene	720	U
85-68-7	Butylbenzylphthalate	720	U
56-55-3	Benzo[a]anthracene	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	720	U
117-81-7	Bis(2-ethylhexyl)phthalate	150	J,B
117-84-0	Di-n-octylphthalate	720	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	720	U
50-32-8	Benzo[a]pyrene	720	U
193-39-5	Indeno(1,2,3-c,d)pyrene	720	U
53-70-3	Dibenzo[a,h]anthracene	720	U
191-24-2	Benzo[g,h,i]perylene	720	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	57	25 - 121
2-Chlorophenol-d4	65	20 - 130
Phenol-d5	58	24 - 113
1,2-Dichlorobenzene-d4	81	20 - 130
Nitrobenzene-d5	82	23 - 120
2-Fluorobiphenyl	86	30 - 115
2,4,6-Tribromophenol	78	19 - 122
p-Terphenyl-d14	99	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-07
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0007

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.29

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-07
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0007

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.29

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0008	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-08
Level (Low/Med):	Low	Lab File ID:	72896S07.D
% Moisture:	9.2	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	730	U
62-75-9	n-Nitrosodimethylamine	730	U
62-53-3	Aniline	730	U
108-95-2	Phenol	730	U
111-44-4	Bis(2-chloroethyl)ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
95-50-1	1,2-Dichlorobenzene	730	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	730	U
95-48-7	2-Methylphenol	730	U
621-64-7	n-Nitroso-di-n-propylamine	730	U
106-44-5	4-Methylphenol	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
111-91-1	Bis(2-chloroethoxy)methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
65-85-0	Benzoic Acid	7300	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	730	U
606-20-2	2,6-Dinitrotoluene	730	U
208-96-8	Acenaphthylene	730	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	730	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	730	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0008	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-08
Level (Low/Med):	Low	Lab File ID:	72896S07.D
% Moisture:	9.2	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
86-73-7	Fluorene	730	U
7005-72-3	4-Chlorophenyl phenyl ether	730	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	730	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	730	U
101-55-3	4-Bromophenyl phenyl ether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
86-74-8	Carbazole	730	U
84-74-2	Di-n-butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
56-55-3	Benzo[a]anthracene	730	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	730	U
117-81-7	Bis(2-ethylhexyl)phthalate	390	J,B
117-84-0	Di-n-octylphthalate	730	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	730	U
50-32-8	Benzo[a]pyrene	730	U
193-39-5	Indeno(1,2,3-c,d)pyrene	730	U
53-70-3	Dibenzo[a,h]anthracene	730	U
191-24-2	Benzo[g,h,i]perylene	730	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	62	25 - 121
2-Chlorophenol-d4	70	20 - 130
Phenol-d5	71	24 - 113
1,2-Dichlorobenzene-d4	81	20 - 130
Nitrobenzene-d5	83	23 - 120
2-Fluorobiphenyl	90	30 - 115
2,4,6-Tribromophenol	80	19 - 122
p-Terphenyl-d14	108	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-08
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0008

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-08
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0008
Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0009	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-09
Level (Low/Med):	Low	Lab File ID:	72696S90.D
% Moisture:	8.37	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	N	Date Analyzed:	07-26-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	360	U
62-75-9	n-Nitrosodimethylamine	360	U
62-53-3	Aniline	360	U
108-95-2	Phenol	360	U
111-44-4	Bis(2-chloroethyl)ether	360	U
95-57-8	2-Chlorophenol	360	U
541-73-1	1,3-Dichlorobenzene	360	U
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U
100-51-6	Benzyl Alcohol	1500	U
108-60-1	Bis(2-chloroisopropyl)ether	360	U
95-48-7	2-Methylphenol	360	U
621-64-7	n-Nitroso-di-n-propylamine	360	U
106-44-5	4-Methylphenol	360	U
67-72-1	Hexachloroethane	360	U
98-95-3	Nitrobenzene	360	U
78-59-1	Isophorone	360	U
88-75-5	2-Nitrophenol	360	U
105-67-9	2,4-Dimethylphenol	360	U
111-91-1	Bis(2-chloroethoxy)methane	360	U
120-83-2	2,4-Dichlorophenol	360	U
65-85-0	Benzoic Acid	3600	U
120-82-1	1,2,4-Trichlorobenzene	360	U
91-20-3	Naphthalene	360	U
106-47-8	4-Chloroaniline	1500	U
87-68-3	Hexachlorobutadiene	360	U
59-50-7	4-Chloro-3-methylphenol	730	U
91-57-6	2-Methylnaphthalene	360	U
77-47-4	Hexachlorocyclopentadiene	360	U
88-06-2	2,4,6-Trichlorophenol	360	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	360	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	360	U
606-20-2	2,6-Dinitrotoluene	360	U
208-96-8	Acenaphthylene	360	U
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	360	U
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	360	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0009	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-09
Level (Low/Med):	Low	Lab File ID:	72696S90.D
% Moisture:	8.37	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	360	U
84-66-2	Diethylphthalate	360	U
86-73-7	Fluorene	360	U
7005-72-3	4-Chlorophenyl phenyl ether	360	U
100-01-6	4-Nitroaniline	730	U
103-33-3	Azobenzene	360	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	n-Nitrosodiphenylamine(1)	360	U
101-55-3	4-Bromophenyl phenyl ether	360	U
118-74-1	Hexachlorobenzene	360	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	360	U
120-12-7	Anthracene	360	U
86-74-8	Carbazole	360	U
84-74-2	Di-n-butylphthalate	360	U
206-44-0	Fluoranthene	360	U
129-00-0	Pyrene	360	U
85-68-7	Butylbenzylphthalate	360	U
56-55-3	Benzo[a]anthracene	360	U
91-94-1	3,3'-Dichlorobenzidine	730	U
218-01-9	Chrysene	360	U
117-81-7	Bis(2-ethylhexyl)phthalate	130	J,B
117-84-0	Di-n-octylphthalate	360	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	360	U
50-32-8	Benzo[a]pyrene	360	U
193-39-5	Indeno(1,2,3-c,d)pyrene	360	U
53-70-3	Dibenzo[a,h]anthracene	360	U
191-24-2	Benzo[g,h,i]perylene	360	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	56	25 - 121
2-Chlorophenol-d4	59	20 - 130
Phenol-d5	52	24 - 113
1,2-Dichlorobenzene-d4	72	20 - 130
Nitrobenzene-d5	74	23 - 120
2-Fluorobiphenyl	74	30 - 115
2,4,6-Tribromophenol	77	19 - 122
p-Terphenyl-d14	102	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-09
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0009
Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-09
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0009

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0010	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-10
Level (Low/Med):	Low	Lab File ID:	72896S06.D
% Moisture:	7.07	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	720	U
62-75-9	n-Nitrosodimethylamine	720	U
62-53-3	Aniline	720	U
108-95-2	Phenol	720	U
111-44-4	Bis(2-chloroethyl)ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
95-50-1	1,2-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	720	U
95-48-7	2-Methylphenol	720	U
621-64-7	n-Nitroso-di-n-propylamine	720	U
106-44-5	4-Methylphenol	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
111-91-1	Bis(2-chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
65-85-0	Benzoic Acid	7200	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	720	U
606-20-2	2,6-Dinitrotoluene	720	U
208-96-8	Acenaphthylene	720	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	720	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	720	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0010	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-10
Level (Low/Med):	Low	Lab File ID:	72896S06.D
% Moisture:	7.07	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-29-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
86-73-7	Fluorene	720	U
7005-72-3	4-Chlorophenyl phenyl ether	720	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	720	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	720	U
101-55-3	4-Bromophenyl phenyl ether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
86-74-8	Carbazole	720	U
84-74-2	Di-n-butylphthalate	720	U
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene	720	U
85-68-7	Butylbenzylphthalate	720	U
56-55-3	Benzo[a]anthracene	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	720	U
117-81-7	Bis(2-ethylhexyl)phthalate	350	J,B
117-84-0	Di-n-octylphthalate	720	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	720	U
50-32-8	Benzo[a]pyrene	720	U
193-39-5	Indeno(1,2,3-c,d)pyrene	720	U
53-70-3	Dibenzo[a,h]anthracene	720	U
191-24-2	Benzo[g,h,i]perylene	720	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	50	25 - 121
2-Chlorophenol-d4	56	20 - 130
Phenol-d5	54	24 - 113
1,2-Dichlorobenzene-d4	64	20 - 130
Nitrobenzene-d5	67	23 - 120
2-Fluorobiphenyl	72	30 - 115
2,4,6-Tribromophenol	73	19 - 122
p-Terphenyl-d14	105	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-10
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0010

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.07

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-10
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0010

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-29-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 7.07

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0011	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-11
Level (Low/Med):	Low	Lab File ID:	72696S08.D
% Moisture:	12.77	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	760	U
62-75-9	n-Nitrosodimethylamine	760	U
62-53-3	Aniline	760	U
108-95-2	Phenol	760	U
111-44-4	Bis(2-chloroethyl)ether	760	U
95-57-8	2-Chlorophenol	760	U
541-73-1	1,3-Dichlorobenzene	760	U
106-46-7	1,4-Dichlorobenzene	760	U
95-50-1	1,2-Dichlorobenzene	760	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	760	U
95-48-7	2-Methylphenol	760	U
621-64-7	n-Nitroso-di-n-propylamine	760	U
106-44-5	4-Methylphenol	760	U
67-72-1	Hexachloroethane	760	U
98-95-3	Nitrobenzene	760	U
78-59-1	Isophorone	760	U
88-75-5	2-Nitrophenol	760	U
105-67-9	2,4-Dimethylphenol	760	U
111-91-1	Bis(2-chloroethoxy)methane	760	U
120-83-2	2,4-Dichlorophenol	760	U
65-85-0	Benzoic Acid	7600	U
120-82-1	1,2,4-Trichlorobenzene	760	U
91-20-3	Naphthalene	760	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	760	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	760	U
77-47-4	Hexachlorocyclopentadiene	760	U
88-06-2	2,4,6-Trichlorophenol	760	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	760	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	760	U
606-20-2	2,6-Dinitrotoluene	760	U
208-96-8	Acenaphthylene	760	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	760	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	760	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0011	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-11
Level (Low/Med):	Low	Lab File ID:	72696S08.D
% Moisture:	12.77	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	760	U
84-66-2	Diethylphthalate	760	U
86-73-7	Fluorene	760	U
7005-72-3	4-Chlorophenyl phenyl ether	760	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	760	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	760	U
101-55-3	4-Bromophenyl phenyl ether	760	U
118-74-1	Hexachlorobenzene	760	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	760	U
120-12-7	Anthracene	760	U
86-74-8	Carbazole	760	U
84-74-2	Di-n-butylphthalate	760	U
206-44-0	Fluoranthene	760	U
129-00-0	Pyrene	760	U
85-68-7	Butylbenzylphthalate	760	U
56-55-3	Benzo[a]anthracene	760	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	760	U
117-81-7	Bis(2-ethylhexyl)phthalate	200	J,B
117-84-0	Di-n-octylphthalate	760	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	760	U
50-32-8	Benzo[a]pyrene	760	U
193-39-5	Indeno(1,2,3-c,d)pyrene	760	U
53-70-3	Dibenzo[a,h]anthracene	760	U
191-24-2	Benzo[g,h,i]perylene	760	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	64	25 - 121
2-Chlorophenol-d4	71	20 - 130
Phenol-d5	63	24 - 113
1,2-Dichlorobenzene-d4	84	20 - 130
Nitrobenzene-d5	90	23 - 120
2-Fluorobiphenyl	90	30 - 115
2,4,6-Tribromophenol	85	19 - 122
p-Terphenyl-d14	102	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-11
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0011

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-11
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
0835-96-0011

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0012	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-12
Level (Low/Med):	Low	Lab File ID:	72696S09.D
% Moisture:	14.53	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	780	U
62-75-9	n-Nitrosodimethylamine	780	U
62-53-3	Aniline	780	U
108-95-2	Phenol	780	U
111-44-4	Bis(2-chloroethyl)ether	780	U
95-57-8	2-Chlorophenol	780	U
541-73-1	1,3-Dichlorobenzene	780	U
106-46-7	1,4-Dichlorobenzene	780	U
95-50-1	1,2-Dichlorobenzene	780	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	780	U
95-48-7	2-Methylphenol	780	U
621-64-7	n-Nitroso-di-n-propylamine	780	U
106-44-5	4-Methylphenol	780	U
67-72-1	Hexachloroethane	780	U
98-95-3	Nitrobenzene	780	U
78-59-1	Isophorone	780	U
88-75-5	2-Nitrophenol	780	U
105-67-9	2,4-Dimethylphenol	780	U
111-91-1	Bis(2-chloroethoxy)methane	780	U
120-83-2	2,4-Dichlorophenol	780	U
65-85-0	Benzoic Acid	7800	U
120-82-1	1,2,4-Trichlorobenzene	780	U
91-20-3	Naphthalene	780	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	780	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	780	U
77-47-4	Hexachlorocyclopentadiene	780	U
88-06-2	2,4,6-Trichlorophenol	780	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	780	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	[illegible]	U
606-20-2	2,6-Dinitrotoluene	780	U
208-96-8	Acenaphthylene	780	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	780	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	780	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0012	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-12
Level (Low/Med):	Low	Lab File ID:	72696S09.D
% Moisture:	14.53	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	780	U
84-66-2	Diethylphthalate	780	U
86-73-7	Fluorene	780	U
7005-72-3	4-Chlorophenyl phenyl ether	780	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	780	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	780	U
101-55-3	4-Bromophenyl phenyl ether	780	U
118-74-1	Hexachlorobenzene	780	U
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	780	U
120-12-7	Anthracene	780	U
86-74-8	Carbazole	780	U
84-74-2	Di-n-butylphthalate	780	U
206-44-0	Fluoranthene	780	U
129-00-0	Pyrene	780	U
85-68-7	Butylbenzylphthalate	780	U
56-55-3	Benzo[a]anthracene	780	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	780	U
117-81-7	Bis(2-ethylhexyl)phthalate	200	J,B
117-84-0	Di-n-octylphthalate	780	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	780	U
50-32-8	Benzo[a]pyrene	780	U
193-39-5	Indeno(1,2,3-c,d)pyrene	780	U
53-70-3	Dibenzo[a,h]anthracene	780	U
191-24-2	Benzo[g,h,i]perylene	780	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	62	25 - 121
2-Chlorophenol-d4	72	20 - 130
Phenol-d5	63	24 - 113
1,2-Dichlorobenzene-d4	82	20 - 130
Nitrobenzene-d5	90	23 - 120
2-Fluorobiphenyl	90	30 - 115
2,4,6-Tribromophenol	89	19 - 122
p-Terphenyl-d14	112	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-12
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0012

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 14.53

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-12
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0012

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 14.53

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0013	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-13
Level (Low/Med):	Low	Lab File ID:	72696S10.D
% Moisture:	9.89	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	740	U
62-75-9	n-Nitrosodimethylamine	740	U
62-53-3	Aniline	740	U
108-95-2	Phenol	740	U
111-44-4	Bis(2-chloroethyl)ether	740	U
95-57-8	2-Chlorophenol	740	U
541-73-1	1,3-Dichlorobenzene	740	U
106-46-7	1,4-Dichlorobenzene	740	U
95-50-1	1,2-Dichlorobenzene	740	U
100-51-6	Benzyl Alcohol	3000	U
108-60-1	Bis(2-chloroisopropyl)ether	740	U
95-48-7	2-Methylphenol	740	U
621-64-7	n-Nitroso-di-n-propylamine	740	U
106-44-5	4-Methylphenol	740	U
67-72-1	Hexachloroethane	740	U
98-95-3	Nitrobenzene	740	U
78-59-1	Isophorone	740	U
88-75-5	2-Nitrophenol	740	U
105-67-9	2,4-Dimethylphenol	740	U
111-91-1	Bis(2-chloroethoxy)methane	740	U
120-83-2	2,4-Dichlorophenol	740	U
65-85-0	Benzoic Acid	7400	U
120-82-1	1,2,4-Trichlorobenzene	740	U
91-20-3	Naphthalene	740	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	740	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	740	U
77-47-4	Hexachlorocyclopentadiene	740	U
88-06-2	2,4,6-Trichlorophenol	740	U
95-95-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	740	U
88-74-4	2-Nitroaniline	3700	U
131-11-3	Dimethylphthalate	740	U
606-20-2	2,6-Dinitrotoluene	740	U
208-96-8	Acenaphthylene	740	U
99-09-2	3-Nitroaniline	3700	U
83-32-9	Acenaphthene	740	U
51-28-5	2,4-Dinitrophenol	3700	U
100-02-7	4-Nitrophenol	3700	U
132-64-9	Dibenzofuran	740	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL		
Client Project ID:	Req. # 2407	0835-96-0013	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-13
Level (Low/Med):	Low	Lab File ID:	72696S10.D
% Moisture:	9.89	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	740	U
84-66-2	Diethylphthalate	740	U
86-73-7	Fluorene	740	U
7005-72-3	4-Chlorophenyl phenyl ether	740	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	740	U
534-52-1	4,6-Dinitro-2-methylphenol	3700	U
86-30-6	n-Nitrosodiphenylamine(1)	740	U
101-55-3	4-Bromophenyl phenyl ether	740	U
118-74-1	Hexachlorobenzene	740	U
87-86-5	Pentachlorophenol	3700	U
85-01-8	Phenanthrene	740	U
120-12-7	Anthracene	740	U
86-74-8	Carbazole	740	U
84-74-2	Di-n-butylphthalate	740	U
206-44-0	Fluoranthene	740	U
129-00-0	Pyrene	740	U
85-68-7	Butylbenzylphthalate	740	U
56-55-3	Benzo[a]anthracene	740	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	740	U
117-81-7	Bis(2-ethylhexyl)phthalate	250	J,B
117-84-0	Di-n-octylphthalate	740	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	740	U
50-32-8	Benzo[a]pyrene	740	U
193-39-5	Indeno(1,2,3-c,d)pyrene	740	U
53-70-3	Dibenzo[a,h]anthracene	740	U
191-24-2	Benzo[g,h,i]perylene	740	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	60	25 - 121
2-Chlorophenol-d4	67	20 - 130
Phenol-d5	55	24 - 113
1,2-Dichlorobenzene-d4	81	20 - 130
Nitrobenzene-d5	84	23 - 120
2-Fluorobiphenyl	90	30 - 115
2,4,6-Tribromophenol	79	19 - 122
p-Terphenyl-d14	102	18 - 137

SEMIVOLATILE ORGANICS

M[illegible]fied Method 8270

Tentativ[illegible] Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Proje[illegible] Req. #2407
Lab Sample [illegible]D.: 96-07-113-13
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0013

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.89

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-13
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0013

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 9.89

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Samp.	
Client Name:	LANL	0835-96-0014	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-14
Level (Low/Med):	Low	Lab File ID:	72696S11.D
% Moisture:	14.77	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	780	U
62-75-9	n-Nitrosodimethylamine	780	U
62-53-3	Aniline	780	U
108-95-2	Phenol	780	U
111-44-4	Bis(2-chloroethyl)ether	780	U
95-57-8	2-Chlorophenol	780	U
541-73-1	1,3-Dichlorobenzene	780	U
106-46-7	1,4-Dichlorobenzene	780	U
95-50-1	1,2-Dichlorobenzene	780	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	780	U
95-48-7	2-Methylphenol	780	U
621-64-7	n-Nitroso-di-n-propylamine	780	U
106-44-5	4-Methylphenol	780	U
67-72-1	Hexachloroethane	780	U
98-95-3	Nitrobenzene	780	U
78-59-1	Isophorone	780	U
88-75-5	2-Nitrophenol	780	U
105-67-9	2,4-Dimethylphenol	780	U
111-91-1	Bis(2-chloroethoxy)methane	780	U
120-83-2	2,4-Dichlorophenol	780	U
65-85-0	Benzoic Acid	7800	U
120-82-1	1,2,4-Trichlorobenzene	780	U
91-20-3	Naphthalene	780	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	780	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	780	U
77-47-4	Hexachlorocyclopentadiene	780	U
88-06-2	2,4,6-Trichlorophenol	780	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	780	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	780	U
606-20-2	2,6-Dinitrotoluene	780	U
208-96-8	Acenaphthylene	780	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	780	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	780	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL	0835-96-0014	
Client Project ID:	Req. # 2407		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-113-14
Level (Low/Med):	Low	Lab File ID:	72696S11.D
% Moisture:	14.77	Date Collected:	07-15-96
Extraction:	Soxhlet	Date Extracted:	07-20-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	07-26-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	780	U
84-66-2	Diethylphthalate	780	U
86-73-7	Fluorene	780	U
7005-72-3	4-Chlorophenyl phenyl ether	780	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	780	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	780	U
101-55-3	4-Bromophenyl phenyl ether	780	U
118-74-1	Hexachlorobenzene	780	
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	780	U
120-12-7	Anthracene	780	U
86-74-8	Carbazole	780	U
84-74-2	Di-n-butylphthalate	780	U
206-44-0	Fluoranthene	780	U
129-00-0	Pyrene	780	U
85-68-7	Butylbenzylphthalate	780	U
56-55-3	Benzo[a]anthracene	780	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	780	U
117-81-7	Bis(2-ethylhexyl)phthalate	730	J,B
117-84-0	Di-n-octylphthalate	780	U
205-99-2, 207-08-9	Benzo[b&k]fluoranthene	780	U
50-32-8	Benzo[a]pyrene	780	U
193-39-5	Indeno(1,2,3-c,d)pyrene	780	U
53-70-3	Dibenzo[a,h]anthracene	780	U
191-24-2	Benzo[g,h,i]perylene	780	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	62	25 - 121
2-Chlorophenol-d4	70	20 - 130
Phenol-d5	61	24 - 113
1,2-Dichlorobenzene-d4	83	20 - 130
Nitrobenzene-d5	90	23 - 120
2-Fluorobiphenyl	98	30 - 115
2,4,6-Tribromophenol	98	19 - 122
p-Terphenyl-d14	116	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-14
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0014

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 14.77

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2407
Lab Sample ID.: 96-07-113-14
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

0835-96-0014

Date Collected: 07-15-96
Date Extracted: 07-20-96
Date Analyzed: 07-26-96
Sample Weight: 30 g
Final Volume: 1 mL
Percent Moisture: 14.77

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF

Section 4: Supporting QA/QC Data

2C

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL
Client Project ID: Req. # 2407

	Client Sample ID	Lab Sample ID	S1 (FPL)	S2 (CLP)	S3 (PHL)	S4 (DCB)	S5 (NBZ)	S6 (FBP)	S7 (TBP)	S8 (TPH)	TOT OUT
1	Reagent Blank	SRB1 07-20-96	69	72	63	85	89	85	86	112	0
2	0835-96-0001	96-07-113-01	61	67	61	84	88	93	85	107	0
3	0835-96-0001	96-07-113-01MS	58	62	54	79	83	88	87	102	0
4	0835-96-0001	96-07-113-01MSD	61	68	62	84	86	91	95	106	0
5	Reagent Blank	GPCRB 07-25-96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	0835-96-0007	96-07-113-07	57	65	58	81	82	86	78	99	0
7	0835-96-0004	96-07-113-04	42	48	41	59	60	65	62	76	0
8	0835-96-0011	96-07-113-11	64	71	63	84	90	90	85	102	0
9	0835-96-0012	96-07-113-12	62	72	63	82	90	90	89	112	0
10	0835-96-0013	96-07-113-13	60	67	55	81	84	90	79	102	0
11	0835-96-0014	96-07-113-14	62	70	61	83	90	98	98	116	0
12	0835-96-0009	96-07-113-09	56	59	52	72	74	74	77	102	0
13	Reagent Blank	GPCRB 07-27-96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	0835-96-0008	96-07-113-08DL10	D	D	D	D	D	D	D	D	0
15	0835-96-0005	96-07-113-05	54	56	55	70	71	74	67	98	[illegible]
16	0835-96-0006	96-07-113-06	50	54	56	65	66	77	64	107	[illegible]
17	0835-96-0010	96-07-113-10	50	56	54	64	67	72	73	105	0
18	0835-96-0003	96-07-113-03	70	71	75	89	84	89	80	109	0
19	0835-96-0002	96-07-113-02	59	64	65	77	78	81	75	112	0
20	0835-96-0008	96-07-113-08	62	70	71	81	83	90	80	108	0
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

	Recovery QC Limits Soil	Water
S1 (FPL) = 2-Fluorophenol	25 - 121	21 - 110
S2 (CLP) = 2-Chlorophenol-d4	20 - 130	33 - 110
S3 (PHL) = Phenol-d5	24 - 113	10 - 110
S4 (DCB) = 1,2-Dichlorobenzene-d4	20 - 130	16 - 110
S5 (NBZ) = Nitrobenzene-d5	23 - 120	35 - 114
S6 (FBP) = 2-Fluorobiphenyl	30 - 115	43 - 116
S7 (TBP) = 2,4,6-Tribromophenol	19 - 122	10 - 123
S8 (TPH) = p-Terphenyl-d14	18 - 137	33 - 141

3C

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL
Client Project ID: Req. # 2407 % Moisture: 8.6

MS/MSD - Client Sample ID: 0835-96-0001

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % Recovery	QC Limit Recovery
Phenol	2700	ND	1270	47	26 - 90
2-Chlorophenol	2700	ND	1590	59	25 - 102
1,4-Dichlorobenzene	1800	ND	1080	60	28 - 104
N-Nitroso-di-n-propylamine	1800	ND	958	53	41 - 126
1,2,4-Trichlorobenzene	1800	ND	1190	66	38 - 107
4-Chloro-3-methylphenol	2700	ND	1690	63	26 - 103
Acenaphthene	1800	150	1170	57	31 - 137
4-Nitrophenol	2700	ND	1880	70	11 - 114
2,4-Dinitrotoluene	1800	ND	1390	77	28 - 89
Pentachlorophenol	2700	ND	1380	51	17 - 109
Pyrene	1800	ND	1400	78	35 - 142

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % Recovery	RPD	QC Limits RPD | Rec
Phenol	2700	1440	53	13	35 | 26 - 90
2-Chlorophenol	2700	1710	63	7	50 | 25 - 102
1,4-Dichlorobenzene	1800	1190	66	10	27 | 28 - 104
N-Nitroso-di-n-propylamine	1800	1120	62	16	38 | 41 - 126
1,2,4-Trichlorobenzene	1800	1300	72	9	23 | 38 - 107
4-Chloro-3-methylphenol	2700	1870	69	10	33 | 26 - 103
Acenaphthene	1800	1240	61	7	19 | 31 - 137
4-Nitrophenol	2700	2040	76	8	50 | 11 - 114
2,4-Dinitrotoluene	1800	1450	81	4	47 | 28 - 89
Pentachlorophenol	2700	1670	62	19	47 | 17 - 109
Pyrene	1800	1520	84	8	36 | 35 - 142

ND = Not Detected

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL
Client Project ID: Req. # 2407

Lab File ID: 72396S02.D
Date Extracted: 07-20-96
Date Analyzed: 07-23-96
Matrix (soil/water): Soil

Lab Sample ID: SRB1 07-20-96
Time Analyzed: 15:33
Extraction: 3540
Level (low/med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
1	0835-96-0001	96-07-113-01	72696S02.D	07-26-96
2	0835-96-0001	96-07-113-01MS	72696S03.D	07-26-96
3	0835-96-0001	96-07-113-01MSD	72696S04.D	07-26-96
4	Reagent Blank	GPCRB 07-25-96	72696S05.D	07-26-96
5	0835-96-0007	96-07-113-07	72696S06.D	07-26-96
6	0835-96-0004	96-07-113-04	72696S07.D	07-26-96
7	0835-96-0011	96-07-113-11	72696S08.D	07-26-96
8	0835-96-0012	96-07-113-12	72696S09.D	07-26-96
9	0835-96-0013	96-07-113-13	72696S10.D	07-26-96
10	0835-96-0014	96-07-113-14	72696S11.D	07-26-96
11	0835-96-0009	96-07-113-09	72696S90.D	07-26-96
12	Reagent Blank	GPCRB 07-27-96	72896S75.D	07-29-96
13	0835-96-0008	96-07-113-08DL10	72896S91.D	07-29-96
14	0835-96-0005	96-07-113-05	72996S02.D	07-29-96
15	0835-96-0006	96-07-113-06	72896S03.D	07-29-96
16	0835-96-0010	96-07-113-10	72896S06.D	07-29-96
17	0835-96-0003	96-07-113-03	72896S04.D	07-29-96
18	0835-96-0002	96-07-113-02	72896S05.D	07-29-96
19	0835-96-0008	96-07-113-08	72896S07.D	07-29-96
20				

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL
Client Project ID: Req. # 2407

Lab File ID: 71696T01.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 07-23-96
DFTPP Injection Time: 17:49

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	38.9
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	51.5
70	Less than 2.0% of mass 69	0.4
127	40.0 - 60.0% of mass 198	47.9
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	19.8
365	Greater than 1.00% of mass 198	2.3
441	Present, but less than mass 443 (% of 443)	76.3
442	Greater than 40.0% of mass 198	54.4
443	17.0 - 23.0% of mass 442	19.9

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD160	160 ng 8270 std	71696C01.D	07-16-96	18:51
2	SSTD120	120 ng 8270 std	71696C02.D	07-16-96	19:01
3	SSTD100	100 ng 8270 std	71696C03.D	07-16-96	19:47
4	SSTD80	80 ng 8270 std	71696C04.D	07-16-96	20:33
5	SSTD50	50 ng 8270 std	71696C05.D	07-16-96	21:19
6	SSTD20	20 ng 8270 std	71696C06.D	07-16-96	22:05
7					
8					
9					
10					
11					
12					
13					
14					
15					

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL
Client Project ID: Req. # 2407

Lab File ID: 72396T02.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 07-23-96
DFTPP Injection Time: 12:55

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	35.9
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	47.7
70	Less than 2.0% of mass 69	0.1
127	40.0 - 60.0% of mass 198	45.7
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.8
365	Greater than 1.00% of mass 198	2.7
441	Present, but less than mass 443 (% of 443)	80.9
442	Greater than 40.0% of mass 198	61.6
443	17.0 - 23.0% of mass 442	19.8

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD50	50 ng 8270 std	72396D01.D	07-23-96	13:11
2	Reagent Blank	SRB1 07-20-96	72396S02.D	07-23-96	15:33
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

FORM V SV
PARAGON ANALYTICS, INC.

1/87 Rev.

REPORT OF ANALYSES

DETERMINATION OF SEMIVOLATILES BY MODIFIED METHOD 8270

Prepared for:

Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

Request Number: 2410

August 6, 1996

REPORT OF ANALYSES

Client: Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Semivolatiles by EPA Method 8270

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Section 2: Case Narrative and Chain of Custody
Section 3: Analytical Results
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Form 6 : Initial Calibration Report
Form 7 : Continuing Calibration Report
Form 8 : Internal Standard Area Summary

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications		
Paragon	LANL	Date Received
96-07-149-01	0835-96-0015	07-22-96
96-07-149-02	0835-96-0016	07-22-96
96-07-149-03	0835-96-0017	07-22-96
96-07-149-04	0835-96-0018	07-22-96
96-07-149-05	0835-96-0019	07-22-96
96-07-149-06	0835-96-0020	07-22-96
96-07-149-07	0835-96-0021	07-22-96
96-07-149-08	0835-96-0022	07-22-96

Section 2: Case Narrative

2.1 Sample Logistics

Eight soil samples were received in one shipment on the date shown in Table 1. All samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Semivolatile Organics

The samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. All samples except the method blank, blank spike and blank spike duplicate were processed using GPC cleanup by Method 3640 in an attempt to remove potential interferences. Then samples 04, 05 and 06 were put through additional cleanup by Method 3650.

The samples were analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270B. As specified by the method, all positive results were quantitated with the response of the calibration curve using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

The samples were extracted within their required holding times.

The method blank associated with this project was below the reporting limits for all analytes.

All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

The matrix spike and matrix spike duplicate recoveries and RPD's met all QC criteria.

All surrogate recoveries were within acceptable limits with the following exceptions;

Sample	Surrogate
05	2-fluorobiphenyl
	2,4,6-tribromophenol
06	nitrobenzene-d5
	2-fluorobiphenyl
	2,4,6-tribromophenol

These samples were also analyzed and reported at a 1:100 dilution and all surrogates were diluted out.

Samples 05 and 06 had large hydrocarbon humps that were not affected by the cleanup procedure Method 3650. Tics were searched for in both the neat and diluted analyses, since the neat runs with the large humps found very few tics to report.

All initial and continuing calibration criteria were within acceptance criteria. Method 8270B does state that any compound exceeding 15% RSD is to be quantitated with a higher order curve. Carbazole was within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated this compound using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

Carbazole exceeded the Lanl criteria (less than 30% RSD) in the initial curve on 08-02-96. There were no hits for this compound so no further action was taken.

4-nitroaniline exceeded the Lanl criteria (less than 30% RSD) in the daily standard 80396D01.D. There were no hits for this compound so no further action was taken.

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verified by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-149

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2410 per agreement number 7794L0014-9S

15 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 20 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0015	03	Soil	07/17/96	
HERB	STD	0835-96-0015	04	Soil	07/17/96	
OPPEST	STD	0835-96-0015	04	Soil	07/17/96	-01
PEST	STD	0835-96-0015	04	Soil	07/17/96	
SEMI	STD	0835-96-0015	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0015	06	Soil	07/17/96	
PCB	STD	0835-96-0016	03	Soil	07/18/96	
HERB	STD	0835-96-0016	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0016	04	Soil	07/18/96	
PEST	STD	0835-96-0016	04	Soil	07/18/96	
SEMI	STD	0835-96-0016	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0016	06	Soil	07/18/96	
PCB	STD	0835-96-0017	03	Soil	07/18/96	03
HERB	STD	0835-96-0017	04	Soil	07/18/96	
OPPEST	STD	0835-96-0017	04	Soil	07/18/96	
PEST	STD	0835-96-0017	04	Soil	07/18/96	
SEMI	STD	0835-96-0017	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0017	06	Soil	07/18/96	
PCB	STD	0835-96-0018	03	Soil	07/18/96	04
HERB	STD	0835-96-0018	04	Soil	07/18/96	
OPPEST	STD	0835-96-0018	04	Soil	07/18/96	

000006

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0018	04	Soil	07/18/96	(04)
SEMI	STD	0835-96-0018	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0018	06	Soil	07/18/96	
PCB	STD	0835-96-0019	03	Soil	07/18/96	
HERB	STD	0835-96-0019	04	Soil	07/18/96	05
OPPEST	STD	0835-96-0019	04	Soil	07/18/96	
PEST	STD	0835-96-0019	04	Soil	07/18/96	
SEMI	STD	0835-96-0019	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0019	06	Soil	07/18/96	
PCB	STD	0835-96-0020	03	Soil	07/18/96	06
HERB	STD	0835-96-0020	04	Soil	07/18/96	
OPPEST	STD	0835-96-0020	04	Soil	07/18/96	
PEST	STD	0835-96-0020	04	Soil	07/18/96	
SEMI	STD	0835-96-0020	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0020	06	Soil	07/18/96	
PCB	STD	0835-96-0021	03	Soil	07/18/96	07
HERB	STD	0835-96-0021	04	Soil	07/18/96	
OPPEST	STD	0835-96-0021	04	Soil	07/18/96	
PEST	STD	0835-96-0021	04	Soil	07/18/96	
SEMI	STD	0835-96-0021	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0021	06	Soil	07/18/96	
PCB	STD	0835-96-0022	03	Soil	07/18/96	08
HERB	STD	0835-96-0022	04	Soil	07/18/96	
OPPEST	STD	0835-96-0022	04	Soil	07/18/96	
PEST	STD	0835-96-0022	04	Soil	07/18/96	
SEMI	STD	0835-96-0022	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0022	06	Soil	07/18/96	

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-SMO SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-149 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 3°C

Section 3: Analytical Results

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	N	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	330	U
62-75-9	n-Nitrosodimethylamine	330	U
62-53-3	Aniline	330	U
108-95-2	Phenol	330	U
111-44-4	Bis(2-chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	1300	U
108-60-1	Bis(2-chloroisopropyl)ether	330	U
95-48-7	2-Methylphenol	330	U
621-64-7	n-Nitroso-di-n-propylamine	330	U
106-44-5	4-Methylphenol	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	Bis(2-chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
65-85-0	Benzoic Acid	3300	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	1300	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	660	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	Reagent Bl	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	N	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl phenyl ether	330	U
100-01-6	4-Nitroaniline	600	U
103-33-3	Azobenzene	330	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	n-Nitrosodiphenylamine(1)	330	U
101-55-3	4-Bromophenyl phenyl ether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
56-55-3	Benzo[a]anthracene	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
218-01-9	Chrysene	330	U
117-81-7	Bis(2-ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	330	U
50-32-8	Benzo[a]pyrene	330	U
193-39-5	Indeno(1,2,3-c,d)pyrene	330	U
53-70-3	Dibenzo[a,h]anthracene	330	U
191-24-2	Benzo[g,h,i]perylene	330	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	77	25 - 121
2-Chlorophenol-d4	84	20 - 130
Phenol-d5	82	24 - 113
1,2-Dichlorobenzene-d4	91	20 - 130
Nitrobenzene-d5	92	23 - 120
2-Fluorobiphenyl	88	30 - 115
2,4,6-Tribromophenol	85	19 - 122
p-Terphenyl-d14	100	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: SRB1 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: SRB1 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S05.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	2

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	670	U
62-75-9	n-Nitrosodimethylamine	670	U
62-53-3	Aniline	670	U
108-95-2	Phenol	670	U
111-44-4	Bis(2-chloroethyl)ether	670	U
95-57-8	2-Chlorophenol	670	U
541-73-1	1,3-Dichlorobenzene	670	U
106-46-7	1,4-Dichlorobenzene	670	U
95-50-1	1,2-Dichlorobenzene	670	U
100-51-6	Benzyl Alcohol	2700	U
108-60-1	Bis(2-chloroisopropyl)ether	670	U
95-48-7	2-Methylphenol	670	U
621-64-7	n-Nitroso-di-n-propylamine	670	U
106-44-5	4-Methylphenol	670	U
67-72-1	Hexachloroethane	670	U
98-95-3	Nitrobenzene	670	U
78-59-1	Isophorone	670	U
88-75-5	2-Nitrophenol	670	U
105-67-9	2,4-Dimethylphenol	670	U
111-91-1	Bis(2-chloroethoxy)methane	670	U
120-83-2	2,4-Dichlorophenol	670	U
65-85-0	Benzoic Acid	6700	U
120-82-1	1,2,4-Trichlorobenzene	670	U
91-20-3	Naphthalene	670	U
106-47-8	4-Chloroaniline	2700	U
87-68-3	Hexachlorobutadiene	670	U
59-50-7	4-Chloro-3-methylphenol	1300	U
91-57-6	2-Methylnaphthalene	670	U
77-47-4	Hexachlorocyclopentadiene	670	U
88-06-2	2,4,6-Trichlorophenol	670	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	670	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	670	U
606-20-2	2,6-Dinitrotoluene	670	U
208-96-8	Acenaphthylene	670	U
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	670	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	670	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S05.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	2

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	670	U
84-66-2	Diethylphthalate	670	U
86-73-7	Fluorene	670	U
7005-72-3	4-Chlorophenyl phenyl ether	670	U
100-01-6	4-Nitroaniline	1200	U
103-33-3	Azobenzene	670	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	n-Nitrosodiphenylamine(1)	670	U
101-55-3	4-Bromophenyl phenyl ether	670	U
118-74-1	Hexachlorobenzene	670	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	670	U
120-12-7	Anthracene	670	U
86-74-8	Carbazole	670	U
84-74-2	Di-n-butylphthalate	670	U
206-44-0	Fluoranthene	670	U
129-00-0	Pyrene	670	U
85-68-7	Butylbenzylphthalate	670	U
56-55-3	Benzo[a]anthracene	670	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
218-01-9	Chrysene	670	U
117-81-7	Bis(2-ethylhexyl)phthalate	670	U
117-84-0	Di-n-octylphthalate	670	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	670	U
50-32-8	Benzo[a]pyrene	670	U
193-39-5	Indeno(1,2,3-c,d)pyrene	670	U
53-70-3	Dibenzo[a,h]anthracene	670	U
191-24-2	Benzo[g,h,i]perylene	670	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	N/A	25 - 121
2-Chlorophenol-d4	N/A	20 - 130
Phenol-d5	N/A	24 - 113
1,2-Dichlorobenzene-d4	N/A	20 - 130
Nitrobenzene-d5	N/A	23 - 120
2-Fluorobiphenyl	N/A	30 - 115
2,4,6-Tribromophenol	N/A	19 - 122
p-Terphenyl-d14	N/A	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: GPCRB 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: GPC

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: GPCRB 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: GPC

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0015	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-01
Level (Low/Med):	Low	Lab File ID:	80396S06.D
% Moisture:	7.1	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	720	U
62-75-9	n-Nitrosodimethylamine	720	U
62-53-3	Aniline	720	U
108-95-2	Phenol	720	U
111-44-4	Bis(2-chloroethyl)ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
95-50-1	1,2-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	720	U
95-48-7	2-Methylphenol	720	U
621-64-7	n-Nitroso-di-n-propylamine	720	U
106-44-5	4-Methylphenol	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
111-91-1	Bis(2-chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
65-85-0	Benzoic Acid	7200	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	720	U
606-20-2	2,6-Dinitrotoluene	720	U
208-96-8	Acenaphthylene	720	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	720	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	720	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO		
Client Project ID:	Req. #2410	0835-96-0015	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-01
Level (Low/Med):	Low	Lab File ID:	80396S06.D
% Moisture:	7.1	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
86-73-7	Fluorene	720	U
7005-72-3	4-Chlorophenyl phenyl ether	720	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	720	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	720	U
101-55-3	4-Bromophenyl phenyl ether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
86-74-8	Carbazole	720	U
84-74-2	Di-n-butylphthalate	720	U
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene	720	U
85-68-7	Butylbenzylphthalate	720	U
56-55-3	Benzo[a]anthracene	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	720	U
117-81-7	Bis(2-ethylhexyl)phthalate	720	U
117-84-0	Di-n-octylphthalate	720	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	720	U
50-32-8	Benzo[a]pyrene	720	U
193-39-5	Indeno(1,2,3-c,d)pyrene	720	U
53-70-3	Dibenzo[a,h]anthracene	720	U
191-24-2	Benzo[g,h,i]perylene	720	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	74	25 - 121
2-Chlorophenol-d4	83	20 - 130
Phenol-d5	83	24 - 113
1,2-Dichlorobenzene-d4	93	20 - 130
Nitrobenzene-d5	89	23 - 120
2-Fluorobiphenyl	92	30 - 115
2,4,6-Tribromophenol	79	19 - 122
p-Terphenyl-d14	97	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-01
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0015

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 7.10

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

000026

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-01
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0015
Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 7.10

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0016	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-02
Level (Low/Med):	Low	Lab File ID:	80396S07.D
% Moisture:	13.9	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	770	U
62-75-9	n-Nitrosodimethylamine	770	U
62-53-3	Aniline	770	U
108-95-2	Phenol	770	U
111-44-4	Bis(2-chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
95-50-1	1,2-Dichlorobenzene	770	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	770	U
95-48-7	2-Methylphenol	770	U
621-64-7	n-Nitroso-di-n-propylamine	770	U
106-44-5	4-Methylphenol	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
111-91-1	Bis(2-chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
65-85-0	Benzoic Acid	7700	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	770	U
606-20-2	2,6-Dinitrotoluene	770	U
208-96-8	Acenaphthylene	770	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	770	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	770	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0016	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-02
Level (Low/Med):	Low	Lab File ID:	80396S07.D
% Moisture:	13.9	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
86-73-7	Fluorene	770	U
7005-72-3	4-Chlorophenyl phenyl ether	770	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	770	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	770	U
101-55-3	4-Bromophenyl phenyl ether	770	U
118-74-1	Hexachlorobenzene	770	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	770	U
86-74-8	Carbazole	770	U
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
85-68-7	Butylbenzylphthalate	770	U
56-55-3	Benzo[a]anthracene	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	770	U
117-81-7	Bis(2-ethylhexyl)phthalate	770	U
117-84-0	Di-n-octylphthalate	770	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	770	U
50-32-8	Benzo[a]pyrene	770	U
193-39-5	Indeno(1,2,3-c,d)pyrene	770	U
53-70-3	Dibenzo[a,h]anthracene	770	U
191-24-2	Benzo[g,h,i]perylene	770	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	74	25 - 121
2-Chlorophenol-d4	84	20 - 130
Phenol-d5	85	24 - 113
1,2-Dichlorobenzene-d4	91	20 - 130
Nitrobenzene-d5	93	23 - 120
2-Fluorobiphenyl	89	30 - 115
2,4,6-Tribromophenol	86	19 - 122
p-Terphenyl-d14	94	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-02
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0016

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.90

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-02
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0016

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.90

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0017	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-03
Level (Low/Med):	Low	Lab File ID:	80396S08.D
% Moisture:	13.5	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	770	U
62-75-9	n-Nitrosodimethylamine	770	U
62-53-3	Aniline	770	U
108-95-2	Phenol	770	U
111-44-4	Bis(2-chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
95-50-1	1,2-Dichlorobenzene	770	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	770	U
95-48-7	2-Methylphenol	770	U
621-64-7	n-Nitroso-di-n-propylamine	770	U
106-44-5	4-Methylphenol	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
111-91-1	Bis(2-chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
65-85-0	Benzoic Acid	7700	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	770	U
606-20-2	2,6-Dinitrotoluene	770	U
208-96-8	Acenaphthylene	770	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	770	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	770	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0017	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-03
Level (Low/Med):	Low	Lab File ID:	80396S08.D
% Moisture:	13.5	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
86-73-7	Fluorene	770	U
7005-72-3	4-Chlorophenyl phenyl ether	770	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	770	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	770	U
101-55-3	4-Bromophenyl phenyl ether	770	U
118-74-1	Hexachlorobenzene	2600	
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	770	U
86-74-8	Carbazole	770	U
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
85-68-7	Butylbenzylphthalate	770	U
56-55-3	Benzo[a]anthracene	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	770	U
117-81-7	Bis(2-ethylhexyl)phthalate	770	U
117-84-0	Di-n-octylphthalate	770	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	770	U
50-32-8	Benzo[a]pyrene	770	U
193-39-5	Indeno(1,2,3-c,d)pyrene	770	U
53-70-3	Dibenzo[a,h]anthracene	770	U
191-24-2	Benzo[g,h,i]perylene	770	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	77	25 - 121
2-Chlorophenol-d4	88	20 - 130
Phenol-d5	89	24 - 113
1,2-Dichlorobenzene-d4	100	20 - 130
Nitrobenzene-d5	99	23 - 120
2-Fluorobiphenyl	98	30 - 115
2,4,6-Tribromophenol	86	19 - 122
p-Terphenyl-d14	100	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-03
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0017

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.50

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

000043

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-03
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0017
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.50

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0018	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-04DL2
Level (Low/Med):	Low	Lab File ID:	80496S11.D
% Moisture:	16.9	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	2

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	1600	U
62-75-9	n-Nitrosodimethylamine	1600	U
62-53-3	Aniline	1600	U
108-95-2	Phenol	1600	U
111-44-4	Bis(2-chloroethyl)ether	1600	U
95-57-8	2-Chlorophenol	1600	U
541-73-1	1,3-Dichlorobenzene	1600	U
106-46-7	1,4-Dichlorobenzene	1600	U
95-50-1	1,2-Dichlorobenzene	1600	U
100-51-6	Benzyl Alcohol	6400	U
108-60-1	Bis(2-chloroisopropyl)ether	1600	U
95-48-7	2-Methylphenol	1600	U
621-64-7	n-Nitroso-di-n-propylamine	1600	U
106-44-5	4-Methylphenol	1600	U
67-72-1	Hexachloroethane	1600	U
98-95-3	Nitrobenzene	1600	U
78-59-1	Isophorone	1600	U
88-75-5	2-Nitrophenol	1600	U
105-67-9	2,4-Dimethylphenol	1600	U
111-91-1	Bis(2-chloroethoxy)methane	1600	U
120-83-2	2,4-Dichlorophenol	1600	U
65-85-0	Benzoic Acid	16000	U
120-82-1	1,2,4-Trichlorobenzene	1600	U
91-20-3	Naphthalene	1600	U
106-47-8	4-Chloroaniline	6400	U
87-68-3	Hexachlorobutadiene	1600	U
59-50-7	4-Chloro-3-methylphenol	3200	U
91-57-6	2-Methylnaphthalene	1600	U
77-47-4	Hexachlorocyclopentadiene	1600	U
88-06-2	2,4,6-Trichlorophenol	1600	U
95-95-4	2,4,5-Trichlorophenol	7900	U
91-58-7	2-Chloronaphthalene	1600	U
88-74-4	2-Nitroaniline	7900	U
131-11-3	Dimethylphthalate	1600	U
606-20-2	2,6-Dinitrotoluene	1600	U
208-96-8	Acenaphthylene	1600	U
99-09-2	3-Nitroaniline	7900	U
83-32-9	Acenaphthene	1600	U
51-28-5	2,4-Dinitrophenol	7900	U
100-02-7	4-Nitrophenol	7900	U
132-64-9	Dibenzofuran	1600	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0018	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Sample ID:	96-07-149-04DL2
Level (Low/Med):	Low	Lab File ID:	80496S11.D
% Moisture:	16.9	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	2

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	1600	U
84-66-2	Diethylphthalate	1600	U
86-73-7	Fluorene	1600	U
7005-72-3	4-Chlorophenyl phenyl ether	1600	U
100-01-6	4-Nitroaniline	2900	U
103-33-3	Azobenzene	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	7900	U
86-30-6	n-Nitrosodiphenylamine(1)	1600	U
101-55-3	4-Bromophenyl phenyl ether	1600	U
118-74-1	Hexachlorobenzene	1600	U
87-86-5	Pentachlorophenol	7900	U
85-01-8	Phenanthrene	1600	U
120-12-7	Anthracene	1600	U
86-74-8	Carbazole	1600	U
84-74-2	Di-n-butylphthalate	1600	U
206-44-0	Fluoranthene	1600	U
129-00-0	Pyrene	1600	U
85-68-7	Butylbenzylphthalate	1600	U
56-55-3	Benzo[a]anthracene	1600	U
91-94-1	3,3'-Dichlorobenzidine	3200	U
218-01-9	Chrysene	1600	U
117-81-7	Bis(2-ethylhexyl)phthalate	1600	U
117-84-0	Di-n-octylphthalate	1600	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	1600	U
50-32-8	Benzo[a]pyrene	1600	U
193-39-5	Indeno(1,2,3-c,d)pyrene	1600	U
53-70-3	Dibenzo[a,h]anthracene	1600	U
191-24-2	Benzo[g,h,i]perylene	1600	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	30	25 - 121
2-Chlorophenol-d4	44	20 - 130
Phenol-d5	47	24 - 113
1,2-Dichlorobenzene-d4	51	20 - 130
Nitrobenzene-d5	55	23 - 120
2-Fluorobiphenyl	71	30 - 115
2,4,6-Tribromophenol	55	19 - 122
p-Terphenyl-d14	92	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-04DL2
Sample Matrix: Soil
Cleanup: GPC
Dilution Factor: 2

Sample ID

0835-96-0018

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 16.90

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-04DL2
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0018
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 16.90

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0019	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-05
Level (Low/Med):	Low	Lab File ID:	80396S12.D
% Moisture:	15.85	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	790	U
62-75-9	n-Nitrosodimethylamine	790	U
62-53-3	Aniline	790	U
108-95-2	Phenol	790	U
111-44-4	Bis(2-chloroethyl)ether	790	U
95-57-8	2-Chlorophenol	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
95-50-1	1,2-Dichlorobenzene	790	U
100-51-6	Benzyl Alcohol	3200	U
108-60-1	Bis(2-chloroisopropyl)ether	790	U
95-48-7	2-Methylphenol	790	U
621-64-7	n-Nitroso-di-n-propylamine	790	U
106-44-5	4-Methylphenol	790	U
67-72-1	Hexachloroethane	790	U
98-95-3	Nitrobenzene	790	U
78-59-1	Isophorone	790	U
88-75-5	2-Nitrophenol	790	U
105-67-9	2,4-Dimethylphenol	790	U
111-91-1	Bis(2-chloroethoxy)methane	790	U
120-83-2	2,4-Dichlorophenol	790	U
65-85-0	Benzoic Acid	7900	U
120-82-1	1,2,4-Trichlorobenzene	790	U
91-20-3	Naphthalene	790	U
106-47-8	4-Chloroaniline	3200	U
87-68-3	Hexachlorobutadiene	790	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	790	U
77-47-4	Hexachlorocyclopentadiene	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	790	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	790	U
606-20-2	2,6-Dinitrotoluene	790	U
208-96-8	Acenaphthylene	790	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	790	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	790	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0019	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-05
Level (Low/Med):	Low	Lab File ID:	80396S12.D
% Moisture:	15.85	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	790	U
84-66-2	Diethylphthalate	790	U
86-73-7	Fluorene	790	U
7005-72-3	4-Chlorophenyl phenyl ether	790	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	790	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	790	U
101-55-3	4-Bromophenyl phenyl ether	790	U
118-74-1	Hexachlorobenzene	790	U
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	790	U
120-12-7	Anthracene	790	U
86-74-8	Carbazole	790	U
84-74-2	Di-n-butylphthalate	790	U
206-44-0	Fluoranthene	790	U
129-00-0	Pyrene	790	U
85-68-7	Butylbenzylphthalate	790	U
56-55-3	Benzo[a]anthracene	790	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	790	U
117-81-7	Bis(2-ethylhexyl)phthalate	2100	
117-84-0	Di-n-octylphthalate	790	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	790	U
50-32-8	Benzo[a]pyrene	790	U
193-39-5	Indeno(1,2,3-c,d)pyrene	790	U
53-70-3	Dibenzo[a,h]anthracene	790	U
191-24-2	Benzo[g,h,i]perylene	790	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	48	25 - 121
2-Chlorophenol-d4	66	20 - 130
Phenol-d5	60	24 - 113
1,2-Dichlorobenzene-d4	61	20 - 130
Nitrobenzene-d5	73	23 - 120
2-Fluorobiphenyl	10 *	30 - 115
2,4,6-Tribromophenol	5 *	19 - 122
p-Terphenyl-d14	33	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-05
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0019

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.85

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-05
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0019

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.85

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0019	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-05DL100
Level (Low/Med):	Low	Lab File ID:	80496S02.D
% Moisture:	15.85	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	100

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	79000	U
62-75-9	n-Nitrosodimethylamine	79000	U
62-53-3	Aniline	79000	U
108-95-2	Phenol	79000	U
111-44-4	Bis(2-chloroethyl)ether	79000	U
95-57-8	2-Chlorophenol	79000	U
541-73-1	1,3-Dichlorobenzene	79000	U
106-46-7	1,4-Dichlorobenzene	79000	U
95-50-1	1,2-Dichlorobenzene	79000	U
100-51-6	Benzyl Alcohol	320000	U
108-60-1	Bis(2-chloroisopropyl)ether	79000	U
95-48-7	2-Methylphenol	79000	U
621-64-7	n-Nitroso-di-n-propylamine	79000	U
106-44-5	4-Methylphenol	79000	U
67-72-1	Hexachloroethane	79000	U
98-95-3	Nitrobenzene	79000	U
78-59-1	Isophorone	79000	U
88-75-5	2-Nitrophenol	79000	U
105-67-9	2,4-Dimethylphenol	79000	U
111-91-1	Bis(2-chloroethoxy)methane	79000	U
120-83-2	2,4-Dichlorophenol	79000	U
65-85-0	Benzoic Acid	790000	U
120-82-1	1,2,4-Trichlorobenzene	79000	U
91-20-3	Naphthalene	79000	U
106-47-8	4-Chloroaniline	320000	U
87-68-3	Hexachlorobutadiene	79000	U
59-50-7	4-Chloro-3-methylphenol	160000	U
91-57-6	2-Methylnaphthalene	79000	U
77-47-4	Hexachlorocyclopentadiene	79000	U
88-06-2	2,4,6-Trichlorophenol	79000	U
95-95-4	2,4,5-Trichlorophenol	390000	U
91-58-7	2-Chloronaphthalene	79000	U
88-74-4	2-Nitroaniline	390000	U
131-11-3	Dimethylphthalate	79000	U
606-20-2	2,6-Dinitrotoluene	79000	U
208-96-8	Acenaphthylene	79000	U
99-09-2	3-Nitroaniline	390000	U
83-32-9	Acenaphthene	79000	U
51-28-5	2,4-Dinitrophenol	390000	U
100-02-7	4-Nitrophenol	390000	U
132-64-9	Dibenzofuran	79000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0019	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-05DL100
Level (Low/Med):	Low	Lab File ID:	80496S02.D
% Moisture:	15.85	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	100

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	79000	U
84-66-2	Diethylphthalate	79000	U
86-73-7	Fluorene	79000	U
7005-72-3	4-Chlorophenyl phenyl ether	79000	U
100-01-6	4-Nitroaniline	140000	U
103-33-3	Azobenzene	79000	U
534-52-1	4,6-Dinitro-2-methylphenol	390000	U
86-30-6	n-Nitrosodiphenylamine(1)	79000	U
101-55-3	4-Bromophenyl phenyl ether	79000	U
118-74-1	Hexachlorobenzene	79000	U
87-86-5	Pentachlorophenol	390000	U
85-01-8	Phenanthrene	79000	U
120-12-7	Anthracene	79000	U
86-74-8	Carbazole	79000	U
84-74-2	Di-n-butylphthalate	79000	U
206-44-0	Fluoranthene	79000	U
129-00-0	Pyrene	79000	U
85-68-7	Butylbenzylphthalate	79000	U
56-55-3	Benzo[a]anthracene	79000	U
91-94-1	3,3'-Dichlorobenzidine	160000	U
218-01-9	Chrysene	79000	U
117-81-7	Bis(2-ethylhexyl)phthalate	79000	U
117-84-0	Di-n-octylphthalate	79000	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	79000	U
50-32-8	Benzo[a]pyrene	79000	U
193-39-5	Indeno(1,2,3-c,d)pyrene	79000	U
53-70-3	Dibenzo[a,h]anthracene	79000	U
191-24-2	Benzo[g,h,i]perylene	79000	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	D	25 - 121
2-Chlorophenol-d4	D	20 - 130
Phenol-d5	D	24 - 113
1,2-Dichlorobenzene-d4	D	20 - 130
Nitrobenzene-d5	D	23 - 120
2-Fluorobiphenyl	D	30 - 115
2,4,6-Tribromophenol	D	19 - 122
p-Terphenyl-d14	D	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-05DL100
Sample Matrix: Soil
Cleanup: GPC
Dilution Factor: 100

Sample ID

0835-96-0019

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.85

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-05DL100
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0019
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.85

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0020	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-06
Level (Low/Med):	Low	Lab File ID:	80396S13.D
% Moisture:	15.4	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	790	U
62-75-9	n-Nitrosodimethylamine	790	U
62-53-3	Aniline	790	U
108-95-2	Phenol	790	U
111-44-4	Bis(2-chloroethyl)ether	790	U
95-57-8	2-Chlorophenol	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
95-50-1	1,2-Dichlorobenzene	790	U
100-51-6	Benzyl Alcohol	3200	U
108-60-1	Bis(2-chloroisopropyl)ether	790	U
95-48-7	2-Methylphenol	790	U
621-64-7	n-Nitroso-di-n-propylamine	790	U
106-44-5	4-Methylphenol	790	U
67-72-1	Hexachloroethane	790	U
98-95-3	Nitrobenzene	790	U
78-59-1	Isophorone	790	U
88-75-5	2-Nitrophenol	790	U
105-67-9	2,4-Dimethylphenol	790	U
111-91-1	Bis(2-chloroethoxy)methane	790	U
120-83-2	2,4-Dichlorophenol	790	U
65-85-0	Benzoic Acid	7900	U
120-82-1	1,2,4-Trichlorobenzene	790	U
91-20-3	Naphthalene	790	U
106-47-8	4-Chloroaniline	3200	U
87-68-3	Hexachlorobutadiene	790	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	790	U
77-47-4	Hexachlorocyclopentadiene	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	790	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	790	U
606-20-2	2,6-Dinitrotoluene	790	U
208-96-8	Acenaphthylene	790	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	790	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	790	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0020	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-06
Level (Low/Med):	Low	Lab File ID:	80396S13.D
% Moisture:	15.4	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	790	U
84-66-2	Diethylphthalate	790	U
86-73-7	Fluorene	790	U
7005-72-3	4-Chlorophenyl phenyl ether	790	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	790	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	790	U
101-55-3	4-Bromophenyl phenyl ether	790	U
118-74-1	Hexachlorobenzene	790	U
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	790	U
120-12-7	Anthracene	790	U
86-74-8	Carbazole	790	U
84-74-2	Di-n-butylphthalate	790	U
206-44-0	Fluoranthene	790	U
129-00-0	Pyrene	790	U
85-68-7	Butylbenzylphthalate	790	U
56-55-3	Benzo[a]anthracene	790	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	790	U
117-81-7	Bis(2-ethylhexyl)phthalate	2800	
117-84-0	Di-n-octylphthalate	790	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	790	U
50-32-8	Benzo[a]pyrene	790	U
193-39-5	Indeno(1,2,3-c,d)pyrene	790	U
53-70-3	Dibenzo[a,h]anthracene	790	U
191-24-2	Benzo[g,h,i]perylene	790	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	70	25 - 121
2-Chlorophenol-d4	91	20 - 130
Phenol-d5	84	24 - 113
1,2-Dichlorobenzene-d4	81	20 - 130
Nitrobenzene-d5	133 *	23 - 120
2-Fluorobiphenyl	16 *	30 - 115
2,4,6-Tribromophenol	7 *	19 - 122
p-Terphenyl-d14	50	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-06
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0020
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-06
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0020

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO		
Client Project ID:	Req. #2410	0835-96-0020	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-06DL100
Level (Low/Med):	Low	Lab File ID:	80496S03.D
% Moisture:	15.4	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	100

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	79000	U
62-75-9	n-Nitrosodimethylamine	79000	U
62-53-3	Aniline	79000	U
108-95-2	Phenol	79000	U
111-44-4	Bis(2-chloroethyl)ether	79000	U
95-57-8	2-Chlorophenol	79000	U
541-73-1	1,3-Dichlorobenzene	79000	U
106-46-7	1,4-Dichlorobenzene	79000	U
95-50-1	1,2-Dichlorobenzene	79000	U
100-51-6	Benzyl Alcohol	320000	U
108-60-1	Bis(2-chloroisopropyl)ether	79000	U
95-48-7	2-Methylphenol	79000	U
621-64-7	n-Nitroso-di-n-propylamine	79000	U
106-44-5	4-Methylphenol	79000	U
67-72-1	Hexachloroethane	79000	U
98-95-3	Nitrobenzene	79000	U
78-59-1	Isophorone	79000	U
88-75-5	2-Nitrophenol	79000	U
105-67-9	2,4-Dimethylphenol	79000	U
111-91-1	Bis(2-chloroethoxy)methane	79000	U
120-83-2	2,4-Dichlorophenol	79000	U
65-85-0	Benzoic Acid	790000	U
120-82-1	1,2,4-Trichlorobenzene	79000	U
91-20-3	Naphthalene	79000	U
106-47-8	4-Chloroaniline	320000	U
87-68-3	Hexachlorobutadiene	79000	U
59-50-7	4-Chloro-3-methylphenol	160000	U
91-57-6	2-Methylnaphthalene	79000	U
77-47-4	Hexachlorocyclopentadiene	79000	U
88-06-2	2,4,6-Trichlorophenol	79000	U
95-95-4	2,4,5-Trichlorophenol	390000	U
91-58-7	2-Chloronaphthalene	79000	U
88-74-4	2-Nitroaniline	390000	U
131-11-3	Dimethylphthalate	79000	U
606-20-2	2,6-Dinitrotoluene	79000	U
208-96-8	Acenaphthylene	79000	U
99-09-2	3-Nitroaniline	390000	U
83-32-9	Acenaphthene	79000	U
51-28-5	2,4-Dinitrophenol	390000	U
100-02-7	4-Nitrophenol	390000	U
132-64-9	Dibenzofuran	79000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0020	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-06DL100
Level (Low/Med):	Low	Lab File ID:	80496S03.D
% Moisture:	15.4	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	100

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	79000	U
84-66-2	Diethylphthalate	79000	U
86-73-7	Fluorene	79000	U
7005-72-3	4-Chlorophenyl phenyl ether	79000	U
100-01-6	4-Nitroaniline	140000	U
103-33-3	Azobenzene	79000	U
534-52-1	4,6-Dinitro-2-methylphenol	390000	U
86-30-6	n-Nitrosodiphenylamine(1)	79000	U
101-55-3	4-Bromophenyl phenyl ether	79000	U
118-74-1	Hexachlorobenzene	79000	U
87-86-5	Pentachlorophenol	390000	U
85-01-8	Phenanthrene	79000	U
120-12-7	Anthracene	79000	U
86-74-8	Carbazole	79000	U
84-74-2	Di-n-butylphthalate	79000	U
206-44-0	Fluoranthene	79000	U
129-00-0	Pyrene	79000	U
85-68-7	Butylbenzylphthalate	79000	U
56-55-3	Benzo[a]anthracene	79000	U
91-94-1	3,3'-Dichlorobenzidine	160000	U
218-01-9	Chrysene	79000	U
117-81-7	Bis(2-ethylhexyl)phthalate	79000	U
117-84-0	Di-n-octylphthalate	79000	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	79000	U
50-32-8	Benzo[a]pyrene	79000	U
193-39-5	Indeno(1,2,3-c,d)pyrene	79000	U
53-70-3	Dibenzo[a,h]anthracene	79000	U
191-24-2	Benzo[g,h,i]perylene	79000	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	D	25 - 121
2-Chlorophenol-d4	D	20 - 130
Phenol-d5	D	24 - 113
1,2-Dichlorobenzene-d4	D	20 - 130
Nitrobenzene-d5	D	23 - 120
2-Fluorobiphenyl	D	30 - 115
2,4,6-Tribromophenol	D	19 - 122
p-Terphenyl-d14	D	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-06DL100
Sample Matrix: Soil
Cleanup: GPC
Dilution Factor: 100

Sample ID

0835-96-0020

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-06DL100
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0020
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.40

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0021	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-07
Level (Low/Med):	Low	Lab File ID:	80396S09.D
% Moisture:	15.88	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	790	U
62-75-9	n-Nitrosodimethylamine	790	U
62-53-3	Aniline	790	U
108-95-2	Phenol	790	U
111-44-4	Bis(2-chloroethyl)ether	790	U
95-57-8	2-Chlorophenol	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
95-50-1	1,2-Dichlorobenzene	790	U
100-51-6	Benzyl Alcohol	3200	U
108-60-1	Bis(2-chloroisopropyl)ether	790	U
95-48-7	2-Methylphenol	790	U
621-64-7	n-Nitroso-di-n-propylamine	790	U
106-44-5	4-Methylphenol	790	U
67-72-1	Hexachloroethane	790	U
98-95-3	Nitrobenzene	790	U
78-59-1	Isophorone	790	U
88-75-5	2-Nitrophenol	790	U
105-67-9	2,4-Dimethylphenol	790	U
111-91-1	Bis(2-chloroethoxy)methane	790	U
120-83-2	2,4-Dichlorophenol	790	U
65-85-0	Benzoic Acid	7900	U
120-82-1	1,2,4-Trichlorobenzene	790	U
91-20-3	Naphthalene	790	U
106-47-8	4-Chloroaniline	3200	U
87-68-3	Hexachlorobutadiene	790	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	790	U
77-47-4	Hexachlorocyclopentadiene	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	790	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	790	U
606-20-2	2,6-Dinitrotoluene	790	U
208-96-8	Acenaphthylene	790	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	790	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	790	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0021	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-07
Level (Low/Med):	Low	Lab File ID:	80396S09.D
% Moisture:	15.88	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	790	U
84-66-2	Diethylphthalate	790	U
86-73-7	Fluorene	790	U
7005-72-3	4-Chlorophenyl phenyl ether	790	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	790	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	790	U
101-55-3	4-Bromophenyl phenyl ether	790	U
118-74-1	Hexachlorobenzene	280	J
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	790	U
120-12-7	Anthracene	790	U
86-74-8	Carbazole	790	U
84-74-2	Di-n-butylphthalate	790	U
206-44-0	Fluoranthene	790	U
129-00-0	Pyrene	790	U
85-68-7	Butylbenzylphthalate	790	U
56-55-3	Benzo[a]anthracene	790	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	790	U
117-81-7	Bis(2-ethylhexyl)phthalate	490	J
117-84-0	Di-n-octylphthalate	790	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	790	U
50-32-8	Benzo[a]pyrene	790	U
193-39-5	Indeno(1,2,3-c,d)pyrene	790	U
53-70-3	Dibenzo[a,h]anthracene	790	U
191-24-2	Benzo[g,h,i]perylene	790	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	83	25 - 121
2-Chlorophenol-d4	91	20 - 130
Phenol-d5	93	24 - 113
1,2-Dichlorobenzene-d4	101	20 - 130
Nitrobenzene-d5	103	23 - 120
2-Fluorobiphenyl	99	30 - 115
2,4,6-Tribromophenol	88	19 - 122
p-Terphenyl-d14	106	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-07
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0021

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.88

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-07
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0021

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.88

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0022	
Client Project ID:	Req. #2410		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-08
Level (Low/Med):	Low	Lab File ID:	80396S10.D
% Moisture:	13.2	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	770	U
62-75-9	n-Nitrosodimethylamine	770	U
62-53-3	Aniline	770	U
108-95-2	Phenol	770	U
111-44-4	Bis(2-chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
95-50-1	1,2-Dichlorobenzene	770	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	770	U
95-48-7	2-Methylphenol	770	U
621-64-7	n-Nitroso-di-n-propylamine	770	U
106-44-5	4-Methylphenol	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
111-91-1	Bis(2-chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
65-85-0	Benzoic Acid	7700	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	770	U
606-20-2	2,6-Dinitrotoluene	770	U
208-96-8	Acenaphthylene	770	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	770	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	770	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO		
Client Project ID:	Req. #2410	0835-96-0022	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-149-08
Level (Low/Med):	Low	Lab File ID:	80396S10.D
% Moisture:	13.2	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
86-73-7	Fluorene	770	U
7005-72-3	4-Chlorophenyl phenyl ether	770	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	770	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	770	U
101-55-3	4-Bromophenyl phenyl ether	770	U
118-74-1	Hexachlorobenzene	770	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	770	U
86-74-8	Carbazole	770	U
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
85-68-7	Butylbenzylphthalate	770	U
56-55-3	Benzo[a]anthracene	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	770	U
117-81-7	Bis(2-ethylhexyl)phthalate	770	U
117-84-0	Di-n-octylphthalate	770	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	770	U
50-32-8	Benzo[a]pyrene	770	U
193-39-5	Indeno(1,2,3-c,d)pyrene	770	U
53-70-3	Dibenzo[a,h]anthracene	770	U
191-24-2	Benzo[g,h,i]perylene	770	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	89	25 - 121
2-Chlorophenol-d4	97	20 - 130
Phenol-d5	96	24 - 113
1,2-Dichlorobenzene-d4	106	20 - 130
Nitrobenzene-d5	108	23 - 120
2-Fluorobiphenyl	101	30 - 115
2,4,6-Tribromophenol	87	19 - 122
p-Terphenyl-d14	106	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-08
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0022

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2410
Lab Sample ID.: 96-07-149-08
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0022

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

Section 4: Supporting QA/QC Data

2C

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410

	Client Sample ID	Lab Sample ID	S1 (FPL)	S2 (CLP)	S3 (PHL)	S4 (DCB)	S5 (NBZ)	S6 (FBP)	S7 (TBP)	S8 (TPH)	TOT OUT
1	Reagent Blank	SRB1 07-24-96	77	84	82	91	92	88	85	100	0
2	Blank Spike	SBS1 07-24-96	75	79	77	93	87	87	85	96	0
3	Blank Spike Duplicate	SBS2 07-24-96	83	89	88	104	99	95	92	102	0
4	Reagent Blank	GPCRB 07-24-96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
5	0835-96-0015	96-07-149-01	74	83	83	93	89	92	79	97	0
6	0835-96-0016	96-07-149-02	74	84	85	91	93	89	86	94	0
7	0835-96-0017	96-07-149-03	77	88	89	100	99	98	86	100	0
8	0835-96-0021	96-07-149-07	83	91	93	101	103	99	88	106	0
9	0835-96-0022	96-07-149-08	89	97	96	106	108	101	87	106	0
10	0835-96-0030	96-07-147-08	79	89	88	97	99	95	87	98	0
11	0835-96-0019	96-07-149-05	48	66	60	61	73	10 *	5 *	33	2
12	0835-96-0020	96-07-149-06	70	91	84	81	133 *	16 *	7 *	50	3
13	0835-96-0030	96-07-147-08MS	73	86	86	97	94	90	82	100	0
14	0835-96-0030	96-07-147-08MSD	80	87	91	100	91	90	88	106	0
15	0835-96-0019	96-07-149-05DL100	D	D	D	D	D	D	D	D	0
16	0835-96-0020	96-07-149-06DL100	D	D	D	D	D	D	D	D	0
17	0835-96-0018	96-07-149-04DL2	30	44	47	51	55	71	55	92	0
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

	Recovery QC Limits Soil	Water
S1 (FPL) = 2-Fluorophenol	25 - 121	21 - 110
S2 (CLP) = 2-Chlorophenol-d4	20 - 130	33 - 110
S3 (PHL) = Phenol-d5	24 - 113	10 - 110
S4 (DCB) = 1,2-Dichlorobenzene-d4	20 - 130	16 - 110
S5 (NBZ) = Nitrobenzene-d5	23 - 120	35 - 114
S6 (FBP) = 2-Fluorobiphenyl	30 - 115	43 - 116
S7 (TBP) = 2,4,6-Tribromophenol	19 - 122	10 - 123
S8 (TPH) = p-Terphenyl-d14	18 - 137	33 - 141

3C

SOIL SEMIVOLATILE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410

Lab Sample ID: SBS1 07-24-96

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS Concentration (µg/kg)	BS % Recovery	QC Limit Recovery
Phenol	2500	ND	1670	67	26 - 90
2-Chlorophenol	2500	ND	1850	74	25 - 102
1,4-Dichlorobenzene	1700	ND	1240	73	28 - 104
N-Nitroso-di-n-propylamine	1700	ND	1260	74	41 - 126
1,2,4-Trichlorobenzene	1700	ND	1260	74	38 - 107
4-Chloro-3-methylphenol	2500	ND	1810	72	26 - 103
Acenaphthene	1700	ND	1220	72	31 - 137
4-Nitrophenol	2500	ND	1780	71	11 - 114
2,4-Dinitrotoluene	1700	ND	1300	76	28 - 89
Pentachlorophenol	2500	ND	1760	70	17 - 109
Pyrene	1700	ND	1320	78	35 - 142

Lab Sample ID: SBS2 07-24-96

Analyte	Spike Added (µg/kg)	BSD Concentration (µg/kg)	BSD % Recovery	RPD	QC Limits RPD | Rec
Phenol	2500	1790	72	7	35 | 26 - 90
2-Chlorophenol	2500	2040	82	10	50 | 25 - 102
1,4-Dichlorobenzene	1700	1350	79	8	27 | 28 - 104
N-Nitroso-di-n-propylamine	1700	1370	81	8	38 | 41 - 126
1,2,4-Trichlorobenzene	1700	1420	84	12	23 | 38 - 107
4-Chloro-3-methylphenol	2500	1980	79	9	33 | 26 - 103
Acenaphthene	1700	1260	74	3	19 | 31 - 137
4-Nitrophenol	2500	1950	78	9	50 | 11 - 114
2,4-Dinitrotoluene	1700	1360	80	5	47 | 28 - 89
Pentachlorophenol	2500	1820	73	3	47 | 17 - 109
Pyrene	1700	1370	81	4	36 | 35 - 142

ND = Not Detected

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

000143

3C

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410 % Moisture: 11.2

MS/MSD - Client Sample ID: 0835-96-0030

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % Recovery	QC Limit Recovery
Phenol	2800	ND	2310	83	26 - 90
2-Chlorophenol	2800	ND	2440	87	25 - 102
1,4-Dichlorobenzene	1900	ND	1490	78	28 - 104
N-Nitroso-di-n-propylamine	1900	ND	1560	82	41 - 126
1,2,4-Trichlorobenzene	1900	ND	1440	76	38 - 107
4-Chloro-3-methylphenol	2800	ND	2420	86	26 - 103
Acenaphthene	1900	ND	1540	81	31 - 137
4-Nitrophenol	2800	ND	2150	77	11 - 114
2,4-Dinitrotoluene	1900	ND	1570	83	28 - 89
Pentachlorophenol	2800	ND	2230	80	17 - 109
Pyrene	1900	ND	1580	83	35 - 142

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % Recovery	RPD	QC Limits RPD | Rec
Phenol	2800	2270	81	2	35 | 26 - 90
2-Chlorophenol	2800	2440	87	0	50 | 25 - 102
1,4-Dichlorobenzene	1900	1490	78	0	27 | 28 - 104
N-Nitroso-di-n-propylamine	1900	1520	80	3	38 | 41 - 126
1,2,4-Trichlorobenzene	1900	1390	73	4	23 | 38 - [illegible]
4-Chloro-3-methylphenol	2800	2410	86	0	33 | 26 - [illegible]
Acenaphthene	1900	1550	82	1	19 | 31 - 137
4-Nitrophenol	2800	2390	85	11	50 | 11 - 114
2,4-Dinitrotoluene	1900	1590	84	1	47 | 28 - 89
Pentachlorophenol	2800	2350	84	5	47 | 17 - 109
Pyrene	1900	1660	87	5	36 | 35 - 142

ND = Not Detected

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410

Lab File ID: 80396S02.D
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Matrix (soil/water): Soil

Lab Sample ID: SRB1 07-24-96
Time Analyzed: 12:51
Extraction: 3540
Level (low/med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
1	Blank Spike	SBS1 07-24-96	80396S03.D	08-03-96
2	Blank Spike Duplicate	SBS2 07-24-96	80396S04.D	08-03-96
3	Reagent Blank	GPCRB 07-24-96	80396S05.D	08-03-96
4	0835-96-0015	96-07-149-01	80396S06.D	08-03-96
5	0835-96-0016	96-07-149-02	80396S07.D	08-03-96
6	0835-96-0017	96-07-149-03	80396S08.D	08-03-96
7	0835-96-0021	96-07-149-07	80396S09.D	08-03-96
8	0835-96-0022	96-07-149-08	80396S10.D	08-03-96
9	0835-96-0030	96-07-147-08	80396S11.D	08-03-96
10	0835-96-0019	96-07-149-05	80396S12.D	08-03-96
11	0835-96-0020	96-07-149-06	80396S13.D	08-03-96
12	0835-96-0030	96-07-147-08MS	80396S14.D	08-03-96
13	0835-96-0030	96-07-147-08MSD	80396S15.D	08-03-96
14	0835-96-0019	96-07-149-05DL100	80496S02.D	08-04-96
15	0835-96-0020	96-07-149-06DL100	80496S03.D	08-04-96
16	0835-96-0018	96-07-149-04DL2	80496S11.D	08-04-96
17				
18				
19				
20				

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2410

Lab File ID: 80296T02.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-02-96
DFTPP Injection Time: 11:59

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	32.9
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	43.1
70	Less than 2.0% of mass 69	0.6
127	40.0 - 60.0% of mass 198	41.8
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 1.00% of mass 198	3.1
441	Present, but less than mass 443 (% of 443)	82.1
442	Greater than 40.0% of mass 198	52.5
443	17.0 - 23.0% of mass 442	19.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD160	160 ng 8270 Std	80296C01.D	08-02-96	12:15
2	SSTD120	120 ng 8270 Std	80296C02.D	08-02-96	13:01
3	SSTD100	100 ng 8270 Std	80296C03.D	08-02-96	13:47
4	SSTD80	80 ng 8270 Std	80296C04.D	08-02-96	14:33
5	SSTD50	50 ng 8270 Std	80296C05.D	08-02-96	15:19
6	SSTD20	20 ng 8270 Std	80296C06.D	08-02-96	16:04
7					
8					
9					
10					
1					
12					
13					
14					
15					

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PARAGON ANALYTICS, INC.

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410

Lab File ID: 80396T01.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-03-96
DFTPP Injection Time: 11:50

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	33.4
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	44.4
70	Less than 2.0% of mass 69	0.1
127	40.0 - 60.0% of mass 198	42.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	20.8
365	Greater than 1.00% of mass 198	3.0
441	Present, but less than mass 443 (% of 443)	82.2
442	Greater than 40.0% of mass 198	52.4
443	17.0 - 23.0% of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD50	50 ng 8270 Std	80396D01.D	08-03-96	12:05
2	Reagent Blank	SRB1 07-24-96	80396S02.D	08-03-96	12:51
3	Blank Spike	SBS1 07-24-96	80396S03.D	08-03-96	13:37
4	Blank Spike Duplicate	SBS2 07-24-96	80396S04.D	08-03-96	14:23
5	Reagent Blank	GPCRB 07-24-96	80396S05.D	08-03-96	15:09
6	0835-96-0015	96-07-149-01	80396S06.D	08-03-96	15:55
7	0835-96-0016	96-07-149-02	80396S07.D	08-03-96	16:41
8	0835-96-0017	96-07-149-03	80396S08.D	08-03-96	17:27
9	0835-96-0021	96-07-149-07	80396S09.D	08-03-96	18:13
10	0835-96-0022	96-07-149-08	80396S10.D	08-03-96	18:59
11	0835-96-0030	96-07-147-08	80396S11.D	08-03-96	19:44
12	0835-96-0019	96-07-149-05	80396S12.D	08-03-96	20:30
13	0835-96-0020	96-07-149-06	80396S13.D	08-03-96	21:16
14	0835-96-0030	96-07-147-08MS	80396S14.D	08-03-96	22:01
15	0835-96-0030	96-07-147-08MSD	80396S15.D	08-03-96	22:47

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. #2410

Lab File ID: 80496T01.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-04-96
DFTPP Injection Time: 10:46

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	33.5
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	41.7
70	Less than 2.0% of mass 69	0.0
127	40.0 - 60.0% of mass 198	42.2
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.1
365	Greater than 1.00% of mass 198	3.3
441	Present, but less than mass 443 (% of 443)	83.9
442	Greater than 40.0% of mass 198	51.6
443	17.0 - 23.0% of mass 442	19.1

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD50	50 ng 8270 Std	80496D01.D	08-04-96	11:02
2	0835-96-0019	96-07-149-05DL100	80496S02.D	08-04-96	11:58
3	0835-96-0020	96-07-149-06DL100	80496S03.D	08-04-96	12:44
4	0835-96-0018	96-07-149-04DL2	80496S11.D	08-04-96	18:50
5					
6					
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14					
15					

FORM V SV
PARAGON ANALYTICS, INC.

1/87 Rev

REPORT OF ANALYSES

DETERMINATION OF SEMIVOLATILES BY MODIFIED METHOD 8270

Prepared for:

Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
LOS ALAMOS, NM 87545

Request Number: 2413

August 6, 1996

REPORT OF ANALYSES

Client: Los Alamos Nat'l Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Reference: Determination of Semivolatiles by EPA Method 8270

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Section 1: Sample Numbers and Dates of Receipt
Section 2: Case Narrative and Chain of Custody
Section 3: Analytical Results
Section 4: Supporting QA/QC Data
Section 5: Supporting Raw Data

Appendix A: Run Logs and Benchsheets

Table 1 : Sample Numbers and Dates of Receipt
Form 1 : Semivolatile Organics Analysis Data Sheet
Form 2 : Surrogate Recovery Results
Form 3 : MS/MSD Results
Form 4 : Method Blank Summary
Form 5 : DFTPP Tune Report
Form 6 : Initial Calibration Report
Form 7 : Continuing Calibration Report
Form 8 : Internal Standard Area Summary

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications		
Paragon	LANL	Date Received
96-07-147-01	0835-96-0023	07-22-96
96-07-147-02	0835-96-0024	07-22-96
96-07-147-03	0835-96-0025	07-22-96
96-07-147-04	0835-96-0026	07-22-96
96-07-147-05	0835-96-0027	07-22-96
96-07-147-06	0835-96-0028	07-22-96
96-07-147-07	0835-96-0029	07-22-96
96-07-147-08	0835-96-0030	07-22-96

Section 2: Case Narrative

2.1 Sample Logistics

Eight soil samples were received in one shipment on the date shown in Table 1. All samples were received cool and intact. The chain of custody follows this narrative.

2.2 Analysis of Semivolatile Organics

The samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. All samples except the method blank, blank spike and blank spike duplicate were processed using GPC cleanup by Method 3640 in an attempt to remove potential interferences. Then samples 01 thru 07 were put through additional cleanup by Method 3650.

The samples were analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270B. As specified by the method, all positive results were quantitated with the response of the calibration curve using the internal standard technique. The identification of positive results were achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

The samples were extracted within their required holding times.

The method blank associated with this project was below the reporting limits for all analytes.

All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

The matrix spike and matrix spike duplicate recoveries and RPD's met all QC criteria.

All surrogate recoveries were within acceptable limits.

All initial and continuing calibration criteria were within acceptance criteria. Method 8270B does state that any compound exceeding 15% RSD is to be quantitated with a higher order curve. Carbazole was within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated this compound using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

Carbazole exceeded the Lanl criteria (less than 30% RSD) in the initial curve on 08-02-96. There were no hits for this compound so no further action was taken.

4-nitroaniline exceeded the Lanl criteria (less than 30% RSD) in the daily standard 80396D01.D. There were no hits for this compound so no further action was taken.

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verified by the Laboratory Manager's or designee's signature in the hardcopy report.

for Don Gipple
Laboratory Manager

July 19, 1996

Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-147

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2413 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Approx.Report Due Date: 09-AUG-96

Screening:

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0023	03	Soil	07/18/96	
HERB	STD	0835-96-0023	04	Soil	07/18/96	-01
OPPEST	STD	0835-96-0023	04	Soil	07/18/96	
PEST	STD	0835-96-0023	04	Soil	07/18/96	
SEMI	STD	0835-96-0023	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0023	06	Soil	07/18/96	
PCB	STD	0835-96-0024	03	Soil	07/18/96	
HERB	STD	0835-96-0024	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0024	04	Soil	07/18/96	
PEST	STD	0835-96-0024	04	Soil	07/18/96	
SEMI	STD	0835-96-0024	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0024	06	Soil	07/18/96	
PCB	STD	0835-96-0025	03	Soil	07/17/96	
HERB	STD	0835-96-0025	04	Soil	07/17/96	03
OPPEST	STD	0835-96-0025	04	Soil	07/17/96	
PEST	STD	0835-96-0025	04	Soil	07/17/96	
SEMI	STD	0835-96-0025	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0025	06	Soil	07/17/96	
PCB	STD	0835-96-0026	03	Soil	07/17/96	04
HERB	STD	0835-96-0026	04	Soil	07/17/96	
OPPEST	STD	0835-96-0026	04	Soil	07/17/96	

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Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0026	04	Soil	07/17/96	(04)
SEMI	STD	0835-96-0026	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0026	06	Soil	07/17/96	
PCB	STD	0835-96-0027	03	Soil	07/18/96	05
HERB	STD	0835-96-0027	04	Soil	07/18/96	
OPPEST	STD	0835-96-0027	04	Soil	07/18/96	
PEST	STD	0835-96-0027	04	Soil	07/18/96	
SEMI	STD	0835-96-0027	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0027	06	Soil	07/18/96	
PCB	STD	0835-96-0028	03	Soil	07/18/96	06
HERB	STD	0835-96-0028	04	Soil	07/18/96	
OPPEST	STD	0835-96-0028	04	Soil	07/18/96	
PEST	STD	0835-96-0028	04	Soil	07/18/96	
SEMI	STD	0835-96-0028	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0028	06	Soil	07/18/96	
PCB	STD	0835-96-0029	03	Soil	07/18/96	07
HERB	STD	0835-96-0029	04	Soil	07/18/96	
OPPEST	STD	0835-96-0029	04	Soil	07/18/96	
PEST	STD	0835-96-0029	04	Soil	07/18/96	
SEMI	STD	0835-96-0029	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0029	06	Soil	07/18/96	
PCB	STD	0835-96-0030	03	Soil	07/17/96	08
HERB	STD	0835-96-0030	04	Soil	07/17/96	
OPPEST	STD	0835-96-0030	04	Soil	07/17/96	
PEST	STD	0835-96-0030	04	Soil	07/17/96	
SEMI	STD	0835-96-0030	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0030	06	Soil	07/17/96	

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-8MO SHIPPING CONTAINER #: -

WORKORDER NO. 96-07-147 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 3°C

ATI FRM 201[illegible]5 (2/21/96)

Section 3: Analytical Results

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	N	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	330	U
62-75-9	n-Nitrosodimethylamine	330	U
62-53-3	Aniline	330	U
108-95-2	Phenol	330	U
111-44-4	Bis(2-chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	1300	U
108-60-1	Bis(2-chloroisopropyl)ether	330	U
95-48-7	2-Methylphenol	330	U
621-64-7	n-Nitroso-di-n-propylamine	330	U
106-44-5	4-Methylphenol	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	Bis(2-chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
65-85-0	Benzoic Acid	3300	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	1300	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	660	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	330	U
606-20-2	2,6-Dinitrotoluene	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	330	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	SRB1 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S02.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	N	Date Analyzed:	08-03-96
Final Volume(mL):	1	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl phenyl ether	330	U
100-01-6	4-Nitroaniline	600	U
103-33-3	Azobenzene	330	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	n-Nitrosodiphenylamine(1)	330	U
101-55-3	4-Bromophenyl phenyl ether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
86-74-8	Carbazole	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
56-55-3	Benzo[a]anthracene	330	U
91-94-1	3,3'-Dichlorobenzidine	660	U
218-01-9	Chrysene	330	U
117-81-7	Bis(2-ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	330	U
50-32-8	Benzo[a]pyrene	330	U
193-39-5	Indeno(1,2,3-c,d)pyrene	330	U
53-70-3	Dibenzo[a,h]anthracene	330	U
191-24-2	Benzo[g,h,i]perylene	330	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	77	25 - 121
2-Chlorophenol-d4	84	20 - 130
Phenol-d5	82	24 - 113
1,2-Dichlorobenzene-d4	91	20 - 130
Nitrobenzene-d5	92	23 - 120
2-Fluorobiphenyl	88	30 - 115
2,4,6-Tribromophenol	85	19 - 122
p-Terphenyl-d14	100	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: SRB1 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: SRB1 07-24-96
Sample Matrix: Sodium Sulfate
Cleanup: None

Sample ID
Reagent Blank
Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 1 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S05.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	670	
62-75-9	n-Nitrosodimethylamine	670	U
62-53-3	Aniline	670	U
108-95-2	Phenol	670	U
111-44-4	Bis(2-chloroethyl)ether	670	U
95-57-8	2-Chlorophenol	670	U
541-73-1	1,3-Dichlorobenzene	670	U
106-46-7	1,4-Dichlorobenzene	670	U
95-50-1	1,2-Dichlorobenzene	670	U
100-51-6	Benzyl Alcohol	2700	U
108-60-1	Bis(2-chloroisopropyl)ether	670	U
95-48-7	2-Methylphenol	670	U
621-64-7	n-Nitroso-di-n-propylamine	670	U
106-44-5	4-Methylphenol	670	U
67-72-1	Hexachloroethane	670	U
98-95-3	Nitrobenzene	670	U
78-59-1	Isophorone	670	U
88-75-5	2-Nitrophenol	670	U
105-67-9	2,4-Dimethylphenol	670	U
111-91-1	Bis(2-chloroethoxy)methane	670	U
120-83-2	2,4-Dichlorophenol	670	U
65-85-0	Benzoic Acid	6700	U
120-82-1	1,2,4-Trichlorobenzene	670	U
91-20-3	Naphthalene	670	U
106-47-8	4-Chloroaniline	2700	U
87-68-3	Hexachlorobutadiene	670	U
59-50-7	4-Chloro-3-methylphenol	1300	U
91-57-6	2-Methylnaphthalene	670	U
77-47-4	Hexachlorocyclopentadiene	670	U
88-06-2	2,4,6-Trichlorophenol	670	U
95-95-4	2,4,5-Trichlorophenol	3300	U
91-58-7	2-Chloronaphthalene	670	U
88-74-4	2-Nitroaniline	3300	U
131-11-3	Dimethylphthalate	670	U
606-20-2	2,6-Dinitrotoluene	670	U
208-96-8	Acenaphthylene	670	U
99-09-2	3-Nitroaniline	3300	U
83-32-9	Acenaphthene	670	U
51-28-5	2,4-Dinitrophenol	3300	U
100-02-7	4-Nitrophenol	3300	U
132-64-9	Dibenzofuran	670	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	**Reagent Blank**	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Sodium Sulfate		
Sample Weight(g):	30	Lab Sample ID:	GPCRB 07-24-96
Level (Low/Med):	Low	Lab File ID:	80396S05.D
% Moisture:	N/A	Date Collected:	N/A
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	670	U
84-66-2	Diethylphthalate	670	U
86-73-7	Fluorene	670	U
7005-72-3	4-Chlorophenyl phenyl ether	670	U
100-01-6	4-Nitroaniline	1200	U
103-33-3	Azobenzene	670	U
534-52-1	4,6-Dinitro-2-methylphenol	3300	U
86-30-6	n-Nitrosodiphenylamine(1)	670	U
101-55-3	4-Bromophenyl phenyl ether	670	U
118-74-1	Hexachlorobenzene	670	U
87-86-5	Pentachlorophenol	3300	U
85-01-8	Phenanthrene	670	U
120-12-7	Anthracene	670	U
86-74-8	Carbazole	670	U
84-74-2	Di-n-butylphthalate	670	U
206-44-0	Fluoranthene	670	U
129-00-0	Pyrene	670	U
85-68-7	Butylbenzylphthalate	670	U
56-55-3	Benzo[a]anthracene	670	U
91-94-1	3,3'-Dichlorobenzidine	1300	U
218-01-9	Chrysene	670	U
117-81-7	Bis(2-ethylhexyl)phthalate	670	U
117-84-0	Di-n-octylphthalate	670	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	670	U
50-32-8	Benzo[a]pyrene	670	U
193-39-5	Indeno(1,2,3-c,d)pyrene	670	U
53-70-3	Dibenzo[a,h]anthracene	670	U
191-24-2	Benzo[g,h,i]perylene	670	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	N/A	25 - 121
2-Chlorophenol-d4	N/A	20 - 130
Phenol-d5	N/A	24 - 113
1,2-Dichlorobenzene-d4	N/A	20 - 130
Nitrobenzene-d5	N/A	23 - 120
2-Fluorobiphenyl	N/A	30 - 115
2,4,6-Tribromophenol	N/A	19 - 122
p-Terphenyl-d14	N/A	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: GPCRB 07-24-96
Sample Matrix: Soil
Cleanup: GPC

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: GPCRB 07-24-96
Sample Matrix: Soil
Cleanup: GPC

Sample ID

Reagent Blank

Date Collected: N/A
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0023	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-01
Level (Low/Med):	Low	Lab File ID:	80496S09.D
% Moisture:	12.84	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	760	U
62-75-9	n-Nitrosodimethylamine	760	U
62-53-3	Aniline	760	U
108-95-2	Phenol	760	U
111-44-4	Bis(2-chloroethyl)ether	760	U
95-57-8	2-Chlorophenol	760	U
541-73-1	1,3-Dichlorobenzene	760	U
106-46-7	1,4-Dichlorobenzene	760	U
95-50-1	1,2-Dichlorobenzene	760	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	760	U
95-48-7	2-Methylphenol	760	U
621-64-7	n-Nitroso-di-n-propylamine	760	U
106-44-5	4-Methylphenol	760	U
67-72-1	Hexachloroethane	760	U
98-95-3	Nitrobenzene	760	U
78-59-1	Isophorone	760	U
88-75-5	2-Nitrophenol	760	U
105-67-9	2,4-Dimethylphenol	760	U
111-91-1	Bis(2-chloroethoxy)methane	760	U
120-83-2	2,4-Dichlorophenol	760	U
65-85-0	Benzoic Acid	7600	U
120-82-1	1,2,4-Trichlorobenzene	760	U
91-20-3	Naphthalene	760	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	760	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	760	U
77-47-4	Hexachlorocyclopentadiene	760	U
88-06-2	2,4,6-Trichlorophenol	760	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	760	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	760	U
606-20-2	2,6-Dinitrotoluene	760	U
208-96-8	Acenaphthylene	760	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	760	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	760	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0023	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-01
Level (Low/Med):	Low	Lab File ID:	80496S09.D
% Moisture:	12.84	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	760	U
84-66-2	Diethylphthalate	760	U
86-73-7	Fluorene	760	U
7005-72-3	4-Chlorophenyl phenyl ether	760	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	760	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	760	U
101-55-3	4-Bromophenyl phenyl ether	760	U
118-74-1	Hexachlorobenzene	760	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	760	U
120-12-7	Anthracene	760	U
86-74-8	Carbazole	760	U
84-74-2	Di-n-butylphthalate	760	U
206-44-0	Fluoranthene	760	U
129-00-0	Pyrene	760	U
85-68-7	Butylbenzylphthalate	760	U
56-55-3	Benzo[a]anthracene	760	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	760	U
117-81-7	Bis(2-ethylhexyl)phthalate	760	U
117-84-0	Di-n-octylphthalate	760	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	760	U
50-32-8	Benzo[a]pyrene	760	U
193-39-5	Indeno(1,2,3-c,d)pyrene	760	U
53-70-3	Dibenzo[a,h]anthracene	760	U
191-24-2	Benzo[g,h,i]perylene	760	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	44	25 - 121
2-Chlorophenol-d4	59	20 - 130
Phenol-d5	62	24 - 113
1,2-Dichlorobenzene-d4	61	20 - 130
Nitrobenzene-d5	66	23 - 120
2-Fluorobiphenyl	76	30 - 115
2,4,6-Tribromophenol	73	19 - 122
p-Terphenyl-d14	104	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
ent Project: Req. #2413
ab Sample ID.: 96-07-147-01
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0023

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 12.84

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-01
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0023

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 12.84

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0024	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-02
Level (Low/Med):	Low	Lab File ID:	80496S10.D
% Moisture:	15.55	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	790	U
62-75-9	n-Nitrosodimethylamine	790	U
62-53-3	Aniline	790	U
108-95-2	Phenol	790	U
111-44-4	Bis(2-chloroethyl)ether	790	U
95-57-8	2-Chlorophenol	790	U
541-73-1	1,3-Dichlorobenzene	790	U
106-46-7	1,4-Dichlorobenzene	790	U
95-50-1	1,2-Dichlorobenzene	790	U
100-51-6	Benzyl Alcohol	3200	U
108-60-1	Bis(2-chloroisopropyl)ether	790	U
95-48-7	2-Methylphenol	790	U
621-64-7	n-Nitroso-di-n-propylamine	790	U
106-44-5	4-Methylphenol	790	U
67-72-1	Hexachloroethane	790	U
98-95-3	Nitrobenzene	790	U
78-59-1	Isophorone	790	U
88-75-5	2-Nitrophenol	790	U
105-67-9	2,4-Dimethylphenol	790	U
111-91-1	Bis(2-chloroethoxy)methane	790	U
120-83-2	2,4-Dichlorophenol	790	U
65-85-0	Benzoic Acid	7900	U
120-82-1	1,2,4-Trichlorobenzene	790	U
91-20-3	Naphthalene	790	U
106-47-8	4-Chloroaniline	3200	U
87-68-3	Hexachlorobutadiene	790	U
59-50-7	4-Chloro-3-methylphenol	1600	U
91-57-6	2-Methylnaphthalene	790	U
77-47-4	Hexachlorocyclopentadiene	790	U
88-06-2	2,4,6-Trichlorophenol	790	U
95-95-4	2,4,5-Trichlorophenol	3900	U
91-58-7	2-Chloronaphthalene	790	U
88-74-4	2-Nitroaniline	3900	U
131-11-3	Dimethylphthalate	790	U
606-20-2	2,6-Dinitrotoluene	790	U
208-96-8	Acenaphthylene	790	U
99-09-2	3-Nitroaniline	3900	U
83-32-9	Acenaphthene	790	U
51-28-5	2,4-Dinitrophenol	3900	U
100-02-7	4-Nitrophenol	3900	U
132-64-9	Dibenzofuran	790	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0024	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-02
Level (Low/Med):	Low	Lab File ID:	80496S10.D
% Moisture:	15.55	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	790	U
84-66-2	Diethylphthalate	790	U
86-73-7	Fluorene	790	U
7005-72-3	4-Chlorophenyl phenyl ether	790	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	790	U
534-52-1	4,6-Dinitro-2-methylphenol	3900	U
86-30-6	n-Nitrosodiphenylamine(1)	790	U
101-55-3	4-Bromophenyl phenyl ether	790	U
118-74-1	Hexachlorobenzene	790	U
87-86-5	Pentachlorophenol	3900	U
85-01-8	Phenanthrene	790	U
120-12-7	Anthracene	790	U
86-74-8	Carbazole	790	U
84-74-2	Di-n-butylphthalate	790	U
206-44-0	Fluoranthene	790	U
129-00-0	Pyrene	790	U
85-68-7	Butylbenzylphthalate	790	U
56-55-3	Benzo[a]anthracene	790	U
91-94-1	3,3'-Dichlorobenzidine	1600	U
218-01-9	Chrysene	790	U
117-81-7	Bis(2-ethylhexyl)phthalate	180	J
117-84-0	Di-n-octylphthalate	790	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	790	U
50-32-8	Benzo[a]pyrene	790	U
193-39-5	Indeno(1,2,3-c,d)pyrene	790	U
53-70-3	Dibenzo[a,h]anthracene	790	U
191-24-2	Benzo[g,h,i]perylene	790	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	43	25 - 121
2-Chlorophenol-d4	57	20 - 130
Phenol-d5	64	24 - 113
1,2-Dichlorobenzene-d4	57	20 - 130
Nitrobenzene-d5	65	23 - 120
2-Fluorobiphenyl	79	30 - 115
2,4,6-Tribromophenol	93	19 - 122
p-Terphenyl-d14	115	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-02
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0024

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.55

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client P[illegible]ct: Req. #2413
Lab Sa[illegible] ID.: 96-07-147-02
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0024

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 15.55

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0025	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-03
Level (Low/Med):	Low	Lab File ID:	80496S07.D
% Moisture:	13.59	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	770	U
62-75-9	n-Nitrosodimethylamine	770	U
62-53-3	Aniline	770	U
108-95-2	Phenol	770	U
111-44-4	Bis(2-chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
95-50-1	1,2-Dichlorobenzene	770	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	770	U
95-48-7	2-Methylphenol	770	U
621-64-7	n-Nitroso-di-n-propylamine	770	U
106-44-5	4-Methylphenol	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
111-91-1	Bis(2-chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
65-85-0	Benzoic Acid	210	J
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	770	U
606-20-2	2,6-Dinitrotoluene	770	U
208-96-8	Acenaphthylene	770	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	770	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	770	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0025	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-03
Level (Low/Med):	Low	Lab File ID:	80496S07.D
% Moisture:	13.59	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
86-73-7	Fluorene	770	U
7005-72-3	4-Chlorophenyl phenyl ether	770	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	770	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	770	U
101-55-3	4-Bromophenyl phenyl ether	770	U
118-74-1	Hexachlorobenzene	480	J
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	770	U
86-74-8	Carbazole	770	U
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
85-68-7	Butylbenzylphthalate	770	U
56-55-3	Benzo[a]anthracene	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	770	U
117-81-7	Bis(2-ethylhexyl)phthalate	180	J
117-84-0	Di-n-octylphthalate	770	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	770	U
50-32-8	Benzo[a]pyrene	770	U
193-39-5	Indeno(1,2,3-c,d)pyrene	770	U
53-70-3	Dibenzo[a,h]anthracene	770	U
191-24-2	Benzo[g,h,i]perylene	770	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	30	25 - 121
2-Chlorophenol-d4	43	20 - 130
Phenol-d5	49	24 - 113
1,2-Dichlorobenzene-d4	41	20 - 130
Nitrobenzene-d5	50	23 - 120
2-Fluorobiphenyl	62	30 - 115
2,4,6-Tribromophenol	72	19 - 122
p-Terphenyl-d14	96	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-03
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0025

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.59

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-03
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0025

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.59

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0026	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-04
Level (Low/Med):	Low	Lab File ID:	80496S04.D
% Moisture:	12.19	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	760	U
62-75-9	n-Nitrosodimethylamine	760	U
62-53-3	Aniline	760	U
108-95-2	Phenol	760	U
111-44-4	Bis(2-chloroethyl)ether	760	U
95-57-8	2-Chlorophenol	760	U
541-73-1	1,3-Dichlorobenzene	760	U
106-46-7	1,4-Dichlorobenzene	760	U
95-50-1	1,2-Dichlorobenzene	760	U
100-51-6	Benzyl Alcohol	3000	U
108-60-1	Bis(2-chloroisopropyl)ether	760	U
95-48-7	2-Methylphenol	760	U
621-64-7	n-Nitroso-di-n-propylamine	760	U
106-44-5	4-Methylphenol	760	U
67-72-1	Hexachloroethane	760	U
98-95-3	Nitrobenzene	760	U
78-59-1	Isophorone	760	U
88-75-5	2-Nitrophenol	760	U
105-67-9	2,4-Dimethylphenol	760	U
111-91-1	Bis(2-chloroethoxy)methane	760	U
120-83-2	2,4-Dichlorophenol	760	U
65-85-0	Benzoic Acid	180	J
120-82-1	1,2,4-Trichlorobenzene	760	U
91-20-3	Naphthalene	760	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	760	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	760	U
77-47-4	Hexachlorocyclopentadiene	760	U
88-06-2	2,4,6-Trichlorophenol	760	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	760	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	760	U
606-20-2	2,6-Dinitrotoluene	760	U
208-96-8	Acenaphthylene	760	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	760	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	760	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0026	
Client Project ID:	Req. # 2413		
Matrix: (soil/[illegible])	Soil		
Sample Weig[illegible]):	30	Lab Sample ID:	96-07-147-04
Level (Low/Med):	Low	Lab File ID:	80496S04.D
% Moisture:	12.19	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	760	U
84-66-2	Diethylphthalate	760	U
86-73-7	Fluorene	760	U
7005-72-3	4-Chlorophenyl phenyl ether	760	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	760	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	760	U
101-55-3	4-Bromophenyl phenyl ether	760	U
118-74-1	Hexachlorobenzene	760	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	760	U
120-12-7	Anthracene	760	U
86-74-8	Carbazole	760	U
84-74-2	Di-n-butylphthalate	760	U
206-44-0	Fluoranthene	760	U
129-00-0	Pyrene	760	U
85-68-7	Butylbenzylphthalate	760	U
56-55-3	Benzo[a]anthracene	760	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	760	U
117-81-7	Bis(2-ethylhexyl)phthalate	760	U
117-84-0	Di-n-octylphthalate	760	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	760	U
50-32-8	Benzo[a]pyrene	760	U
193-39-5	Indeno(1,2,3-c,d)pyrene	760	U
53-70-3	Dibenzo[a,h]anthracene	760	U
191-24-2	Benzo[g,h,i]perylene	760	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	47	25 - 121
2-Chlorophenol-d4	57	20 - 130
Phenol-d5	60	24 - 113
1,2-Dichlorobenzene-d4	62	20 - 130
Nitrobenzene-d5	66	23 - 120
2-Fluorobiphenyl	71	30 - 115
2,4,6-Tribromophenol	82	19 - 122
p-Terphenyl-d14	102	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-04
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0026

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 12.19

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
[illegible]		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-04
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0026

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 12.19

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0027	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-05
Level (Low/Med):	Low	Lab File ID:	80496S05.D
% Moisture:	7.2	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	720	U
62-75-9	n-Nitrosodimethylamine	720	U
62-53-3	Aniline	720	U
108-95-2	Phenol	720	U
111-44-4	Bis(2-chloroethyl)ether	720	U
95-57-8	2-Chlorophenol	720	U
541-73-1	1,3-Dichlorobenzene	720	U
106-46-7	1,4-Dichlorobenzene	720	U
95-50-1	1,2-Dichlorobenzene	720	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	720	U
95-48-7	2-Methylphenol	720	U
621-64-7	n-Nitroso-di-n-propylamine	720	U
106-44-5	4-Methylphenol	720	U
67-72-1	Hexachloroethane	720	U
98-95-3	Nitrobenzene	720	U
78-59-1	Isophorone	720	U
88-75-5	2-Nitrophenol	720	U
105-67-9	2,4-Dimethylphenol	720	U
111-91-1	Bis(2-chloroethoxy)methane	720	U
120-83-2	2,4-Dichlorophenol	720	U
65-85-0	Benzoic Acid	7200	U
120-82-1	1,2,4-Trichlorobenzene	720	U
91-20-3	Naphthalene	720	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	720	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	720	U
77-47-4	Hexachlorocyclopentadiene	720	U
88-06-2	2,4,6-Trichlorophenol	720	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	720	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	720	U
606-20-2	2,6-Dinitrotoluene	720	U
208-96-8	Acenaphthylene	720	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	720	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	720	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0027	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-05
Level (Low/Med):	Low	Lab File ID:	80496S05.D
% Moisture:	7.2	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	720	U
84-66-2	Diethylphthalate	720	U
86-73-7	Fluorene	720	U
7005-72-3	4-Chlorophenyl phenyl ether	720	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	720	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	n-Nitrosodiphenylamine(1)	720	U
101-55-3	4-Bromophenyl phenyl ether	720	U
118-74-1	Hexachlorobenzene	720	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	720	U
120-12-7	Anthracene	720	U
86-74-8	Carbazole	720	U
84-74-2	Di-n-butylphthalate	720	U
206-44-0	Fluoranthene	720	U
129-00-0	Pyrene	720	U
85-68-7	Butylbenzylphthalate	720	U
56-55-3	Benzo[a]anthracene	720	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	720	U
117-81-7	Bis(2-ethylhexyl)phthalate	720	U
117-84-0	Di-n-octylphthalate	720	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	720	U
50-32-8	Benzo[a]pyrene	720	U
193-39-5	Indeno(1,2,3-c,d)pyrene	720	U
53-70-3	Dibenzo[a,h]anthracene	720	U
191-24-2	Benzo[g,h,i]perylene	720	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	36	25 - 121
2-Chlorophenol-d4	47	20 - 130
Phenol-d5	53	24 - 113
1,2-Dichlorobenzene-d4	47	20 - 130
Nitrobenzene-d5	55	23 - 120
2-Fluorobiphenyl	68	30 - 115
2,4,6-Tribromophenol	84	19 - 122
p-Terphenyl-d14	103	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-05
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0027

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 7.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-05
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0027

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 7.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0028	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-06
Level (Low/Med):	Low	Lab File ID:	80496S06.D
% Moisture:	13.7	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	770	U
62-75-9	n-Nitrosodimethylamine	770	U
62-53-3	Aniline	770	U
108-95-2	Phenol	770	U
111-44-4	Bis(2-chloroethyl)ether	770	U
95-57-8	2-Chlorophenol	770	U
541-73-1	1,3-Dichlorobenzene	770	U
106-46-7	1,4-Dichlorobenzene	770	U
95-50-1	1,2-Dichlorobenzene	770	U
100-51-6	Benzyl Alcohol	3100	U
108-60-1	Bis(2-chloroisopropyl)ether	770	U
95-48-7	2-Methylphenol	770	U
621-64-7	n-Nitroso-di-n-propylamine	770	U
106-44-5	4-Methylphenol	770	U
67-72-1	Hexachloroethane	770	U
98-95-3	Nitrobenzene	770	U
78-59-1	Isophorone	770	U
88-75-5	2-Nitrophenol	770	U
105-67-9	2,4-Dimethylphenol	770	U
111-91-1	Bis(2-chloroethoxy)methane	770	U
120-83-2	2,4-Dichlorophenol	770	U
65-85-0	Benzoic Acid	7700	U
120-82-1	1,2,4-Trichlorobenzene	770	U
91-20-3	Naphthalene	770	U
106-47-8	4-Chloroaniline	3100	U
87-68-3	Hexachlorobutadiene	770	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	770	U
77-47-4	Hexachlorocyclopentadiene	770	U
88-06-2	2,4,6-Trichlorophenol	770	U
95-95-4	2,4,5-Trichlorophenol	3800	U
91-58-7	2-Chloronaphthalene	770	U
88-74-4	2-Nitroaniline	3800	U
131-11-3	Dimethylphthalate	770	U
606-20-2	2,6-Dinitrotoluene	770	U
208-96-8	Acenaphthylene	770	U
99-09-2	3-Nitroaniline	3800	U
83-32-9	Acenaphthene	770	U
51-28-5	2,4-Dinitrophenol	3800	U
100-02-7	4-Nitrophenol	3800	U
132-64-9	Dibenzofuran	770	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL 10	0835-96-0028	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-06
Level (Low/Med):	Low	Lab File ID:	80496S06.D
% Moisture:	13.7	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	770	U
84-66-2	Diethylphthalate	770	U
86-73-7	Fluorene	770	U
7005-72-3	4-Chlorophenyl phenyl ether	770	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	770	U
534-52-1	4,6-Dinitro-2-methylphenol	3800	U
86-30-6	n-Nitrosodiphenylamine(1)	770	U
101-55-3	4-Bromophenyl phenyl ether	770	U
118-74-1	Hexachlorobenzene	770	U
87-86-5	Pentachlorophenol	3800	U
85-01-8	Phenanthrene	770	U
120-12-7	Anthracene	770	U
86-74-8	Carbazole	770	U
84-74-2	Di-n-butylphthalate	770	U
206-44-0	Fluoranthene	770	U
129-00-0	Pyrene	770	U
85-68-7	Butylbenzylphthalate	770	U
56-55-3	Benzo[a]anthracene	770	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	770	U
117-81-7	Bis(2-ethylhexyl)phthalate	2200	
117-84-0	Di-n-octylphthalate	770	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	770	U
50-32-8	Benzo[a]pyrene	770	U
193-39-5	Indeno(1,2,3-c,d)pyrene	770	U
53-70-3	Dibenzo[a,h]anthracene	770	U
191-24-2	Benzo[g,h,i]perylene	770	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	42	25 - 121
2-Chlorophenol-d4	51	20 - 130
Phenol-d5	53	24 - 113
1,2-Dichlorobenzene-d4	55	20 - 130
Nitrobenzene-d5	56	23 - 120
2-Fluorobiphenyl	66	30 - 115
2,4,6-Tribromophenol	80	19 - 122
p-Terphenyl-d14	97	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-06
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0028

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.70

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-06
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0028

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 13.70

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0029	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-07
Level (Low/Med):	Low	Lab File ID:	80496S08.D
% Moisture:	6.58	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	710	U
62-75-9	n-Nitrosodimethylamine	710	U
62-53-3	Aniline	710	U
108-95-2	Phenol	710	U
111-44-4	Bis(2-chloroethyl)ether	710	U
95-57-8	2-Chlorophenol	710	U
541-73-1	1,3-Dichlorobenzene	710	U
106-46-7	1,4-Dichlorobenzene	710	U
95-50-1	1,2-Dichlorobenzene	710	U
100-51-6	Benzyl Alcohol	2900	U
108-60-1	Bis(2-chloroisopropyl)ether	710	U
95-48-7	2-Methylphenol	710	U
621-64-7	n-Nitroso-di-n-propylamine	710	U
106-44-5	4-Methylphenol	710	U
67-72-1	Hexachloroethane	710	U
98-95-3	Nitrobenzene	710	U
78-59-1	Isophorone	710	U
88-75-5	2-Nitrophenol	710	U
105-67-9	2,4-Dimethylphenol	710	U
111-91-1	Bis(2-chloroethoxy)methane	710	U
120-83-2	2,4-Dichlorophenol	710	U
65-85-0	Benzoic Acid	7100	U
120-82-1	1,2,4-Trichlorobenzene	710	U
91-20-3	Naphthalene	710	U
106-47-8	4-Chloroaniline	2900	U
87-68-3	Hexachlorobutadiene	710	U
59-50-7	4-Chloro-3-methylphenol	1400	U
91-57-6	2-Methylnaphthalene	710	U
77-47-4	Hexachlorocyclopentadiene	710	U
88-06-2	2,4,6-Trichlorophenol	710	U
95-95-4	2,4,5-Trichlorophenol	3500	U
91-58-7	2-Chloronaphthalene	710	U
88-74-4	2-Nitroaniline	3500	U
131-11-3	Dimethylphthalate	710	U
606-20-2	2,6-Dinitrotoluene	710	U
208-96-8	Acenaphthylene	710	U
99-09-2	3-Nitroaniline	3500	U
83-32-9	Acenaphthene	710	U
51-28-5	2,4-Dinitrophenol	3500	U
100-02-7	4-Nitrophenol	3500	U
132-64-9	Dibenzofuran	710	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO		
Client Project ID:	Req. # 2413	0835-96-0029	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-07
Level (Low/Med):	Low	Lab File ID:	80496S08.D
% Moisture:	6.58	Date Collected:	07-18-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-04-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	710	U
84-66-2	Diethylphthalate	710	U
86-73-7	Fluorene	710	U
7005-72-3	4-Chlorophenyl phenyl ether	710	U
100-01-6	4-Nitroaniline	1300	U
103-33-3	Azobenzene	710	U
534-52-1	4,6-Dinitro-2-methylphenol	3500	U
86-30-6	n-Nitrosodiphenylamine(1)	710	U
101-55-3	4-Bromophenyl phenyl ether	710	U
118-74-1	Hexachlorobenzene	710	U
87-86-5	Pentachlorophenol	3500	U
85-01-8	Phenanthrene	710	U
120-12-7	Anthracene	710	U
86-74-8	Carbazole	710	U
84-74-2	Di-n-butylphthalate	710	U
206-44-0	Fluoranthene	710	U
129-00-0	Pyrene	710	U
85-68-7	Butylbenzylphthalate	710	U
56-55-3	Benzo[a]anthracene	710	U
91-94-1	3,3'-Dichlorobenzidine	1400	U
218-01-9	Chrysene	710	U
117-81-7	Bis(2-ethylhexyl)phthalate	710	U
117-84-0	Di-n-octylphthalate	710	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	710	U
50-32-8	Benzo[a]pyrene	710	U
193-39-5	Indeno(1,2,3-c,d)pyrene	710	U
53-70-3	Dibenzo[a,h]anthracene	710	U
191-24-2	Benzo[g,h,i]perylene	710	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	37	25 - 121
2-Chlorophenol-d4	48	20 - 130
Phenol-d5	52	24 - 113
1,2-Dichlorobenzene-d4	47	20 - 130
Nitrobenzene-d5	54	23 - 120
2-Fluorobiphenyl	71	30 - 115
2,4,6-Tribromophenol	84	19 - 122
ᵧ-Terphenyl-d14	101	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270

Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-07
Sample Matrix: Soil
Cleanup: GPC

Sample ID

0835-96-0029

Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 6.58

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-07
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0029
Date Collected: 07-18-96
Date Extracted: 07-24-96
Date Analyzed: 08-04-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 6.58

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO	0835-96-0030	
Client Project ID:	Req. # 2413		
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-08
Level (Low/Med):	Low	Lab File ID:	80396S11.D
% Moisture:	11.2	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
110-86-1	Pyridine	750	U
62-75-9	n-Nitrosodimethylamine	750	U
62-53-3	Aniline	750	U
108-95-2	Phenol	750	U
111-44-4	Bis(2-chloroethyl)ether	750	U
95-57-8	2-Chlorophenol	750	U
541-73-1	1,3-Dichlorobenzene	750	U
106-46-7	1,4-Dichlorobenzene	750	U
95-50-1	1,2-Dichlorobenzene	750	U
100-51-6	Benzyl Alcohol	3000	U
108-60-1	Bis(2-chloroisopropyl)ether	750	U
95-48-7	2-Methylphenol	750	U
621-64-7	n-Nitroso-di-n-propylamine	750	U
106-44-5	4-Methylphenol	750	U
67-72-1	Hexachloroethane	750	U
98-95-3	Nitrobenzene	750	U
78-59-1	Isophorone	750	U
88-75-5	2-Nitrophenol	750	U
105-67-9	2,4-Dimethylphenol	750	U
111-91-1	Bis(2-chloroethoxy)methane	750	U
120-83-2	2,4-Dichlorophenol	750	U
65-85-0	Benzoic Acid	7500	U
120-82-1	1,2,4-Trichlorobenzene	750	U
91-20-3	Naphthalene	750	U
106-47-8	4-Chloroaniline	3000	U
87-68-3	Hexachlorobutadiene	750	U
59-50-7	4-Chloro-3-methylphenol	1500	U
91-57-6	2-Methylnaphthalene	750	U
77-47-4	Hexachlorocyclopentadiene	750	U
88-06-2	2,4,6-Trichlorophenol	750	U
95-95-4	2,4,5-Trichlorophenol	3700	U
91-58-7	2-Chloronaphthalene	750	U
88-74-4	2-Nitroaniline	3700	U
131-11-3	Dimethylphthalate	750	U
606-20-2	2,6-Dinitrotoluene	750	U
208-96-8	Acenaphthylene	750	U
99-09-2	3-Nitroaniline	3700	U
83-32-9	Acenaphthene	750	U
51-28-5	2,4-Dinitrophenol	3700	U
100-02-7	4-Nitrophenol	3700	U
132-64-9	Dibenzofuran	750	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:	Paragon Analytics, Inc.	Sample ID	
Client Name:	LANL - SMO		
Client Project ID:	Req. # 2413	0835-96-0030	
Matrix: (soil/water)	Soil		
Sample Weight(g):	30	Lab Sample ID:	96-07-147-08
Level (Low/Med):	Low	Lab File ID:	80396S11.D
% Moisture:	11.2	Date Collected:	07-17-96
Extraction:	Soxhlet	Date Extracted:	07-24-96
GPC Cleanup (Y/N):	Y	Date Analyzed:	08-03-96
Final Volume(mL):	2	Dilution Factor:	1

CAS No.	Analyte	Conc. (µg/kg)	Q
121-14-2	2,4-Dinitrotoluene	750	U
84-66-2	Diethylphthalate	750	U
86-73-7	Fluorene	750	U
7005-72-3	4-Chlorophenyl phenyl ether	750	U
100-01-6	4-Nitroaniline	1400	U
103-33-3	Azobenzene	750	U
534-52-1	4,6-Dinitro-2-methylphenol	3700	U
86-30-6	n-Nitrosodiphenylamine(1)	750	U
101-55-3	4-Bromophenyl phenyl ether	750	U
118-74-1	Hexachlorobenzene	750	U
87-86-5	Pentachlorophenol	3700	U
85-01-8	Phenanthrene	750	U
120-12-7	Anthracene	750	U
86-74-8	Carbazole	750	U
84-74-2	Di-n-butylphthalate	750	U
206-44-0	Fluoranthene	750	U
129-00-0	Pyrene	750	U
85-68-7	Butylbenzylphthalate	750	U
56-55-3	Benzo[a]anthracene	750	U
91-94-1	3,3'-Dichlorobenzidine	1500	U
218-01-9	Chrysene	750	U
117-81-7	Bis(2-ethylhexyl)phthalate	750	U
117-84-0	Di-n-octylphthalate	750	U
205-99-2, 207-08-9	Benzo[b,k]fluoranthene	750	U
50-32-8	Benzo[a]pyrene	750	U
193-39-5	Indeno(1,2,3-c,d)pyrene	750	U
53-70-3	Dibenzo[a,h]anthracene	750	U
191-24-2	Benzo[g,h,i]perylene	750	U

(1) - Cannot be separated from Diphenylamine

SURROGATE RECOVERIES

Analyte	% Recovery	Rec QC Limits
2-Fluorophenol	79	25 - 121
2-Chlorophenol-d4	89	20 - 130
Phenol-d5	88	24 - 113
1,2-Dichlorobenzene-d4	97	20 - 130
Nitrobenzene-d5	99	23 - 120
2-Fluorobiphenyl	95	30 - 115
2,4,6-Tribromophenol	87	19 - 122
p-Terphenyl-d14	98	18 - 137

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-08
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0030

Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 11.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
1		1,4-Dioxane		NF
2		2-Picoline		NF
3		Acetophenone		NF
4		2-Acetylaminofluorene		NF
5		4-Aminobiphenyl		NF
6		Aramite		NF
7		Bis(2-chloroethoxy) methane		NF
8		Bis(2-chloro-1-methylethyl) ether		NF
9		2-sec-Butyl-4,6-dinitrophenol		NF
10		Chlorobenzilate		NF
11		2-Cyclohexyl-4,6-dinitrophenol		NF
12		Diallate		NF
13		Dibenz(a,j)acridine		NF
14		Dimethoate		NF
15		Dinoseb		NF
16		3,3'-Dimethoxybenzidine		NF
17		p-Dimethylaminoazobenzene		NF
18		7,12-Dimethylbenz(a)anthracene		NF
19		3,3'-Dimethylbenzidine		NF
20		4,6-Dinitro-2-methylphenol		NF
21		1,3-Dinitrobenzene		NF
22		Diphenylamine		NF
23		1,2-Diphenyl hydrazine		NF
24		Disulfoton		NF
25		Ethyl methanesulfonate		NF
26		Famphur		NF
27		Hexachlorophene		NF
28		Hexachloropropene		NF
29		Isodrin		NF
30		Isosafrole		NF
31		Kepone		NF
32		Methapyrilene		NF
33		3-Methylcholanthrene		NF
34		Methyl methanesulfonate		NF
35		2-Methyl-5-nitroaniline		NF
36		2-Methylpyridine		NF

SEMIVOLATILE ORGANICS

Modified Method 8270
Tentatively Identified Compounds

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project: Req. #2413
Lab Sample ID.: 96-07-147-08
Sample Matrix: Soil
Cleanup: GPC

Sample ID
0835-96-0030
Date Collected: 07-17-96
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Sample Weight: 30 g
Final Volume: 2 mL
Percent Moisture: 11.20

# of TIC's found: 0

	RT	Compound	Conc. (µg/kg)	Q
37		1,4-Naphthoquinone		NF
38		1-Naphthylamine		NF
39		2-Naphthylamine		NF
40		4-Nitroquinoline-1-oxide		NF
41		N-Nitrosodi-n-butylamine		NF
42		N-Nitrosodiethylamine		NF
43		N-Nitrosomethylethylamine		NF
44		N-Nitrosomorpholine		NF
45		N-Nitrosopiperdine		NF
46		N-Nitrosopyrrolidine		NF
47		5-Nitro-o-toluidine		NF
48		Parathion methyl		NF
49		Pentachlorobenzene		NF
50		Pentachloronitrobenzene		NF
51		Phenacetin		NF
52		p-Phenylenediamine		NF
53		2-Picoline		NF
54		Pronamide		NF
55		Safrole		NF
56		1,2,4,5-Tetrachlorobenzene		NF
57		2,3,4,6-Tetrachlorophenol		NF
58		Tetraethyl dithiopyrophosphate		NF
59		Tetraethyl pyrophosphate		NF
60		Thionazin		NF
61		Thiophenol		NF
62		o-Toluidine		NF
63		Tris(2,3-dibromoo-propyl)phosphate		NF
64		O,O,O-Triethyl phosphorothionate		NF
65		1,3,5-Trinitrobenzene		NF
66		2,6-Dichlorophenol		NF
67		a,a-Dimethylphenethyl amine		NF
68		Parathion methyl		NF
69		Dinoseb		NF

Section 4: Supporting QA/QC Data

2C

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

	Client Sample ID	Lab Sample ID	S1 (FPL)	S2 (CLP)	S3 (PHL)	S4 (DCB)	S5 (NBZ)	S6 (FBP)	S7 (TBP)	S8 (TPH)	TOT OUT
1	Reagent Blank	SRB1 07-24-96	77	84	82	91	92	88	85	100	0
2	Blank Spike	SBS1 07-24-96	75	79	77	93	87	87	85	96	0
3	Blank Spike Duplicate	SBS2 07-24-96	83	89	88	104	99	95	92	102	0
4	Reagent Blank	GPCRB 07-24-96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
5	0835-96-0030	96-07-147-08	79	89	88	97	99	95	87	98	0
6	0835-96-0030	96-07-147-08MS	73	86	86	97	94	90	82	100	0
7	0835-96-0030	96-07-147-08MSD	80	87	91	100	91	90	88	106	0
8	0835-96-0026	96-07-147-04	47	57	60	62	66	71	82	102	0
9	0835-96-0027	96-07-147-05	36	47	53	47	55	68	84	103	0
10	0835-96-0028	96-07-147-06	42	51	53	55	56	66	80	97	0
11	0835-96-0025	96-07-147-03	30	43	49	41	50	62	72	96	0
12	0835-96-0029	96-07-147-07	37	48	52	47	54	71	84	101	0
13	0835-96-0023	96-07-147-01	44	59	62	61	66	76	73	104	0
14	0835-96-0024	96-07-147-02	43	57	64	57	65	79	93	115	0
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

	Recovery QC Limits Soil	Water
S1 (FPL) = 2-Fluorophenol	25 - 121	21 - 110
S2 (CLP) = 2-Chlorophenol-d4	20 - 130	33 - 110
S3 (PHL) = Phenol-d5	24 - 113	10 - 110
S4 (DCB) = 1,2-Dichlorobenzene-d4	20 - 130	16 - 110
S5 (NBZ) = Nitrobenzene-d5	23 - 120	35 - 114
S6 (FBP) = 2-Fluorobiphenyl	30 - 115	43 - 116
S7 (TBP) = 2,4,6-Tribromophenol	19 - 122	10 - 123
S8 (TPH) = p-Terphenyl-d14	18 - 137	33 - 141

3C

SOIL SEMIVOLATILE BLANK SPIKE/BLANK SPIKE DUPLICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

Lab Sample ID: SBS1 07-24-96

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	BS Concentration (µg/kg)	BS % Recovery	QC Limit Recovery
Phenol	2500	ND	1670	67	26 - 90
2-Chlorophenol	2500	ND	1850	74	25 - 102
1,4-Dichlorobenzene	1700	ND	1240	73	28 - 104
N-Nitroso-di-n-propylamine	1700	ND	1260	74	41 - 126
1,2,4-Trichlorobenzene	1700	ND	1260	74	38 - 107
4-Chloro-3-methylphenol	2500	ND	1810	72	26 - 103
Acenaphthene	1700	ND	1220	72	31 - 137
4-Nitrophenol	2500	ND	1780	71	11 - 114
2,4-Dinitrotoluene	1700	ND	1300	76	28 - 89
Pentachlorophenol	2500	ND	1760	70	17 - 109
Pyrene	1700	ND	1320	78	35 - 142

Lab Sample ID: SBS2 07-24-96

Analyte	Spike Added (µg/kg)	BSD Concentration (µg/kg)	BSD % Recovery	RPD	QC Limits RPD | Rec
Phenol	2500	1790	72	7	35 | 26 - 90
2-Chlorophenol	2500	2040	82	10	50 | 25 - 102
1,4-Dichlorobenzene	1700	1350	79	8	27 | 28 - 104
N-Nitroso-di-n-propylamine	1700	1370	81	8	38 | 41 - 126
1,2,4-Trichlorobenzene	1700	1420	84	12	23 | 38 - 107
4-Chloro-3-methylphenol	2500	1980	79	9	33 | 26 - 103
Acenaphthene	1700	1260	74	3	19 | 31 - 137
4-Nitrophenol	2500	1950	78	9	50 | 11 - 114
2,4-Dinitrotoluene	1700	1360	80	5	47 | 28 - 89
Pentachlorophenol	2500	1820	73	3	47 | 17 - 109
Pyrene	1700	1370	81	4	36 | 35 - 142

ND = Not Detected

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

3C

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413 % Moisture: 11.2

MS/MSD - Client Sample ID: 0835-96-0030

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS % Recovery	QC Limit Recovery
Phenol	2800	ND	2310	83	26 - 90
2-Chlorophenol	2800	ND	2440	87	25 - 102
1,4-Dichlorobenzene	1900	ND	1490	78	28 - 104
N-Nitroso-di-n-propylamine	1900	ND	1560	82	41 - 126
1,2,4-Trichlorobenzene	1900	ND	1440	76	38 - 107
4-Chloro-3-methylphenol	2800	ND	2420	86	26 - 103
Acenaphthene	1900	ND	1540	81	31 - 137
4-Nitrophenol	2800	ND	2150	77	11 - 114
2,4-Dinitrotoluene	1900	ND	1570	83	28 - 89
Pentachlorophenol	2800	ND	2230	80	17 - 109
Pyrene	1900	ND	1580	83	35 - 142

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD % Recovery	RPD	QC Limits RPD | Rec
Phenol	2800	2270	81	2	35 | 26 - 90
2-Chlorophenol	2800	2440	87	0	50 | 25 - 102
1,4-Dichlorobenzene	1900	1490	78	0	27 | 28 - 104
N-Nitroso-di-n-propylamine	1900	1520	80	3	38 | 41 - 126
1,2,4-Trichlorobenzene	1900	1390	73	4	23 | 38 - 107
4-Chloro-3-methylphenol	2800	2410	86	0	33 | 26 - 103
Acenaphthene	1900	1550	82	1	19 | 31 - 137
4-Nitrophenol	2800	2390	85	11	50 | 11 - 114
2,4-Dinitrotoluene	1900	1590	84	1	47 | 28 - 89
Pentachlorophenol	2800	2350	84	5	47 | 17 - 109
Pyrene	1900	1660	87	5	36 | 35 - 142

ND = Not Detected

RPD: 0 out of 11 outside limits
Spike Recovery: 0 out of 22 outside limits

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

Lab File ID: 80396S02.D
Date Extracted: 07-24-96
Date Analyzed: 08-03-96
Matrix (soil/water): Soil

Lab Sample ID: SRB1 07-24-96
Time Analyzed: 12:51
Extraction: 3540
Level (low/med): Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
1	Blank Spike	SBS1 07-24-96	80396S03.D	08-03-96
2	Blank Spike Duplicate	SBS2 07-24-96	80396S04.D	08-03-96
3	Reagent Blank	GPCRB 07-24-96	80396S05.D	08-03-96
4	0835-96-0030	96-07-147-08	80396S11.D	08-03-96
5	0835-96-0030	96-07-147-08MS	80396S14.D	08-03-96
6	0835-96-0030	96-07-147-08MSD	80396S15.D	08-03-96
7	0835-96-0026	96-07-147-04	80496S04.D	08-04-96
8	0835-96-0027	96-07-147-05	80496S05.D	08-04-96
9	0835-96-0028	96-07-147-06	80496S06.D	08-04-96
10	0835-96-0025	96-07-147-03	80496S07.D	08-04-96
11	0835-96-0029	96-07-147-07	80496S08.D	08-04-96
12	0835-96-0023	96-07-147-01	80496S09.D	08-04-96
13	0835-96-0024	96-07-147-02	80496S10.D	08-04-96
14				
15				
16				
17				
18				
19				
20				

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

Lab File ID: 80296T02.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-02-96
DFTPP Injection Time: 11:59

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	32.9
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	43.1
70	Less than 2.0% of mass 69	0.6
127	40.0 - 60.0% of mass 198	41.8
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.5
365	Greater than 1.00% of mass 198	3.1
441	Present, but less than mass 443 (% of 443)	82.1
442	Greater than 40.0% of mass 198	52.5
443	17.0 - 23.0% of mass 442	19.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD160	160 ng 8270 Std	80296C01.D	08-02-96	12:15
2	SSTD120	120 ng 8270 Std	80296C02.D	08-02-96	13:01
3	SSTD100	100 ng 8270 Std	80296C03.D	08-02-96	13:47
4	SSTD80	80 ng 8270 Std	80296C04.D	08-02-96	14:33
5	SSTD50	50 ng 8270 Std	80296C05.D	08-02-96	15:19
6	SSTD20	20 ng 8270 Std	80296C06.D	08-02-96	16:04
7					
8					
9					
10					
11					
12					
13					
14					
15					

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

Lab File ID: 80396T01.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-03-96
DFTPP Injection Time: 11:50

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	33.4
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	44.4
70	Less than 2.0% of mass 69	0.1
127	40.0 - 60.0% of mass 198	42.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.8
275	10.0 - 30.0% of mass 198	20.8
365	Greater than 1.00% of mass 198	3.0
441	Present, but less than mass 443 (% of 443)	82.2
442	Greater than 40.0% of mass 198	52.4
443	17.0 - 23.0% of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD50	50 ng 8270 Std	80396D01.D	08-03-96	12:05
2	Reagent Blank	SRB1 07-24-96	80396S02.D	08-03-96	12:51
3	Blank Spike	SBS1 07-24-96	80396S03.D	08-03-96	13:37
4	Blank Spike Duplicate	SBS2 07-24-96	80396S04.D	08-03-96	14:23
5	Reagent Blank	GPCRB 07-24-96	80396S05.D	08-03-96	15:09
6	0835-96-0030	96-07-147-08	80396S11.D	08-03-96	19:44
7	0835-96-0030	96-07-147-08MS	80396S14.D	08-03-96	22:01
8	0835-96-0030	96-07-147-08MSD	80396S15.D	08-03-96	22:47
9					
10					
11					
12					
13					
14					
15					

5B

SEMIVOLATILE ORGANIC GC/MS TUNING AND MASS CALIBRATION - DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Paragon Analytics, Inc.
Client Name: LANL - SMO
Client Project ID: Req. # 2413

Lab File ID: 80496T01.D
Instrument ID: HP-SV 1
DFTPP Injection Date: 08-04-96
DFTPP Injection Time: 10:46

m/e	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	33.5
68	Less than 2.0% of mass 69	0.0
69	Mass 69 relative abundance of mass 198	41.7
70	Less than 2.0% of mass 69	0.0
127	40.0 - 60.0% of mass 198	42.2
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% of relative abundance	100.0
199	5.0 - 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	21.1
365	Greater than 1.00% of mass 198	3.3
441	Present, but less than mass 443 (% of 443)	83.9
442	Greater than 40.0% of mass 198	51.6
443	17.0 - 23.0% of mass 442	19.1

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STDS:

	Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
1	SSTD50	50 ng 8270 Std	80496D01.D	08-04-96	11:02
2	0835-96-0026	96-07-147-04	80496S04.D	08-04-96	13:30
3	0835-96-0027	96-07-147-05	80496S05.D	08-04-96	14:15
4	0835-96-0028	96-07-147-06	80496S06.D	08-04-96	15:01
5	0835-96-0025	96-07-147-03	80496S07.D	08-04-96	15:47
6	0835-96-0029	96-07-147-07	80496S08.D	08-04-96	16:33
7	0835-96-0023	96-07-147-01	80496S09.D	08-04-96	17:18
8	0835-96-0024	96-07-147-02	80496S10.D	08-04-96	18:04
9					
10					
11					
12					
13					
14					
15					

REPORT OF ANALYSES

DETERMINATION OF ORGANOCHLORINE PESTICIDES and PCB's

Prepared for:

Los Alamos National Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H 865
Drop Point 01U
Los Alamos, NM 87545

Request Number: 2407

August 8, 1996

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Appendix B: Nonconformance and Corrective Action Reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Client	PAI-CO	Date Collected	Date Received	Date Extracted	Date Analyzed
0835-96-0001	96-07-113-01	07/15/96	07/16/96	07/21/96	07/26/96
0835-96-0002	96-07-113-02	07/15/96	07/16/96	07/21/96	07/26/96
0835-96-0003	96-07-113-03	07/15/96	07/16/96	07/21/96	07/26/96
0835-96-0004	96-07-113-04	07/15/96	07/16/96	07/21/96	07/26/96
0835-96-0005	96-07-113-05	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0006	96-07-113-06	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0007	96-07-113-07	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0008	96-07-113-08	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0009	96-07-113-09	07/15/96	07/16/96	07/21/96	07/27/96
835-96-0010	96-07-113-10	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0011	96-07-113-11	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0012	96-07-113-12	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0013	96-07-113-13	07/15/96	07/16/96	07/21/96	07/27/96
0835-96-0014	96-07-113-14	07/15/96	07/16/96	07/21/96	07/27/96

Section 2: Case Narrative

2.1 Sample Logistics

The above samples were received cool and intact on the dates in the above table.

2.2 Analysis of Organochlorine Pesticides

These samples were extracted and analyzed according to S[illegible]846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. These extracts were then processed using florisil cleanup by Method 3620 in an attempt to remove potential interference's.

The extracts were then analyzed using GC/ECD (electron capture detectors) with a DB-17 capillary column according to protocols based on Method 8081. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interference's.

Several CCV's were outside of QC criteria for several compounds. No hits were found for any of the compounds in the samples. No further action was taken.

2.3 Instrumental Conditions (GC/ECD1)

Columns: DB-1701 0.32mm I.D. x 0.25 μm film x 30 m length
DB-17 0.32 mm I.D. x 0.25 μm film x 30 m length

Carrier flow rate: 2 mL/min (helium) for both columns.

Temperature program: 110°C (hold 0.5 min) to 140°C at 20/min then to 275°C at 13/min (hold 5.87 min).

Detectors: Electron Capture

Injection volume: 1 μL.

Injector Temperature: 210°C

Detector Temperature: 325°C

2.4 Quality Control Data

These data are summarized in Section 5, Summary Report. Data is presented for:

Run Chronology
Blank Spike Recoveries
Matrix Spike Recoveries
Method Blank Summary

Reference Calibration Verification Reports
Continuing Calibration Verification Reports
Form 10's (if applicable)

2.5 Raw Data

Section 6 contains raw data for all standards, blanks, blank spikes and samples.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/96
Date

Request No. 2407
OC Pesticides

SECTION 3 CHAIN OF CUSTODY

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

96-07-113

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2407 per agreement number 7794L0014-9S

ORGANIC TO ATI, 30 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 30 Days

Approx.Report Due Date: 15-AUG-96

Screening:

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 42

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0001	03	Soil	07/15/96	
HERB	STD	0835-96-0001	04	Soil	07/15/96	
PEST	STD	0835-96-0001	04	Soil	07/15/96	-01
SEMI	STD	0835-96-0001	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0001	06	Soil	07/15/96	
PCB	STD	0835-96-0002	03	Soil	07/15/96	
HERB	STD	0835-96-0002	04	Soil	07/15/96	
PEST	STD	0835-96-0002	04	Soil	07/15/96	-02
SEMI	STD	0835-96-0002	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0002	06	Soil	07/15/96	
PCB	STD	0835-96-0003	03	Soil	07/15/96	
HERB	STD	0835-96-0003	04	Soil	07/15/96	
PEST	STD	0835-96-0003	04	Soil	07/15/96	-03
SEMI	STD	0835-96-0003	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0003	06	Soil	07/15/96	
PCB	STD	0835-96-0004	03	Soil	07/15/96	
HERB	STD	0835-96-0004	04	Soil	07/15/96	-04
PEST	STD	0835-96-0004	04	Soil	07/15/96	
SEMI	STD	0835-96-0004	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-00[illegible]	06	Soil	07/15/96	
PCB	STD	0835-96-00[illegible]	03	Soil	07/15/96	-05

Cont [illegible]

July 15, 1996 Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
HERB	STD	0835-96-0005	04	Soil	07/15/96	
PEST	STD	0835-96-0005	04	Soil	07/15/96	-05 cont
SEMI	STD	0835-96-0005	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0005	06	Soil	07/15/96	
PCB	STD	0835-96-0006	03	Soil	07/15/96	
HERB	STD	0835-96-0006	04	Soil	07/15/96	
PEST	STD	0835-96-0006	04	Soil	07/15/96	-06
SEMI	STD	0835-96-0006	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0006	06	Soil	07/15/96	* Jar cracked.
PCB	STD	0835-96-0007	03	Soil	07/15/96	
HERB	STD	0835-96-0007	04	Soil	07/15/96	
PEST	STD	0835-96-0007	04	Soil	07/15/96	-07
SEMI	STD	0835-96-0007	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0007	06	Soil	07/15/96	
PCB	STD	0835-96-0008	03	Soil	07/15/96	
HERB	STD	0835-96-0008	04	Soil	07/15/96	
PEST	STD	0835-96-0008	04	Soil	07/15/96	-08
SEMI	STD	0835-96-0008	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0008	06	Soil	07/15/96	
PCB	STD	0835-96-0009	03	Soil	07/15/96	
HERB	STD	0835-96-0009	04	Soil	07/15/96	
PEST	STD	0835-96-0009	04	Soil	07/15/96	-09
SEMI	STD	0835-96-0009	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0009	06	Soil	07/15/96	
PCB	STD	0835-96-0010	03	Soil	07/15/96	
HERB	STD	0835-96-0010	04	Soil	07/15/96	
PEST	STD	0835-96-0010	04	Soil	07/15/96	
SEMI	STD	0835-96-0010	04	Soil	07/15/96	-10
VOAGCMS	STD	0835-96-0010	06	Soil	07/15/96	
PCB	STD	0835-96-0011	03	Soil	07/15/96	
HERB	STD	0835-96-0011	04	Soil	07/15/96	
PEST	STD	0835-96-0011	04	Soil	07/15/96	
SEMI	STD	0835-96-0011	04	Soil	07/15/96	-11
VOAGCMS	STD	0835-96-0011	06	Soil	07/15/96	
PCB	STD	0835-96-0012	03	Soil	07/15/96	
HERB	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
PEST	STD	0835-96-0012	04	Soil	07/15/96	

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SEMI	STD	0835-96-0012	04	Soil	07/15/96	-12
VOAGCMS	STD	0835-96-0012	06	Soil	07/15/96	
PCB	STD	0835-96-0013	03	Soil	07/15/96	
HERB	STD	0835-96-0013	04	Soil	07/15/96	
PEST	STD	0835-96-0013	04	Soil	07/15/96	-13
SEMI	STD	0835-96-0013	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0013	06	Soil	07/15/96	
PCB	STD	0835-96-0014	03	Soil	07/15/96	
HERB	STD	0835-96-0014	04	Soil	07/15/96	
PEST	STD	0835-96-0014	04	Soil	07/15/96	-14
SEMI	STD	0835-96-0014	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0014	06	Soil	07/15/96	

An Equal Opportunity Employer/Operated by the University of California

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL -SMO SHIPPING CONTAINER #: –

WORKORDER NO. 9607-113 INITIALS: TB DATE: 7/16/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many 4	N/A	(Yes)	No
3.	Are custody seals on sample containers intact?	(N/A)	(Yes)	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?	TB 7/16/96	(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples preserved correctly?	N/A	(Yes)	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample received on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	(No)
12.	Are samples requiring no headspace, headspace free?	N/A	(Yes)	No
13.	Do the samples require quarantine?	–	Yes	(No)
14.	Do samples require ATI disposal?		(Yes)	No
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14): _____

#11 – –06 bottle for VOA was cracked.

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions: _____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 4°C

ATI FRM 201FC5 (2/21/96)

SECTION 4 SAMPLE RESULTS

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

Reagent Blank

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	SRB1 7-21-96 8080
Matrix (soil/water):	Soil	Date Collected:	N/A
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	0
Data File ID(Front):	0726EE14.D	Dilution Factor:	1
Data File ID(Rear):	0726EF14.D	Final Volume(mL):	10

Results based on wet weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.7	
58-89-9	gamma-BHC (Lindane)	ND	1.7	
76-44-8	Heptachlor	ND	1.7	
309-00-2	Aldrin	ND	1.7	
319-85-7	beta-BHC	ND	1.7	
319-86-8	delta-BHC	ND	1.7	
1024-57-3	Heptachlor Epoxide	ND	1.7	
959-98-8	Endosulfan I	ND	1.7	
5103-74-2	gamma-Chlordane	ND	1.7	
5103-71-9	alpha-Chlordane	ND	1.7	
72-55-9	p,p'-DDE	ND	3.3	
60-57-1	Dieldrin	ND	3.3	
72-20-8	Endrin	ND	3.3	
72-54-8	p,p'-DDD	ND	3.3	
33212-65-9	Endosulfan II	ND	3.3	
50-29-3	p,p'-DDT	ND	3.3	
7421-93-4	Endrin Aldehyde	ND	3.3	
72-43-5	Methoxychlor	ND	17	
1031-07-8	Endosulfan Sulfate	ND	3.3	
53494-70-5	Endrin Ketone	ND	3.3	
8001-35-2	Toxaphene	ND	170	
12674-11-2	Aroclor 1016	ND	33	
1104-28-2	Aroclor 1221	ND	66	
11141-16-5	Aroclor 1232	ND	33	
53469-21-9	Aroclor 1242	ND	33	
12672-29-6	Aroclor 1248	ND	33	
11097-69-1	Aroclor 1254	ND	33	
11096-82-5	Aroclor 1260	ND	33	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	92	43 - 124
Decachlorobiphenyl	110	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0001

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-01
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	8.6
Data File ID(Front):	0726EE20.D	Dilution Factor:	1
Data File ID(Rear):	0726EF20.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	72	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	115	43 - 124
Decachlorobiphenyl	124	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0002

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-02
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	7.4
Data File ID(Front):	0726EE21.D	Dilution Factor:	1
Data File ID(Rear):	0726EF21.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	71	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	106	43 - 124
Decachlorobiphenyl	106	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0003

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-03
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	6.5
Data File ID(Front):	0726EE22.D	Dilution Factor:	1
Data File ID(Rear):	0726EF22.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.5	
60-57-1	Dieldrin	ND	3.5	
72-20-8	Endrin	ND	3.5	
72-54-8	p,p'-DDD	ND	3.5	
33212-65-9	Endosulfan II	ND	3.5	
50-29-3	p,p'-DDT	ND	3.5	
7421-93-4	Endrin Aldehyde	ND	3.5	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.5	
53494-70-5	Endrin Ketone	ND	3.5	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	35	
1104-28-2	Aroclor 1221	ND	71	
11141-16-5	Aroclor 1232	ND	35	
53469-21-9	Aroclor 1242	ND	35	
12672-29-6	Aroclor 1248	ND	35	
11097-69-1	Aroclor 1254	ND	35	
11096-82-5	Aroclor 1260	ND	35	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	92	43 - 124
Decachlorobiphenyl	98	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

			Sample ID
Lab Name:	Paragon Analytics, Inc.		0835-96-0004
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-04
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	9.8
Data File ID(Front):	0726EE23.D	Dilution Factor:	1
Data File ID(Rear):	0726EF23.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.7	
60-57-1	Dieldrin	ND	3.7	
72-20-8	Endrin	ND	3.7	
72-54-8	p,p'-DDD	ND	3.7	
33212-65-9	Endosulfan II	ND	3.7	
50-29-3	p,p'-DDT	ND	3.7	
7421-93-4	Endrin Aldehyde	ND	3.7	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.7	
53494-70-5	Endrin Ketone	ND	3.7	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	37	
1104-28-2	Aroclor 1221	ND	73	
11141-16-5	Aroclor 1232	ND	37	
53469-21-9	Aroclor 1242	ND	37	
12672-29-6	Aroclor 1248	ND	37	
11097-69-1	Aroclor 1254	ND	37	
11096-82-5	Aroclor 1260	ND	37	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	89	43 - 124
Decachlorobiphenyl	95	D - 133

ND = Not Detected
D = Detected; result must be greater than zero.

FORM-I

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0005

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-05
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	4.69
Data File ID(Front):	0726EE26.D	Dilution Factor:	1
Data File ID(Rear):	0726EF26.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.7	
58-89-9	gamma-BHC (Lindane)	ND	1.7	
76-44-8	Heptachlor	ND	1.7	
309-00-2	Aldrin	ND	1.7	
319-85-7	beta-BHC	ND	1.7	
319-86-8	delta-BHC	ND	1.7	
1024-57-3	Heptachlor Epoxide	ND	1.7	
959-98-8	Endosulfan I	ND	1.7	
5103-74-2	gamma-Chlordane	ND	1.7	
5103-71-9	alpha-Chlordane	ND	1.7	
72-55-9	p,p'-DDE	ND	3.5	
60-57-1	Dieldrin	ND	3.5	
72-20-8	Endrin	ND	3.5	
72-54-8	p,p'-DDD	ND	3.5	
33212-65-9	Endosulfan II	ND	3.5	
50-29-3	p,p'-DDT	ND	3.5	
7421-93-4	Endrin Aldehyde	ND	3.5	
72-43-5	Methoxychlor	ND	17	
1031-07-8	Endosulfan Sulfate	ND	3.5	
53494-70-5	Endrin Ketone	ND	3.5	
8001-35-2	Toxaphene	ND	170	
12674-11-2	Aroclor 1016	ND	35	
1104-28-2	Aroclor 1221	ND	69	
11141-16-5	Aroclor 1232	ND	35	
53469-21-9	Aroclor 1242	ND	35	
12672-29-6	Aroclor 1248	ND	35	
11097-69-1	Aroclor 1254	ND	35	
11096-82-5	Aroclor 1260	ND	35	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	92	43 - 124
Decachlorobiphenyl	105	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0006

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-06
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	8.6
Data File ID(Front):	0726EE27.D	Dilution Factor:	1
Data File ID(Rear):	0726EF27.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	72	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	90	43 - 124
Decachlorobiphenyl	104	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0007

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-07
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	7.29
Data File ID(Front):	0726EE28.D	Dilution Factor:	1
Data File ID(Rear):	0726EF28.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	71	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	91	43 - 124
Decachlorobiphenyl	104	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0008

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-08 DL2
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	9.2
Data File ID(Front):	0726EE29.D	Dilution Factor:	2
Data File ID(Rear):	0726EF29.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.6	
58-89-9	gamma-BHC (Lindane)	ND	3.6	
76-44-8	Heptachlor	ND	3.6	
309-00-2	Aldrin	ND	3.6	
319-85-7	beta-BHC	ND	3.6	
319-86-8	delta-BHC	ND	3.6	
1024-57-3	Heptachlor Epoxide	ND	3.6	
959-98-8	Endosulfan I	ND	3.6	
5103-74-2	gamma-Chlordane	ND	3.6	
5103-71-9	alpha-Chlordane	ND	3.6	
72-55-9	p,p'-DDE	ND	7.3	
60-57-1	Dieldrin	ND	7.3	
72-20-8	Endrin	ND	7.3	
72-54-8	p,p'-DDD	ND	7.3	
33212-65-9	Endosulfan II	ND	7.3	
50-29-3	p,p'-DDT	ND	7.3	
7421-93-4	Endrin Aldehyde	ND	7.3	
72-43-5	Methoxychlor	ND	36	
1031-07-8	Endosulfan Sulfate	ND	7.3	
53494-70-5	Endrin Ketone	ND	7.3	
8001-35-2	Toxaphene	ND	360	
12674-11-2	Aroclor 1016	ND	73	
1104-28-2	Aroclor 1221	ND	150	
11141-16-5	Aroclor 1232	ND	73	
53469-21-9	Aroclor 1242	ND	73	
12672-29-6	Aroclor 1248	ND	73	
11097-69-1	Aroclor 1254	ND	73	
11096-82-5	Aroclor 1260	413	73	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	86	43 - 124
Decachlorobiphenyl	83	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0009

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-09
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-26-96
Extraction:	Soxhlet	% Moisture:	8.37
Data File ID(Front):	0726EE17.D	Dilution Factor:	1
Data File ID(Rear):	0726EF17.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	72	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	79	43 - 124
Decachlorobiphenyl	94	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

			Sample ID
Lab Name:	Paragon Analytics, Inc.		0835-96-0010
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-10
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	7.07
Data File ID(Front):	0726EE30.D	Dilution Factor:	1
Data File ID(Rear):	0726EF30.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	71	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	95	43 - 124
Decachlorobiphenyl	103	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0011

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-11
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	12.77
Data File ID(Front):	0726EE31.D	Dilution Factor:	1
Data File ID(Rear):	0726EF31.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	76	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	ND	38	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	103	43 - 124
Decachlorobiphenyl	107	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0012

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-12 DL2
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	14.53
Data File ID(Front):	0726EE32.D	Dilution Factor:	2
Data File ID(Rear):	0726EF32.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.9	
58-89-9	gamma-BHC (Lindane)	ND	3.9	
76-44-8	Heptachlor	ND	3.9	
309-00-2	Aldrin	ND	3.9	
319-85-7	beta-BHC	ND	3.9	
319-86-8	delta-BHC	ND	3.9	
1024-57-3	Heptachlor Epoxide	ND	3.9	
959-98-8	Endosulfan I	ND	3.9	
5103-74-2	gamma-Chlordane	ND	3.9	
5103-71-9	alpha-Chlordane	ND	3.9	
72-55-9	p,p'-DDE	ND	7.7	
60-57-1	Dieldrin	ND	7.7	
72-20-8	Endrin	ND	7.7	
72-54-8	p,p'-DDD	ND	7.7	
33212-65-9	Endosulfan II	ND	7.7	
50-29-3	p,p'-DDT	ND	7.7	
7421-93-4	Endrin Aldehyde	ND	7.7	
72-43-5	Methoxychlor	ND	39	
1031-07-8	Endosulfan Sulfate	ND	7.7	
53494-70-5	Endrin Ketone	ND	7.7	
8001-35-2	Toxaphene	ND	390	
12674-11-2	Aroclor 1016	ND	77	
1104-28-2	Aroclor 1221	ND	150	
11141-16-5	Aroclor 1232	ND	77	
53469-21-9	Aroclor 1242	ND	77	
12672-29-6	Aroclor 1248	ND	77	
11097-69-1	Aroclor 1254	ND	77	
11096-82-5	Aroclor 1260	372	77	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	84	43 - 124
Decachlorobiphenyl	79	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0013

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-0[illegible]13-13
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	9.89
Data File ID(Front):	0726EE33.D	Dilution Factor:	1
Data File ID(Rear):	0726EF33.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-[illegible]	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.7	
60-57-1	Dieldrin	ND	3.7	
72-20-8	Endrin	ND	3.7	
72-54-8	p,p'-DDD	ND	3.7	
33212-65-9	Endosulfan II	ND	3.7	
50-29-3	p,p'-DDT	ND	3.7	
7421-[illegible]3-4	Endrin Aldehyde	ND	3.7	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.7	
53494-70-5	Endrin Ketone	ND	3.7	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	37	
1104-28-2	Aroclor 1221	ND	73	
11141-16-5	Aroclor 1232	ND	37	
53469-21-9	Aroclor 1242	ND	37	
12672-29-6	Aroclor 1248	ND	37	
11097-69-1	Aroclor 1254	ND	37	
11096-82-5	Aroclor 1260	ND	37	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	93	43 - 124
Decachlorobiphenyl	105	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0014

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Lab Sample ID:	96-07-113-14
Matrix (soil/water):	Soil	Date Collected:	07-15-96
Sample Weight(g):	30	Date Extracted:	07-21-96
Cleanup:	Florisil	Date Analyzed:	07-27-96
Extraction:	Soxhlet	% Moisture:	14.77
Data File ID(Front):	0726EE34.D	Dilution Factor:	1
Data File ID(Rear):	0726EF34.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.9	
60-57-1	Dieldrin	ND	3.9	
72-20-8	Endrin	ND	3.9	
72-54-8	p,p'-DDD	ND	3.9	
33212-65-9	Endosulfan II	ND	3.9	
50-29-3	p,p'-DDT	ND	3.9	
7421-93-4	Endrin Aldehyde	ND	3.9	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.9	
53494-70-5	Endrin Ketone	ND	3.9	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	39	
1104-28-2	Aroclor 1221	ND	77	
11141-16-5	Aroclor 1232	ND	39	
53469-21-9	Aroclor 1242	ND	39	
12672-29-6	Aroclor 1248	ND	39	
11097-69-1	Aroclor 1254	ND	39	
11096-82-5	Aroclor 1260	ND	39	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	87	43 - 124
Decachlorobiphenyl	90	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

SECTION 5 SUMMARY REPORT FORMS

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
1	Performance Evaluation Mix	PEM MX-A20-12	07-26-96 00:44
2	Standard	PEST MX-B09-10 50%	07-26-96 01:13
3	Standard	PEST MX-B09-10 25%	07-26-96 01:42
4	Standard	PEST MX-B09-10 10%	07-26-96 02:11
5	Standard	PEST MX-B09-10 5%	07-26-96 02:40
6	Standard	PEST MX-B09-10 2.5%	07-26-96 03:09
7	Reference Calibration	PEST 2ND SRC MX-B06-09	07-26-96 03:38
8	Standard	1242/1260 MX-A18-19 75%	07-26-96 04:07
9	Standard	1242/1260 MX-A18-19 50%	07-26-96 04:36
10	Standard	1242/1260 MX-A18-19 25%	07-26-96 05:05
11	Standard	1242/1260 MX-A18-19 10%	07-26-96 05:34
12	Standard	1242/1260 MX-A18-19 5%	07-26-96 06:03
13	Reference Calibration	1242 2ND SRC MX-A50-06	07-26-96 06:32
14	Reference Calibration	1260 2ND SRC MX-A51-08	07-26-96 07:01
15	Performance Evaluation Mix	PEM MX-A20-12	07-26-96 11:50
16	Continuing Calibration	PEST MX-B09-10 25% CCV	07-26-96 17:42
17	Continuing Calibration	1242/1260 MX-A18-19 50% CCV	07-26-96 18:11
18	Reagent Blank	SRB1 7-21-96 8080	07-26-96 18:40
19	Blank Spike	SBS1 7-21-96 8080	07-26-96 19:09
20	Blank Spike Duplicate	SBS2 7-21-96 8080	07-26-96 19:38
21	0835-96-0009	96-07-113-09	07-26-96 20:07
22	0835-96-0009	96-07-113-09MS	07-26-96 20:36
23	0835-96-0009	96-07-113-09MSD	07-26-96 21:05
24	0835-96-0001	96-07-113-01	07-26-96 21:34
25	0835-96-0002	96-07-113-02	07-26-96 22:03
26	0835-96-0003	96-07-113-03	07-26-96 22:32
27	0835-96-0004	96-07-113-04	07-26-96 23:01
28	Continuing Calibration	PEST MX-B09-10 25% CCV	07-26-96 23:59
29	Continuing Calibration	1242/1260 MX-A18-19 50% CCV	07-27-96 00:28
30	0835-96-0005	96-07-113-05	07-27-96 00:57
31	0835-96-0006	96-07-113-06	07-27-96 01:26

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
32	0835-96-0007	96-07-113-07	07-27-96 01:55
33	0835-96-0008	96-07-113-08 DL2	07-27-96 02:24
34	0835-96-0010	96-07-113-10	07-27-96 02:52
35	0835-96-0011	96-07-113-11	07-27-96 03:21
36	0835-96-0012	96-07-113-12 DL2	07-27-96 03:50
37	0835-96-0013	96-07-113-13	07-27-96 04:19
38	0835-96-0014	96-07-113-14	07-27-96 04:48
39	Continuing Calibration	PEST MX-B09-10 25% CCV	07-27-96 06:15
40	Continuing Calibration	1242/1260 MX-A18-19 50% CCV	07-27-96 06:44

ORGANOCHLORINE PESTICIDE BLANK SPIKE
Method 8080

Lab Name:	Paragon Analytics, Inc.	Date Extracted:	07-21-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	07-26-96
Client Project ID:	2407	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10

Lab Sample ID: SBS1 7-21-96 8080

Analyte	Spike Added (µg/kg)	BS Concentration (µg/kg)	BS Percent Recovery	QC Limits % Rec
gamma-BHC	13.3	11.0	83	36 - 155
Heptachlor	13.3	12.1	91	43 - 146
Aldrin	13.3	11.2	84	35 - 141
Dieldrin	13.3	11.8	89	42 - 160
Endrin	13.3	14.4	108	35 - 161
p,p'-DDT	13.3	12.3	92	23 - 173

Lab Sample ID: SBS2 7-21-96 8080

Analyte	Spike Added (µg/kg)	BSD Concentration (µg/kg)	BSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	13.3	11.5	86	4	20
Heptachlor	13.3	13.5	102	11	20
Aldrin	13.3	13.3	100	17	20
Dieldrin	13.3	13.1	98	10	20
Endrin	13.3	14.0	105	3	20
p,p'-DDT	13.3	13.3	100	8	20

SURROGATE RECOVERY

Analyte	% Recovery (BS)	% Recovery (BSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	90	104	43 - 124
Decachlorobiphenyl	110	112	D - 133

D = Detected; result must be greater than zero.

* Relative percent difference was outside the acceptance limits.

ORGANOCHLORINE PESTICIDE MATRIX SPIKE
Method 8080

La. Name:	Paragon Analytics, Inc.	Date Extracted:	07-21-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	07-26-96
Client Project ID:	2407	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10
		Dilution Factor:	1
Client Sample ID:	0835-96-0009	% Moisture:	8.37

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS Percent Recovery	QC Limits % Rec
gamma-BHC	14.6	< 1.8	11.7	80	36 - 155
Heptachlor	14.6	< 1.8	13.1	90	43 - 146
Aldrin	14.6	< 1.8	12.3	84	35 - 141
Dieldrin	14.6	< 3.6	12.5	86	42 - 160
Endrin	14.6	< 3.6	15.3	105	35 - 161
p,p'-DDT	14.6	< 3.6	13.1	90	23 - 173

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	14.6	12.2	84	4	20
Heptachlor	14.6	13.8	95	5	20
Aldrin	14.6	12.5	86	2	20
Dieldrin	14.6	12.9	88	3	20
Endrin	14.6	15.6	107	2	20
p,p'-DDT	14.6	12.3	84	[illegible]	20

SURROGATE RECOVERY

Analyte	% Recovery (MS)	% Recovery (MSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	90	90	43 - 124
Decachlorobiphenyl	103	101	D - 133

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES METHOD BLANK SUMMARY

Method 8080

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2407	Date Extracted:	07-21-96
Lab Sample ID:	SRB1 7-21-96 8080	Date Analyzed:	07-26-96
Matrix (soil/water):	Soil	Time Analyzed:	7/26/96 18:40
Extraction:	Soxhlet	Instrument ID:	ECD1
Data File ID(Front):	0726EE14.D	Column ID(Front):	DB-1701
Data File ID(Rear):	0726EF14.D	Column ID(Rear):	DB-17

This method blank applies to the following samples:

	Client Sample ID	Lab Sample ID	Data File ID (Front)	Data File ID (Rear)	Date/Time Analyzed
1	Blank Spike	SBS1 7-21-96 8080	0726EE15.D	0726EF15.D	07-26-96 19:09
2	Blank Spike Duplicate	SBS2 7-21-96 8080	0726EE16.D	0726EF16.D	07-26-96 19:38
3	0835-96-0009	96-07-113-09	0726EE17.D	0726EF17.D	07-26-96 20:07
4	0835-96-0009	96-07-113-09MS	0726EE18.D	0726EF18.D	07-26-96 20:36
5	0835-96-0009	96-07-113-09MSD	0726EE19.D	0726EF19.D	07-26-96 21:05
6	0835-96-0001	96-07-113-01	0726EE20.D	0726EF20.D	07-26-96 21:34
7	0835-96-0002	96-07-113-02	0726EE21.D	0726EF21.D	07-26-96 22:03
8	0835-96-0003	96-07-113-03	0726EE22.D	0726EF22.D	07-26-96 22:3[illegible]
9	0835-96-0004	96-07-113-04	0726EE23.D	0726EF23.D	07-26-96 23:01
10	0835-96-0005	96-07-113-05	0726EE26.D	0726EF26.D	07-27-96 00:57
11	0835-96-0006	96-07-113-06	0726EE27.D	0726EF27.D	07-27-96 01:26
12	0835-96-0007	96-07-113-07	0726EE28.D	0726EF28.D	07-27-96 01:55
13	0835-96-0008	96-07-113-08 DL2	0726EE29.D	0726EF29.D	07-27-96 02:24
14	0835-96-0010	96-07-113-10	0726EE30.D	0726EF30.D	07-27-96 02:52
15	0835-96-0011	96-07-113-11	0726EE31.D	0726EF31.D	07-27-96 03:21
16	0835-96-0012	96-07-113-12 DL2	0726EE32.D	0726EF32.D	07-27-96 03:50
17	0835-96-0013	96-07-113-13	0726EE33.D	0726EF33.D	07-27-96 04:19
18	0835-96-0014	96-07-113-14	0726EE34.D	0726EF34.D	07-27-96 04:48

ORGANOCHLORINE PESTICIDES
INITIAL SYSTEM VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Date/Time Analyzed: 07-26-96 00:44
Instrument ID: ECD1

Breakdown Evaluation Mix

Column ID(Front): DB-1701

Compound	Breakdown (%)
Endrin	13.9
p,p'-DDT	1.1

Breakdown Evaluation Mix

Column ID(Rear): DB-17

Compound	Breakdown (%)
Endrin	9.6
p,p'-DDT	1.8

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-1701

Date/Time Analyzed: 07-26-96 03:38

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.39	to	6.49	6.44	50	52	5
alpha-BHC	8.09	to	8.19	8.14	25	23	9
gamma-BHC (Lindane)	8.81	to	8.91	8.86	25	24	3
Heptachlor	9.14	to	9.24	9.19	25	25	1
Aldrin	9.58	to	9.72	9.65	25	24	5
beta-BHC	10.09	to	10.23	10.16	25	28	13
delta-BHC	10.48	to	10.62	10.55	25	25	2
Heptachlor Epoxide	10.78	to	10.92	10.85	25	24	6
Endosulfan I	11.23	to	11.37	11.30	25	24	4
gamma-Chlordane	11.31	to	11.45	11.38	25	25	0
alpha-Chlordane	11.45	to	11.55	11.50	25	26	5
p,p'-DDE	11.57	to	11.67	11.62	50	51	1
Dieldrin	11.85	to	11.95	11.90	50	54	8
Endrin	12.20	to	12.30	12.25	50	50	1
p,p'-DDD	12.83	to	12.97	12.90	50	49	1
Endosulfan II	12.96	to	13.10	13.03	50	51	3
p,p'-DDT	13.10	to	13.24	13.17	50	50	1
Endrin Aldehyde	13.68	to	13.82	13.75	50	58	16
Methoxychlor	14.25	to	14.39	14.32	250	260	4
Endosulfan Sulfate	14.30	to	14.44	14.37	50	49	1
Endosulfan Ketone	15.20	to	15.34	15.27	50	52	4
DCBP	17.78	to	17.92	17.85	50	39	23

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name:
Client Project ID:

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-17

Date/Time Analyzed: 07-26-96 03:38

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.53	to	6.63	6.58	50	52	4
alpha-BHC	7.92	to	8.02	7.97	25	23	7
gamma-BHC (Lindane)	8.68	to	8.78	8.73	25	24	3
Heptachlor	9.28	to	9.38	9.33	25	25	1
Aldrin	9.86	to	10.00	9.93	25	24	4
beta-BHC	8.81	to	8.95	8.88	25	28	11
delta-BHC	9.49	to	9.63	9.56	25	25	1
Heptachlor Epoxide	10.88	to	11.02	10.95	25	24	4
Endosulfan I	11.50	to	11.64	11.57	25	24	4
gamma-Chlordane	11.17	to	11.31	11.24	25	25	0
alpha-Chlordane	11.47	to	11.57	11.52	25	27	7
p,p'-DDE	11.92	to	12.02	11.97	50	51	2
Dieldrin	12.06	to	12.16	12.11	50	53	7
Endrin	12.69	to	12.79	12.74	50	51	2
p,p'-DDD	12.86	to	13.00	12.93	50	49	2
Endosulfan II	12.98	to	13.12	13.05	50	51	2
p,p'-DDT	13.40	to	13.54	13.47	50	50	1
Endrin Aldehyde	13.59	to	13.73	13.66	50	57	14
Methoxychlor	15.43	to	15.57	15.50	250	261	4
Endosulfan Sulfate	13.84	to	13.98	13.91	50	50	0
Endosulfan Ketone	15.73	to	15.87	15.80	50	52	3
DCBP	19.11	to	19.25	19.18	50	39	21

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	07-26-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2407	Date/Time Analyzed:	07-26-96 06:32

Aroclor 1242 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	929	7

Aroclor 1242 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	954	5

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Date/Time Analyzed: 07-26-96 07:01

Aroclor 1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	1000	929	7

Aroclor 1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	1000	870	13

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 07-26-96 17:42

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.40	to	6.50	6.45	50	54	8
alpha-BHC	8.09	to	8.19	8.14	25	26	5
gamma-BHC (Lindane)	8.82	to	8.92	8.87	25	26	4
Heptachlor	9.15	to	9.25	9.20	25	27	7
Aldrin	9.58	to	9.72	9.65	25	26	3
beta-BHC	10.09	to	10.23	10.16	25	27	7
delta-BHC	10.48	to	10.62	10.55	25	26	3
Heptachlor Epoxide	10.79	to	10.93	10.86	25	27	7
Endosulfan I	11.23	to	11.37	11.30	25	26	5
gamma-Chlordane	11.31	to	11.45	11.38	25	27	7
alpha-Chlordane	11.46	to	11.56	11.51	25	27	7
p,p'-DDE	11.57	to	11.67	11.62	50	53	6
Dieldrin	11.86	to	11.96	11.91	50	53	6
Endrin	12.20	to	12.30	12.25	50	42	15
p,p'-DDD	12.83	to	12.97	12.90	50	53	6
Endosulfan II	12.96	to	13.10	13.03	50	54	7
p,p'-DDT	13.10	to	13.24	13.17	50	55	10
Endrin Aldehyde	13.68	to	13.82	13.75	50	58	16
Methoxychlor	14.26	to	14.40	14.33	250	266	7
Endosulfan Sulfate	14.30	to	14.44	14.37	50	54	8
Endosulfan Ketone	15.20	to	15.34	15.27	50	57	15
DCBP	17.78	to	17.92	17.85	100	112	12

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 07-26-96 17:42

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.53	to	6.63	6.58	50	54	9
alpha-BHC	7.93	to	8.03	7.98	25	26	4
gamma-BHC (Lindane)	8.68	to	8.78	8.73	25	26	4
Heptachlor	9.28	to	9.38	9.33	25	27	9
Aldrin	9.86	to	10.00	9.93	25	26	4
beta-BHC	8.81	to	8.95	8.88	25	26	6
delta-BHC	9.49	to	9.63	9.56	25	26	4
Heptachlor Epoxide	10.88	to	11.02	10.95	25	26	5
Endosulfan I	11.50	to	11.64	11.57	25	26	4
gamma-Chlordane	11.17	to	11.31	11.24	25	26	6
alpha-Chlordane	11.48	to	11.58	11.53	25	27	7
p,p'-DDE	11.93	to	12.03	11.98	50	54	7
Dieldrin	12.06	to	12.16	12.11	50	53	5
Endrin	12.69	to	12.79	12.74	50	47	5
p,p'-DDD	12.86	to	13.00	12.93	50	51	1
Endosulfan II	12.99	to	13.13	13.06	50	54	8
p,p'-DDT	13.40	to	13.54	13.47	50	51	3
Endrin Aldehyde	13.59	to	13.73	13.66	50	54	9
Methoxychlor	15.44	to	15.58	15.51	250	252	1
Endosulfan Sulfate	13.84	to	13.98	13.91	50	53	6
Endosulfan Ketone	15.74	to	15.88	15.81	50	56	12
DCBP	19.12	to	19.26	19.19	100	111	11

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 07-26-96 23:59

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.39	to	6.49	6.44	50	54	8
alpha-BHC	8.09	to	8.19	8.14	25	25	0
gamma-BHC (Lindane)	8.81	to	8.91	8.86	25	26	3
Heptachlor	9.14	to	9.24	9.19	25	27	8
Aldrin	9.58	to	9.72	9.65	25	25	1
beta-BHC	10.09	to	10.23	10.16	25	26	4
delta-BHC	10.48	to	10.62	10.55	25	27	7
Heptachlor Epoxide	10.79	to	10.93	10.86	25	25	2
Endosulfan I	11.23	to	11.37	11.30	25	26	3
gamma-Chlordane	11.31	to	11.45	11.38	25	26	4
alpha-Chlordane	11.46	to	11.56	11.51	25	26	4
p,p'-DDE	11.57	to	11.67	11.62	50	52	3
Dieldrin	11.85	to	11.95	11.90	50	52	4
Endrin	12.20	to	12.30	12.25	50	51	3
p,p'-DDD	12.83	to	12.97	12.90	50	53	7
Endosulfan II	12.96	to	13.10	13.03	50	52	5
p,p'-DDT	13.10	to	13.24	13.17	50	49	2
Endrin Aldehyde	13.68	to	13.82	13.75	50	53	5
Methoxychlor	14.25	to	14.39	14.32	250	272	9
Endosulfan Sulfate	14.30	to	14.44	14.37	50	53	5
Endosulfan Ketone	15.20	to	15.34	15.27	50	57	15
DCBP	17.78	to	17.92	17.85	100	113	13

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 07-26-96 23:59

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.53	to	6.63	6.58	50	52	5
alpha-BHC	7.93	to	8.03	7.98	25	25	1
gamma-BHC (Lindane)	8.68	to	8.78	8.73	25	25	2
Heptachlor	9.28	to	9.38	9.33	25	30	20
Aldrin	9.86	to	10.00	9.93	25	24	4
beta-BHC	8.81	to	8.95	8.88	25	26	2
delta-BHC	9.49	to	9.63	9.56	25	26	6
Heptachlor Epoxide	10.88	to	11.02	10.95	25	25	0
Endosulfan I	11.50	to	11.64	11.57	25	25	0
gamma-Chlordane	11.17	to	11.31	11.24	25	25	1
alpha-Chlordane	11.48	to	11.58	11.53	25	25	1
p,p'-DDE	11.93	to	12.03	11.98	50	50	1
Dieldrin	12.06	to	12.16	12.11	50	51	2
Endrin	12.69	to	12.79	12.74	50	53	6
p,p'-DDD	12.86	to	13.00	12.93	50	55	11
Endosulfan II	12.98	to	13.12	13.05	50	52	3
p,p'-DDT	13.40	to	13.54	13.47	50	56	12
Endrin Aldehyde	13.59	to	13.73	13.66	50	50	0
Methoxychlor	15.44	to	15.58	15.51	250	332	33
Endosulfan Sulfate	13.84	to	13.98	13.91	50	56	11
Endosulfan Ketone	15.74	to	15.88	15.81	50	57	14
DCBP	19.11	to	19.25	19.18	100	108	8

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 07-27-96 06:15

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.39	to	6.49	6.44	50	56	12
alpha-BHC	8.08	to	8.18	8.13	25	26	6
gamma-BHC (Lindane)	8.81	to	8.91	8.86	25	27	9
Heptachlor	9.14	to	9.24	9.19	25	28	13
Aldrin	9.58	to	9.72	9.65	25	27	7
beta-BHC	10.09	to	10.23	10.16	25	28	10
delta-BHC	10.48	to	10.62	10.55	25	29	14
Heptachlor Epoxide	10.78	to	10.92	10.85	25	26	2
Endosulfan I	11.23	to	11.37	11.30	25	27	9
gamma-Chlordane	11.31	to	11.45	11.38	25	27	8
alpha-Chlordane	11.45	to	11.55	11.50	25	27	9
p,p'-DDE	11.57	to	11.67	11.62	50	54	8
Dieldrin	11.85	to	11.95	11.90	50	55	10
Endrin	12.20	to	12.30	12.25	50	57	14
p,p'-DDD	12.83	to	12.97	12.90	50	60	19
Endosulfan II	12.96	to	13.10	13.03	50	55	11
p,p'-DDT	13.09	to	13.23	13.16	50	49	3
Endrin Aldehyde	13.68	to	13.82	13.75	50	55	9
Methoxychlor	14.25	to	14.39	14.32	250	283	13
Endosulfan Sulfate	14.29	to	14.43	14.36	50	54	7
Endosulfan Ketone	15.19	to	15.33	15.26	50	60	20
DCBP	17.78	to	17.92	17.85	100	115	15

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 07-27-96 06:15

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.53	to	6.63	6.58	50	55	9
alpha-BHC	7.92	to	8.02	7.97	25	26	6
gamma-BHC (Lindane)	8.68	to	8.78	8.73	25	27	7
Heptachlor	9.28	to	9.38	9.33	25	30	21
Aldrin	9.86	to	10.00	9.93	25	24	3
beta-BHC	8.81	to	8.95	8.88	25	27	7
delta-BHC	9.49	to	9.63	9.56	25	28	12
Heptachlor Epoxide	10.88	to	11.02	10.95	25	27	6
Endosulfan I	11.50	to	11.64	11.57	25	26	6
gamma-Chlordane	11.17	to	11.31	11.24	25	27	8
alpha-Chlordane	11.47	to	11.57	11.52	25	27	9
p,p'-DDE	11.92	to	12.02	11.97	50	53	6
Dieldrin	12.06	to	12.16	12.11	50	54	8
Endrin	12.69	to	12.79	12.74	50	57	15
p,p'-DDD	12.86	to	13.00	12.93	50	62	23
Endosulfan II	12.98	to	13.12	13.05	50	55	10
p,p'-DDT	13.40	to	13.54	13.47	50	52	5
Endrin Aldehyde	13.59	to	13.73	13.66	50	51	3
Methoxychlor	15.43	to	15.57	15.50	250	326	31
Endosulfan Sulfate	13.84	to	13.98	13.91	50	58	17
Endosulfan Ketone	15.74	to	15.88	15.81	50	60	20
DCBP	19.11	to	19.25	19.18	100	112	12

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Date/Time Analyzed: 07-26-96 18:11

Aroclor 1242/1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	981	2
Aroclor 1260	1000	967	3

Aroclor 1242/1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	976	2
Aroclor 1260	1000	972	3

000043

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-26-96
Instrument ID: ECD1
Date/Time Analyzed: 07-27-96 00:28

Aroclor 1242/1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	938	6
Aroclor 1260	1000	923	8

Aroclor 1242/1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	910	9
Aroclor 1260	1000	911	9

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2407

Initial Date Analyzed: 07-27-96
Instrument ID: ECD1
Date/Time Analyzed: 07-27-96 06:44

Aroclor 1242/1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	1000	0
Aroclor 1260	1000	995	1

Aroclor 1242/1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1242	1000	979	2
Aroclor 1260	1000	979	2

REPORT OF ANALYSES

DETERMINATION OF ORGANOCHLORINE PESTICIDES and PCB's

Prepared for:

Los Alamos National Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H 865
Drop Point 01U
Los Alamos, NM 87545

Request Number: 2410

August 8, 1996

TABLE OF CONTENTS:

Section 1: Sample Numbers and Dates of Receipt
Section 2: Case Narrative
Section 3: Chain of Custody
Section 4: Sample Results
Section 5: Summary Report Forms
Section 6: Raw Data

Appendix A: ATI Extraction Benchsheets
Appendix B: Nonconformance and Corrective Action Reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Client	PAI-CO	Date Collected	Date Received	Date Extracted	Date Analyzed
0835-96-0015	96-07-149-01	07/17/96	07/22/96	07/23/96	08/06/96
0835-96-0016	96-07-149-02	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0017	96-07-149-03	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0018	96-07-149-04	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0019	96-07-149-05	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0020	96-07-149-06	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0021	96-07-149-07	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0022	96-07-149-08	07/18/96	07/22/96	07/23/96	08/06/96

Section 2: Case Narrative

2.1 Sample Logistics

The above samples were received cool and intact on the dates in the above table.

2.2 Analysis of Organochlorine Pesticides

These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. These extracts were then processed using florisil cleanup by Method 3620 in an attempt to remove potential interferences.

The extracts were then analyzed using GC/ECD (electron capture detectors) with a DB-17 capillary column according to protocols based on Method 8081. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interferences.

Methoxychlor was outside of QC limits on injection 0805EE19. No hits were found in the samples so no further action was taken. The final CCV, 0805EE41, was outside of QC limits for 4,4'-DDT and 4,4'-DDD.

2.3 Instrumental Conditions (GC/ECD1)

Columns: DB-1701 0.32mm I.D. x 0.25 μm film x 30 m length
DB-17 0.32 mm I.D. x 0.25 μm film x 30 m length

Carrier flow rate: 2 mL/min (helium) for both columns.

Temperature program: 110°C (hold 0.5 min) to 140°C at 20/min then to 275°C at 13/min (hold 5.87 min).

Detectors: Electron Capture

Injection volume: 1 μL.

Injector Temperature: 210°C

Detector Temperature: 325°C

2.4 Quality Control Data

These data are summarized in Section 5, Summary Report. Data is presented for:

Run Chronology
Blank Spike Recoveries
Matrix Spike Recoveries
Method Blank Summary
Reference Calibration Verification Reports
Continuing Calibration Verification Reports
Form 10's (if applicable)

2.5 Raw Data

Section 6 contains raw data for all standards, blanks, blank spikes and samples.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

for Don Gipple
Laboratory Manager

3/29/96

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/95
Date

Request No. 2410
OC Pesticides

SECTION 3 CHAIN OF CUSTODY

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-149

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2410 per agreement number 7794L0014-9S

15 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 20 Days

Approx.Report Due Date: 09-AUG-96

Screening:

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0015	03	Soil	07/17/96	
HERB	STD	0835-96-0015	04	Soil	07/17/96	
OPPEST	STD	0835-96-0015	04	Soil	07/17/96	-01
PEST	STD	0835-96-0015	04	Soil	07/17/96	
SEMI	STD	0835-96-0015	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0015	06	Soil	07/17/96	
PCB	STD	0835-96-0016	03	Soil	07/18/96	
HERB	STD	0835-96-0016	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0016	04	Soil	07/18/96	
PEST	STD	0835-96-0016	04	Soil	07/18/96	
SEMI	STD	0835-96-0016	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0016	06	Soil	07/18/96	
PCB	STD	0835-96-0017	03	Soil	07/18/96	03
HERB	STD	0835-96-0017	04	Soil	07/18/96	
OPPEST	STD	0835-96-0017	04	Soil	07/18/96	
PEST	STD	0835-96-0017	04	Soil	07/18/96	
SEMI	STD	0835-96-0017	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0017	06	Soil	07/18/96	
PCB	STD	0835-96-0018	03	Soil	07/18/96	04
HERB	STD	0835-96-0018	04	Soil	07/18/96	
OPPEST	STD	0835-96-0018	04	Soil	07/18/96	

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0018	04	Soil	07/18/96	(04)
SEMI	STD	0835-96-0018	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0018	06	Soil	07/18/96	
PCB	STD	0835-96-0019	03	Soil	07/18/96	
HERB	STD	0835-96-0019	04	Soil	07/18/96	05
OPPEST	STD	0835-96-0019	04	Soil	07/18/96	
PEST	STD	0835-96-0019	04	Soil	07/18/96	
SEMI	STD	0835-96-0019	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0019	06	Soil	07/18/96	
PCB	STD	0835-96-0020	03	Soil	07/18/96	06
HERB	STD	0835-96-0020	04	Soil	07/18/96	
OPPEST	STD	0835-96-0020	04	Soil	07/18/96	
PEST	STD	0835-96-0020	04	Soil	07/18/96	
SEMI	STD	0835-96-0020	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0020	06	Soil	07/18/96	
PCB	STD	0835-96-0021	03	Soil	07/18/96	07
HERB	STD	0835-96-0021	04	Soil	07/18/96	
OPPEST	STD	0835-96-0021	04	Soil	07/18/96	
PEST	STD	0835-96-0021	04	Soil	07/18/96	
SEMI	STD	0835-96-0021	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0021	06	Soil	07/18/96	
PCB	STD	0835-96-0022	03	Soil	07/18/96	08
HERB	STD	0835-96-0022	04	Soil	07/18/96	
OPPEST	STD	0835-96-0022	04	Soil	07/18/96	
PEST	STD	0835-96-0022	04	Soil	07/18/96	
SEMI	STD	0835-96-0022	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0022	06	Soil	07/18/96	

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-SMO SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-149 INITIALS: [illegible] DATE: 7/22/96

1. Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2. Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3. Are custody seals on sample containers intact?	N/A	Yes	No
4. Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5. Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6. Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7. Are the samples preserved correctly?	N/A	Yes	No
8. Is there enough sample? If so, are they in the proper containers?		Yes	No
9. Are all samples within holding times for the requested analyses?		Yes	No
10. Were the sample received on ice?	N/A	Yes	No
11. Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12. Are samples requiring no headspace, headspace free?	N/A	Yes	No
13. Do the samples require quarantine?		Yes	No
14. Do samples require ATI disposal?		Yes	No
15. Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14): _____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions: _____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 3°C

ATI FRM 201FC5 (2/21/96)

SECTION 4 SAMPLE RESULTS

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

Reagent Blank

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	SRB1 07-23-96 8081
Matrix (soil/water):	Soil	Date Collected:	N/A
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	0
Data File ID(Front):	0805EE16.D	Dilution Factor:	1
Data File ID(Rear):	0805EF16.D	Final Volume(mL):	10

Results based on wet weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.7	
58-89-9	gamma-BHC (Lindane)	ND	1.7	
76-44-8	Heptachlor	ND	1.7	
309-00-2	Aldrin	ND	1.7	
319-85-7	beta-BHC	ND	1.7	
319-86-8	delta-BHC	ND	1.7	
1024-57-3	Heptachlor Epoxide	ND	1.7	
959-98-8	Endosulfan I	ND	1.7	
5103-74-2	gamma-Chlordane	ND	1.7	
5103-71-9	alpha-Chlordane	ND	1.7	
72-55-9	p,p'-DDE	ND	3.3	
60-57-1	Dieldrin	ND	3.3	
72-20-8	Endrin	ND	3.3	
72-54-8	p,p'-DDD	ND	3.3	
33212-65-9	Endosulfan II	ND	3.3	
50-29-3	p,p'-DDT	ND	3.3	
7421-93-4	Endrin Aldehyde	ND	3.3	
72-43-5	Methoxychlor	ND	17	
1031-07-8	Endosulfan Sulfate	ND	3.3	
53494-70-5	Endrin Ketone	ND	3.3	
8001-35-2	Toxaphene	ND	170	
12674-11-2	Aroclor 1016	ND	33	
1104-28-2	Aroclor 1221	ND	66	
11141-16-5	Aroclor 1232	ND	33	
53469-21-9	Aroclor 1242	ND	33	
12672-29-6	Aroclor 1248	ND	33	
11097-69-1	Aroclor 1254	ND	33	
11096-82-5	Aroclor 1260	ND	33	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	84	43 - 124
Decachlorobiphenyl	103	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0015

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-01
Matrix (soil/water):	Soil	Date Collected:	07-17-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	7.1
Data File ID(Front):	0805EE21.D	Dilution Factor:	1
Data File ID(Rear):	0805EF21.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.8	
58-89-9	gamma-BHC (Lindane)	ND	1.8	
76-44-8	Heptachlor	ND	1.8	
309-00-2	Aldrin	ND	1.8	
319-85-7	beta-BHC	ND	1.8	
319-86-8	delta-BHC	ND	1.8	
1024-57-3	Heptachlor Epoxide	ND	1.8	
959-98-8	Endosulfan I	ND	1.8	
5103-74-2	gamma-Chlordane	ND	1.8	
5103-71-9	alpha-Chlordane	ND	1.8	
72-55-9	p,p'-DDE	ND	3.6	
60-57-1	Dieldrin	ND	3.6	
72-20-8	Endrin	ND	3.6	
72-54-8	p,p'-DDD	ND	3.6	
33212-65-9	Endosulfan II	ND	3.6	
50-29-3	p,p'-DDT	ND	3.6	
7421-93-4	Endrin Aldehyde	ND	3.6	
72-43-5	Methoxychlor	ND	18	
1031-07-8	Endosulfan Sulfate	ND	3.6	
53494-70-5	Endrin Ketone	ND	3.6	
8001-35-2	Toxaphene	ND	180	
12674-11-2	Aroclor 1016	ND	36	
1104-28-2	Aroclor 1221	ND	71	
11141-16-5	Aroclor 1232	ND	36	
53469-21-9	Aroclor 1242	ND	36	
12672-29-6	Aroclor 1248	ND	36	
11097-69-1	Aroclor 1254	ND	36	
11096-82-5	Aroclor 1260	ND	36	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	76	43 - 124
Decachlorobiphenyl	99	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0016

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-02
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	13.9
Data File ID(Front):	0805EE22.D	Dilution Factor:	1
Data File ID(Rear):	0805EF22.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	77	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	17	38	J

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	75	43 - 124
Decachlorobiphenyl	35	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0017

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-03
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	13.5
Data File ID(Front):	0805EE23.D	Dilution Factor:	1
Data File ID(Rear):	0805EF23.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	76	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	ND	38	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	79	43 - 124
Decachlorobiphenyl	95	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0018

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-04 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	16.9
Data File ID(Front):	0805EE24.D	Dilution Factor:	2
Data File ID(Rear):	080[illegible]F24.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	4.0	
58-89-9	gamma-BHC (Lindane)	ND	4.0	
76-44-8	Heptachlor	ND	4.0	
309-00-2	Aldrin	ND	4.0	
319-85-7	beta-BHC	ND	4.0	
319-86-8	delta-BHC	ND	4.0	
1024-57-3	Heptachlor Epoxide	ND	4.0	
959-98-8	Endosulfan I	ND	4.0	
5103-74-2	gamma-Chlordane	ND	4.0	
5103-71-9	alpha-Chlordane	ND	4.0	
72-55-9	p,p'-DDE	ND	7.9	
60-57-1	Dieldrin	ND	7.9	
72-20-8	Endrin	ND	7.9	
72-54-8	p,p'-DDD	ND	7.9	
33212-65-9	Endosulfan II	ND	7.9	
50-29-3	p,p'-DDT	ND	7.9	
7421-93-4	Endrin Aldehyde	ND	7.9	
72-43-5	Methoxychlor	ND	40	
1031-07-8	Endosulfan Sulfate	ND	7.9	
53494-70-5	Endrin Ketone	ND	7.9	
8001-35-2	Toxaphene	ND	400	
12674-11-2	Aroclor 1016	ND	79	
1104-28-2	Aroclor 1221	ND	160	
11141-16-5	Aroclor 1232	ND	79	
53469-21-9	Aroclor 1242	ND	79	
12672-29-6	Aroclor 1248	ND	79	
11097-69-1	Aroclor 1254	ND	79	
11096-82-5	Aroclor 1260	ND	79	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4[illegible]6-Tetrachloro-m-xylene	63	43 - 124
Decachlorobiphenyl	96	D - 133

ND = Not Detected

D = Detected; resul[illegible] must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID
0835-96-0019

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-05
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	15.85
Data File ID(Front):	0805EE25.D	Dilution Factor:	1
Data File ID(Rear):	0805EF25.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	2.0	
58-89-9	gamma-BHC (Lindane)	ND	2.0	
76-44-8	Heptachlor	ND	2.0	
309-00-2	Aldrin	ND	2.0	
319-85-7	beta-BHC	ND	2.0	
319-86-8	delta-BHC	ND	2.0	
1024-57-3	Heptachlor Epoxide	ND	2.0	
959-98-8	Endosulfan I	ND	2.0	
5103-74-2	gamma-Chlordane	ND	2.0	
5103-71-9	alpha-Chlordane	ND	2.0	
72-55-9	p,p'-DDE	ND	3.9	
60-57-1	Dieldrin	ND	3.9	
72-20-8	Endrin	ND	3.9	
72-54-8	p,p'-DDD	ND	3.9	
33212-65-9	Endosulfan II	ND	3.9	
50-29-3	p,p'-DDT	ND	3.9	
7421-93-4	Endrin Aldehyde	ND	3.9	
72-43-5	Methoxychlor	ND	20	
1031-07-8	Endosulfan Sulfate	ND	3.9	
53494-70-5	Endrin Ketone	ND	3.9	
8001-35-2	Toxaphene	ND	200	
12674-11-2	Aroclor 1016	ND	39	
1104-28-2	Aroclor 1221	ND	78	
11141-16-5	Aroclor 1232	ND	39	
53469-21-9	Aroclor 1242	ND	39	
12672-29-6	Aroclor 1248	ND	39	
11097-69-1	Aroclor 1254	ND	39	
11096-82-5	Aroclor 1260	ND	39	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	76	43 - 124
Decachlorobiphenyl	95	D - 133

ND = Not Detected
D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0020

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-06 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	15.4
Data File ID(Front):	0805EE26.D	Dilution Factor:	2
Data File ID(Rear):	0805EF26.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.9	
58-89-9	gamma-BHC (Lindane)	ND	3.9	
76-44-8	Heptachlor	ND	3.9	
309-00-2	Aldrin	ND	3.9	
319-85-7	beta-BHC	ND	3.9	
319-86-8	delta-BHC	ND	3.9	
1024-57-3	Heptachlor Epoxide	ND	3.9	
959-98-8	Endosulfan I	ND	3.9	
5103-74-2	gamma-Chlordane	ND	3.9	
5103-71-9	alpha-Chlordane	ND	3.9	
72-55-9	p,p'-DDE	ND	7.8	
60-57-1	Dieldrin	ND	7.8	
72-20-8	Endrin	ND	7.8	
72-54-8	p,p'-DDD	ND	7.8	
33212-65-9	Endosulfan II	ND	7.8	
50-29-3	p,p'-DDT	ND	7.8	
7421-93-4	Endrin Aldehyde	ND	7.8	
72-43-5	Methoxychlor	ND	39	
1031-07-8	Endosulfan Sulfate	ND	7.8	
53494-70-5	Endrin Ketone	ND	7.8	
8001-35-2	Toxaphene	ND	390	
12674-11-2	Aroclor 1016	ND	78	
1104-28-2	Aroclor 1221	ND	160	
11141-16-5	Aroclor 1232	ND	78	
53469-21-9	Aroclor 1242	ND	78	
12672-29-6	Aroclor 1248	ND	78	
11097-69-1	Aroclor 1254	ND	78	
11096-82-5	Aroclor 1260	ND	78	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	72	43 - 124
Decachlorobiphenyl	50	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0021

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-07
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	15.88
Data File ID(Front):	0805EE27.D	Dilution Factor:	1
Data File ID(Rear):	0805EF27.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	2.0	
58-89-9	gamma-BHC (Lindane)	ND	2.0	
76-44-8	Heptachlor	ND	2.0	
309-00-2	Aldrin	ND	2.0	
319-85-7	beta-BHC	ND	2.0	
319-86-8	delta-BHC	ND	2.0	
1024-57-3	Heptachlor Epoxide	ND	2.0	
959-98-8	Endosulfan I	ND	2.0	
5103-74-2	gamma-Chlordane	ND	2.0	
5103-71-9	alpha-Chlordane	ND	2.0	
72-55-9	p,p'-DDE	ND	3.9	
60-57-1	Dieldrin	ND	3.9	
72-20-8	Endrin	ND	3.9	
72-54-8	p,p'-DDD	ND	3.9	
33212-65-9	Endosulfan II	ND	3.9	
50-29-3	p,p'-DDT	ND	3.9	
7421-93-4	Endrin Aldehyde	ND	3.9	
72-43-5	Methoxychlor	ND	20	
1031-07-8	Endosulfan Sulfate	ND	3.9	
53494-70-5	Endrin Ketone	ND	3.9	
8001-35-2	Toxaphene	ND	200	
12674-11-2	Aroclor 1016	ND	39	
1104-28-2	Aroclor 1221	ND	78	
11141-16-5	Aroclor 1232	ND	39	
53469-21-9	Aroclor 1242	ND	39	
12672-29-6	Aroclor 1248	ND	39	
11097-69-1	Aroclor 1254	ND	39	
11096-82-5	Aroclor 1260	ND	39	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	80	43 - 124
Decachlorobiphenyl	87	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0022

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Lab Sample ID:	96-07-149-08
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	13.2
Data File ID(Front):	0805EE28.D	Dilution Factor:	1
Data File ID(Rear):	0805EF28.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	76	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	20	38	J

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	76	43 - 124
Decachlorobiphenyl	90	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

SECTION 5 SUMMARY REPORT FORMS

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
1	Performance Evaluation Mix	PEM MX-A20-12	08-05-96 17:15
2	Standard	PEST MX-B09-10 50%	08-05-96 17:45
3	Standard	PEST MX-B09-10 25%	08-05-96 18:14
4	Standard	PEST MX-B09-10 10%	08-05-96 18:43
5	Standard	PEST MX-B09-10 5%	08-05-96 19:12
6	Standard	PEST MX-B09-10 2.5%	08-05-96 19:41
7	Reference Calibration	PEST 2ND SRC MX-B06-09	08-05-96 20:10
8	Standard	1242/1260 MX-B09-10 40%	08-05-96 20:39
9	Standard	1242/1260 MX-B09-10 30%	08-05-96 21:08
10	Standard	1242/1260 MX-B09-10 20%	08-05-96 21:37
11	Standard	1242/1260 MX-B09-10 10%	08-05-96 22:06
12	Standard	1242/1260 MX-B09-10 5%	08-05-96 22:35
13	Standard	1242/1260 MX-B09-10 2.5%	08-05-96 23:04
14	Reference Calibration	1242 2ND SRC MX-A50-06	08-05-96 23:33
15	Reference Calibration	1260 2ND SRC MX-A51-08 40%	08-06-96 15:02
16	Reagent Blank	SRB1 07-23-96 8081	08-06-96 00:31
17	Blank Spike	SBS1 07-23-96 8081	08-06-96 01:01
18	Blank Spike Duplicate	SBS2 07-23-96 8081	08-06-96 01:30
19	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 02:28
20	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 02:57
21	0835-96-0015	96-07-149-01	08-06-96 03:26
22	0835-96-0016	96-07-149-02	08-06-96 03:55
23	0835-96-0017	96-07-149-03	08-06-96 04:24
24	0835-96-0018	96-07-149-04 DL2	08-06-96 04:52
25	0835-96-0019	96-07-149-05	08-06-96 05:21
26	0835-96-0020	96-07-149-06 DL2	08-06-96 05:50
27	0835-96-0021	96-07-149-07	08-06-96 06:19
28	0835-96-0022	96-07-149-08	08-06-96 06:48
29	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 07:46
30	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 08:15
31	In House	96-07-147-07 DL2	08-06-96 08:44

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
32	In House	96-07-147-07MS DL2	08-06-96 09:13
33	In House	96-07-147-07MSD DL2	08-06-96 09:42
34	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 14:04
35	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 14:33

ORGANOCHLORINE PESTICIDE BLANK SPIKE
Method 8080

Lab Name:	Paragon Analytics, Inc.	Date Extracted:	07-23-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	08-06-96
Client Project ID:	2410	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10

Lab Sample ID: SBS1 07-23-96 8081

Analyte	Spike Added (µg/kg)	BS Concentration (µg/kg)	BS Percent Recovery	QC Limits % Rec
gamma-BHC	13.3	9.8	74	36 - 155
Heptachlor	13.3	10.2	77	43 - 146
Aldrin	13.3	10.3	77	35 - 141
Dieldrin	13.3	11.4	86	42 - 160
Endrin	13.3	11.9	89	35 - 161
p,p'-DDT	13.3	11.4	86	23 - 173

Lab Sample ID: SBS2 07-23-96 8081

Analyte	Spike Added (µg/kg)	BSD Concentration (µg/kg)	BSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	13.3	10.2	77	4	20
Heptachlor	13.3	10.5	79	3	20
Aldrin	13.3	10.9	82	6	20
Dieldrin	13.3	11.5	86	1	20
Endrin	13.3	12.0	90	1	20
p,p'-DDT	13.3	11.5	86	1	20

SURROGATE RECOVERY

Analyte	% Recovery (BS)	% Recovery (BSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	86	88	43 - 124
Decachlorobiphenyl	107	103	D - 133

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDE MATRIX SPIKE
Method 8080

Lab Name:	Paragon Analytics, Inc.	Date Extracted:	07-23-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	08-06-96
Client Project ID:	2413	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10
		Dilution Factor:	2
Client Sample ID:		% Moisture:	0

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS Percent Recovery	QC Limits % Rec
gamma-BHC	13.3	< 3.3	8.9	67	36 - 155
Heptachlor	13.3	< 3.3	10.0	75	43 - 146
Aldrin	13.3	< 3.3	9.9	74	35 - 141
Dieldrin	13.3	< 6.7	9.9	74	42 - 160
Endrin	13.3	< 6.7	11.9	89	35 - 161
p,p'-DDT	13.3	< 6.7	14.3	108	23 - 173

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	13.3	9.7	73	9	20
Heptachlor	13.3	9.8	74	2	20
Aldrin	13.3	9.7	73	2	20
Dieldrin	13.3	9.1	68	8	20
Endrin	13.3	11.5	86	3	20
p,p'-DDT	13.3	13.1	98	9	20

SURROGATE RECOVERY

Analyte	% Recovery (MS)	% Recovery (MSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	72	73	43 - 124
Decachlorobiphenyl	71	60	D - 133

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES METHOD BLANK SUMMARY

Method 8080

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2410	Date Extracted:	07-23-96
Lab Sample ID:	SRB1 07-23-96 8081	Date Analyzed:	08-06-96
Matrix (soil/water):	Soil	Time Analyzed:	8/6/96 0:31
Extraction:	Soxhlet	Instrument ID:	ECD1
Data File ID(Front):	0805EE16.D	Column ID(Front):	DB-1701
Data File ID(Rear):	0805EF16.D	Column ID(Rear):	DB-17

This method blank applies to the following samples:

	Client Sample ID	Lab Sample ID	Data File ID (Front)	Data File ID (Rear)	Date/Time Analyzed
1	Blank Spike	SBS1 07-23-96 8081	0805EE17.D	0805EF17.D	08-06-96 01:01
2	Blank Spike Duplicate	SBS2 07-23-96 8081	0805EE18.D	0805EF18.D	08-06-96 01:30
3	0835-96-0015	96-07-149-01	0805EE21.D	0805EF21.D	08-06-96 03:26
4	0835-96-0016	96-07-149-02	0805EE22.D	0805EF22.D	08-06-96 03:55
5	0835-96-0017	96-07-149-03	0805EE23.D	0805EF23.D	08-06-96 04:24
6	0835-96-0018	96-07-149-04 DL2	0805EE24.D	0805EF24.D	08-06-96 04:52
7	0835-96-0019	96-07-149-05	0805EE25.D	0805EF25.D	08-06-96 05:21
8	0835-96-0020	96-07-149-06 DL2	0805EE26.D	0805EF26.D	08-06-96 05:50
9	0835-96-0021	96-07-149-07	0805EE27.D	0805EF27.D	08-06-96 06:19
10	0835-96-0022	96-07-149-08	0805EE28.D	0805EF28.D	08-06-96 06:48
11	In House	96-07-147-07 DL2	0805EE31.D	0805EF31.D	08-06-96 08:44
12	In House	96-07-147-07MS DL2	0805EE32.D	0805EF32.D	08-06-96 09:13
13	In House	96-07-147-07MSD DL2	0805EE33.D	0805EF33.D	08-06-96 09:42

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-05-96
Instrument ID: ECD1
Column ID: DB-1701

Date/Time Analyzed: 08-05-96 20:10

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	50	0
alpha-BHC	8.07	to	8.17	8.12	25	21	15
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	23	8
Heptachlor	9.12	to	9.22	9.17	25	24	2
Aldrin	9.56	to	9.70	9.63	25	23	8
beta-BHC	10.07	to	10.21	10.14	25	26	6
delta-BHC	10.46	to	10.60	10.53	25	24	6
Heptachlor Epoxide	10.76	to	10.90	10.83	25	23	7
Endosulfan I	11.21	to	11.35	11.28	25	23	7
gamma-Chlordane	11.29	to	11.43	11.36	25	24	5
alpha-Chlordane	11.44	to	11.54	11.49	25	25	1
p,p'-DDE	11.55	to	11.65	11.60	50	49	[illegible]
Dieldrin	11.83	to	11.93	11.88	50	52	[illegible]
Endrin	12.18	to	12.28	12.23	50	49	2
p,p'-DDD	12.81	to	12.95	12.88	50	48	4
Endosulfan II	12.94	to	13.08	13.01	50	49	2
p,p'-DDT	13.08	to	13.22	13.15	50	48	4
Endrin Aldehyde	13.65	to	13.79	13.72	50	57	14
Methoxychlor	14.23	to	14.37	14.30	250	270	8
Endosulfan Sulfate	14.27	to	14.41	14.34	50	46	8
Endosulfan Ketone	15.16	to	15.30	15.23	50	49	1
DCBP	17.75	to	17.89	17.82	50	39	21

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-05-96
Instrument ID: ECD1
Column ID: DB-17

Date/Time Analyzed: 08-05-96 20:10

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	50	1
alpha-BHC	7.91	to	8.01	7.96	25	22	11
gamma-BHC (Lindane)	8.67	to	8.77	8.72	25	23	7
Heptachlor	9.26	to	9.36	9.31	25	24	4
Aldrin	9.85	to	9.99	9.92	25	23	9
beta-BHC	8.80	to	8.94	8.87	25	27	6
delta-BHC	9.48	to	9.62	9.55	25	24	5
Heptachlor Epoxide	10.87	to	11.01	10.94	25	23	8
Endosulfan I	11.48	to	11.62	11.55	25	23	7
gamma-Chlordane	11.16	to	11.30	11.23	25	24	4
alpha-Chlordane	11.46	to	11.56	11.51	25	26	2
p,p'-DDE	11.91	to	12.01	11.96	50	49	2
Dieldrin	12.04	to	12.14	12.09	50	51	2
Endrin	12.68	to	12.78	12.73	50	49	2
p,p'-DDD	12.85	to	12.99	12.92	50	47	5
Endosulfan II	12.97	to	13.11	13.04	50	49	2
p,p'-DDT	13.38	to	13.52	13.45	50	48	4
Endrin Aldehyde	13.57	to	13.71	13.64	50	56	11
Methoxychlor	15.41	to	15.55	15.48	250	253	1
Endosulfan Sulfate	13.82	to	13.96	13.89	50	48	4
Endosulfan Ketone	13.82	to	13.96	13.89	50	49	2
DCBP	19.09	to	19.23	19.16	50	40	21

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-05-96
Instrument ID: ECD1
Date/Time Analyzed: 08-06-96 15:02

Aroclor 1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	357	11

Aroclor 1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	341	15

ORGANOCHLORINE PESTICIDES
INITIAL SYSTEM VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-05-96
Date/Time Analyzed: 08-05-96 17:15
Instrument ID: ECD1

Breakdown Evaluation Mix

Column ID(Front): DB-1701

Compound	Breakdown (%)
Endrin	4.3
p,p'-DDT	3.3

Breakdown Evaluation Mix

Column ID(Rear): DB-17

Compound	Breakdown (%)
Endrin	3.7
p,p'-DDT	3.3

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 02:28

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	53	6
alpha-BHC	8.06	to	8.16	8.11	25	24	2
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	25	1
Heptachlor	9.12	to	9.22	9.17	25	27	8
Aldrin	9.56	to	9.70	9.63	25	26	4
beta-BHC	10.07	to	10.21	10.14	25	26	4
delta-BHC	10.46	to	10.60	10.53	25	25	0
Heptachlor Epoxide	10.76	to	10.90	10.83	25	25	[illegible]
Endosulfan I	11.21	to	11.35	11.28	25	25	2
gamma-Chlordane	11.29	to	11.43	11.36	25	25	1
alpha-Chlordane	11.43	to	11.53	11.48	25	25	1
p,p'-DDE	11.55	to	11.65	11.60	50	51	1
Dieldrin	11.83	to	11.93	11.88	50	52	4
Endrin	12.17	to	12.27	12.22	50	52	5
p,p'-DDD	12.80	to	12.94	12.87	50	53	6
Endosulfan II	12.93	to	13.07	13.00	50	52	3
p,p'-DDT	13.07	to	13.21	13.14	50	52	4
Endrin Aldehyde	13.65	to	13.79	13.72	50	51	1
Methoxychlor	14.22	to	14.36	14.29	250	314	25
Endosulfan Sulfate	14.26	to	14.40	14.33	50	50	0
Endosulfan Ketone	15.16	to	15.30	15.23	50	53	5
DCBP	17.74	to	17.88	17.81	100	109	9

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 02:28

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	52	5
alpha-BHC	7.91	to	8.01	7.96	25	25	0
gamma-BHC (Lindane)	8.66	to	8.76	8.71	25	25	1
Heptachlor	9.26	to	9.36	9.31	25	27	7
Aldrin	9.84	to	9.98	9.91	25	24	4
beta-BHC	8.79	to	8.93	8.86	25	26	2
delta-BHC	9.47	to	9.61	9.54	25	24	4
Heptachlor Epoxide	10.86	to	11.00	10.93	25	25	1
Endosulfan I	11.48	to	11.62	11.55	25	25	1
gamma-Chlordane	11.15	to	11.29	11.22	25	25	1
alpha-Chlordane	11.46	to	11.56	11.51	25	26	2
p,p'-DDE	11.91	to	12.01	11.96	50	51	3
Dieldrin	12.04	to	12.14	12.09	50	51	3
Endrin	12.67	to	12.77	12.72	50	53	5
p,p'-DDD	12.84	to	12.98	12.91	50	55	11
Endosulfan II	12.97	to	13.11	13.04	50	51	2
p,p'-DDT	13.38	to	13.52	13.45	50	54	9
Endrin Aldehyde	13.57	to	13.71	13.64	50	50	0
Methoxychlor	15.41	to	15.55	15.48	250	297	19
Endosulfan Sulfate	13.82	to	13.96	13.89	50	51	2
Endosulfan Ketone	15.71	to	15.85	15.78	50	53	6
DCBP	19.09	to	19.23	19.16	100	107	7

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 07:46

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	50	0
alpha-BHC	8.06	to	8.16	8.11	25	23	7
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	24	5
Heptachlor	9.12	to	9.22	9.17	25	22	12
Aldrin	9.56	to	9.70	9.63	25	24	6
beta-BHC	10.07	to	10.21	10.14	25	23	8
delta-BHC	10.46	to	10.60	10.53	25	24	5
Heptachlor Epoxide	10.76	to	10.90	10.83	25	24	6
Endosulfan I	11.21	to	11.35	11.28	25	23	6
gamma-Chlordane	11.29	to	11.43	11.36	25	23	10
alpha-Chlordane	11.43	to	11.53	11.48	25	23	9
p,p'-DDE	11.55	to	11.65	11.60	50	46	7
Dieldrin	11.83	to	11.93	11.88	50	48	4
Endrin	12.18	to	12.28	12.23	50	50	0
p,p'-DDD	12.81	to	12.95	12.88	50	52	4
Endosulfan II	12.94	to	13.08	13.01	50	48	3
p,p'-DDT	13.07	to	13.21	13.14	50	42	16
Endrin Aldehyde	13.65	to	13.79	13.72	50	47	6
Methoxychlor	14.22	to	14.36	14.29	250	284	14
Endosulfan Sulfate	14.26	to	14.40	14.33	50	49	2
Endosulfan Ketone	15.16	to	15.30	15.23	50	50	0
DCBP	17.74	to	17.88	17.81	100	95	5

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 07:46

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	49	2
alpha-BHC	7.91	to	8.01	7.96	25	23	7
gamma-BHC (Lindane)	8.66	to	8.76	8.71	25	23	7
Heptachlor	9.26	to	9.36	9.31	25	22	14
Aldrin	9.85	to	9.99	9.92	25	22	12
beta-BHC	8.79	to	8.93	8.86	25	24	6
delta-BHC	9.47	to	9.61	9.54	25	24	4
Heptachlor Epoxide	10.87	to	[illegible].01	10.94	25	23	8
Endosulfan I	11.48	to	11.62	11.55	25	22	11
gamma-Chlordane	11.15	to	11.29	11.22	25	22	10
alpha-Chlordane	11.46	to	11.56	11.51	25	23	9
p,p'-DDE	11.91	to	12.01	11.96	50	46	8
Dieldrin	12.04	to	12.14	12.09	50	46	7
Endrin	12.67	to	12.77	12.72	50	49	1
p,p'-DDD	12.85	to	12.99	12.92	50	53	6
Endosulfan II	12.97	to	13.11	13.04	50	47	6
p,p'-DDT	13.38	to	13.52	13.45	50	46	9
Endrin Aldehyde	13.57	to	13.71	13.64	50	47	7
Methoxychlor	15.41	to	15.55	15.48	250	285	14
Endosulfan Sulfate	13.82	to	13.96	13.89	50	48	5
Endosulfan Ketone	15.71	to	15.85	15.78	50	48	4
DCBP	19.09	to	19.23	19.16	100	93	7

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 14:04

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	53	5
alpha-BHC	8.06	to	8.16	8.11	25	24	2
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	25	0
Heptachlor	9.12	to	9.22	9.17	25	26	3
Aldrin	9.56	to	9.70	9.63	25	25	0
beta-BHC	10.07	to	10.21	10.14	25	25	2
delta-BHC	10.46	to	10.60	10.53	25	25	1
Heptachlor Epoxide	10.76	to	10.90	10.83	25	24	2
Endosulfan I	11.21	to	11.35	11.28	25	25	0
gamma-Chlordane	11.29	to	11.43	11.36	25	24	4
alpha-Chlordane	11.43	to	11.53	11.48	25	24	3
p,p'-DDE	11.55	to	11.65	11.60	50	49	2
Dieldrin	11.83	to	11.93	11.88	50	52	3
Endrin	12.18	to	12.28	12.23	50	54	9
p,p'-DDD	12.81	to	12.95	12.88	50	65	30
Endosulfan II	12.94	to	13.08	13.01	50	51	1
p,p'-DDT	13.08	to	13.22	13.15	50	37	27
Endrin Aldehyde	13.65	to	13.79	13.72	50	52	3
Methoxychlor	14.23	to	14.37	14.30	250	288	15
Endosulfan Sulfate	14.27	to	14.41	14.34	50	49	1
Endosulfan Ketone	15.16	to	15.30	15.23	50	50	0
DCBP	17.75	to	17.89	17.82	100	104	4

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 14:04

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	52	4
alpha-BHC	7.91	to	8.01	7.96	25	25	1
gamma-BHC (Lindane)	8.67	to	8.77	8.72	25	25	2
Heptachlor	9.26	to	9.36	9.31	25	25	1
Aldrin	9.85	to	9.99	9.92	25	22	11
beta-BHC	8.80	to	8.94	8.87	25	25	0
delta-BHC	9.48	to	9.62	9.55	25	25	0
Heptachlor Epoxide	10.87	to	11.01	10.94	25	25	2
Endosulfan I	11.48	to	11.62	11.55	25	24	4
gamma-Chlordane	11.16	to	11.30	11.23	25	24	3
alpha-Chlordane	11.46	to	11.56	11.51	25	25	1
p,p'-DDE	11.91	to	12.01	11.96	50	49	2
Dieldrin	12.04	to	12.14	12.09	50	50	1
Endrin	12.68	to	12.78	12.73	50	53	6
p,p'-DDD	12.85	to	12.99	12.92	50	65	29
Endosulfan II	12.97	to	13.11	13.04	50	52	3
p,p'-DDT	13.38	to	13.52	13.45	50	38	25
Endrin Aldehyde	13.57	to	13.71	13.64	50	50	1
Methoxychlor	15.41	to	15.55	15.48	250	284	14
Endosulfan Sulfate	13.82	to	13.96	13.89	50	49	2
Endosulfan Ketone	15.71	to	15.85	15.78	50	47	7
DCBP	19.09	to	19.23	19.16	100	108	8

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	08-06-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2410	Date/Time Analyzed:	08-06-96 02:57

Aroclor 1260 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	402	0

Aroclor 1260 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev
Aroclor 1260	400	398	1

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2410

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Date/Time Analyzed: 08-06-96 08:15

Aroclor 1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	416	4

Aroclor 1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	408	2

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	08-06-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2410	Date/Time Analyzed:	08-06-96 14:33

Aroclor 1260 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	407	2

Aroclor 1260 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	395	1

REPORT OF ANALYSES

DETERMINATION OF ORGANOCHLORINE PESTICIDES and PCB's

Prepared for:

Los Alamos National Lab
SMO
Attn.: John Miglio
TA-3, Bldg. 271
MS H 865
Drop Point 01U
Los Alamos, NM 87545

Request Number: 2413

August 8, 1996

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Appendix B: Nonconformance and Corrective Action Reports

Section 1: Sample Numbers and Dates of Receipt

Table 1: Sample Numbers and Dates of Receipt

Sample Identifications

Client	PAI-CO	Date Collected	Date Received	Date Extracted	Date Analyzed
0835-96-0023	96-07-147-01	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0024	96-07-147-02	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0025	96-07-147-03	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0026	96-07-147-04	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0027	96-07-147-05	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0028	96-07-147-06	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0029	96-07-147-07	07/18/96	07/22/96	07/23/96	08/06/96
0835-96-0030	96-07-147-08	07/18/96	07/22/96	07/23/96	08/06/96

Section 2: Case Narrative

2.1 Sample Logistics

The above samples were received cool and intact on the dates in the above table.

2.2 Analysis of Organochlorine Pesticides

These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540. These extracts were then processed using florisil cleanup by Method 3620 in an attempt to remove potential interferences.

The extracts were then analyzed using GC/ECD (electron capture detectors) with a DB-17 capillary column according to protocols based on Method 8081. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interferences.

Methoxychlor was outside of QC limits on injection 0805EE19. No hits were found in the samples so no further action was taken. The final CCV, 0805EE41, was outside of QC limits for 4,4'-DDT and 4,4'-DDD.

2.3 Instrumental Conditions (GC/ECD1)

Columns: DB-1701 0.32mm I.D. x 0.25 μm film x 30 m length
DB-17 0.32 mm I.D. x 0.25 μm film x 30 m length

Carrier flow rate: 2 mL/min (helium) for both columns.

Temperature program: 110°C (hold 0.5 min) to 140°C at 20/min then to 275°C at 13/min (hold 5.87 min).

Detectors: Electron Capture

Injection volume: 1 μL.

Injector Temperature: 210°C

Detector Temperature: 325°C

2.4 Quality Control Data

These data are summarized in Section 5, Summary Report. Data is presented for:

Run Chronology
Blank Spike Recoveries
Matrix Spike Recoveries

Method Blank Summary
Reference Calibration Verification Reports
Continuing Calibration Verification Reports
Form 10's (if applicable)

2.5 Raw Data

Section 6 contains raw data for all standards, blanks, blank spikes and samples.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/28/95
Date

Request No. 3413
OC Pesticides

SECTION 3 CHAIN OF CUSTODY

July 19, 1996

Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-147

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2413 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Approx.Report Due Date: 09-AUG-96

Screening:

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0023	03	Soil	07/18/96	
HERB	STD	0835-96-0023	04	Soil	07/18/96	-01
OPPEST	STD	0835-96-0023	04	Soil	07/18/96	
PEST	STD	0835-96-0023	04	Soil	07/18/96	
SEMI	STD	0835-96-0023	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0023	06	Soil	07/18/96	
PCB	STD	0835-96-0024	03	Soil	07/18/96	
HERB	STD	0835-96-0024	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0024	04	Soil	07/18/96	
PEST	STD	0835-96-0024	04	Soil	07/18/96	
SEMI	STD	0835-96-0024	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0024	06	Soil	07/18/96	
PCB	STD	0835-96-0025	03	Soil	07/17/96	
HERB	STD	0835-96-0025	04	Soil	07/17/96	03
OPPEST	STD	0835-96-0025	04	Soil	07/17/96	
PEST	STD	0835-96-0025	04	Soil	07/17/96	
SEMI	STD	0835-96-0025	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0025	06	Soil	07/17/96	
PCB	STD	0835-96-0026	03	Soil	07/17/96	04
HERB	STD	0835-96-0026	04	Soil	07/17/96	
OPPEST	STD	0835-96-0026	04	Soil	07/17/96	

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0026	04	Soil	07/17/96	(04)
SEMI	STD	0835-96-0026	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0026	06	Soil	07/17/96	
PCB	STD	0835-96-0027	03	Soil	07/18/96	05
HERB	STD	0835-96-0027	04	Soil	07/18/96	
OPPEST	STD	0835-96-0027	04	Soil	07/18/96	
PEST	STD	0835-96-0027	04	Soil	07/18/96	
SEMI	STD	0835-96-0027	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0027	06	Soil	07/18/96	
PCB	STD	0835-96-0028	03	Soil	07/18/96	06
HERB	STD	0835-96-0028	04	Soil	07/18/96	
OPPEST	STD	0835-96-0028	04	Soil	07/18/96	
PEST	STD	0835-96-0028	04	Soil	07/18/96	
SEMI	STD	0835-96-0028	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0028	06	Soil	07/18/96	
PCB	STD	0835-96-0029	03	Soil	07/18/96	07
HERB	STD	0835-96-0029	04	Soil	07/18/96	
OPPEST	STD	0835-96-0029	04	Soil	07/18/96	
PEST	STD	0835-96-0029	04	Soil	07/18/96	
SEMI	STD	0835-96-0029	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0029	06	Soil	07/18/96	
PCB	STD	0835-96-0030	03	Soil	07/17/96	08
HERB	STD	0835-96-0030	04	Soil	07/17/96	
OPPEST	STD	0835-96-0030	04	Soil	07/17/96	
PEST	STD	0835-96-0030	04	Soil	07/17/96	
SEMI	STD	0835-96-0030	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0030	06	Soil	07/17/96	

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-8MO SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-147 INITIALS: BY DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: [illegible]

SECTION 4 SAMPLE RESULTS

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

Reagent Blank

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	SRB1 07-23-96
Matrix (soil/water):	Soil	Date Collected:	N/A
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	0
Data File ID(Front):	0805EE16.D	Dilution Factor:	1
Data File ID(Rear):	0805EF16.D	Final Volume(mL):	10

Results based on wet weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.7	
58-89-9	gamma-BHC (Lindane)	ND	1.7	
76-44-8	Heptachlor	ND	1.7	
309-00-2	Aldrin	ND	1.7	
319-85-7	beta-BHC	ND	1.7	
319-86-8	delta-BHC	ND	1.7	
1024-57-3	Heptachlor Epoxide	ND	1.7	
959-98-8	Endosulfan I	ND	1.7	
5103-74-2	gamma-Chlordane	ND	1.7	
5103-71-9	alpha-Chlordane	ND	1.7	
72-55-9	p,p'-DDE	ND	3.3	
60-57-1	Dieldrin	ND	3.3	
72-20-8	Endrin	ND	3.3	
72-54-8	p,p'-DDD	ND	3.3	
33212-65-9	Endosulfan II	ND	3.3	
50-29-3	p,p'-DDT	ND	3.3	
7421-93-4	Endrin Aldehyde	ND	3.3	
72-43-5	Methoxychlor	ND	17	
1031-07-8	Endosulfan Sulfate	ND	3.3	
53494-70-5	Endrin Ketone	ND	3.3	
8001-35-2	Toxaphene	ND	170	
12674-11-2	Aroclor 1016	ND	33	
1104-28-2	Aroclor 1221	ND	66	
11141-16-5	Aroclor 1232	ND	33	
53469-21-9	Aroclor 1242	ND	33	
12672-29-6	Aroclor 1248	ND	33	
11097-69-1	Aroclor 1254	ND	33	
11096-82-5	Aroclor 1260	ND	33	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	84	43 - 124
Decachlorobiphenyl	103	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

			Sample ID
Lab Name:	Paragon Analytics, Inc.		0835-96-0023
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-01 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	12.84
Data File ID(Front):	0805EE34.D	Dilution Factor:	2
Data File ID(Rear):	0805EF34.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.8	
58-89-9	gamma-BHC (Lindane)	ND	3.8	
76-44-8	Heptachlor	ND	3.8	
309-00-2	Aldrin	ND	3.8	
319-85-7	beta-BHC	ND	3.8	
319-86-8	delta-BHC	ND	3.8	
1024-57-3	Heptachlor Epoxide	ND	3.8	
959-98-8	Endosulfan I	ND	3.8	
5103-74-2	gamma-Chlordane	ND	3.8	
5103-71-9	alpha-Chlordane	ND	3.8	
72-55-9	p,p'-DDE	ND	7.6	
60-57-1	Dieldrin	ND	7.6	
72-20-8	Endrin	ND	7.6	
72-54-8	p,p'-DDD	ND	7.6	
33212-65-9	Endosulfan II	ND	7.6	
50-29-3	p,p'-DDT	ND	7.6	
7421-93-4	Endrin Aldehyde	ND	7.6	
72-43-5	Methoxychlor	ND	38	
1031-07-8	Endosulfan Sulfate	ND	7.6	
53494-70-5	Endrin Ketone	ND	7.6	
8001-35-2	Toxaphene	ND	380	
12674-11-2	Aroclor 1016	ND	76	
1104-28-2	Aroclor 1221	ND	150	
11141-16-5	Aroclor 1232	ND	76	
53469-21-9	Aroclor 1242	ND	76	
12672-29-6	Aroclor 1248	ND	76	
11097-69-1	Aroclor 1254	ND	76	
11096-82-5	Aroclor 1260	230	76	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	77	43 - 124
Decachlorobiphenyl	69	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0024

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-02 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	15.55
Data File ID(Front):	0805EE35.D	Dilution Factor:	2
Data File ID(Rear):	0805EF35.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.9	
58-89-9	gamma-BHC (Lindane)	ND	3.9	
76-44-8	Heptachlor	ND	3.9	
309-00-2	Aldrin	ND	3.9	
319-85-7	beta-BHC	ND	3.9	
319-86-8	delta-BHC	ND	3.9	
1024-57-3	Heptachlor Epoxide	ND	3.9	
959-98-8	Endosulfan I	ND	3.9	
5103-74-2	gamma-Chlordane	ND	3.9	
5103-71-9	alpha-Chlordane	ND	3.9	
72-55-9	p,p'-DDE	ND	7.8	
60-57-1	Dieldrin	ND	7.8	
72-20-8	Endrin	ND	7.8	
72-54-8	p,p'-DDD	ND	7.8	
33212-65-9	Endosulfan II	ND	7.8	
50-29-3	p,p'-DDT	ND	7.8	
7421-93-4	Endrin Aldehyde	ND	7.8	
72-43-5	Methoxychlor	ND	39	
1031-07-8	Endosulfan Sulfate	ND	7.8	
53494-70-5	Endrin Ketone	ND	7.8	
8001-35-2	Toxaphene	ND	390	
12674-11-2	Aroclor 1016	ND	78	
1104-28-2	Aroclor 1221	ND	160	
11141-16-5	Aroclor 1232	ND	78	
53469-21-9	Aroclor 1242	ND	78	
12672-29-6	Aroclor 1248	ND	78	
11097-69-1	Aroclor 1254	ND	78	
11096-82-5	Aroclor 1260	270	78	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	72	43 - 124
Decachlorobiphenyl	83	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0025

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-03 DL2
Matrix (soil/water):	Soil	Date Collected:	07-17-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	13.59
Data File ID(Front):	0805EE36.D	Dilution Factor:	2
Data File ID(Rear):	0805EF36.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.8	
58-89-9	gamma-BHC (Lindane)	ND	3.8	
76-44-8	Heptachlor	ND	3.8	
309-00-2	Aldrin	ND	3.8	
319-85-7	beta-BHC	ND	3.8	
319-86-8	delta-BHC	ND	3.8	
1024-57-3	Heptachlor Epoxide	ND	3.8	
959-98-8	Endosulfan I	ND	3.8	
5103-74-2	gamma-Chlordane	ND	3.8	
5103-71-9	alpha-Chlordane	ND	3.8	
72-55-9	p,p'-DDE	ND	7.6	
60-57-1	Dieldrin	ND	7.6	
72-20-8	Endrin	ND	7.6	
72-54-8	p,p'-DDD	ND	7.6	
33212-65-9	Endosulfan II	ND	7.6	
50-29-3	p,p'-DDT	ND	7.6	
7421-93-4	Endrin Aldehyde	ND	7.6	
72-43-5	Methoxychlor	ND	38	
1031-07-8	Endosulfan Sulfate	ND	7.6	
53494-70-5	Endrin Ketone	ND	7.6	
8001-35-2	Toxaphene	ND	380	
12674-11-2	Aroclor 1016	ND	76	
1104-28-2	Aroclor 1221	ND	150	
11141-16-5	Aroclor 1232	ND	76	
53469-21-9	Aroclor 1242	ND	76	
12672-29-6	Aroclor 1248	ND	76	
11097-69-1	Aroclor 1254	ND	76	
11096-82-5	Aroclor 1260	ND	76	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	83	43 - 124
Decachlorobiphenyl	96	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

			Sample ID
Lab Name:	Paragon Analytics, Inc.		0835-96-0026
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-04
Matrix (soil/water):	Soil	Date Collected:	07-17-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	12.19
Data File ID(Front):	0805EE37.D	Dilution Factor:	1
Data File ID(Rear):	0805EF37.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	75	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	ND	38	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	71	43 - 124
Decachlorobiphenyl	73	D - 133

ND = Not Detected

D = Detected, result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

Sample ID

0835-96-0027

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-05 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	7.2
Data File ID(Front):	0805EE38.D	Dilution Factor:	2
Data File ID(Rear):	0805EF38.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.6	
58-89-9	gamma-BHC (Lindane)	ND	3.6	
76-44-8	Heptachlor	ND	3.6	
309-00-2	Aldrin	ND	3.6	
319-85-7	beta-BHC	ND	3.6	
319-86-8	delta-BHC	ND	3.6	
1024-57-3	Heptachlor Epoxide	ND	3.6	
959-98-8	Endosulfan I	ND	3.6	
5103-74-2	gamma-Chlordane	ND	3.6	
5103-71-9	alpha-Chlordane	ND	3.6	
72-55-9	p,p'-DDE	ND	7.1	
60-57-1	Dieldrin	ND	7.1	
72-20-8	Endrin	ND	7.1	
72-54-8	p,p'-DDD	ND	7.1	
33212-65-9	Endosulfan II	ND	7.1	
50-29-3	p,p'-DDT	ND	7.1	
7421-93-4	Endrin Aldehyde	ND	7.1	
72-43-5	Methoxychlor	ND	36	
1031-07-8	Endosulfan Sulfate	ND	7.1	
53494-70-5	Endrin Ketone	ND	7.1	
8001-35-2	Toxaphene	ND	360	
12674-11-2	Aroclor 1016	ND	71	
1104-28-2	Aroclor 1221	ND	140	
11141-16-5	Aroclor 1232	ND	71	
53469-21-9	Aroclor 1242	ND	71	
12672-29-6	Aroclor 1248	ND	71	
11097-69-1	Aroclor 1254	ND	71	
11096-82-5	Aroclor 1260	94	71	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	78	43 - 124
Decachlorobiphenyl	96	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

			Sample ID
Lab Name:	Paragon Analy ..s, Inc.		0835-96-0028
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-06
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	13.7
Data File ID(Front):	0805EE39.D	Dilution Factor:	1
Data File ID(Rear):	0805EF39.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.8	
60-57-1	Dieldrin	ND	3.8	
72-20-8	Endrin	ND	3.8	
72-54-8	p,p'-DDD	ND	3.8	
33212-65-9	Endosulfan II	ND	3.8	
50-29-3	p,p'-DDT	ND	3.8	
7421-93-4	Endrin Aldehyde	ND	3.8	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.8	
53494-70-5	Endrin Ketone	ND	3.8	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	38	
1104-28-2	Aroclor 1221	ND	76	
11141-16-5	Aroclor 1232	ND	38	
53469-21-9	Aroclor 1242	ND	38	
12672-29-6	Aroclor 1248	ND	38	
11097-69-1	Aroclor 1254	ND	38	
11096-82-5	Aroclor 1260	ND	38	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	82	43 - 124
Decachlorobiphenyl	99	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES
Method 8080

			Sample ID
Lab Name:	Paragon Analytics, Inc.		0835-96-0029
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-07 DL2
Matrix (soil/water):	Soil	Date Collected:	07-18-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	6.58
Data File ID(Front):	0805EE31.D	Dilution Factor:	2
Data File ID(Rear):	0805EF31.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	3.5	
58-89-9	gamma-BHC (Lindane)	ND	3.5	
76-44-8	Heptachlor	ND	3.5	
309-00-2	Aldrin	ND	3.5	
319-85-7	beta-BHC	ND	3.5	
319-86-8	delta-BHC	ND	3.5	
1024-57-3	Heptachlor Epoxide	ND	3.5	
959-98-8	Endosulfan I	ND	3.5	
5103-74-2	gamma-Chlordane	ND	3.5	
5103-71-9	alpha-Chlordane	ND	3.5	
72-55-9	p,p'-DDE	ND	7.1	
60-57-1	Dieldrin	ND	7.1	
72-20-8	Endrin	ND	7.1	
72-54-8	p,p'-DDD	ND	7.1	
33212-65-9	Endosulfan II	ND	7.1	
50-29-3	p,p'-DDT	ND	7.1	
7421-93-4	Endrin Aldehyde	ND	7.1	
72-43-5	Methoxychlor	ND	35	
1031-07-8	Endosulfan Sulfate	ND	7.1	
53494-70-5	Endrin Ketone	ND	7.1	
8001-35-2	Toxaphene	ND	350	
12674-11-2	Aroclor 1016	ND	71	
1104-28-2	Aroclor 1221	ND	140	
11141-16-5	Aroclor 1232	ND	71	
53469-21-9	Aroclor 1242	ND	71	
12672-29-6	Aroclor 1248	ND	71	
11097-69-1	Aroclor 1254	ND	71	
11096-82-5	Aroclor 1260	77	71	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	81	43 - 124
Decachlorobiphenyl	88	D - 133

ND = Not Detected
D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0030

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Lab Sample ID:	96-07-147-08
Matrix (soil/water):	Soil	Date Collected:	07-17-96
Sample Weight(g):	30	Date Extracted:	07-23-96
Cleanup:	Florisil	Date Analyzed:	08-06-96
Extraction:	Soxhlet	% Moisture:	11.2
Data File ID(Front):	0805EE40.D	Dilution Factor:	1
Data File ID(Rear):	0805EF40.D	Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	Conc (µg/kg)	Detection (µg/kg)	Qualifier
319-84-6	alpha-BHC	ND	1.9	
58-89-9	gamma-BHC (Lindane)	ND	1.9	
76-44-8	Heptachlor	ND	1.9	
309-00-2	Aldrin	ND	1.9	
319-85-7	beta-BHC	ND	1.9	
319-86-8	delta-BHC	ND	1.9	
1024-57-3	Heptachlor Epoxide	ND	1.9	
959-98-8	Endosulfan I	ND	1.9	
5103-74-2	gamma-Chlordane	ND	1.9	
5103-71-9	alpha-Chlordane	ND	1.9	
72-55-9	p,p'-DDE	ND	3.7	
60-57-1	Dieldrin	ND	3.7	
72-20-8	Endrin	ND	3.7	
72-54-8	p,p'-DDD	ND	3.7	
33212-65-9	Endosulfan II	ND	3.7	
50-29-3	p,p'-DDT	1.6	3.7	J
7421-93-4	Endrin Aldehyde	ND	3.7	
72-43-5	Methoxychlor	ND	19	
1031-07-8	Endosulfan Sulfate	ND	3.7	
53494-70-5	Endrin Ketone	ND	3.7	
8001-35-2	Toxaphene	ND	190	
12674-11-2	Aroclor 1016	ND	37	
1104-28-2	Aroclor 1221	ND	74	
11141-16-5	Aroclor 1232	ND	37	
53469-21-9	Aroclor 1242	ND	37	
12672-29-6	Aroclor 1248	ND	37	
11097-69-1	Aroclor 1254	ND	37	
11096-82-5	Aroclor 1260	ND	37	

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	82	43 - 124
Decachlorobiphenyl	95	D - 133

ND = Not Detected

D = Detected; result must be greater than zero.

SECTION 5 SUMMARY REPORT FORMS

6 0 0 0 1 9

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
1	Performance Evaluation Mix	PEM MX-A20-12	08-05-96 17:15
2	Standard	PEST MX-B09-10 50%	08-05-96 17:45
3	Standard	PEST MX-B09-10 25%	08-05-96 18:14
4	Standard	PEST MX-B09-10 10%	08-05-96 18:43
5	Standard	PEST MX-B09-10 5%	08-05-96 19:12
6	Standard	PEST MX-B09-10 2.5%	08-05-96 19:41
7	Reference Calibration	PEST 2ND SRC MX-B06-09	08-05-96 20:10
8	Standard	1242/1260 MX-B09-10 40%	08-05-96 20:39
9	Standard	1242/1260 MX-B09-10 30%	08-05-96 21:08
10	Standard	1242/1260 MX-B09-10 20%	08-05-96 21:37
11	Standard	1242/1260 MX-B09-10 10%	08-05-96 22:06
12	Standard	1242/1260 MX-B09-10 5%	08-05-96 22:35
13	Standard	1242/1260 MX-B09-10 2.5%	08-05-96 23:04
14	Reference Calibration	1242 2ND SRC MX-A50-06	08-05-96 23:33
15	Reagent Blank	SRB1 07-23-96 8081	08-06-96 00:31
16	Blank Spike	SBS1 07-23-96 8081	08-06-96 01:01
17	Blank Spike Duplicate	SBS2 07-23-96 8081	08-06-96 01:30
18	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 02:28
19	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 02:57
20	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 07:46
21	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 08:15
22	0835-96-0029	96-07-147-07 DL2	08-06-96 08:44
23	0835-96-0029	96-07-147-07 DL2MS	08-06-96 09:13
24	0835-96-0029	96-07-147-07 DL2MSD	08-06-96 09:42
25	0835-96-0023	96-07-147-01 DL2	08-06-96 10:11
26	0835-96-0024	96-07-147-02 DL2	08-06-96 10:40
27	0835-96-0025	96-07-147-03 DL2	08-06-96 11:09
28	0835-96-0026	96-07-147-04	08-06-96 11:38
29	0835-96-0027	96-07-147-05 DL2	08-06-96 12:08
30	0835-96-0028	96-07-147-06	08-06-96 12:37
31	0835-96-0030	96-07-147-08	08-06-96 13:06

RUN CHRONOLOGY FOR ORGANOCHLORINE PESTICIDES

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413
Instrument ID: ECD1
Column ID(Front): DB-1701
Column ID(Rear): DB-17

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE/TIME ANALYZED
32	Continuing Calibration	PEST MX-B09-10 25% CCV	08-06-96 14:04
33	Continuing Calibration	1242/1260 MX-B09-10 20% CCV	08-06-96 14:33
34	Reference Calibration	1260 2ND SRC MX-A51-08 40%	08-06-96 15:02

ORGANOCHLORINE PESTICIDE MATRIX SPIKE
Method 8080

Lab Name:	Paragon Analytics, Inc.	Date Extracted:	07-23-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	08-06-96
Client Project ID:	2413	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10
		Dilution Factor:	2
Client Sample ID:		% Moisture:	6.58

Analyte	Spike Added (µg/kg)	Sample Concentration (µg/kg)	MS Concentration (µg/kg)	MS Percent Recovery	QC Limits % Rec
gamma-BHC	14.2	< 3.5	9.5	67	36 - 155
Heptachlor	14.2	< 3.5	10.7	75	43 - 146
Aldrin	14.2	< 3.5	10.6	75	35 - 141
Dieldrin	14.2	< 7.1	10.6	75	42 - 160
Endrin	14.2	< 7.1	12.7	89	35 - 161
p,p'-DDT	14.2	< 7.1	15.4	108	23 - 173

Analyte	Spike Added (µg/kg)	MSD Concentration (µg/kg)	MSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	14.2	10.4	73	9	20
Heptachlor	14.2	10.5	74	2	20
Aldrin	14.2	10.3	73	3	20
Dieldrin	14.2	9.8	69	8	20
Endrin	14.2	12.3	87	3	20
p,p'-DDT	14.2	14.0	99	10	20

SURROGATE RECOVERY

Analyte	% Recovery (MS)	% Recovery (MSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	72	73	43 - 124
Decachlorobiphenyl	71	60	D - 133

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDE BLANK SPIKE
Method 8080

Lab Name:	Paragon Analytics, Inc.	Date Extracted:	07-23-96
Client Name:	Los Alamos Nat'l Lab	Date Analyzed:	08-06-96
Client Project ID:	2413	Sample Weight(g):	30
Sample Matrix:	Soil	Final Volume(mL):	10

Lab Sample ID: SBS1 07-23-96 8081

Analyte	Spike Added (µg/kg)	BS Concentration (µg/kg)	BS Percent Recovery	QC Limits % Rec
gamma-BHC	13.3	9.81	74	36 - 155
Heptachlor	13.3	10.2	77	43 - 146
Aldrin	13.3	10.3	77	35 - 141
Dieldrin	13.3	11.4	86	42 - 160
Endrin	13.3	11.9	89	35 - 161
p,p'-DDT	13.3	11.4	86	23 - 173

Lab Sample ID: SBS2 07-23-96 8081

Analyte	Spike Added (µg/kg)	BSD Concentration (µg/kg)	BSD Percent Recovery	RPD	QC Limits RPD
gamma-BHC	13.3	10.2	77	4	20
Heptachlor	13.3	10.5	79	3	20
Aldrin	13.3	10.9	82	6	20
Dieldrin	13.3	11.5	86	1	20
Endrin	13.3	12.0	90	1	20
p,p'-DDT	13.3	11.5	86	1	20

SURROGATE RECOVERY

Analyte	% Recovery (BS)	% Recovery (BSD)	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	86	88	43 - 124
Decachlorobiphenyl	107	103	D - 133

D = Detected; result must be greater than zero.

ORGANOCHLORINE PESTICIDES METHOD BLANK SUMMARY

Method 8080

Lab Name:	Paragon Analytics, Inc.		
Client Name:	Los Alamos Nat'l Lab		
Client Project ID:	2413	Date Extracted:	07-23-96
Lab Sample ID:	SRB1 07-23-96 8081	Date Analyzed:	08-06-96
Matrix (soil/water):	Soil	Time Analyzed:	8/6/96 0:31
Extraction:	Soxhlet	Instrument ID:	ECD1
Data File ID(Front):	0805EE16.D	Column ID(Front):	DB-1701
Data File ID(Rear):	0805EF16.D	Column ID(Rear):	DB-17

This method blank applies to the following samples:

	Client Sample ID	Lab Sample ID	Data File ID (Front)	Data File ID (Rear)	Date/Time Analyzed
1	Blank Spike	SBS1 07-23-96 8081	0805EE17.D	0805EF17.D	08-06-96 01:01
2	Blank Spike Duplicate	SBS2 07-23-96 8081	0805EE18.D	0805EF18.D	08-06-96 01:30
3	0835-96-0029	96-07-147-07 DL2	0805EE31.D	0805EF31.D	08-06-96 08:44
4	0835-96-0029	96-07-147-07 DL2MS	0805EE32.D	0805EF32.D	08-06-96 09:13
5	0835-96-0029	96-07-147-07 DL2MSD	0805EE33.D	0805EF33.D	08-06-96 09:42
6	0835-96-0023	96-07-147-01 DL2	0805EE34.D	0805EF34.D	08-06-96 10:11
7	0835-96-0024	96-07-147-02 DL2	0805EE35.D	0805EF35.D	08-06-96 10:40
8	0835-96-0025	96-07-147-03 DL2	0805EE36.D	0805EF36.D	08-06-96 11:09
9	0835-96-0026	96-07-147-04	0805EE37.D	0805EF37.D	08-06-96 11:38
10	0835-96-0027	96-07-147-05 DL2	0805EE38.D	0805EF38.D	08-06-96 12:08
11	0835-96-0028	96-07-147-06	0805EE39.D	0805EF39.D	08-06-96 12:37
12	0835-96-0030	96-07-147-08	0805EE40.D	0805EF40.D	08-06-96 13:06

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-05-96
Instrument ID: ECD1
Column ID: DB-1701

Date/Time Analyzed: 08-05-96 19:43

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	50	0
alpha-BHC	8.07	to	8.17	8.12	25	21	15
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	23	8
Heptachlor	9.12	to	9.22	9.17	25	24	2
Aldrin	9.56	to	9.70	9.63	25	23	8
beta-BHC	10.07	to	10.21	10.14	25	26	6
delta-BHC	10.46	to	10.60	10.53	25	24	6
Heptachlor Epoxide	10.76	to	10.90	10.83	25	23	7
Endosulfan I	11.21	to	11.35	11.28	25	23	7
gamma-Chlordane	11.29	to	11.43	11.36	25	24	5
alpha-Chlordane	11.44	to	11.54	11.49	25	25	1
p,p'-DDE	11.55	to	11.65	11.60	50	49	2
Dieldrin	11.83	to	11.93	11.88	50	52	3
Endrin	12.18	to	12.28	12.23	50	49	2
p,p'-DDD	12.81	to	12.95	12.88	50	48	4
Endosulfan II	12.94	to	13.08	13.01	50	49	2
p,p'-DDT	13.08	to	13.22	13.15	50	48	4
Endrin Aldehyde	13.65	to	13.79	13.72	50	57	14
Methoxychlor	14.23	to	14.37	14.30	250	270	8
Endosulfan Sulfate	14.27	to	14.41	14.34	50	46	8
Endosulfan Ketone	15.16	to	15.30	15.23	50	49	1
DCBP	17.75	to	17.89	17.82	50	39	21

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-05-96
Instrument ID: ECD1
Column ID: DB-17

Date/Time Analyzed: 08-05-96 19:43

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	50	1
alpha-BHC	7.91	to	8.01	7.96	25	22	11
gamma-BHC (Lindane)	8.67	to	8.77	8.72	25	23	7
Heptachlor	9.26	to	9.36	9.31	25	24	4
Aldrin	9.85	to	9.99	9.92	25	23	9
beta-BHC	8.80	to	8.94	8.87	25	27	6
delta-BHC	9.48	to	9.62	9.55	25	24	5
Heptachlor Epoxide	10.87	to	11.01	10.94	25	23	8
Endosulfan I	11.48	to	11.62	11.55	25	23	7
gamma-Chlordane	11.16	to	11.30	11.23	25	24	4
alpha-Chlordane	11.46	to	11.56	11.51	25	26	2
p,p'-DDE	11.91	to	12.01	11.96	50	49	2
Dieldrin	12.04	to	12.14	12.09	50	51	2
Endrin	12.68	to	12.78	12.73	50	49	2
p,p'-DDD	12.85	to	12.99	12.92	50	47	5
Endosulfan II	12.97	to	13.11	13.04	50	49	2
p,p'-DDT	13.38	to	13.52	13.45	50	48	4
Endrin Aldehyde	13.57	to	13.71	13.64	50	56	11
Methoxychlor	15.41	to	15.55	15.48	250	253	1
Endosulfan Sulfate	13.82	to	13.96	13.89	50	48	4
Endosulfan Ketone	15.71	to	15.85	15.78	50	49	2
DCBP	19.09	to	19.23	19.16	50	40	21

ORGANOCHLORINE PESTICIDES
REFERENCE CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	08-06-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2413	Date/Time Analyzed:	08-06-96 15:02

Aroclor 1260 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	357	11

Aroclor 1260 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	341	15

ORGANOCHLORINE PESTICIDES
INITIAL SYSTEM VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-05-96
Date/Time Analyzed: 08-05-96 17:15
Instrument ID: ECD1

Breakdown Evaluation Mix

Column ID(Front): DB-1701

Compound	Breakdown (%)
Endrin	4.3
p,p'-DDT	3.3

Breakdown Evaluation Mix

Column ID(Rear): DB-17

Compound	Breakdown (%)
Endrin	3.7
p,p'-DDT	3.3

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 02:28

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	53	6
alpha-BHC	8.06	to	8.16	8.11	25	24	2
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	25	1
Heptachlor	9.12	to	9.22	9.17	25	27	8
Aldrin	9.56	to	9.70	9.63	25	26	4
beta-BHC	10.07	to	10.21	10.14	25	26	4
delta-BHC	10.46	to	10.60	10.53	25	25	0
Heptachlor Epoxide	10.76	to	10.90	10.83	25	25	1
Endosulfan I	11.21	to	11.35	11.28	25	25	2
gamma-Chlordane	11.29	to	11.43	11.36	25	25	1
alpha-Chlordane	11.43	to	11.53	11.48	25	25	1
p,p'-DDE	11.55	to	11.65	11.60	50	51	1
Dieldrin	11.83	to	11.93	11.88	50	52	4
Endrin	12.17	to	12.27	12.22	50	52	5
p,p'-DDD	12.80	to	12.94	12.87	50	53	6
Endosulfan II	12.93	to	13.07	13.00	50	52	3
p,p'-DDT	13.07	to	13.21	13.14	50	52	4
Endrin Aldehyde	13.65	to	13.79	13.72	50	51	1
Methoxychlor	14.22	to	14.36	14.29	250	314	25
Endosulfan Sulfate	14.26	to	14.40	14.33	50	50	0
Endosulfan Ketone	15.16	to	15.30	15.23	50	53	5
DCBP	17.74	to	17.88	17.81	100	109	9

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 02:28

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	52	5
alpha-BHC	7.91	to	8.01	7.96	25	25	0
gamma-BHC (Lindane)	8.66	to	8.76	8.71	25	25	1
Heptachlor	9.26	to	9.36	9.31	25	27	7
Aldrin	9.84	to	9.98	9.91	25	24	4
beta-BHC	8.79	to	8.93	8.86	25	26	2
delta-BHC	9.47	to	9.61	9.54	25	24	4
Heptachlor Epoxide	10.86	to	11.00	10.93	25	25	1
Endosulfan I	11.48	to	11.62	11.55	25	25	1
gamma-Chlordane	11.15	to	11.29	11.22	25	25	1
alpha-Chlordane	11.46	to	11.56	11.51	25	26	2
p,p'-DDE	11.91	to	12.01	11.96	50	51	3
Dieldrin	12.04	to	12.14	12.09	50	51	3
Endrin	12.67	to	12.77	12.72	50	53	5
p,p'-DDD	12.84	to	12.98	12.91	50	55	11
Endosulfan II	12.97	to	13.11	13.04	50	51	2
p,p'-DDT	13.38	to	13.52	13.45	50	54	9
Endrin Aldehyde	13.57	to	13.71	13.64	50	50	0
Methoxychlor	15.41	to	15.55	15.48	250	297	19
Endosulfan Sulfate	13.82	to	13.96	13.89	50	51	2
Endosulfan Ketone	15.71	to	15.85	15.78	50	53	6
DCBP	19.09	to	19.23	19.16	100	107	7

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 07:46

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	50	0
alpha-BHC	8.06	to	8.16	8.11	25	23	7
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	24	5
Heptachlor	9.12	to	9.22	9.17	25	22	12
Aldrin	9.56	to	9.70	9.63	25	24	6
beta-BHC	10.07	to	10.21	10.14	25	23	8
delta-BHC	10.46	to	10.60	10.53	25	24	5
Heptachlor Epoxide	10.76	to	10.90	10.83	25	24	6
Endosulfan I	11.21	to	11.35	11.28	25	23	6
gamma-Chlordane	11.29	to	11.43	11.36	25	23	10
alpha-Chlordane	11.43	to	11.53	11.48	25	23	9
p,p'-DDE	11.55	to	11.65	11.60	50	46	7
Dieldrin	11.83	to	11.93	11.88	50	48	4
Endrin	12.18	to	12.28	12.23	50	50	0
p,p'-DDD	12.81	to	12.95	12.88	50	52	4
Endosulfan II	12.94	to	13.08	13.01	50	48	3
p,p'-DDT	13.07	to	13.21	13.14	50	42	16
Endrin Aldehyde	13.65	to	13.79	13.72	50	47	6
Methoxychlor	14.22	to	14.36	14.29	250	284	14
Endosulfan Sulfate	14.26	to	14.40	14.33	50	49	2
Endosulfan Ketone	15.16	to	15.30	15.23	50	50	0
DCBP	17.74	to	17.88	17.81	100	95	5

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 07:46

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	49	2
alpha-BHC	7.91	to	8.01	7.96	25	23	7
gamma-BHC (Lindane)	8.66	to	8.76	8.71	25	23	7
Heptachlor	9.26	to	9.36	9.31	25	22	14
Aldrin	9.85	to	9.99	9.92	25	22	12
beta-BHC	8.79	to	8.93	8.86	25	24	6
delta-BHC	9.47	to	9.61	9.54	25	24	4
Heptachlor Epoxide	10.87	to	11.01	10.94	25	23	8
Endosulfan I	11.48	to	11.62	11.55	25	22	11
gamma-Chlordane	11.15	to	11.29	11.22	25	22	10
alpha-Chlordane	11.46	to	11.56	11.51	25	23	9
p,p'-DDE	11.91	to	12.01	11.96	50	46	8
Dieldrin	12.04	to	12.14	12.09	50	46	7
Endrin	12.67	to	12.77	12.72	50	49	1
p,p'-DDD	12.85	to	12.99	12.92	50	53	6
Endosulfan II	12.97	to	13.11	13.04	50	47	6
p,p'-DDT	13.38	to	13.52	13.45	50	46	9
Endrin Aldehyde	13.57	to	13.71	13.64	50	47	7
Methoxychlor	15.41	to	15.55	15.48	250	285	14
Endosulfan Sulfate	13.82	to	13.96	13.89	50	48	5
Endosulfan Ketone	15.71	to	15.85	15.78	50	48	4
DCBP	19.09	to	19.23	19.16	100	93	7

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-1701

Continuing Calibration

Date/Time Analyzed: 08-06-96 14:04

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.37	to	6.47	6.42	50	53	5
alpha-BHC	8.06	to	8.16	8.11	25	24	2
gamma-BHC (Lindane)	8.79	to	8.89	8.84	25	25	0
Heptachlor	9.12	to	9.22	9.17	25	26	3
Aldrin	9.56	to	9.70	9.63	25	25	0
beta-BHC	10.07	to	10.21	10.14	25	25	2
delta-BHC	10.46	to	10.60	10.53	25	25	1
Heptachlor Epoxide	10.76	to	10.90	10.83	25	24	2
Endosulfan I	11.21	to	11.35	11.28	25	25	0
gamma-Chlordane	11.29	to	11.43	11.36	25	24	4
alpha-Chlordane	11.43	to	11.53	11.48	25	24	3
p,p'-DDE	11.55	to	11.65	11.60	50	49	2
Dieldrin	11.83	to	11.93	11.88	50	52	3
Endrin	12.18	to	12.28	12.23	50	54	9
p,p'-DDD	12.81	to	12.95	12.88	50	65	30
Endosulfan II	12.94	to	13.08	13.01	50	51	1
p,p'-DDT	13.08	to	13.22	13.15	50	37	27
Endrin Aldehyde	13.65	to	13.79	13.72	50	52	3
Methoxychlor	14.23	to	14.37	14.30	250	288	15
Endosulfan Sulfate	14.27	to	14.41	14.34	50	49	1
Endosulfan Ketone	15.16	to	15.30	15.23	50	50	0
DCBP	17.75	to	17.89	17.82	100	104	4

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Column ID: DB-17

Continuing Calibration

Date/Time Analyzed: 08-06-96 14:04

Analyte	Retention Time Window			Observed R.T.	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
TCMX	6.51	to	6.61	6.56	50	52	4
alpha-BHC	7.91	to	8.01	7.96	25	25	1
gamma-BHC (Lindane)	8.67	to	8.77	8.72	25	25	2
Heptachlor	9.26	to	9.36	9.31	25	25	1
Aldrin	9.85	to	9.99	9.92	25	22	11
beta-BHC	8.80	to	8.94	8.87	25	25	0
delta-BHC	9.48	to	9.62	9.55	25	25	0
Heptachlor Epoxide	10.87	to	11.01	10.94	25	25	2
Endosulfan I	11.48	to	11.62	11.55	25	24	4
gamma-Chlordane	11.16	to	11.30	11.23	25	24	3
alpha-Chlordane	11.46	to	11.56	11.51	25	25	1
p,p'-DDE	11.91	to	12.01	11.96	50	49	2
Dieldrin	12.04	to	12.14	12.09	50	50	1
Endrin	12.68	to	12.78	12.73	50	53	6
p,p'-DDD	12.85	to	12.99	12.92	50	65	29
Endosulfan II	12.97	to	13.11	13.04	50	52	3
p,p'-DDT	13.38	to	13.52	13.45	50	38	25
Endrin Aldehyde	13.57	to	13.71	13.64	50	50	1
Methoxychlor	15.41	to	15.55	15.48	250	284	14
Endosulfan Sulfate	13.82	to	13.96	13.89	50	49	2
Endosulfan Ketone	15.71	to	15.85	15.78	50	47	7
DCBP	19.09	to	19.23	19.16	100	108	8

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	08-06-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2413	Date/Time Analyzed:	08-06-96 02:57

Aroclor 1260 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	402	0

Aroclor 1260 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	398	1

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name: Paragon Analytics, Inc.
Client Name: Los Alamos Nat'l Lab
Client Project ID: 2413

Initial Date Analyzed: 08-06-96
Instrument ID: ECD1
Date/Time Analyzed: 08-06-96 08:15

Aroclor 1260 at 1.00 ppm

Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	416	4

Aroclor 1260 at 1.00 ppm

Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	408	2

ORGANOCHLORINE PESTICIDES
CONTINUING CALIBRATION VERIFICATION REPORT

Lab Name:	Paragon Analytics, Inc.	Initial Date Analyzed:	08-06-96
Client Name:	Los Alamos Nat'l Lab	Instrument ID:	ECD1
Client Project ID:	2413	Date/Time Analyzed:	08-06-96 14:33

Aroclor 1260 at 1.00 ppm Column ID (Front): DB-1701

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	407	2

Aroclor 1260 at 1.00 ppm Column ID (Rear): DB-17

Compound	Expected Conc (ng/ml)	Measured Conc (ng/ml)	% Dev.
Aroclor 1260	400	395	1

ORGANOCHLORINE PESTICIDES

Method 8080

Sample ID

0835-96-0030

Lab Name:	Paragon Analytics, Inc.
Client Name:	Los Alamos Nat'l Lab
Client Project ID:	2413
Matrix (soil/water):	Soil
Sample Weight(g):	30
Cleanup:	Florisil
Extraction:	Soxhlet
Data File ID(Front):	0805EE40.D
Data File ID(Rear):	0805EF40.D

Lab Sample ID:	96-07-147-08
Date Collected:	07-17-96
Date Extracted:	07-23-96
Date Analyzed:	08-06-96
% Moisture:	11.2
Dilution Factor:	1
Final Volume(mL):	10

Results based on dry weight.

CAS No.	Analyte	RT	DB-1701 WINDOW Lower	Upper	Conc (µg/kg)	RT	DB-17 WINDOW Lower	Upper	Conc (µg/kg)	% Difference
319-84-6	alpha-BHC									
58-89-9	gamma-BHC (Lindane)									
76-44-8	Heptachlor									
309-00-2	Aldrin									
319-85-7	beta-BHC									
319-86-8	delta-BHC									
1024-57-3	Heptachlor Epoxide									
959-98-8	Endosulfan I									
5103-74-2	gamma-Chlordane									
5103-71-9	alpha-Chlordane									
72-55-9	p,p'-DDE									
60-57-1	Dieldrin									
72-20-8	Endrin									
72-54-8	p,p'-DDD									
33212-65-9	Endosulfan II									
50-29-3	p,p'-DDT	13.14	13.09 to	13.19	2.0	13.45	13.40 to	13.50	1.6	22
7421-93-4	Endrin Aldehyde									
72-43-5	Methoxychlor									
1031-07-8	Endosulfan Sulfate									
53494-70-5	Endrin Ketone									

ND = Not Detected

Paragon Analytics, Inc.

OP Pesticides Case Narrative

LANL SMO

2407

Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0001	96-07-113-01	0835-96-0008	96-07-113-08
0835-96-0002	96-07-113-02	0835-96-0009	96-07-113-09
0835-96-0003	96-07-113-03	0835-96-0010	96-07-113-10
0835-96-0004	96-07-113-04	0835-96-0011	96-07-113-11
0835-96-0005	96-07-113-05	0835-96-0012	96-07-113-12
0835-96-0006	96-07-113-06	0835-96-0013	96-07-113-13
0835-96-0007	96-07-113-07	0835-96-0014	96-07-113-14

1. This report consists of 14 soil samples received by Paragon on 07/12/96.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540.

3. The extracts were then analyzed using GC/FPD with a DB-1 capillary column according to protocols based on Method 8141. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is from the primary column, unless interferences were encountered, in which case the quantitation is taken from the secondary column.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria. (Please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column).

9. All initial and continuing calibration criteria were within acceptance criteria (please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column).

Roland P. Bruggeman — 8-9-96
Roland P. Bruggeman — Date
Organic Manager

RPB for EH — 8-9-96
Reviewer's Initials — Date

The data contained in the following report have been reviewed and approved by the personnel listed above. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/96
Date

Request No. 2407
OP Pesticides

SECTION 1 CHAIN OF CUSTODY

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

96-07-113

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2407 per agreement number 7794L0014-9S

ORGANIC TO ATI, 30 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 30 Days

Approx.Report Due Date: 15-AUG-96

Screening:

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 42

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0001	03	Soil	07/15/96	
HERB	STD	0835-96-0001	04	Soil	07/15/96	
PEST	STD	0835-96-0001	04	Soil	07/15/96	-01
SEMI	STD	0835-96-0001	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0001	06	Soil	07/15/96	
PCB	STD	0835-96-0002	03	Soil	07/15/96	
HERB	STD	0835-96-0002	04	Soil	07/15/96	
PEST	STD	0835-96-0002	04	Soil	07/15/96	-02
SEMI	STD	0835-96-0002	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0002	06	Soil	07/15/96	
PCB	STD	0835-96-0003	03	Soil	07/15/96	
HERB	STD	0835-96-0003	04	Soil	07/15/96	
PEST	STD	0835-96-0003	04	Soil	07/15/96	-03
SEMI	STD	0835-96-0003	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0003	06	Soil	07/15/96	
PCB	STD	0835-96-0004	03	Soil	07/15/96	
HERB	STD	0835-96-0004	04	Soil	07/15/96	-04
PEST	STD	0835-96-0004	04	Soil	07/15/96	
SEMI	STD	0835-96-0004	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0004	06	Soil	07/15/96	
PCB	STD	0835-96-0005	03	Soil	07/15/96	-05

Cont 000005

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
HERB	STD	0835-96-0005	04	Soil	07/15/96	
PEST	STD	0835-96-0005	04	Soil	07/15/96	-05 cont
SEMI	STD	0835-96-0005	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0005	06	Soil	07/15/96	
PCB	STD	0835-96-0006	03	Soil	07/15/96	
HERB	STD	0835-96-0006	04	Soil	07/15/96	
PEST	STD	0835-96-0006	04	Soil	07/15/96	-06
SEMI	STD	0835-96-0006	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0006	06	Soil	07/15/96	* Jar cracked.
PCB	STD	0835-96-0007	03	Soil	07/15/96	
HERB	STD	0835-96-0007	04	Soil	07/15/96	
PEST	STD	0835-96-0007	04	Soil	07/15/96	-07
SEMI	STD	0835-96-0007	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0007	06	Soil	07/15/96	
PCB	STD	0835-96-0008	03	Soil	07/15/96	
HERB	STD	0835-96-0008	04	Soil	07/15/96	
PEST	STD	0835-96-0008	04	Soil	07/15/96	-08
SEMI	STD	0835-96-0008	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0008	06	Soil	07/15/96	
PCB	STD	0835-96-0009	03	Soil	07/15/96	
HERB	STD	0835-96-0009	04	Soil	07/15/96	
PEST	STD	0835-96-0009	04	Soil	07/15/96	-09
SEMI	STD	0835-96-0009	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0009	06	Soil	07/15/96	
PCB	STD	0835-96-0010	03	Soil	07/15/96	
HERB	STD	0835-96-0010	04	Soil	07/15/96	
PEST	STD	0835-96-0010	04	Soil	07/15/96	
SEMI	STD	0835-96-0010	04	Soil	07/15/96	-10
VOAGCMS	STD	0835-96-0010	06	Soil	07/15/96	
PCB	STD	0835-96-0011	03	Soil	07/15/96	
HERB	STD	0835-96-0011	04	Soil	07/15/96	
PEST	STD	0835-96-0011	04	Soil	07/15/96	
SEMI	STD	0835-96-0011	04	Soil	07/15/96	-11
VOAGCMS	STD	0835-96-0011	06	Soil	07/15/96	
PCB	STD	0835-96-0012	03	Soil	07/15/96	
HERB	STD	0835-96-0012	04	Soil	07/15/96	-12
PEST	STD	0835-96-0012	04	Soil	07/15/96	

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SEMI	STD	0835-96-0012	04	Soil	07/15/96	-12
VOAGCMS	STD	0835-96-0012	06	Soil	07/15/96	
PCB	STD	0835-96-0013	03	Soil	07/15/96	
HERB	STD	0835-96-0013	04	Soil	07/15/96	
PEST	STD	0835-96-0013	04	Soil	07/15/96	-13
SEMI	STD	0835-96-0013	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0013	06	Soil	07/15/96	
PCB	STD	0835-96-0014	03	Soil	07/15/96	
HERB	STD	0835-96-0014	04	Soil	07/15/96	
PEST	STD	0835-96-0014	04	Soil	07/15/96	-14
SEMI	STD	0835-96-0014	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0014	06	Soil	07/15/96	

SECTION 2 SAMPLE RESULTS

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: SRB1

Sample Matrix: Sodium Sulfate
Cleanup: N/A
% Moisture: 0 %
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	17
Methyl Parathion	ND	17
Phorate	ND	17
Sulfotepp	ND	17

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	111	58 - 125

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0001

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 8.6 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	99	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0002

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.4 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	97	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0003

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.5 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	109	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0004

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.8 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	112	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0005

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 4.69 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	101	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0006

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-06

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 8.6 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	100	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0007

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.29 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	103	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0008

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.2 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	102	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0009

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-09

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 8.37 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	107	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0010

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-10

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.07 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/25/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	89	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0011

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-11

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.77 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	92	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0012

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-12

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 14.53 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	106	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0013

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-13

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.89 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	113	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0014

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-14

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 14.77 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 7/24/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	25	5 - 203

ND = Not Detected at or above client requested reporting limit.

SECTION 3 SUMMARY REPORT FORMS

ORGANOPHOSPHORUS PESTICIDE BLANK SPIKE

Method 8141

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Date Extracted: 7/18/96
Date Analyzed: 1/00/00

Lab Sample ID: SBS1

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 30 g
Final Volume: 5 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Methyl Parathion	167	121	72	62 - 112

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	167	125	75	3	25

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
Triphenylphosphate	110	115	58 -125

ORGANOPHOSPHORUS PESTICIDE MATRIX SPIKE

Method 8141

Sample ID

0835-96-0002

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.4 %
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/18/96
Date Analyzed: 1/00/00

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Methyl Parathion	180	ND	145	81	53 - 117

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	180	123	68	16	25

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
Triphenylphosphate	113	104	5 - 203

ND = Not Detected

Paragon Analytics, Inc.

OP Pesticides Case Narrative

LANL SMO

2410

Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0015	96-07-149-01	0835-96-0019	96-07-149-05
0835-96-0016	96-07-149-02	0835-96-0020	96-07-149-06
0835-96-0017	96-07-149-03	0835-96-0021	96-07-149-07
0835-96-0018	96-07-149-04	0835-96-0022	96-07-149-08

1. This report consists of 8 soil samples received by Paragon on 07/22/96.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540.

3. The extracts were then analyzed using GC/FPD with a DB-1 capillary column according to protocols based on Method 8141. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is from the primary column, unless interferences were encountered, in which case the quantitation is taken from the secondary column.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria. (Please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column.)

9. All initial and continuing calibration criteria were within acceptance criteria (please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column).

Roland P. Bruggeman — 8-9-96
Roland P. Bruggeman
Organic Manager
Date

RPB for EH. — 8-9-96
Reviewer's Initials
Date

The data contained in the following report have been reviewed and approved by the personnel listed above. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/24/96
Date

Request No. 2410
OP Pesticides

SECTION 1 CHAIN OF CUSTODY

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-149

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2410 per agreement number 7794L0014-9S

15 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 20 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0015	03	Soil	07/17/96	
HERB	STD	0835-96-0015	04	Soil	07/17/96	
OPPEST	STD	0835-96-0015	04	Soil	07/17/96	-01
PEST	STD	0835-96-0015	04	Soil	07/17/96	
SEMI	STD	0835-96-0015	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0015	06	Soil	07/17/96	
PCB	STD	0835-96-0016	03	Soil	07/18/96	
HERB	STD	0835-96-0016	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0016	04	Soil	07/18/96	
PEST	STD	0835-96-0016	04	Soil	07/18/96	
SEMI	STD	0835-96-0016	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0016	06	Soil	07/18/96	
PCB	STD	0835-96-0017	03	Soil	07/18/96	03
HERB	STD	0835-96-0017	04	Soil	07/18/96	
OPPEST	STD	0835-96-0017	04	Soil	07/18/96	
PEST	STD	0835-96-0017	04	Soil	07/18/96	
SEMI	STD	0835-96-0017	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0017	06	Soil	07/18/96	
PCB	STD	0835-96-0018	03	Soil	07/18/96	04
HERB	STD	0835-96-0018	04	Soil	07/18/96	
OPPEST	STD	0835-96-0018	04	Soil	07/18/96	

Los Alamos
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Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0018	04	Soil	07/18/96	(04)
SEMI	STD	0835-96-0018	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0018	06	Soil	07/18/96	
PCB	STD	0835-96-0019	03	Soil	07/18/96	
HERB	STD	0835-96-0019	04	Soil	07/18/96	05
OPPEST	STD	0835-96-0019	04	Soil	07/18/96	
PEST	STD	0835-96-0019	04	Soil	07/18/96	
SEMI	STD	0835-96-0019	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0019	06	Soil	07/18/96	
PCB	STD	0835-96-0020	03	Soil	07/18/96	06
HERB	STD	0835-96-0020	04	Soil	07/18/96	
OPPEST	STD	0835-96-0020	04	Soil	07/18/96	
PEST	STD	0835-96-0020	04	Soil	07/18/96	
SEMI	STD	0835-96-0020	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0020	06	Soil	07/18/96	
PCB	STD	0835-96-0021	03	Soil	07/18/96	07
HERB	STD	0835-96-0021	04	Soil	07/18/96	
OPPEST	STD	0835-96-0021	04	Soil	07/18/96	
PEST	STD	0835-96-0021	04	Soil	07/18/96	
SEMI	STD	0835-96-0021	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0021	06	Soil	07/18/96	
PCB	STD	0835-96-0022	03	Soil	07/18/96	08
HERB	STD	0835-96-0022	04	Soil	07/18/96	
OPPEST	STD	0835-96-0022	04	Soil	07/18/96	
PEST	STD	0835-96-0022	04	Soil	07/18/96	
SEMI	STD	0835-96-0022	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0022	06	Soil	07/18/96	

SECTION 2 SAMPLE RESULTS

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: SRB1

Sample Matrix: Sodium Sulfate
Cleanup: N/A
% Moisture: 0 %
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	17
Methyl Parathion	ND	17
Phorate	ND	17
Sulfotepp	ND	17

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	98	58 - 125

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0015

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.1 %
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	100	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0016

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.9 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	86	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0017

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.5 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	93	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0018

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 16.9 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	107	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0019

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.9 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	101	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0020

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-06

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.4 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	107	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0021

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.9 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	100	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0022

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.2 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	86	5 - 203

ND = Not Detected at or above client requested reporting limit.

SECTION 3 SUMMARY REPORT FORMS

ORGANOPHOSPHORUS PESTICIDE MATRIX SPIKE

Method 8141

Sample ID

0835-96-0021

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-147-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.6 %
Results based on dry weight

Date Collected: 7-18-96
Date Extracted: 7-25-96
Date Analyzed: 7-30-96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Methyl Parathion	178	ND	141	79	53 - 117

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	178	122	68	15	25

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
Triphenylphosphate	102	124	5 - 203

ND = Not Detected

ORGANOPHOSPHORUS PESTICIDE BLANK SPIKE

Method 8141

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: SBS1

Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 30 g
Final Volume: 5 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Methyl Parathion	167	114	68	62 - 112

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	167	106	63	8	25

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
Triphenylphosphate	101	94	58 -125

Paragon Analytics, Inc.

OP Pesticides Case Narrative

LANL SMO

2413

Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0023	96-07-147-01	0835-96-0027	96-07-147-05
0835-96-0024	96-07-147-02	0835-96-0028	96-07-147-06
0835-96-0025	96-07-147-03	0835-96-0029	96-07-147-07
0835-96-0026	96-07-147-04	0835-96-0030	96-07-147-08

1. This report consists of 8 soil samples received by Paragon on 07/22/96.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures based on Method 3540.

3. The extracts were then analyzed using GC/FPD with a DB-1 capillary column according to protocols based on Method 8141. All positive results were then confirmed on a DB-1701 column. The quantitation of each analyte is from the primary column, unless interferences were encountered, in which case the quantitation is taken from the secondary column.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria. (Please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column.)

9. All initial and continuing calibration criteria were within acceptance criteria (please note, however, that the surrogate was high in all the CCV's on the DB-1701 so all surrogate recoveries were reported from the DB-1 column).

Roland P. Bruggeman — 8996
Roland P. Bruggeman — Date
Organic Manager

RPB for EH. — 8996
Reviewer's Initials — Date

The data contained in the following report have been reviewed and approved by the personnel listed above. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Stepple

Don Stepple
Laboratory Manager

8/29/95

Date

Request No. 2413
OP Pesticides

SECTION 1 CHAIN OF CUSTODY

July 19, 1996

Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-147

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2413 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0023	03	Soil	07/18/96	
HERB	STD	0835-96-0023	04	Soil	07/18/96	-01
OPPEST	STD	0835-96-0023	04	Soil	07/18/96	
PEST	STD	0835-96-0023	04	Soil	07/18/96	
SEMI	STD	0835-96-0023	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0023	06	Soil	07/18/96	
PCB	STD	0835-96-0024	03	Soil	07/18/96	
HERB	STD	0835-96-0024	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0024	04	Soil	07/18/96	
PEST	STD	0835-96-0024	04	Soil	07/18/96	
SEMI	STD	0835-96-0024	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0024	06	Soil	07/18/96	
PCB	STD	0835-96-0025	03	Soil	07/17/96	
HERB	STD	0835-96-0025	04	Soil	07/17/96	03
OPPEST	STD	0835-96-0025	04	Soil	07/17/96	
PEST	STD	0835-96-0025	04	Soil	07/17/96	
SEMI	STD	0835-96-0025	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0025	06	Soil	07/17/96	
PCB	STD	0835-96-0026	03	Soil	07/17/96	04
HERB	STD	0835-96-0026	04	Soil	07/17/96	
OPPEST	STD	0835-96-0026	04	Soil	07/17/96	

July 19, 1996 Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0026	04	Soil	07/17/96	(04)
SEMI	STD	0835-96-0026	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0026	06	Soil	07/17/96	
PCB	STD	0835-96-0027	03	Soil	07/18/96	05
HERB	STD	0835-96-0027	04	Soil	07/18/96	
OPPEST	STD	0835-96-0027	04	Soil	07/18/96	
PEST	STD	0835-96-0027	04	Soil	07/18/96	
SEMI	STD	0835-96-0027	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0027	06	Soil	07/18/96	
PCB	STD	0835-96-0028	03	Soil	07/18/96	06
HERB	STD	0835-96-0028	04	Soil	07/18/96	
OPPEST	STD	0835-96-0028	04	Soil	07/18/96	
PEST	STD	0835-96-0028	04	Soil	07/18/96	
SEMI	STD	0835-96-0028	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0028	06	Soil	07/18/96	
PCB	STD	0835-96-0029	03	Soil	07/18/96	07
HERB	STD	0835-96-0029	04	Soil	07/18/96	
OPPEST	STD	0835-96-0029	04	Soil	07/18/96	
PEST	STD	0835-96-0029	04	Soil	07/18/96	
SEMI	STD	0835-96-0029	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0029	06	Soil	07/18/96	
PCB	STD	0835-96-0030	03	Soil	07/17/96	08
HERB	STD	0835-96-0030	04	Soil	07/17/96	
OPPEST	STD	0835-96-0030	04	Soil	07/17/96	
PEST	STD	0835-96-0030	04	Soil	07/17/96	
SEMI	STD	0835-96-0030	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0030	06	Soil	07/17/96	

SECTION 2 SAMPLE RESULTS

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: SRB1

Sample Matrix: Sodium Sulfate
Cl ..up: N/A
% Moisture: 0 %
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	17
Methyl Parathion	ND	17
Phorate	ND	17
Sulfotepp	ND	17

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	98	58 - 125

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0023

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.8 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	93	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0024

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.6 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	75	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0025

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.6 %
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	30	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0026

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.2 %
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	89	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0027

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.20 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	84	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0028

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-06

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.7 %
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/25/96
Date Analyzed: 7/30/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	20
Methyl Parathion	ND	20
Phorate	ND	20
Sulfotepp	ND	20

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	102	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0029

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.6 %
Results based on dry weight

Date Collected: 7-18-96
Date Extracted: 7-25-96
Date Analyzed: 7-30-96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	18
Methyl Parathion	ND	18
Phorate	ND	18
Sulfotepp	ND	18

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	99	5 - 203

ND = Not Detected at or above client requested reporting limit.

ORGANOPHOSPHORUS PESTICIDES

Method 8141

Sample ID

0835-96-0030

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 11.2 %
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/kg)	Reporting Limit (ug/kg)
Ethyl Parathion	ND	19
Methyl Parathion	ND	19
Phorate	ND	19
Sulfotepp	ND	19

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
Triphenylphosphate	79	5 - 203

ND = Not Detected at or above client requested reporting limit.

SECTION 3 SUMMARY REPORT FORMS

ORGANOPHOSPHORUS PESTICIDE MATRIX SPIKE

Method 8141

Sample ID

0835-96-0029

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.6 %
Results based on dry weight

Date Collected: 7-18-96
Date Extracted: 7-25-96
Date Analyzed: 7-30-96

Sample Weight: 30 g
Final Volume: 5 mL
Dilution Factor: 1

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Methyl Parathion	178	ND	141	79	53 - 117

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	178	122	68	15	25

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
Triphenylphosphate	102	124	5 - 203

ND = Not Detected

ORGANOPHOSPHORUS PESTICIDE BLANK SPIKE

Method 8141

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: SBS1

Date Extracted: 7/25/96
Date Analyzed: 7/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 30 g
Final Volume: 5 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Methyl Parathion	167	114	68	62 - 112

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Methyl Parathion	167	106	63	8	25

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
Triphenylphosphate	101	94	58 -125

Paragon Analytics, Inc.

Herbicides Case Narrative

LANL SMO

2407

Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0001	96-07-113-01	0835-96-0008	96-07-113-08
0835-96-0002	96-07-113-02	0835-96-0009	96-07-113-09
0835-96-0003	96-07-113-03	0835-96-0010	96-07-113-10
0835-96-0004	96-07-113-04	0835-96-0011	96-07-113-11
0835-96-0005	96-07-113-05	0835-96-0012	96-07-113-12
0835-96-0006	96-07-113-06	0835-96-0013	96-07-113-13
0835-96-0007	96-07-113-07	0835-96-0014	96-07-113-14

1. This report consists of 14 soil samples received by Paragon on 07/16/96.

2. These samples were extracted based on Method 1658 protocols. Specifically, the soil samples were extracted via shaking. The samples are also processed through washing procedures to reduce interference's using the protocols listed in the method. The extracts were then derivitized using the diazomethane procedure contained in the method.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTx-5 capillary column according to protocols based on Method 8151. All positive results were then confirmed on a RTx-20 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interference's.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. Matrix spikes and Matrix Spike Duplicates could not be performed because on insufficient sample volume. A Blank Spike and Blank Spike Duplicate were performed instead. See Item 6 for details on recoveries.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Roland P. Bruggeman Organic Manager	8-12-96 Date
WB Reviewer's Initials	8/12/96 Date

CERTIFICATION --

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

Request # 2407

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Donald Gipple

Don Gipple
Laboratory Manager

8/29/90
Date

Request No. 240
Herbicides

SECTION 1 CHAIN OF CUSTODY

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

96-07-113

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2407 per agreement number 7794L0014-9S

ORGANIC TO ATI, 30 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 30 Days

Screening:

Approx.Report Due Date: 15-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 42

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0001	03	Soil	07/15/96	
HERB	STD	0835-96-0001	04	Soil	07/15/96	
PEST	STD	0835-96-0001	04	Soil	07/15/96	-01
SEMI	STD	0835-96-0001	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0001	06	Soil	07/15/96	
PCB	STD	0835-96-0002	03	Soil	07/15/96	
HERB	STD	0835-96-0002	04	Soil	07/15/96	
PEST	STD	0835-96-0002	04	Soil	07/15/96	-02
SEMI	STD	0835-96-0002	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0002	06	Soil	07/15/96	
PCB	STD	0835-96-0003	03	Soil	07/15/96	
HERB	STD	0835-96-0003	04	Soil	07/15/96	
PEST	STD	0835-96-0003	04	Soil	07/15/96	-03
SEMI	STD	0835-96-0003	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0003	06	Soil	07/15/96	
PCB	STD	0835-96-0004	03	Soil	07/15/96	
HERB	STD	0835-96-0004	04	Soil	07/15/96	-04
PEST	STD	0835-96-0004	04	Soil	07/15/96	
SEMI	STD	0835-96-0004	04	Soil	07/15/96	Cont'd
VOAGCMS	STD	0835-96-0004	06	Soil	07/15/96	
PCB	STD	0835-96-0005	03	Soil	07/15/96	-05

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
HERB	STD	0835-96-0005	04	Soil	07/15/96	
PEST	STD	0835-96-0005	04	Soil	07/15/96	-05 omit
SEMI	STD	0835-96-0005	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0005	06	Soil	07/15/96	
PCB	STD	0835-96-0006	03	Soil	07/15/96	
HERB	STD	0835-96-0006	04	Soil	07/15/96	
PEST	STD	0835-96-0006	04	Soil	07/15/96	-06
SEMI	STD	0835-96-0006	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0006	06	Soil	07/15/96	* Jar cracked.
PCB	STD	0835-96-0007	03	Soil	07/15/96	
HERB	STD	0835-96-0007	04	Soil	07/15/96	
PEST	STD	0835-96-0007	04	Soil	07/15/96	-07
SEMI	STD	0835-96-0007	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0007	06	Soil	07/15/96	
PCB	STD	0835-96-0008	03	Soil	07/15/96	
HERB	STD	0835-96-0008	04	Soil	07/15/96	
PEST	STD	0835-96-0008	04	Soil	07/15/96	-08
SEMI	STD	0835-96-0008	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0008	06	Soil	07/15/96	
PCB	STD	0835-96-0009	03	Soil	07/15/96	
HERB	STD	0835-96-0009	04	Soil	07/15/96	
PEST	STD	0835-96-0009	04	Soil	07/15/96	-09
SEMI	STD	0835-96-0009	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0009	06	Soil	07/15/96	
PCB	STD	0835-96-0010	03	Soil	07/15/96	
HERB	STD	0835-96-0010	04	Soil	07/15/96	
PEST	STD	0835-96-0010	04	Soil	07/15/96	
SEMI	STD	0835-96-0010	04	Soil	07/15/96	-10
VOAGCMS	STD	0835-96-0010	06	Soil	07/15/96	
PCB	STD	0835-96-0011	03	Soil	07/15/96	
HERB	STD	0835-96-0011	04	Soil	07/15/96	
PEST	STD	0835-96-0011	04	Soil	07/15/96	
SEMI	STD	0835-96-0011	04	Soil	07/15/96	-11
VOAGCMS	STD	0835-96-0011	06	Soil	07/15/96	
PCB	STD	0835-96-0012	03	Soil	07/15/96	
HERB	STD	0835-96-0012	04	Soil	07/15/96	-12
PEST	STD	0835-96-0012	04	Soil	07/15/96	

July 15, 1996

Request Nbr 2407

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SEMI	STD	0835-96-0012	04	Soil	07/15/96	-12 cont
VOAGCMS	STD	0835-96-0012	06	Soil	07/15/96	
PCB	STD	0835-96-0013	03	Soil	07/15/96	
HERB	STD	0835-96-0013	04	Soil	07/15/96	
PEST	STD	0835-96-0013	04	Soil	07/15/96	-13
SEMI	STD	0835-96-0013	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0013	06	Soil	07/15/96	
PCB	STD	0835-96-0014	03	Soil	07/15/96	
HERB	STD	0835-96-0014	04	Soil	07/15/96	
PEST	STD	0835-96-0014	04	Soil	07/15/96	-14
SEMI	STD	0835-96-0014	04	Soil	07/15/96	
VOAGCMS	STD	0835-96-0014	06	Soil	07/15/96	

000007

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL -SMO SHIPPING CONTAINER #: —

WORKORDER NO. 9607-113 INITIALS: PB DATE: 7/16/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	(No)
2.	Are custody seals on the cooler intact? If so, how many 4	N/A	(Yes)	No
3.	Are custody seals on sample containers intact?	(N/A)	(Yes)	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?	PB 7/16/96	(Yes)	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		(Yes)	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		(Yes)	No
7.	Are the samples preserved correctly?	N/A	(Yes)	No
8.	Is there enough sample? If so, are they in the proper containers?		(Yes)	No
9.	Are all samples within holding times for the requested analyses?		(Yes)	No
10.	Were the sample received on ice?	N/A	(Yes)	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	(No)
12.	Are samples requiring no headspace, headspace free?	N/A	(Yes)	No
13.	Do the samples require quarantine?		Yes	(No)
14.	Do samples require ATI disposal?		(Yes)	No
15.	Did the client return any unused bottles?		Yes	(No)

Describe "NO" items (except No's 1, 13, &14): #11 - -06 bottle for VOA was cracked

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:

Group Leader's Signature:_____ Date:_____

000008

Cooler Temperature: 6°C

ATI FRM 201FC5 (2/21/96)

SECTION 2 SAMPLE RESULTS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: SRB1 07/23/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A
% Moisture: 0
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	50
Dicamba	1918-00-9	ND	10
MCPP	93-65-2	ND	10,000
MCPA	94-74-6	ND	10,000
Dichloroprop	120-36-5	ND	20
2,4-D	94-75-7	ND	20
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	10
2,4-DB	94-82-6	ND	50

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	64	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0001

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 8.6
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	66	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0002

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.4
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	64	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0003

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.5
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	53
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	21
2,4-D	94-75-7	ND	21
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	53

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	66	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0004

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.8
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	64	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0005

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 4.69
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	52
Dicamba	1918-00-9	ND	10
MCPP	93-65-2	ND	10,000
MCPA	94-74-6	ND	10,000
Dichloroprop	120-36-5	ND	21
2,4-D	94-75-7	ND	21
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	10
2,4-DB	94-82-6	ND	52

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	64	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0006

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-06

Sa: .e Matrix: Soil
Cleanup: N/A
% Moisture: 8.6
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	63	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0007

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.29
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	63	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0008

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.2
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	60	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0009

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-09

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 8.37
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	65	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0010

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-10

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.07
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	70	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0011

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-11

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.77
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	57
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	57

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	62	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

083 96-0012

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-12

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 14.53
Results based on dry weight

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	63	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-13

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 9.89
Results based on dry weight

Sample ID

0835-96-0013

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	55
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	55

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	65	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Lab Sample ID: 96-07-113-14

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 14.77
Results based on dry weight

Sample ID

0835-96-0014

Date Collected: 7/15/96
Date Extracted: 7/23/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	69	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

SECTION 3 SUMMARY REPORT FORMS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2407

Date Extracted: 7/23/96
Date Analyzed: 8/09/96

Lab Sample ID: SBS1 07/23/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Dalapon	250	11	4	D - 171
Dicamba	10.0	8.4	84	79 - 121
MCPP	10000	6550	66	60 - 138
MCPA	10000	5940	59	55 - 133
Dichloroprop	100	82	82	77 - 120
2,4-D	100	85	85	75 - 118
Silvex	10.0	10.1	101	72 - 135
2,4,5-T	10.0	10.7	107	74 - 126
2,4-DB	100	109	109	62 - 126

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Dalapon	250	13	5	17	20
Dicamba	10.0	8.4	84	0	20
MCPP	10000	6346	63	3	20
MCPA	10000	5880	59	1	20
Dichloroprop	100	82	82	1	20
2,4-D	100	85	85	0	20
Silvex	10.0	10.0	100	2	20
2,4,5-T	10.0	10.7	107	0	20
2,4-DB	100	109	109	0	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2,4-Dichlorophenylacetic acid	61	63	54 - 142

* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

Paragon Analytics, Inc.

Herbicides Case Narrative

FIELD COPY

LANDSMO
S 2410

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Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0015	96-07-149-01	0835-96-0019	96-07-149-05
0835-96-0016	96-07-149-02	0835-96-0020	96-07-149-06
0835-96-0017	96-07-149-03	0835-96-0021	96-07-149-07
0835-96-0018	96-07-149-04	0835-96-0022	96-07-149-08

1. This report consists of 8 soil samples received by Paragon on 07/22/96.

2. These samples were extracted based on Method 1658 protocols. Specifically, the soil samples were extracted via shaking. The samples are also processed through washing procedures to reduce interference's using the protocols listed in the method. The extracts were then derivitized using the diazomethane procedure contained in the method.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTx-5 capillary column according to protocols based on Method 8151. All positive results were then confirmed on a RTx-20 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interference's.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

Report Sent To: _____

Approved By: _____

Date Sent: 8/13/96

7. All matrix spike and matrix spike duplicate criteria were met with the following exceptions:

Spike Compound	Sample
Dalapon	MS/ MSD RPD

The recoveries of these compounds in the blank spike and blank spike duplicate were within control limits, which demonstrated the spike outliers in the matrix spikes were due to matrix effects, so not further action is needed.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Roland P. Bruggeman — 8-13-96
Roland P. Bruggeman
Organic Manager
Date

EN — 8-13-96
Reviewer's Initials
Date

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/96
Date

Request No. 2410
Herbicides

SECTION 1 CHAIN OF CUSTODY

July 18, 1996

Request Nbr 2410

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-149

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2410 per agreement number 7794L0014-9S

15 DAY TURN AROUND, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 20 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0015	03	Soil	07/17/96	
HERB	STD	0835-96-0015	04	Soil	07/17/96	
OPPEST	STD	0835-96-0015	04	Soil	07/17/96	-01
PEST	STD	0835-96-0015	04	Soil	07/17/96	
SEMI	STD	0835-96-0015	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0015	06	Soil	07/17/96	
PCB	STD	0835-96-0016	03	Soil	07/18/96	
HERB	STD	0835-96-0016	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0016	04	Soil	07/18/96	
PEST	STD	0835-96-0016	04	Soil	07/18/96	
SEMI	STD	0835-96-0016	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0016	06	Soil	07/18/96	
PCB	STD	0835-96-0017	03	Soil	07/18/96	03
HERB	STD	0835-96-0017	04	Soil	07/18/96	
OPPEST	STD	0835-96-0017	04	Soil	07/18/96	
PEST	STD	0835-96-0017	04	Soil	07/18/96	
SEMI	STD	0835-96-0017	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0017	06	Soil	07/18/96	
PCB	STD	0835-96-0018	03	Soil	07/18/96	04
HERB	STD	0835-96-0018	04	Soil	07/18/96	
OPPEST	STD	0835-96-0018	04	Soil	07/18/96	

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0018	04	Soil	07/18/96	(04)
SEMI	STD	0835-96-0018	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0018	06	Soil	07/18/96	
PCB	STD	0835-96-0019	03	Soil	07/18/96	
HERB	STD	0835-96-0019	04	Soil	07/18/96	05
OPPEST	STD	0835-96-0019	04	Soil	07/18/96	
PEST	STD	0835-96-0019	04	Soil	07/18/96	
SEMI	STD	0835-96-0019	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0019	06	Soil	07/18/96	
PCB	STD	0835-96-0020	03	Soil	07/18/96	06
HERB	STD	0835-96-0020	04	Soil	07/18/96	
OPPEST	STD	0835-96-0020	04	Soil	07/18/96	
PEST	STD	0835-96-0020	04	Soil	07/18/96	
SEMI	STD	0835-96-0020	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0020	06	Soil	07/18/96	
PCB	STD	0835-96-0021	03	Soil	07/18/96	07
HERB	STD	0835-96-0021	04	Soil	07/18/96	
OPPEST	STD	0835-96-0021	04	Soil	07/18/96	
PEST	STD	0835-96-0021	04	Soil	07/18/96	
SEMI	STD	0835-96-0021	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0021	06	Soil	07/18/96	
PCB	STD	0835-96-0022	03	Soil	07/18/96	08
HERB	STD	0835-96-0022	04	Soil	07/18/96	
OPPEST	STD	0835-96-0022	04	Soil	07/18/96	
PEST	STD	0835-96-0022	04	Soil	07/18/96	
SEMI	STD	0835-96-0022	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0022	06	Soil	07/18/96	

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-8010 SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-149 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No__ Requested Analysis: Yes ✓ No__		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No__ Sample ID's: Yes ✓ No__ Matrix: Yes ✓ No__ No. of Containers: Yes ✓ No__		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature:_____

SECTION 2 SAMPLE RESULTS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: SRB1 07/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A
% Moisture: 0
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	50
Dicamba	1918-00-9	ND	10
MCPP	93-65-2	ND	10,000
MCPA	94-74-6	ND	10,000
Dichloroprop	120-36-5	ND	20
2,4-D	94-75-7	ND	20
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	10
2,4-DB	94-82-6	ND	50

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid		54 - 142

ND = Not Detected at or above client requested reporting limit
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0015

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.1
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	74	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0016

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.9
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	58
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	58

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	75	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0017

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.5
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	58
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	58

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	69	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0018

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 16.9
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	60
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	24
2,4-D	94-75-7	ND	24
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	60

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	73	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0019

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.85
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	24
2,4-D	94-75-7	ND	24
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	68	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0020

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-06

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.4
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	24
2,4-D	94-75-7	ND	24
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	74	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0021

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.88
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	24
2,4-D	94-75-7	ND	24
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	72	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0022

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.2
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	58
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	58

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	69	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

SECTION 3 SUMMARY REPORT FORMS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0016

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Lab Sample ID: 96-07-149-02

Sample Matrix: Soil
Cleanup: N/A
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Dalapon	145	ND	19	13	D - 165
Dicamba	5.8	ND	6.4	111	49 - 152
MCPP	5807	ND	4837	83	55 - 145
MCPA	5807	ND	4918	85	34 - 161
Dichloroprop	58	ND	60	103	59 - 140
2,4-D	58	ND	60	103	53 - 145
Silvex	5.8	ND	5.9	102	40 - 157
2,4,5-T	5.8	ND	6.6	113	67 - 130
2,4-DB	58	ND	72	124	46 - 145

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Dalapon	145	13	9	34 *	20
Dicamba	5.8	6.2	106	4	20
MCPP	5807	4612	79	5	20
MCPA	5807	4777	82	3	20
Dichloroprop	58	53	92	11	20
2,4-D	58	61	105	2	20
Silvex	5.8	5.7	97	4	20
2,4,5-T	5.8	6.8	117	3	20
2,4-DB	58	69	119	4	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,4-Dichlorophenylacetic acid	74	72	54 - 142

ND = Not Detected

* = Sample weight is 50% of sample extracted. Extract is split 50/50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2410

Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Lab Sample ID: SBS1 07/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Dalapon	125	13	10	D - 171
Dicamba	5.0	5.1	102	79 - 121
MCPP	5000	4129	83	60 - 138
MCPA	5000	3847	77	55 - 133
Dichloroprop	50	49	98	77 - 120
2,4-D	50	49	98	75 - 118
Silvex	5.0	5.4	108	72 - 135
2,4,5-T	5.0	5.7	114	74 - 126
2,4-DB	50	57	115	62 - 126

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Dalapon	125	12	9	7	20
Dicamba	5.0	5.1	102	1	20
MCPP	5000	4242	85	3	20
MCPA	5000	3794	76	1	20
Dichloroprop	50	52	104	7	20
2,4-D	50	49	97	0	20
Silvex	5.0	5.5	111	2	20
2,4,5-T	5.0	5.3	106	7	20
2,4-DB	50	63	125	9	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2,4-Dichlorophenylacetic acid	71	73	54 - 142

* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

Paragon Analytics, Inc.

Herbicides Case Narrative

LANL SMO

2413

Client ID	Paragon ID	Client ID	Paragon ID
0835-96-0023	96-07-147-01	0835-96-0027	96-07-147-05
0835-96-0024	96-07-147-02	0835-96-0028	96-07-147-06
0835-96-0025	96-07-147-03	0835-96-0029	96-07-147-07
0835-96-0026	96-07-147-04	0835-96-0030	96-07-147-08

1. This report consists of 8 soil samples received by Paragon on 07/22/96.

2. These samples were extracted based on Method 1658 protocols. Specifically, the soil samples were extracted via shaking. The samples are also processed through washing procedures to reduce interference's using the protocols listed in the method. The extracts were then derivitized using the diazomethane procedure contained in the method.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTx-5 capillary column according to protocols based on Method 8151. All positive results were then confirmed on a RTx-20 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interference's.

4. All samples were extracted and analyzed within the establishe[illegible]lding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

7. All matrix spike and matrix spike duplicate criteria were met with the following exceptions:

Spike Compound	Sample
Dalapon	MS/ MSD RPD

The recoveries of these compounds in the blank spike and blank spike duplicate were within control limits, which demonstrated the spike outliers in the matrix spikes were due to matrix effects, so not further action is needed.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria with the following exceptions. MCPP, MCPA, 2,4,5-T, and 2,4-DB exceeded acceptance criteria in the final CCV. No hits were found in any of the samples so no further action was taken.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Roland P. Bruggeman — 8-12 96
Roland P. Bruggeman
Organic Manager
Date

EIN — 8-12-96
Reviewer's Initials
Date

CERTIFICATION

Paragon Analytics Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Laboratory Manager

CERTIFICATION

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this case narrative. This certification is verfied by the Laboratory Manager's or designee's signature in the hardcopy report.

Don Gipple
Laboratory Manager

8/29/86
Date

Request No. 2413
Herbicides

SECTION 1 CHAIN OF CUSTODY

July 19, 1996

Request Nbr 2413

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-147

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2413 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 24

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PCB	STD	0835-96-0023	03	Soil	07/18/96	
HERB	STD	0835-96-0023	04	Soil	07/18/96	-01
OPPEST	STD	0835-96-0023	04	Soil	07/18/96	
PEST	STD	0835-96-0023	04	Soil	07/18/96	
SEMI	STD	0835-96-0023	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0023	06	Soil	07/18/96	
PCB	STD	0835-96-0024	03	Soil	07/18/96	
HERB	STD	0835-96-0024	04	Soil	07/18/96	02
OPPEST	STD	0835-96-0024	04	Soil	07/18/96	
PEST	STD	0835-96-0024	04	Soil	07/18/96	
SEMI	STD	0835-96-0024	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0024	06	Soil	07/18/96	
PCB	STD	0835-96-0025	03	Soil	07/17/96	
HERB	STD	0835-96-0025	04	Soil	07/17/96	03
OPPEST	STD	0835-96-0025	04	Soil	07/17/96	
PEST	STD	0835-96-0025	04	Soil	07/17/96	
SEMI	STD	0835-96-0025	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0025	06	Soil	07/17/96	
PCB	STD	0835-96-0026	03	Soil	07/17/96	04
HERB	STD	0835-96-0026	04	Soil	07/17/96	
OPPEST	STD	0835-96-0026	04	Soil	07/17/96	

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
PEST	STD	0835-96-0026	04	Soil	07/17/96	(04)
SEMI	STD	0835-96-0026	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0026	06	Soil	07/17/96	
PCB	STD	0835-96-0027	03	Soil	07/18/96	05
HERB	STD	0835-96-0027	04	Soil	07/18/96	
OPPEST	STD	0835-96-0027	04	Soil	07/18/96	
PEST	STD	0835-96-0027	04	Soil	07/18/96	
SEMI	STD	0835-96-0027	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0027	06	Soil	07/18/96	
PCB	STD	0835-96-0028	03	Soil	07/18/96	06
HERB	STD	0835-96-0028	04	Soil	07/18/96	
OPPEST	STD	0835-96-0028	04	Soil	07/18/96	
PEST	STD	0835-96-0028	04	Soil	07/18/96	
SEMI	STD	0835-96-0028	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0028	06	Soil	07/18/96	
PCB	STD	0835-96-0029	03	Soil	07/18/96	07
HERB	STD	0835-96-0029	04	Soil	07/18/96	
OPPEST	STD	0835-96-0029	04	Soil	07/18/96	
PEST	STD	0835-96-0029	04	Soil	07/18/96	
SEMI	STD	0835-96-0029	04	Soil	07/18/96	
VOAGCMS	STD	0835-96-0029	06	Soil	07/18/96	
PCB	STD	0835-96-0030	03	Soil	07/17/96	08
HERB	STD	0835-96-0030	04	Soil	07/17/96	
OPPEST	STD	0835-96-0030	04	Soil	07/17/96	
PEST	STD	0835-96-0030	04	Soil	07/17/96	
SEMI	STD	0835-96-0030	04	Soil	07/17/96	
VOAGCMS	STD	0835-96-0030	06	Soil	07/17/96	

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-SMO SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-147 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No ____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: [illegible] °C

SECTION 2 SAMPLE RESULTS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: SRB1 07/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A
% Moisture: 0
Results based on wet weight

Date Collected: N/A
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	50
Dicamba	1918-00-9	ND	10
MCPP	93-65-2	ND	10,000
MCPA	94-74-6	ND	10,000
Dichloroprop	120-36-5	ND	20
2,4-D	94-75-7	ND	20
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	10
2,4-DB	94-82-6	ND	50

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	73	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0023

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-01

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.84
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	57
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	[illegible]
2,4-DB	94-82-6	ND	57

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	71	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0024

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-02

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 15.55
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	59
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	24
2,4-D	94-75-7	ND	24
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	59

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	70	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0025

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-03

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.59
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	58
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	58

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	70	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0026

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-04

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 12.19
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	57
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	57

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	72	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0027

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-05

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 7.2
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	22
2,4-D	94-75-7	ND	22
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	72	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0028

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-06

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 13.7
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	58
Dicamba	1918-00-9	ND	12
MCPP	93-65-2	ND	12,000
MCPA	94-74-6	ND	12,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	12
2,4-DB	94-82-6	ND	58

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	72	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0029

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-07

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 6.58
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	54
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	21
2,4-D	94-75-7	ND	21
Silvex	93-72-1	ND	5.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	54

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	71	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0030

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-147-08

Sample Matrix: Soil
Cleanup: N/A
% Moisture: 11.2
Results based on dry weight

Date Collected: 7/17/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	CAS No.	Conc (ug/kg)	Reporting Limit (ug/kg)
Dalapon	75-99-0	ND	56
Dicamba	1918-00-9	ND	11
MCPP	93-65-2	ND	11,000
MCPA	94-74-6	ND	11,000
Dichloroprop	120-36-5	ND	23
2,4-D	94-75-7	ND	23
Silvex	93-72-1	ND	6.0
2,4,5-T	93-76-5	ND	11
2,4-DB	94-82-6	ND	56

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	72	54 - 142

ND = Not Detected at or above client requested reporting limit.
* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

SECTION 3 SUMMARY REPORT FORMS

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Lab Sample ID: SBS1 07/29/96

Sample Matrix: Sodium Sulfate
Cleanup: N/A

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	Spike Added (ug/kg)	BS Concentration (ug/kg)	BS Percent Recovery	QC Limits % Rec
Dalapon	125	13	10	D - 171
Dicamba	5.0	5.1	102	79 - 121
MCPP	5000	4129	83	60 - 138
MCPA	5000	3847	77	55 - 133
Dichloroprop	50	49	98	77 - 120
2,4-D	50	49	98	75 - 118
Silvex	5.0	5.4	108	72 - 135
2,4,5-T	5.0	5.7	114	74 - 126
2,4-DB	50	57	115	62 - 126

Analyte	Spike Added (ug/kg)	BSD Concentration (ug/kg)	BSD Percent Recovery	RPD	QC Limits RPD
Dalapon	125	12	9	7	20
Dicamba	5.0	5.1	102	1	20
MCPP	5000	4242	85	3	20
MCPA	5000	3794	76	1	20
Dichloroprop	50	52	104	7	20
2,4-D	50	49	97	0	20
Silvex	5.0	5.5	111	2	20
2,4,5-T	5.0	5.3	106	7	20
2,4-DB	50	63	125	9	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2,4-Dichlorophenylacetic acid	71	73	54 - 142

* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

CHLORINATED HERBICIDES

Modified Method 8150

Sample ID

0835-96-0016

Lab Name: Paragon Analytics, Inc.
Client Name: LANL SMO
Client Project ID: 2413

Lab Sample ID: 96-07-149-02

Sample Matrix: Soil
Cleanup: N/A
Results based on dry weight

Date Collected: 7/18/96
Date Extracted: 7/29/96
Date Analyzed: 8/10/96

Sample Weight: 50 g *
Final Volume: 10 mL

Analyte	Spike Added (ug/kg)	Sample Concentration (ug/kg)	MS Concentration (ug/kg)	MS Percent Recovery	QC Limits % Rec
Dalapon	145	ND	19	13	D - 165
Dicamba	5.8	ND	6.4	111	49 - 152
MCPP	5807	ND	4837	83	55 - 145
MCPA	5807	ND	4918	85	34 - 161
Dichloroprop	58	ND	60	103	59 - 140
2,4-D	58	ND	60	103	53 - 145
Silvex	5.8	ND	5.9	102	40 - 157
2,4,5-T	5.8	ND	6.6	113	67 - 130
2,4-DB	58	ND	72	124	46 - 145

Analyte	Spike Added (ug/kg)	MSD Concentration (ug/kg)	MSD Percent Recovery	RPD	QC Limits RPD
Dalapon	145	13	9	34 *	20
Dicamba	5.8	6.2	106	4	20
MCPP	5807	4612	79	5	20
MCPA	5807	4777	82	3	20
Dichloroprop	58	53	92	11	20
2,4-D	58	61	105	2	20
Silvex	5.8	5.7	97	4	20
2,4,5-T	5.8	6.8	117	3	20
2,4-DB	58	69	119	4	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,4-Dichlorophenylacetic acid	74	72	54 - 142

ND = Not Detected

* = Sample weight is 50% of sample extracted. Extract is split 50:50 during procedure.

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
610-701-6100 • Fax 610-701-6140

MANAGERS DESIGNERS CONSULTANTS

AUG 1996
RECEIVED

8 August 1996

FILE COPY

Mr. John Miglio
Los Alamos National Laboratory
TA-3, Building 271
DP. O1U MS-H865
Los Alamos, NM 87545

R. Romero

Ref: Subcontract No. 7791L0014-9S
Data Package for RFW Batch 9607L261 and 262
LANL Request No. 2411 and 2414

FILE COPY

Dear Mr. Miglio:

Enclosed please find the data package for 16 soil samples received 20 July 1996 for LANL Requests #2411 and 2414. These samples were analyzed for dioxins/furans on a 15 day TAT. The original chain-of-custody forms are enclosed. We understand that there is no EDD format for dioxins.

Please do not hesitate to contact me at (610) 701-6100 with any question you may have regarding either the hard copy or electronic report.

Very truly yours,

ROY F. WESTON, INC.

Judy Stone
Judith L. Stone
Senior Project Manager

Report Sent To: Elmer Velez
Approved By: _____
Date Sent: 8/12/96

Enclosure:

Roy F. Weston, Inc. - Lionville Laboratory
TDFN ANALYTICAL DATA PACKAGE FOR
LANL-REQ#2411

DATE RECEIVED: 07/20/96 RFW LOT # :9607L261

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
0835-96-0015 01	001	S	96LE1305	07/17/96	07/24/96	08/05/96
0835-96-0015 01	001 MS	S	96LE1305	07/17/96	07/24/96	08/05/96
0835-96-0015 01	001 MSD	S	96LE1305	07/17/96	07/24/96	08/06/96
0835-96-0016 01	002	S	96LE1305	07/18/96	07/24/96	08/05/96
0835-96-0017 01	003	S	96LE1305	07/18/96	07/24/96	08/05/96
0835-96-0018 01	004	S	96LE1305	07/18/96	07/24/96	08/05/96
0835-96-0019 01	005	S	96LE1305	07/18/96	07/24/96	08/05/96
0835-96-0020 01	006	S	96LE1305	07/18/96	07/24/96	08/05/96
0835-96-0021 01	007	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0022 01	008	S	96LE1305	07/18/96	07/24/96	08/05/96

LAB QC:

BLK	MB1	S	96LE1305	N/A	07/24/96	08/05/96
BLK	MB1 BS	S	96LE1305	N/A	07/24/96	08/06/96

Roy F. Weston, Inc. - Lionville Laboratory
TDFN ANALYTICAL DATA PACKAGE FOR
LANL-REQ#2414

DATE RECEIVED: 07/20/96 RFW LOT # :9607L262

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
0835-96-0023 01	001	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0024 01	002	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0025 01	003	S	96LE1305	07/17/96	07/24/96	08/06/96
0835-96-0026 01	004	S	96LE1305	07/17/96	07/24/96	08/06/96
0835-96-0027 01	005	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0028 01	006	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0029 01	007	S	96LE1305	07/18/96	07/24/96	08/06/96
0835-96-0030 01	008	S	96LE1305	07/17/96	07/24/96	08/06/96

LAB QC:

BLK	MB1	S	96LE1305	N/A	07/24/96	08/05/96
BLK	MB1 BS	S	96LE1305	N/A	07/24/96	08/06/96

WESTON

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A. Window Raw Data

B. Method Blank Data

1. Tabulated Results
2. Mass Chromatograms/Quantitation Report

C. Blank Spike/Spike Duplicate Data (if applicable)

1. Tabulated Results
2. Mass Chromatograms/Quantitation Report

D. Matrix Spike/Spike Duplicate Data (if applicable)

1. Tabulated Results
2. Mass Chromatograms/Quantitation Report

WESTON

Chain of Custody

July 18, 1996

Request Nbr 2411

Los Alamos
NATIONAL LABORATORY

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2411 per agreement number 7791L0014-9S

15 DAY TURN AROUND, DIOXIN BY METHOD 8280, 35-8888, RB.

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509

Phone: (505) 665-9968

Signature: Joylene Valdez 96072261

Total Containers 8

	Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
001	DIOXIN	STD	0835-96-0015	01	Soil	07/17/96	
002	DIOXIN	STD	0835-96-0016	01	Soil	07/18/96	
003	DIOXIN	STD	0835-96-0017	01	Soil	07/18/96	
004	DIOXIN	STD	0835-96-0018	01	Soil	07/18/96	
005	DIOXIN	STD	0835-96-0019	01	Soil	07/18/96	
006	DIOXIN	STD	0835-96-0020	01	Soil	07/18/96	
007	DIOXIN	STD	0835-96-0021	01	Soil	07/18/96	
008	DIOXIN	STD	0835-96-0022	01	Soil	07/18/96	

Cooler N/A
Temp = 5.3°C
Fed Ex 3316417167

Fed Ex

331 6417 167

July 19, 1996

Request Number: 2414

Los Alamos
NATIONAL LABORATORY

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2414 per agreement number 7791L0014-9S

15 DAY TURNAROUND, DIOXIN BY METHOD 8280, 35-8888, RB

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Approx.Report Due Date: 09-AUG-96

Screening:

Contact person at CST Adrianna Sparks Mail Stop: H865

Phone: (505) 665-6809

Signature: Adrianna Sparks 96072262

Total Containers: 8

	Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
001	DIOXIN	STD	0835-96-0023	01	Soil	07/18/96	
002	DIOXIN	STD	0835-96-0024	01	Soil	07/18/96	
003	DIOXIN	STD	0835-96-0025	01	Soil	07/17/96	
004	DIOXIN	STD	0835-96-0026	01	Soil	07/17/96	
005	DIOXIN	STD	0835-96-0027	01	Soil	07/18/96	
006	DIOXIN	STD	0835-96-0028	01	Soil	07/18/96	
007	DIOXIN	STD	0835-96-0029	01	Soil	07/18/96	
008	DIOXIN	STD	0835-96-0030	01	Soil	07/17/96	

Cooler N/A
Temp = 5.3°

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2320

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Request Number: 2411

Analysis Type: ORG

Sample Number	Type / Size	Comments
0835-96-0015 01	125 ml Glass	DIOXIN
0835-96-0016 01	125 ml Glass	DIOXIN
0835-96-0017 01	125 ml Glass	DIOXIN
0835-96-0018 01	125 ml Glass	DIOXIN
0835-96-0019 01	125 ml Glass	DIOXIN
0835-96-0020 01	125 ml Glass	DIOXIN
0835-96-0021 01	125 ml Glass	DIOXIN
0835-96-0022 01	125 ml Glass	DIOXIN

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Christine Trujillo	7/19/96	1:00	

Received for Disposal By (print name and sign			Remarks

Los Alamos National Laboratory
Page: 1 of 1

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2320

2607L261

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Request Number: 2411

Analysis Type: ORG

Sample Number	Type / Size	Comments
0835-96-0015 01	125 ml Glass	DIOXIN
0835-96-0016 01	125 ml Glass	DIOXIN
0835-96-0017 01	125 ml Glass	DIOXIN
0835-96-0018 01	125 ml Glass	DIOXIN
0835-96-0019 01	125 ml Glass	DIOXIN
0835-96-0020 01	125 ml Glass	DIOXIN
0835-96-0021 01	125 ml Glass	DIOXIN
0835-96-0022 01	125 ml Glass	DIOXIN

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Christine Ryba	7/19/96	1:00	
Fed Ex	7-20-96	11:00	VICTOR HERNANDEZ

Received for Disposal By (print name and sign			Remarks

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WESTON Analytics Use Only
9607C 261

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 1

Client: LANL-Req# 2411
Est. Final Proj. Sampling Date:
Work Order #: 02744-004-001-9999-00
Project Contact/Phone #:
AD Project Manager: JS
QC: SOC Del: CLP TAT: 15 days
Date Rec'd: 7/20/96 Date Due: 8/4/96
Account #: Lane-Lucas

Refrigerator #																	
#/Type Container	Liquid																
	Solid																
Volume	Liquid																
	Solid																
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN							
WESTON Analytics Use Only																	

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
001	0835-96-0015-01			S	7/17/96													
002	0016				7/18/96													
003	0017																	
004	0018																	
005	0019																	
006	0020																	
007	0021																	
008	0022																	

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA = Lane 012
RINSE = Comp.
Temp. 5.3°C

Original Receiver

DATE/REVISIONS:
1. No time collected indicated
7/22/96 2. OTDPN added to COC per
3. Unit Review Revision
4.
5.
6.

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Fed Ex	[illegible]	7-20-96	11:08				

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

WESTON Analytics Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 3316417167
2) Ambient or Chilled
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# Nft 381-596a

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2323

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Request Number: 2414

Analysis Type: ORG

Sample Number	Type / Size	Comments
0835-96-0023 01	125 ml Glass	DIOXIN
0835-96-0024 01	125 ml Glass	DIOXIN
0835-96-0025 01	125 ml Glass	DIOXIN
0835-96-0026 01	125 ml Glass	DIOXIN
0835-96-0027 01	125 ml Glass	DIOXIN
0835-96-0028 01	125 ml Glass	DIOXIN
0835-96-0029 01	125 ml Glass	DIOXIN
0835-96-0030 01	125 ml Glass	DIOXIN

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Christine Fuyber	7/19/96	1:00	

Received for Disposal By (print name and sign)			Remarks

Los Alamos National Laboratory
Page: 1 of 1

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT **2323**

9607L262

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Request Number: 2414

Analysis Type: ORG

Sample Number	Type / Size	Comments
0835-96-0023 01	125 ml Glass	DIOXIN
0835-96-0024 01	125 ml Glass	DIOXIN
0835-96-0025 01	125 ml Glass	DIOXIN
0835-96-0026 01	125 ml Glass	DIOXIN
0835-96-0027 01	125 ml Glass	DIOXIN
0835-96-0028 01	125 ml Glass	DIOXIN
0835-96-0029 01	125 ml Glass	DIOXIN
0835-96-0030 01	125 ml Glass	DIOXIN

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Christine Gryba	7/19/96	1:00	
Fed Ex	7-20-96	11:00	VICTOR HERNANDEZ

Received for Disposal By (print name and sign)			Remarks

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WESTON Analytics Use Only
9607C262

Custody Transfer Record/Lab Work Request

WESTON

Client: LANC - Req # 3414
Est. Final Proj. Sampling Date:
Work Order #: 02744-064-001-9999-00
Project Contact/Phone #:
AD Project Manager: JS
QC: Spec Del: CEP TAT: 15 days
Date Rec'd: 7/22/96 Date Due: 8/14/96
Account #: Lane USAC

Refrigerator #																
#/Type Container	Liquid															
	Solid					1/6C										
Volume	Liquid															
	Solid					125										
Preservatives						—										
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb	OTDPN			Metal	CN						
		WESTON Analytics Use Only														
						DIOXIN										

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
001	0835-96-0023 01			S	7/16/96						X							
002	0024				⊥						X							
003	0025				7/17/96						X							
004	0026				⊥						X							
005	0027				7/18/96						X							
006	0028				⊥						X							
007	0029				⊥						X							
008	0030				7/17/96						X							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA = Lane 012
RINSE = Comp.
Cooler No Temp = 5.3°C
Original Requisition

DATE/REVISIONS:
→ 1. No Airbill Rec'd
→ 2. No time collected indicated
7/22/96 3. OTDPN ADDED TO COC per
4. UNIT REVIEW REVISION
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ✓
Airbill # 331641716 7
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec'd (Y) or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	[illegible]	7/20/96	11:00				

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

RFW 21-21-001/A-7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# N/A 381 596a

WESTON

Data Summary

WES[illegible]N ANALYTICS
DIOXINS/F[illegible]S DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00 PAGE: 1

Sample Information								
Client ID:	0835-96-0015-01			0835-96-0015-01 MS			0835-96-0015-01 MSD	
RFW#:	001			001S			001T	
D.F.:	1			1			1	
Matrix:	SOIL			SOIL			SOIL	
Units:	ng/g			ng/g			ng/g	
C-13 TCDD RECOVERY:	76 %			76 %			74 %	
C-13 TCDF RECOVERY:	77 %			74 %			75 %	
C-13 HXCDD RECOVERY:	83 %			81 %			85 %	
C-13 HPCDF RECOVERY:	80 %			78 %			80 %	
	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.05	U	116 %	0.02		116 %	0.03	
TOTAL TCDD		0.05	U	116 %	0.02		116 %	0.03	
TOTAL PECDD		0.07	U	134 %	0.07		133 %	0.08	
TOTAL HXCDD		0.06	U	107 %	0.04		104 %	0.07	
TOTAL TCDF		0.03	U	101 %	0.03		97 %	0.03	
TOTAL PECDF		0.05	U	118 %	0.04		112 %	0.05	
TOTAL HXCDF		0.05	U	118 %	0.05		118 %	0.05	

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00

Sample Information				
Client ID:	0835-96-0016-01	0835-96-0017-01	0835-96-0018-01
RFW#:	002	003	004
D.F.:	1	1	1
Matrix:	SOIL	SOIL	SOIL
Units:	ng/g	ng/g	ng/g

C-13 TCDD RECOVERY:	73 %	53 %	74 %
C-13 TCDF RECOVERY:	73 %	48 %	73 %
C-13 HXCDD RECOVERY:	81 %	76 %	81 %
C-13 HPCDF RECOVERY:	78 %	75 %	75 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.03	U		0.04	U		0.04	U
TOTAL TCDD		0.03	U		0.04	U		0.04	U
TOTAL PECDD		0.08	U		0.09	U		0.08	U
TOTAL HXCDD		0.07	U		0.09	U		0.06	U
TOTAL TCDF		0.03	U		0.05	U		0.03	U
TOTAL PECDF		0.05	U		0.09	U		0.06	U
TOTAL HXCDF		0.05	U		0.06	U		0.06	U

WE[illegible]ON ANALYTICS
DIOXINS/F[illegible]NS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00 PAGE: 3

Sample Information								
Client ID:	0835-96-0019-01			0835-96-0020-01			0835-96-0021-01	
RFW#:	005			006			007	
D.F.:	1			1			1	
Matrix:	SOIL			SOIL			SOIL	
Units:	ng/g			ng/g			ng/g	
C-13 TCDD RECOVERY:	66 %			80 %			82 %	
C-13 TCDF RECOVERY:	63 %			79 %			81 %	
C-13 HXCDD RECOVERY:	82 %			80 %			87 %	
C-13 HPCDF RECOVERY:	84 %			78 %			90 %	
	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.06	U		0.03	U		0.04	U
TOTAL TCDD		0.06	U		0.03	U		0.04	U
TOTAL PECDD		0.08	U		0.06	U		0.0[illegible]	U
TOTAL HXCDD		0.07	U		0.08	U		0.06	U
TOTAL TCDF		0.03	U		0.03	U		0.02	U
TOTAL PECDF		0.06	U		0.05	U		0.05	U
TOTAL HXCDF		0.05	U		0.05	U		0.05	U

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00 PAGE: 4

Sample Information				
Client ID:	0835-96-0022-01	0835-96-0023-01	0835-96-0024-01
RFW#:	008	001	002
D.F.:	1	1	1
Matrix:	SOIL	SOIL	SOIL
Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:	74 %	82 %	80 %
C-13 TCDF RECOVERY:	75 %	79 %	79 %
C-13 HXCDD RECOVERY:	80 %	80 %	79 %
C-13 HPCDF RECOVERY:	80 %	84 %	81 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.04	U		0.05	U		0.03	U
TOTAL TCDD		0.04	U		0.05	U		0.03	U
TOTAL PECDD		0.05	U		0.06	U		0.10	U
TOTAL HXCDD		0.06	U		0.05	U		0.07	U
TOTAL TCDF		0.03	U		0.02	U		0.03	U
TOTAL PECDF		0.05	U		0.05	U		0.04	U
TOTAL HXCDF		0.05	U		0.03	U		0.05	U

WES ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00 PAGE: 5

Sample Information				
Client ID:	0835-96-0025-01	0835-96-0026-01	0835-96-0027-01
RFW#:	003	004	005
D.F.:	1	1	1
Matrix:	SOIL	SOIL	SOIL
Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:	74 %	75 %	79 %
C-13 TCDF RECOVERY:	72 %	72 %	78 %
C-13 HXCDD RECOVERY:	78 %	79 %	82 %
C-13 HPCDF RECOVERY:	78 %	79 %	83 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.04	U		0.03	U		0.03	U
TOTAL TCDD		0.04	U		0.03	U		0.03	U
TOTAL PECDD		0.09	U		0.06	U		0.07	U
TOTAL HXCDD		0.08	U		0.08	U		0.05	U
TOTAL TCDF		0.03	U		0.02	U		0.03	U
TOTAL PECDF		0.06	U		0.06	U		0.05	U
TOTAL HXCDF		0.07	U		0.04	U		0.05	U

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00 PAGE: 6

Sample Information				
Client ID:	0835-96-0028-01	0835-96-0029-01	0835-96-0030-01
RFW#:	006	007	008
D.F.:	1	1	1
Matrix:	SOIL	SOIL	SOIL
Units:	ng/g	ng/g	ng/g

C-13 TCDD RECOVERY:	78 %		79 %		84 %			
C-13 TCDF RECOVERY:	78 %		75 %		83 %			
C-13 HXCDD RECOVERY:	81 %		77 %		85 %			
C-13 HPCDF RECOVERY:	80 %		79 %		89 %			

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.03	U		0.03	U		0.04	U
TOTAL TCDD		0.03	U		0.03	U		0.04	U
TOTAL PECDD		0.06	U		0.05	U		0.10	U
TOTAL HXCDD		0.09	U		0.04	U		0.06	U
TOTAL TCDF		0.03	U		0.03	U		0.03	U
TOTAL PECDF		0.06	U		0.04	U		0.06	U
TOTAL HXCDF		0.07	U		0.04	U		0.05	U

WE N ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L261 & 9607L262 CLIENT: LANL W.O.#: 02744-064-001-9999-00

Sample Information		METHOD BLANK	METHOD BLANK SPIKE
	Client ID:	(96LE1305)	(96LE1305)
	RFW#:	MB1	MB1S
	D.F.:	1	1
	Matrix:	SOIL	SOIL
	Units:	ng/g	ng/g

C-13 TCDD RECOVERY:	37 %	*	69 %			
C-13 TCDF RECOVERY:	28 %	*	58 %			
C-13 HXCDD RECOVERY:	75 %		83 %			
C-13 HPCDF RECOVERY:	76 %		81 %			

	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD	0.07		U	112 %	0.03	
TOTAL TCDD	0.07		U	112 %	0.03	
TOTAL PECDD	0.12		U	142 %	0.05	
TOTAL HXCDD	0.06		U	102 %	0.05	
TOTAL TCDF	0.05		U	100 %	0.03	
TOTAL PECDF	0.10		U	138 %	0.06	
TOTAL HXCDF	0.05		U	109 %	0.04	

* Outside of QC Limits

WESTON

Case Narrative

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
610-701-6100 • Fax 610-701-6140

LIONVILLE LABORATORY ANALYTICAL REPORT

Client: LANL-REQ#s 2411 & 2414
RFW #s: 9607L261 & 9607L262
Subcontract #: 7791L0014-9S

W.O. #: 02744-064-001-9990-00
Date Received: 07-20-96

DIOXIN

The set of samples consisted of sixteen (16) soil samples collected on 07-17,18-96.

The samples were extracted on 07-24-96 and analyzed according to criteria set forth in SW 846 Method 8280 (as specified in applicable WESTON SOPs) for Appendix IX Polychlorinated Dibenzo-p-dioxin and Dibenzofuran target compounds on 08-05,06-96.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All method holding time criteria were met.

2. Two (2) of eighty (80) internal standard recoveries were outside SW 846 limits (SW 846 Method 8280, Rev. 0, September, 1986). Internal standard recovery criteria were not met for the method blank 96LE1305-MB1; however, all associated samples met criteria and the data was not impacted.

   Internal standard signal to noise ratio is greater than 10:1 and the quantitation is valid. (EPA CLP QC allows recoveries as low as 25%. All samples meet EPA QC requirements.) These criteria are used to assess method performance. However, when properly applied, results obtained by isotope dilution techniques are independent of internal standard recovery (SW 846 Method 8280, Rev. 0, 9/86 p. 8280-17).

3. All blank spike recoveries were within EPA QC limits.

4. All matrix spike recoveries were within EPA QC limits.

5. All results have been reported on a dry-weight basis.

6. Response factors from the continuing (daily) calibration were used for all calculations.

for

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

8/8/96
Date

mmz/dix/07-261.sdg

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 675 pages.

WESTON

ADDENDUM

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, except as detailed in this QC Report.

Signature: _____ Name: SHERRY K. LEONARDS

Date: 8/8/96 Title: CHEMIST III

pas\7-94\adden.lanl

GC/MS SPECIAL PROJECTS DATA FLAGS

B = Compound was detected in the associated method blank.

D = Indicates compounds that were quantitated from an analysis at a secondary dilution factor. Also used to indicate that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

E = Indicates an estimated value. Used in cases where a target analyte is detected at a level greater than the upper quantification limit of instrument calibration.

H = Peak height (instead of peak area) was used to calculate the isotopic or confirmation/quantitation ion ratio and to quantitate the analyte. Peak must meet all other identification criteria.

I = Accurate quantitation was prevented due to interference.

J = Indicates an estimated value. Used in cases where a target analyte is detected at a level less than the lower quantification limit of instrument calibration.

S = Signal-to-noise ratio of the confirmation ion (M-COCl+ for PCDD/PCDF) does not meet 2.5 S/N requirement, but peak was determined to be positive in the judgement of the GC/MS analyst.

U = Indicates that the compound was analyzed for but not detected. The estimated detection limit for the sample (EDL; not the method detection limit) is reported with the U.

X = Isotope ratio criteria are not met using either peak height or peak area (used for EMPC only).

Y = Lab-defined (can change with each data package).

Z = Lab-defined (can change with each data package).

mmz/flags/dix/01-94

ABBREVIATIONS

BS	=	Blank Spike
BSD	=	Blank Spike Duplicate
CONC	=	Concentration
DF	=	Dilution Factor
DL	=	Dilution
EDL	=	Estimated Detection Limit
EMPC	=	Estimated Maximum Possible Concentration (peak was observed that did not meet identification criteria)
FL	=	Flag
MS	=	Matrix Spike
MSD	=	Matrix Spike Duplicate
NA	=	Not Applicable
NR	=	Not Required
R	=	Replicate
S	=	Spike (used in RFW #)
SP	=	Spike Compound
T	=	Spike Duplicate (used in RFW #)

mmz/abbrev/01-94

WESTON

QC Summary

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 2744-64-01

Case No.: LANL-REQ#2411 + 2414 8/8/96 Level: (low/med) LOW

RFW Lot No.: 9607L261 + 262

	CLIENT SAMPLE NO.	S1 (TCD) #	S2 (TCF) #	S3 (HXD) #	S4 (HPF) #	S5 ( ) #	S6 ( ) #	OTHER	TOT OUT
01	0835-96-0015 01	76	77	83	80				0
02	0835-96-0015 01MS	76	74	81	78				0
03	0835-96-0015 01MSD	74	75	85	80				0
04	0835-96-0016 01	73	73	81	78				0
05	0835-96-0017 01	53	48	76	75				0
06	0835-96-0018 01	74	73	81	75				0
07	0835-96-0019 01	66	63	82	84				0
08	0835-96-0020 01	80	79	80	78				0
09	0835-96-0021 01	82	81	87	90				0
10	0835-96-0022 01	74	75	80	80				0
11	BLKLE1305-MB1	37 *	28 *	75	76				2
12	BLKLE1305-MB1 BS	69	58	83	81				0
13	0835-96-0023 01	82	79	80	84				0
14	0835-96-0024 01	80	79	79	81				0
15	0835-96-0025 01	74	72	78	78				0
16	0835-96-0026 01	75	72	79	79				0
17	0835-96-0027 01	79	78	82	83				0
18	0835-96-0028 01	78	78	81	80				0
19	0835-96-0029 01	79	75	77	79				0
20	0835-96-0030 01	84	83	85	89				0

	QC LIMITS
S1 (TCD) = 13C-2378-TCDD	(40-120)
S2 (TCF) = 13C-2378-TCDF	(40-120)
S3 (HXD) = 13C-123678-HxCDD	(40-120)
S4 (HPF) = 13C-1234678-HpCDF	(40-120)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

PCDD/PCDF SOIL MATRIX SPIKE RECOVERY

LAB NAME: ROY F. WESTON, INC. -- LIONVILLE WORK ORDER NO.: 02744-064-001-9999-00

CLIENT: LANL - REQ42411 & #2414 RFW LOT NO.: 9607L261-001

CLIENT ID: 0835-96-0015 01 SPIKE MULTIPLIER: 1

COMPOUND	AMOUNT SPIKED (ng)	SAMPLE WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	SAMPLE CONCENTRATION (ng/g)	MS CONCENTRATION (ng/g)	MS % REC	REC QC LIMITS
2378-TCDD	25.0	9.3	2.7	0.0	3.1	116	50-150%
TCDD (TOTAL)	25.0	9.3	2.7	0.0	3.1	116	50-150%
2378-TCDF	25.0	9.3	2.7	0.0	2.7	101	50-150%
TCDF (TOTAL)	25.0	9.3	2.7	0.0	2.7	101	50-150%
12378-PECDD	62.5	9.3	6.7	0.0	9.0	134	50-150%
PECDD (TOTAL)	62.5	9.3	6.7	0.0	9.0	134	50-150%
12378-PECDF	62.5	9.3	6.7	0.0	7.9	118	50-150%
PECDF (TOTAL)	62.5	9.3	6.7	0.0	7.9	118	50-150%
123678-HXCDD	62.5	9.3	6.7	0.0	7.2	107	50-150%
HXCDD (TOTAL)	62.5	9.3	6.7	0.0	7.2	107	50-150%
123678-HXCDF	62.5	9.3	6.7	0.0	7.9	118	50-150%
HXCDF (TOTAL)	62.5	9.3	6.7	0.0	7.9	118	50-150%

COMPOUND	AMOUNT SPIKED (ng)	SAMPLE DUP. WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	MSD CONCENTRATION (ng/g)	MSD % REC	% RPD	%RPD QC LIMIT	REC QC LIMITS
2378-TCDD	25.0	9.3	2.7	3.1	116	0.0	50%	50-150%
TCDD (TOTAL)	25.0	9.3	2.7	3.1	116	0.0	50%	50-150%
2378-TCDF	25.0	9.3	2.7	2.6	97	3.8	50%	50-150%
TCDF (TOTAL)	25.0	9.3	2.7	2.6	97	3.8	50%	50-150%
12378-PECDD	62.5	9.3	6.7	8.9	133	1.1	50%	50-150%
PECDD (TOTAL)	62.5	9.3	6.7	8.9	133	1.1	50%	50-150%
12378-PECDF	62.5	9.3	6.7	7.5	112	5.2	50%	50-150%
PECDF (TOTAL)	62.5	9.3	6.7	7.5	112	5.2	50%	50-150%
123678-HXCDD	62.5	9.3	6.7	7.0	104	2.8	50%	50-150%
HXCDD (TOTAL)	62.5	9.3	6.7	7.0	104	2.8	50%	50-150%
123678-HXCDF	62.5	9.3	6.7	7.9	118	0.0	50%	50-150%
HXCDF (TOTAL)	62.5	9.3	6.7	7.9	118	0.0	50%	50-150%

8/6/96

FORM III PP 2

PCDD/PCDF SOIL BLANK SPIKE RECOVERY

LAB NAME: ROY F. WESTON, INC. -- LIONVILLE WORK ORDER NO.: 02744-064-001-9999-00

CLIENT: LANL - REQ#24.. & #244 RFW LOT NO.: 9607L261, 9607L262

CLIENT ID: SOIL BLANK SPIKE 96LE1305-MB1S SPIKE MULTIPLIER: 1

COMPOUND	AMOUNT SPIKED (ng)	BLANK WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	BLANK CONCENTRATION (ng/g)	BS CONCENTRATION (ng/g)	BS % REC	REC QC LIMITS
2378-TCDD	25.0	10.0	2.5	0.0	2.8	112	50-150%
TCDD (TOTAL)	25.0	10.0	2.5	0.0	2.8	112	50-150%
2378-TCDF	25.0	10.0	2.5	0.0	2.5	100	50-150%
TCDF (TOTAL)	25.0	10.0	2.5	0.0	2.5	100	50-150%
12378-PECDD	62.5	10.0	6.3	0.0	8.9	142	50-150%
PECDD (TOTAL)	62.5	10.0	6.3	0.0	8.9	142	50-150%
12378-PECDF	62.5	10.0	6.3	0.0	8.6	138	50-150%
PECDF (TOTAL)	62.5	10.0	6.3	0.0	8.6	138	50-150%
123678-HXCDD	62.5	10.0	6.3	0.0	6.4	102	50-150%
HXCDD (TOTAL)	62.5	10.0	6.3	0.0	6.4	102	50-150%
123678-HXCDF	62.5	10.0	6.3	0.0	6.8	109	50-150%
HXCDF (TOTAL)	62.5	10.0	6.3	0.0	6.8	109	50-150%

8/6/96

FORM III DF-3

4B
SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 2744-64-01

Case No.: LANL-REQ#2414 - 2411 MT 8/8/96

Lab File ID: Z080508 Lab Sample ID: 96LE1305-MB1

Date Extracted: 07/24/96 Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 08/05/96 Time Analyzed: 1520

Matrix: (Soil/Water) SOIL Level: (low/med) LOW

Instrument ID: 4600Z

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0835-96-0015 01	9607L261-001	Z080509	08/05/96
02	0835-96-0016 01	9607L261-002	Z080510	08/05/96
03	0835-96-0017 01	9607L261-003	Z080511	08/05/96
04	0835-96-0018 01	9607L261-004	Z080512	08/05/96
05	0835-96-0019 01	9607L261-005	Z080513	08/05/96
06	0835-96-0020 01	9607L261-006	Z080514	08/05/96
07	0835-96-0022 01	9607L261-008	Z080515	08/05/96
08	0835-96-0015 01MS	9607L261-001S	Z080516	08/05/96
09	0835-96-0023 01	9607L262-001	Z080520	08/06/96
10	0835-96-0024 01	9607L262-002	Z080521	08/06/96
11	0835-96-0025 01	9607L262-003	Z080522	08/06/96
12	0835-96-0026 01	9607L262-004	Z080523	08/06/96
13	0835-96-0027 01	9607L262-005	Z080524	08/06/96
14	0835-96-0028 01	9607L262-006	Z080525	08/06/96
15	0835-96-0029 01	9607L262-007	Z080526	08/06/96
16	0835-96-0030 01	9607L262-008	Z080527	08/06/96
17	0835-96-0021 01	9607L261-007	Z080528	08/06/96
18	BLKLE1305-MB1 BS	96LE1305-MB1S	Z080529	08/06/96
19	0835-96-0015 01MSD	9607L261-001T	Z080530	08/06/96

COMMENTS:

5DFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville — W.O. # : 02744-064-001-9999-00

Client : LANL-BBQ#2411 & #2414 — Instrument ID: 4600Z

Beginning Lab File ID : 3040602 — End Lab File ID : 3040608

Date Analyzed : 04/06/96 — Date Analyzed : 04/07/96

Time Analyzed : 21:05:00 — Time Analyzed : [illegible]

Analyst (1) : JDL — Analyst (2) : [illegible]

COMPOUND	TOP / RATIO FOR	BEG. RATIO	END RATIO	RATIO LIMITS
1,2,7,8-Tetra CDD	320 / 322	0.76	0.79	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.75	0.78	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.79	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.63	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.59	0.65	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.76	0.77	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.78	0.74	0.69 - 0.93
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.77	0.77	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.78	0.76	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.98	0.96	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.95	0.98	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.85	0.87	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.94	0.93	0.75 - 1.01

* Indicates ratio out of acceptable range.

		BEG. VALLEY	END VALLEY	
RESOLUTION CHECK (VALLEY < 25%)		PASS	PASS	

5DFB

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00

Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z

Beginning Lab File ID : Z040602
End Lab File ID : Z040608

Date Analyzed : 04/06/96
Date Analyzed : 04/07/96

Time Analyzed : 21:05:00
Time Analyzed : 1:31:00

Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.79	0.78	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.78	0.83	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.82	0.81	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.69	0.66	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.71	0.65	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.82	0.84	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.82	0.83	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.94	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.93	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.92	0.96	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.88	0.88	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z040603	04/06/96	21:49:00
	PCDD/PCDF CC1	Z040604	04/06/96	22:33:00
	PCDD/PCDF CC2	Z040605	04/06/96	23:18:00
	PCDD/PCDF CC4	Z040606	04/07/96	0:02:00
	PCDD/PCDF CC5	Z040607	04/07/96	0:47:00

5DFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL - REW#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z040803
End Lab File ID : Z040814
Date Analyzed : 04/08/96
Date Analyzed : 04/08/96
Time Analyzed : 15:56:00
Time Analyzed : 23:57:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.76	0.76	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.77	0.77	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.78	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.68	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.60	0.63	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.79	0.79	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.82	0.69 - 0.93
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.79	0.80	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.79	0.79	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.96	0.94	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.94	0.97	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.87	0.87	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.89	0.92	0.75 - 1.01

* Indicates ratio out of acceptable range.

		BEG. VALLEY	END VALLEY	
RESOLUTION CHECK (VALLEY < 25%)		PASS	PASS	

5DFB

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc, Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL - REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z040803
End Lab File ID : Z040814
Date Analyzed : 04/08/96
Date Analyzed : 04/08/96
Time Analyzed : 15:56:00
Time Analyzed : 23:57:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.82	0.83	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.79	0.78	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.77	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.66	0.68	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.70	0.62	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.77	0.75	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.78	0.75	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.93	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.9	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.91	0.95	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.94	0.93	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z040804	04/08/96	16:38:00
	PCDD/PCDF CC1	Z040805	04/08/96	17:21:00
	PCDD/PCDF CC2	Z040806	04/08/96	18:05:00
	PCDD/PCDF CC4	Z040807	04/08/96	18:49:00
	PCDD/PCDF CC5	Z040808	04/08/96	19:34:00

5DFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z041304
End Lab File ID : Z041311
Date Analyzed : 04/13/96
Date Analyzed : 04/13/96
Time Analyzed : 15:55:00
Time Analyzed : 20:54:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.80	0.78	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.81	0.79	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.78	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.61	0.67	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.62	0.65	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.80	0.80	0.69 - [illegible]
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.80	0.69 - [illegible]
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.81	0.79	0.69 - [illegible]
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.79	0.80	0.69 - [illegible]
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.94	0.91	0.83 - [illegible]
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.94	0.92	0.83 - [illegible]
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.90	0.91	0.75 - [illegible]
13C12-Octa CDD	470 / 472	0.90	0.91	0.75 - [illegible]

* Indicates ratio out of acceptable range.

		BEG. VALLEY	END VALLEY	
RESOLUTION CHECK (VALLEY < 25%)		PASS	PASS	

5DFB

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : L JL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z041304
End Lab File ID : Z041311
Date Analyzed : 04/13/96
Date Analyzed : 04/13/96
Time Analyzed : 15:55:00
Time Analyzed : 20:54:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.80	0.69	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.76	0.76	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.79	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.65	0.65	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.63	0.62	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.80	0.76	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.81	0.78	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.95	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.95	0.95	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.91	0.91	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.89	0.86	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z041305	04/13/96	16:38:00
	PCDD/PCDF CC1	Z041306	04/13/96	17:20:00
	PCDD/PCDF CC2	Z041307	04/13/96	18:03:00
	PCDD/PCDF CC4	Z041308	04/13/96	18:46:00
	PCDD/PCDF CC5	Z041309	04/13/96	19:29:00

5DFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z080503
End Lab File ID : Z080517
Date Analyzed : 08/05/96
Date Analyzed : 08/05/96
Time Analyzed : 11:32:00
Time Analyzed : 22:09:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.78	0.77	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.77	0.78	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.81	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.80	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.61	0.65	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.63	0.65	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.79	0.79	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.80	0.79	0.69 - 0.93
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.79	0.78	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.78	0.79	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.95	0.96	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.96	0.97	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.90	0.90	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.86	0.86	0.75 - 1.01

* Indicates ratio out of acceptable range.

		BEG. VALLEY	END VALLEY	
RESOLUTION CHECK (VALLEY < 25%)		PASS	PASS	

5DFB

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 µm DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-SEQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z080503
End Lab File ID : Z080517
Date Analyzed : 08/05/96
Date Analyzed : 08/05/96
Time Analyzed : 11:30:00
Time Analyzed : 22:09:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.74	0.78	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.80	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.78	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.65	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.63	0.62	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.76	0.76	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.77	0.77	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.96	0.94	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.95	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.93	0.93	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.91	0.89	0.75 - 1.31

* Indicates ratio out of acceptable range
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN CCL	PCDD/PCDF CC3	Z080504	08/05/96	12:15
SOIL Blank	96LE1305-MB1	Z080505	08/05/96	15:[illegible]
0835-96-0015 01	[illegible]	[illegible]	08/05/96	16:[illegible]
- -0016	[illegible]	Z080510	08/05/96	16:[illegible]
- -0017	9607L261-003	Z080511	08/05/96	17:36:00
- -0018	9607L261-004	Z080512	08/05/96	18:22:00
- -0019	9607L261-005	Z080513	08/05/96	19:07:00
- -0020	9607L261-006	Z080514	08/05/96	19:53:00
- -0022	9607L261-008	Z080515	08/05/96	20:38:00
- -0015 MS	9607L261-001S	Z080516	08/05/96	21:24:00

5DFC

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 µm DB-5 COLUMN

Lab Name : Roy F. Weston, Inc, Lionville
W.O. # : 02744-064-001-9999-00

Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z

Beginning Lab File ID : Z080503
End Lab File ID : Z080517

Date Analyzed : 08/05/96
Date Analyzed : 08/05/96

Time Analyzed : 11:32:00
Time Analyzed : 22:09:00

Analyst (1) : JDL
Analyst (2) : JDL

INTERNAL STANDARD	ANALYTES	RRT WINDOW
13C12-2,3,7,8-TCDD	TCDD	0.932-1.031
	PeCDD	1.083-1.177
13C12-2,3,7,8-TCDF	TCDF	0.919-1.055
	PeCDF	1.061-1.209
13C12-1,2,3,6,7,8-HxCDD	HxCDD	0.949-1.012
	HpCDD	1.104-1.135
13C12-1,2,3,4,6,7,8-HpCDF	HxCDF	0.851-0.940
	HpCDF	1.000-1.055
13C12-OCDD	OCDD	1.000
	OCDF	1.004

5DFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc, Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z080517
End Lab File ID : Z080531
Date Analyzed : 08/05/96
Date Analyzed : 08/06/96
Time Analyzed : 22:09:00
Time Analyzed : 8:43:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.77	0.79	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.78	0.78	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.81	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.80	0.80	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.65	0.60	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.65	0.67	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.79	0.78	0.69 - 0.[illegible]
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.79	0.69 - 0.[illegible]
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.78	0.79	0.69 - 0.[illegible]
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.79	0.78	0.69 - 0.[illegible]
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.96	0.95	0.83 - 1.1[illegible]
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.97	0.96	0.83 - 1.1[illegible]
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.90	0.90	0.75 - 1.[illegible]
13C12-Octa CDD	470 / 472	0.86	0.87	0.75 - 1.[illegible]

* Indicates ratio out of acceptable range.

		BEG. VALLEY	END VALLEY	
RESOLUTION CHECK (VALLEY < 25%)		PASS	PASS	

5DFB

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 µm DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z080517
End Lab File ID : Z080531
Date Analyzed : 08/05/96
Date Analyzed : 08/06/96
Time Analyzed : 22:09:00
Time Analyzed : 8:43:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.78	0.76	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.81	0.79	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.78	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.63	0.62	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.62	0.63	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.76	0.76	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.77	0.75	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.94	0.96	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.95	0.95	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.93	0.93	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.89	0.88	0.75 - 1.01

* Indicates ratio out of acceptable range
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN CCL	PCDD/PCDF CC3	Z080519	08/05/96	23:40:00
0835-96-0023	9607L262-001	Z080520	08/06/96	0:25:00
- -0024	9607L262-002	Z080521	08/06/96	1:11:00
- -0025	9607L262-003	Z080522	08/06/96	1:56:00
- -0026	9607L262-004	Z080523	08/06/96	2:42:00
- -0027	9607L262-005	Z080524	08/06/96	3:27:00
- -0028	9607L262-006	Z080525	08/06/96	4:13:00
- -0029	9607L262-007	Z080526	08/06/96	4:58:00
- -0030	9607L262-008	Z080527	08/06/96	5:43:00
- -0021	9607L261-007	Z080528	08/06/96	6:28:00
SOIL Blank Spike	96LE1305-MB1S	Z080529	08/06/96	7:12:00
0835-96-0015 01 MSD	9607L261-001T	Z080530	08/06/96	7:58:00

5DFC

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc, Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL-REQ#2411 & #2414
Instrument ID: 4600Z
Beginning Lab File ID : Z080517
End Lab File ID : Z080531
Date Analyzed : 08/05/96
Date Analyzed : 08/06/96
Time Analyzed : 22:09:00
Time Analyzed : 8:43:00
Analyst (1) : JDL
Analyst (2) : JDL

INTERNAL STANDARD	ANALYTES	RRT WINDOW
13C12-2,3,7,8-TCDD	TCDD	0.930-1.031
	PeCDD	1.083-1.178
13C12-2,3,7,8-TCDF	TCDF	0.919-1.055
	PeCDF	1.062-1.210
13C12-1,2,3,6,7,8-HxCDD	HxCDD	0.948-1.012
	HpCDD	1.104-1.135
13C12-1,2,3,4,6,7,8-HpCDF	HxCDF	0.851-0.940
	HpCDF	1.000-1.056
13C12-OCDD	OCDD	1.000
	OCDF	1.004

Roy F. Weston, Inc. - Lionville Laboratory
TDFN ANALYTICAL DATA PACKAGE FOR
LANL-REQ#2408

DATE RECEIVED: 07/16/96 RFW LOT # :9607L169

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
0835-96-0001 01	001	S	96LE1248	07/15/96	07/17/96	07/21/96
0835-96-0001 01	001 MS	S	96LE1248	07/15/96	07/17/96	07/22/96
0835-96-0001 01	001 MSD	S	96LE1248	07/15/96	07/17/96	07/22/96
0835-96-0002 01	002	S	96LE1248	07/15/96	07/17/96	07/21/96
0835-96-0003 01	003	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0004 01	004	S	96LE1248	07/15/96	07/17/96	07/21/96
0835-96-0005 01	005	S	96LE1248	07/15/96	07/17/96	07/21/96
0835-96-0006 01	006	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0007 01	007	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0008 01	008	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0009 01	009	S	96LE1248	07/15/96	07/17/96	07/21/96
0835-96-0010 01	010	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0011 01	011	S	96LE1248	07/15/96	07/17/96	07/22/96
0835-96-0012 01	012	S	96LE1248	07/15/96	07/17/96	07/22/96
0835-96-0013 01	013	S	96LE1248	07/15/96	07/17/96	07/24/96
0835-96-0014 01	014	S	96LE1248	07/15/96	07/17/96	07/24/96

LAB QC:

BLK	MB1	S	96LE1248	N/A	07/17/96	07/22/96
BLK	MB1 BS	S	96LE1248	N/A	07/17/96	07/22/96

FIELD COPY

Reviewed By: KR

Approved By:

Date Approved: 08/02/96

WESTON

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D. Matrix Spike/Spike Duplicate Data (if applicable)

1. Tabulated Results
2. Mass Chromatograms/Quantitation Report

Package contains page 0000001-A

mmz/dix/04-96/toc.di2

WESTON

Chain of Custody

July 17, 1996

Request Nbr 2408

Los Alamos
NATIONAL LABORATORY

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2408 per agreement number 7791L0014-9S

DIOXIN TO WESTON. 35-8888. RB.BY METHOD 8280.AMENDED: 15 DAY TURN AROUND REQUESTED. 7/17/96

Program fund code: MA5X

Analysis Type: ORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 06-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 14

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
DIOXIN	STD	0835-96-0001	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0002	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0003	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0004	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0005	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0006	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0007	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0008	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0009	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0010	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0011	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0012	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0013	01	Soil	07/15/96	
DIOXIN	STD	0835-96-0014	01	Soil	07/15/96	

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LOS ALAMOS
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2317

Judy Stone
WESTON
208 WELSH POOL ROAD
LIONVILLE, PA 19341-1225

Request Number: 2408

Analysis Type: ORG

Sample Number	Type / Size	Comments
0835-96-0001 01	125 ml Glass	DIOXIN
0835-96-0002 01	125 ml Glass	DIOXIN
0835-96-0003 01	125 ml Glass	DIOXIN
0835-96-0004 01	125 ml Glass	DIOXIN
0835-96-0005 01	125 ml Glass	DIOXIN
0835-96-0006 01	125 ml Glass	DIOXIN
0835-96-0007 01	125 ml Glass	DIOXIN
0835-96-0008 01	125 ml Glass	DIOXIN
0835-96-0009 01	125 ml Glass	DIOXIN
0835-96-0010 01	125 ml Glass	DIOXIN
0835-96-0011 01	125 ml Glass	DIOXIN
0835-96-0012 01	125 ml Glass	DIOXIN
0835-96-0013 01	125 ml Glass	DIOXIN
0835-96-0014 01	125 ml Glass	DIOXIN

9607L169

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
[illegible]	7/15/96	3:00	
[illegible]	7-16-96	9 30	[illegible]

Received for Disposal By (print name and sign			Remarks

2.7°

Los Alamos National Laboratory
Page: 1 of 1

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0000006

WESTON Analytics Use Only

9607L169

Custody Transfer Record/Lab Work Request

WESTON

Page 1 of 2

Client: LANL - REQUEST #2408

Est. Final Proj. Sampling Date:

Work Order #: 02744-064-001-9999-00

Project Contact/Phone #:

AD Project Manager: J. STONE 16

QC: SPCC Del: CLP TAT: ~~30~~ DAY

Date Rec'd: 7-16-96 Date Due: ~~8-15-96~~ 8-1-96

Account #: LANL-LOSAL

Refrigerator #						2											
#/Type Container	Liquid																
	Solid					16L											
Volume	Liquid																
	Solid					125											
Preservatives						—											
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	8100 MNII			Metal	CN							
		WESTON Analytics Use Only															
						OTDPN											

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OTDPN
001	0835 16-0001 01			S	7-15-96	—	✓
2	02						✓
3	03						✓
4	04						✓
5	05						✓
6	06						✓
7	07						✓
8	08						✓
9	09						✓
10	10						✓

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

RSP = Lanl-01.2

ORIGINAL REWRITTEN

2.7°

DATE/REVISIONS:

1 Mitchell Rec'd.

2 NO COLLECT TIMES RECORDED

7/18/96 3 TAT CHANGED TO 16 DAY

4 FROM 7/16/96 PER SOR #

5 96PM0479 AMS

6

WESTON Analytics Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # 3316417106

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Labels Indicate Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

COC Tape was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
[illegible]	[illegible]	7-16-96	5:30				

RFW 21 21 001/A 7/91 L372 L373 L375 L377 L378 Ref# n/A Cooler# n/A 381 596a

WESTON Analytics Use Only
9607L169

Custody Transfer Record/Lab Work Request

WESTON

Client
Est. Final Proj. Sampling Date
Work Order #
Project Contact/Phone #
AD Project Manager
QC Del TAT
Date Rec'd Date Due
Account #

See pg 1

Refrigerator #																	
#/Type Container	Liquid					2											
	Solid					16G											
Volume	Liquid																
	Solid					1L5											
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb	Pest			Metal	CN							
		WESTON Analytics Use Only															
						OTHER											

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
Wt - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected															
011	0835-96-0011 01			S	7-15-96	—					/										
12											/										
13											/										
14											/										

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

WESTON Analytics Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # 213
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec'd Y or N

See pg 1

Relinquished by	Received by	Date	Time
Red Ex	[illegible]	7/16/96	9:20

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

RFW 21-21-001/A 7/91 ___ L372 ___ L373 ___ L375 ___ L377 ___ L378 Ref# ___ Cooler# ___ 596a

WESTON

Data Summary

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L169 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 1

000008

Sample Information									
Client ID:	0001			0001 MS			0001 MSD		
RFW#:	001			001S			001T		
D.F.:	1			1			1		
Matrix:	SOIL			SOIL			SOIL		
Units:	ng/g			ng/g			ng/g		
C-13 TCDD RECOVERY:	77 %			81 %			78 %		
C-13 TCDF RECOVERY:	75 %			79 %			78 %		
C-13 HXCDD RECOVERY:	80 %			87 %			86 %		
C-13 HPCDF RECOVERY:	87 %			83 %			83 %		
	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.07	U	114 %	0.14		114 %	0.07	
TOTAL TCDD		0.07	U	114 %	0.14		114 %	0.07	
TOTAL PECDD		0.14	U	134 %	0.12		139 %	0.10	
TOTAL HXCDD		0.10	U	100 %	0.08		100 %	0.10	
TOTAL TCDF		0.06	U	103 %	0.07		103 %	0.09	
TOTAL PECDF		0.12	U	115 %	0.08		118 %	0.12	
TOTAL HXCDF		0.08	U	111 %	0.11		109 %	0.07	

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9603L481 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 2

000009

Sample Information									
Client ID:	0002			0003			0004		
RFW#:	002			003			004		
D.F.:	1			1			1		
Matrix:	SOIL			SOIL			SOIL		
Units:	ng/g			ng/g			ng/g		
C-13 TCDD RECOVERY:	80 %			74 %			76 %		
C-13 TCDF RECOVERY:	80 %			73 %			74 %		
C-13 HXCDD RECOVERY:	84 %			81 %			83 %		
C-13 HPCDF RECOVERY:	84 %			80 %			84 %		
	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.05	U		0.06	U		0.07	U
TOTAL TCDD		0.05	U		0.06	U		0.07	U
TOTAL PECDD		0.11	U		0.10	U		0.12	U
TOTAL HXCDD		0.09	U		0.07	U		0.10	U
TOTAL TCDF		0.07	U		0.05	U		0.08	U
TOTAL PECDF		0.08	U		0.06	U		0.09	U
TOTAL HXCDF		0.07	U		0.08	U		0.08	U

WESTON ANALYTICS
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9603L481 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 3

0000010

Sample Information				
	Client ID:	0005	0006	0007
	RFW#:	005	006	007
	D.F.:	1	1	1
	Matrix:	SOIL	SOIL	SOIL
	Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:		82 %	78 %	78 %
C-13 TCDF RECOVERY:		84 %	78 %	78 %
C-13 HXCDD RECOVERY:		88 %	81 %	82 %
C-13 HPCDF RECOVERY:		85 %	79 %	80 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.04	U		0.07	U		0.08	U
TOTAL TCDD		0.04	U		0.07	U		0.08	U
TOTAL PECDD		0.16	U		0.15	U		0.12	U
TOTAL HXCDD		0.09	U		0.10	U		0.11	U
TOTAL TCDF		0.05	U		0.08	U		0.06	U
TOTAL PECDF		0.07	U		0.09	U		0.09	U
TOTAL HXCDF		0.07	U		0.08	U		0.08	U

WESTON ANALY 3
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9603L481 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 4

Sample Information				
Client ID:	0008	0009	0010
RFW#:	008	009	010
D.F.:	1	1	1
Matrix:	SOIL	SOIL	SOIL
Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:	80 %	65 %	16 % *
C-13 TCDF RECOVERY:	78 %	64 %	16 % *
C-13 HXCDD RECOVERY:	75 %	81 %	17 % *
C-13 HPCDF RECOVERY:	76 %	79 %	16 % *

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.05	U		0.09	U		0.32	U
TOTAL TCDD		0.05	U		0.09	U		0.32	U
TOTAL PECDD		0.09	U		0.16	U		0.52	U
TOTAL HXCDD		0.08	U		0.10	U		0.45	U
TOTAL TCDF		0.05	U		0.08	U		0.30	U
TOTAL PECDF		0.06	U		0.09	U		0.35	U
TOTAL HXCDF		0.08	U		0.08	U		0.45	U

* = outside QC limits

000011

WESTON ANALYTICS
.OXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9603L481 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 5

Sample Information				
	Client ID:	0011	0012	0013
	RFW#:	011	012	013
	D.F.:	1	1	1
	Matrix:	SOIL	SOIL	SOIL
	Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:		76 %	79 %	71 %
C-13 TCDF RECOVERY:		77 %	79 %	70 %
C-13 HXCDD RECOVERY:		86 %	83 %	83 %
C-13 HPCDF RECOVERY:		83 %	80 %	78 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.11	U		0.04	U		0.09	U
TOTAL TCDD		0.11	U		0.04	U		0.09	U
TOTAL PECDD		0.13	U		0.10	U		0.14	U
TOTAL HXCDD		0.09	U		0.10	U		0.10	U
TOTAL TCDF		0.06	U		0.07	U		0.08	U
TOTAL PECDF		0.11	U		0.10	U		0.11	U
TOTAL HXCDF		0.08	U		0.08	U		0.09	U

000012

WESTON ANALY S
DIOXINS/FURANS DATA SUMMARY

RFW BATCH NUMBER: 9607L169 CLIENT: LANL-REQ #2408 W.O.#: 02744-064-001-9999-00 PAGE: 6

Sample Information			METHOD BLANK	BLANK SPIKE
	Client ID:	0014	96LE1248	96LE1248
	RFW#:	014	MB1	MB1S
	D.F.:	1	1	1
	Matrix:	SOIL	SOIL	SOIL
	Units:	ng/g	ng/g	ng/g
C-13 TCDD RECOVERY:		80 %	67 %	79 %
C-13 TCDF RECOVERY:		78 %	62 %	79 %
C-13 HXCDD RECOVERY:		85 %	76 %	83 %
C-13 HPCDF RECOVERY:		78 %	77 %	76 %

	CONC	EDL	FL	CONC	EDL	FL	CONC	EDL	FL
2378-TCDD		0.08	U		0.08	U	116 %	0.05	
TOTAL TCDD		0.08	U		0.08	U	116 %	0.05	
TOTAL PECDD		0.15	U		0.12	U	126 %	0.13	
TOTAL HXCDD		0.10	U		0.10	U	101 %	0.07	
TOTAL TCDF		0.06	U		0.07	U	96 %	0.06	
TOTAL PECDF		0.08	U		0.07	U	104 %	0.08	
TOTAL HXCDF		0.09	U		0.07	U	114 %	0.10	

000013

WESTON

Case Narrative

Roy F. Weston, Inc.
208 Welsh Pool Road
Lionville, Pennsylvania 19341-1333
610-701-6100 • Fax 610-701-6140

LIONVILLE LABORATORY ANALYTICAL REPORT

Client: LANL-REQ#2408
RFW #: 9607L169
Subcontract #: 7791L0014-9S

W.O. #: 02744-064-001-9999-00
Date Received: 07-16-96

DIOXIN

The set of samples consisted of fourteen (14) soil samples collected on 07-15-96.

The samples were extracted on 07-17-96 and analyzed according to criteria set forth in SW 846 Method 8280 (as specified in applicable WESTON SOPs) for Appendix IX Polychlorinated Dibenzo-p-dioxin and Dibenzofuran target compounds on 07-21,22,23-96.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All method holding time criteria were met.

2. Four (4) of seventy-two (72) internal standard recoveries were outside SW 846 limits (SW 846 Method 8280, Rev.0, September, 1986). Internal standard recovery criteria were not met for sample 0835-96-0010 01. This sample will be re-extracted and results reported under separate cover. However, internal standard signal to noise ratio is greater than 10:1 and the quantitation is valid. These criteria are used to assess method performance. However, when properly applied, results obtained by isotope dilution techniques are independent of internal standard recovery (SW 846 Method 8280, Rev. 0, 9/86 p. 8280-17. Other than the high detection limits, there was no impact on the sample results.

3. All blank spike recoveries were within EPA QC limits.

4. All matrix spike recoveries were within EPA QC limits.

5. All results have been reported on a dry-weight basis.

6. Response factors from the continuing (daily) calibration were used for all calculations.

7. The sample IDs were truncated on the Data Summary.

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

Date

mmz/dix/07-169.dix

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 707 pages.

GC/MS SPECIAL PROJECTS DATA FLAGS

B = Compound was detected in the associated method blank.

D = Indicates compounds that were quantitated from an analysis at a secondary dilution factor. Also used to indicate that surrogate recoveries were not obtained because the extract had to be diluted for analysis.

E = Indicates an estimated value. Used in cases where a target analyte is detected at a level greater than the upper quantification limit of instrument calibration.

H = Peak height (instead of peak area) was used to calculate the isotopic or confirmation/quantitation ion ratio and to quantitate the analyte. Peak must meet all other identification criteria.

I = Accurate quantitation was prevented due to interference.

J = Indicates an estimated value. Used in cases where a target analyte is detected at a level less than the lower quantification limit of instrument calibration.

S = Signal-to-noise ratio of the confirmation ion (M-COCl+ for PCDD/PCDF) does not meet 2.5 S/N requirement, but peak was determined to be positive in the judgement of the GC/MS analyst.

U = Indicates that the compound was analyzed for but not detected. The estimated detection limit for the sample (EDL; not the method detection limit) is reported with the U.

X = Isotope ratio criteria are not met using either peak height or peak area (used for EMPC only).

Y = Lab-defined (can change with each data package).

Z = Lab-defined (can change with each data package).

mz/flags/dix/01-94

ABBREVIATIONS

BS	=	Blank Spike
BSD	=	Blank Spike Duplicate
CONC	=	Concentration
DF	=	Dilution Factor
DL	=	Dilution
EDL	=	Estimated Detection Limit
EMPC	=	Estimated Maximum Possible Concentration (peak was observed that did not meet identification criteria)
FL	=	Fla
MS	=	Matrix Spike
MSD	=	Matrix Spike Duplicate
NA	=	Not Applicable
NR	=	Not Required
R	=	Replicate
S	=	Spike (used in RFW #)
SP	=	Spike Compound
T	=	Spike Duplicate (used in RFW #)

WESTON

QC Summary

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Roy F. Weston, Inc. Contract: 2744-64-01

Case No.: LANL-REQ#2408 Level: (low/med) LOW

RFW Lot No.: 9607L169

	CLIENT SAMPLE NO.	S1 (TCD) #	S2 (TCF) #	S3 (HXD) #	S4 (HPF) #	S5 ( ) #	S6 ( ) #	OTHER	TOT OUT
01	0835-96-0001 01	77	75	80	87				0
02	0835-96-0001 01MS	81	79	87	83				0
03	0835-96-0001 01MSD	78	78	86	83				0
04	0835-96-0002 01	80	80	84	84				0
05	0835-96-0003 01	74	73	81	80				0
06	0835-96-0004 01	76	74	83	84				0
07	0835-96-0005 01	82	84	88	85				0
08	0835-96-0006 01	78	78	81	79				0
09	0835-96-0007 01	78	78	82	80				0
10	0835-96-0008 01	80	78	75	76				0
11	0835-96-0009 01	65	64	81	79				0
12	0835-96-0010 01	16 *	16 *	17 *	16 *				4
13	0835-96-0011 01	76	77	86	83				0
14	0835-96-0012 01	79	79	83	80				0
15	0835-96-0013 01	71	70	83	78				0
16	0835-96-0014 01	80	78	85	78				0
17	BLKLE1248-MB1 BS	79	79	83	76				0
18	BLKLE1248-MB1	67	62	76	77				0

	QC LIMITS
S1 (TCD) = 13C-2378-TCDD	(40-120)
S2 (TCF) = 13C-2378-TCDF	(40-120)
S3 (HXD) = 13C-123678-HxCDD	(40-120)
S4 (HPF) = 13C-1234678-HpCDF	(40-120)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

PCDD/PCDF SOIL MATRIX SPIKE RECOVERY

LAB NAME: ROY F. WESTON, INC. -- DIONVILLE WORK ORDER NO.: 02744-064-001-9999-00

CLIENT: SANL SDW LOT NO.: 9607L169-001

CLIENT ID: 9835-96-0001-00 SPIKE MULTIPLIER: 1

COMPOUND	AMOUNT SPIKED (ng)	SAMPLE WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	SAMPLE CONCENTRATION (ng/g)	MS CONCENTRATION (ng/g)	MS % REC	REC QC LIMITS
2378-TCDD	25.0	9.2	2.7	0.0	3.1	114	50-150%
TCDD (TOTAL)	25.0	9.2	2.7	0.0	3.1	114	50-150%
2378-TCDF	25.0	9.2	2.7	0.0	2.8	103	50-150%
TCDF (TOTAL)	25.0	9.2	2.7	0.0	2.8	103	50-150%
12378-PECDD	62.5	9.2	6.8	0.0	8.1	134	50-150%
PECDD (TOTAL)	62.5	9.2	6.8	0.0	8.1	134	50-150%
12378-PECDF	62.5	9.2	6.8	0.0	7.8	115	50-150%
PECDF (TOTAL)	62.5	9.2	6.8	0.0	7.8	115	50-150%
123678-HXCDD	62.5	9.2	6.8	0.0	6.8	100	50-150%
HXCDD (TOTAL)	62.5	9.2	6.8	0.0	6.8	100	50-150%
123678-HXCDF	62.5	9.2	6.8	0.0	7.5	111	50-150%
HXCDF (TOTAL)	62.5	9.2	6.8	0.0	7.5	111	50-150%

COMPOUND	AMOUNT SPIKED (ng)	SAMPLE DUP WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	MSD CONCENTRATION (ng/g)	MSD % REC	% RPD	%RPD QC LIMIT	REC QC LIMITS
2378-TCDD	25.0	9.2	2.7	3.1	114	0.0	50%	50-150%
TCDD (TOTAL)	25.0	9.2	2.7	3.1	114	0.0	50%	50-150%
2378-TCDF	25.0	9.2	2.7	2.8	103	0.0	50%	50-150%
TCDF (TOTAL)	25.0	9.2	2.7	2.8	103	0.0	50%	50-150%
12378-PECDD	62.5	9.2	6.8	8.4	139	3.2	50%	50-150%
PECDD (TOTAL)	62.5	9.2	6.8	8.4	139	3.2	50%	50-150%
12378-PECDF	62.5	9.2	6.8	7.9	119	2.5	50%	50-150%
PECDF (TOTAL)	62.5	9.2	6.8	7.9	119	2.5	50%	50-150%
123678-HXCDD	62.5	9.2	6.8	6.8	100	0.0	50%	50-150%
HXCDD (TOTAL)	62.5	9.2	6.8	6.8	100	0.0	50%	50-150%
123678-HXCDF	62.5	9.2	6.8	7.4	109	1.3	50%	50-150%
HXCDF (TOTAL)	62.5	9.2	6.8	7.4	109	1.3	50%	50-150%

2/25/96

FORM III DF-2

0000020

PCDD/PCDF SOIL BLANK SPIKE RECOVERY

LAB NAME: ROY F. WESTON, INC. -- LIONVILLE WORK ORDER NO.: 02744-064-001-9999-00

CLIENT: LANL - SEQ. #2408 RFW LOT NO.: 96071189

CLIENT ID: SEDIMENT BLANK SPIKE 96LB1248-MB1S SPIKE MULTIPLIER: 1

COMPOUND	AMOUNT SPIKED (ng)	BLANK WEIGHT (g)	FINAL SPIKE CONC. (ng/g)	BLANK CONCENTRATION (ng/g)	BS CONCENTRATION (ng/g)	BS % REC	REC QC LIMITS
2378-TCDD	25.0	10.0	2.5	0.0	2.9	116	50-150%
TCDD (TOTAL)	25.0	10.0	2.5	0.0	2.9	116	50-150%
2378-TCDF	25.0	10.0	2.5	0.0	2.4	96	50-150%
TCDF (TOTAL)	25.0	10.0	2.5	0.0	2.4	96	50-150%
12378-PECDD	62.5	10.0	6.3	0.0	7.9	126	50-150%
PECDD (TOTAL)	62.5	10.0	6.3	0.0	7.9	126	50-150%
12378-PECDF	62.5	10.0	6.3	0.0	6.5	104	50-150%
PECDF (TOTAL)	62.5	10.0	6.3	0.0	6.5	104	50-150%
123678-HXCDD	62.5	10.0	6.3	0.0	6.3	101	50-150%
HXCDD (TOTAL)	62.5	10.0	6.3	0.0	6.3	101	50-150%
123678-HXCDF	62.5	10.0	6.3	0.0	7.1	114	50-150%
HXCDF (TOTAL)	62.5	10.0	6.3	0.0	7.1	114	50-150%

7/25/96

4B

SEMIVOLATILE METHOD BLANK SUMMARY

Lab Name: Roy F. Weston, Inc. Contract: 0744-64-01

Case No.: LANL-REQ#2408

Lab File ID: Z072205 Lab Sample ID: 96LE1248-MB1

Date Extracted: 07/17/96 Extraction: (SepF/Cont/Sonc) CONT

Date Analyzed: 07/22/96 Time Analyzed: 1421

Matrix: (Soil/Water) SOIL Level: (low/med) LOW

Instrument ID: 4600Z

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	0835-96-0001 01	9607L169-001	Z072105	07/21/96
02	0835-96-0002 01	9607L169-002	Z072106	07/21/96
03	0835-96-0004 01	9607L169-004	Z072107	07/21/96
04	0835-96-0005 01	9607L169-005	Z072108	07/21/96
05	0835-96-0009 01	9607L169-009	Z072109	07/21/96
06	0835-96-0011 01	9607L169-011	Z072110	07/22/96
07	0835-96-0012 01	9607L169-012	Z072111	07/22/96
08	0835-96-0001 01MS	9607L169-001S	Z072112	07/22/96
09	0835-96-0001 01MSD	9607L169-001T	Z072113	07/22/96
10	BLKLE1248-MB1 BS	96LE1248-MB1S	Z072208	07/22/96
11	0835-96-0003 01	9607L169-003	Z072404	07/24/96
12	0835-96-0006 01	9607L169-006	Z072405	07/24/96
13	0835-96-0007 01	9607L169-007	Z072406	07/24/96
14	0835-96-0010 01	9607L169-010	Z072407	07/24/96
15	0835-96-0013 01	9607L169-013	Z072411	07/24/96
16	0835-96-0014 01	9607L169-014	Z072412	07/24/96
17	0835-96-0008 01	9607L169-008	Z072413	07/24/96

COMMENTS:

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-8999-00
Client : LANL - REQ#2408
Instrument ID: 4600Z
Beginning Lab File ID : 3040602
End Lab File ID : 3040608
Date Analyzed : 04/06/96
Date Analyzed : 04/07/96
Time Analyzed : 21:05:00
Time Analyzed : 1:31:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.76	0.79	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.75	0.78	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.79	0.79	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.63	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.69	0.65	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.78	0.77	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.78	0.74	0.69 - 1.03
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.77	0.77	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.78	0.76	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.98	0.96	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.95	0.98	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.95	0.87	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.94	0.93	0.75 - 1.01

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY < 25%)	PASS	PASS

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL - REQ#2408
Instrument ID: 4600Z
Beginning Lab File ID : Z040601
End Lab File ID : Z040608
Date Analyzed : 04/06/96
Date Analyzed : 04/07/96
Time Analyzed : 21:05:00
Time Analyzed : 1:31:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIO(E)	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.79	0.78	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.78	0.83	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.82	0.81	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.69	0.66	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.71	0.68	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	378 / 374	[illegible]	0.94	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.94	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.93	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.92	0.96	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.88	0.88	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z040603	04/06/96	21:49:00
	PCDD/PCDF CC1	Z040604	04/06/96	22:33:00
	PCDD/PCDF CC2	Z040605	04/06/96	23:18:00
	PCDD/PCDF CC4	Z040606	04/07/96	0:02:00
	PCDD/PCDF CC5	Z040607	04/07/96	0:47:00

EDFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-3999-00

Client : LANL - REQ#2408
Instrument ID: 46007

Beginning Lab File ID : Z040803
End Lab File ID : Z040814

Date Analyzed : 04/08/96
Date Analyzed : 04/08/96

Time Analyzed : 15:56:00
Time Analyzed : 23:57:00

Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.76	0.76	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.77	0.77	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.78	0.65 - 0.89
1,3,4 ,8/1,2,4,7,9-Penta CDD	358 / 356	0.68	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.60	0.63	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.79	0.79	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.82	0.69 - 0.93
13 -1,2,3,6,7,8-Hexa CDD	404 / 402	0.79	0.80	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.79	0.79	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.96	0.94	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.94	0.97	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.87	0.87	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.89	0.92	0.75 - 1.01

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY < 25%)	PASS	PASS

0000025

PCDD/PCDF W. LOW DEFINING MIXTURE SUMMARY
50m 0.32 0.15 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc.
Client : LANL - REQ#2408
Beginning Lab File ID : Z040803
Date Analyzed : 04/08/96
Time Analyzed : 15:56:00
Analyst (1) : JDL

W.O. # : 02744-064-001-9999-00
Instrument ID: 46007
End Lab File ID : Z040814
Date Analyzed : 04/08/96
Time Analyzed : 23:57:00
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.82	0.83	0.65 - 0.89
1,2,3,9-Tetra CDF	304 / 306	0.79	0.78	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.77	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.66	0.68	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.70	0.62	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.77	0.75	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.78	0.75	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.93	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.91	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.91	0.95	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.94	0.93	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z040804	04/08/96	16:38:00
	PCDD/PCDF CC1	Z040805	04/08/96	17:21:00
	PCDD/PCDF CC2	Z040806	04/08/96	18:05:00
	PCDD/PCDF CC4	Z040807	04/08/96	18:49:00
	PCDD/PCDF CC5	Z040808	04/08/96	19:34:00

EDFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-8899-00

Client : LANL - PEO#2408
Instrument ID: 4600Z

Beginning Lab File ID : Z041304
End Lab File ID : Z041311

Date Analyzed : 04/18/96
Date Analyzed : 04/18/96

Time Analyzed : 15:55:00
Time Analyzed : 20:54:00

Analyst (1) : JTL
Analyst (2) : JTL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
*1,3,6,8-Tetra CDD	320 / 322	0.80	0.78	0.65 - 0.89
*1,2,3,9-Tetra CDD	320 / 322	0.81	0.79	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.80	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.78	0.78	0.65 - 0.89
*1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.61	0.67	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.62	0.65	0.55 - 0.75
*1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.80	0.80	0.69 - 0.97
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.80	0.69 - 0.97
*13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.81	0.79	0.69 - [illegible]
*13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.79	0.80	0.69 - 0.97
1,2,3,4,6,7,8-Hepta CDD	426 / 424	0.94	0.91	0.83 - 1.11
1,2,3,4,6,7,9-Hepta CDD	426 / 424	0.94	0.92	0.83 - 1.11
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.90	0.91	0.75 - 1.[illegible]
13C12-Octa CDD	470 / 472	0.90	0.91	0.75 - 1.[illegible]

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY 25%)	PASS	PASS

0000027

[illegible]

PCDD/PCDF WINDOW DEFINING MIXTURE [illegible]

Lab Name : [illegible] Lab [illegible] | [illegible]

Client : LANL - [illegible] | Instrument ID: [illegible]

Beginning Lab File ID: [illegible] | End Lab File ID: [illegible]

Date Analyzed: [illegible] | Date Analyzed: [illegible]

Time Analyzed: [illegible] | Time Analyzed: [illegible]

Analyst: [illegible] | Analyst: [illegible]

COMPOUND	IONS RATIO	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.80	0.69	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.76	0.76	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.79	0.78	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.65	0.65	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.63	0.62	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.80	0.76	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.81	0.78	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.95	0.95	0.83 - 1.11
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.95	0.95	0.83 - 1.11
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.91	0.91	0.83 - 1.11
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.89	0.86	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN ICAL	PCDD/PCDF CC3	Z041305	04/13/96	16:38:[illegible]
	PCDD/PCDF CC1	Z041306	04/13/96	17:20:[illegible]
	PCDD/PCDF CC2	Z041307	04/13/96	18:03:[illegible]
	PCDD/PCDF CC4	Z041308	04/13/96	18:46:[illegible]
	PCDD/PCDF CC5	Z041309	04/13/96	19:29:[illegible]

EDFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00

Client : LANL - REQ#2408
Instrument ID: 4600Z

Beginning Lab File ID : Z072103
End Lab File ID : Z072116

Date Analyzed : 07/21/96
Date Analyzed : 07/22/96

Time Analyzed : 18:13:00
Time Analyzed : 4:31:00

Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.78	0.76	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.76	0.80	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.81	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.79	0.78	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.64	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356	0.63	0.65	0.55 - 0.75
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CDD	392 / 390	0.80	0.79	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.80	0.69 - 0.93
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.82	0.82	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.83	0.82	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	1.01	1.03	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	1.02	1.00	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.89	0.91	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.88	0.86	0.75 - 1.01

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY < 25%)	PASS	PASS

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00

Client : LANL - REQ#2408
Instrument ID: 4600Z

Beginning Lab File ID : Z072103
End Lab File ID : Z072116

Date Analyzed : 07/21/96
Date Analyzed : 07/22/96

Time Analyzed : 18:13:00
Time Analyzed : 4:31:00

Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.79	0.75	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.74	0.75	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.80	0.80	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.62	0.59	0.51 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.61	0.68	0.51 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.82	0.82	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.85	0.83	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.99	0.97	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.94	0.98	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.93	0.95	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444	0.84	0.84	0.75 - 1.01

* Indicates ratio out of acceptable range
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN CCC	PCDD/PCDF CC3	Z072104	07/21/96	18:58:00
0835-96-0001 01	9607L169-001	Z072105	07/21/96	20:56:00
— -0002 01	9607L169-002	Z072106	07/21/96	21:41:00
— -0004 01	9607L169-004	Z072107	07/21/96	22:26:00
— -0005 01	9607L169-005	Z072108	07/21/96	23:12:00
— -0009 01	9607L169-009	Z072109	07/21/96	23:58:00
— -0011 01	9607L169-011	Z072110	07/22/96	0:43:00
— -0012 01	9607L169-012	Z072111	07/22/96	1:29:00
— -0001 01 MS	9607L169-001S	Z072112	07/22/96	2:14:00
— -0001 01 MSD	9607L169-001T	Z072113	07/22/96	3:00:00

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville — W.O. # : 02744-064-001-3999-00

Client : LANL - REQ#2408 — Instrument ID: 46007

Beginning Lab File ID : 3072103 — End Lab File ID : 3072116

Date Analyzed : 07/21/96 — Date Analyzed : 07/22/96

Time Analyzed : 13:13:00 — Time Analyzed : 4:31:00

Analyst (1) : TM — Analyst (2) : TM

INTERNAL STANDARD	ANALYTES	RRT WINDOW
13C12-2,3,7,8-TCDD	TCDD	0.932-1.031
	PeCDD	1.082-1.174
13C12-2,3,7,8-TCDF	TCDF	0.920-1.054
	PeCDF	[illegible]
[illegible]	[illegible]	[illegible]
	HxCDD	[illegible]
[illegible]	HxCDF	0.950-0.989
	HpCDF	1.000-1.056
13C12-OCDD	OCDD	1.000
	OCDF	1.005

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00
Client : LANL - REQ#2408
Instrument ID: 4600Z
Beginning Lab File ID : Z072203
End Lab File ID : Z072212
Date Analyzed : 07/22/96
Date Analyzed : 07/22/96
Time Analyzed : 12:51:00
Time Analyzed : 19:39:00
Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322	0.78	0.79	0.65 - 0.89
1,2,8,9-Tetra CDD	320 / 322	0.77	0.77	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334	0.82	0.81	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334	0.79	0.80	0.65 - 0.89
1,2,4,6,8/1,2,4,7,9-Penta CDD	358 / 356	0.64	0.65	0.55 - 0.78
1,2,3,8,9-Penta CDD	358 / 356	0.61	0.66	0.55 - 0.78
1,2,4,6,7,9/1,2,4,6,8,9-Hexa CI	392 / 390	0.80	0.79	0.69 - 0.93
1,2,3,4,6,7-Hexa CDD	392 / 390	0.79	0.82	0.69 - 0.93
13C12-1,2,3,6,7,8-Hexa CDD	404 / 402	0.83	0.82	0.69 - 0.93
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402	0.82	0.82	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424	1.01	1.01	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424	1.02	1.02	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460	0.89	0.89	0.75 - 1.01
13C12-Octa CDD	470 / 472	0.87	0.88	0.75 - 1.01

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY < 25%)	PASS	PASS

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m X 0.32mm ID X 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville — W.O. # : 02744-064-001-3999-0.

Client : LANL - SEQ#2408 — Instrument ID: 46002

Beginning Lab File ID : Z072203 — End Lab File ID : Z072210

Date Analyzed : 07/22/96 — Date Analyzed : 07/22/96

Time Analyzed : 12:51:00 — Time Analyzed : 19:39:00

Analyst (1) : JDL — Analyst (2) : JDL

COMPOUND	IONS	RATIO*	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306		0.77	0.77	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306		0.79	0.78	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318		0.81	0.80	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340		0.63	0.63	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340		0.65	0.63	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374		0.83	0.85	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374		0.84	0.80	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408		0.96	0.97	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408		0.96	0.97	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420		0.96	0.96	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 / 444		0.85	0.84	0.75 - 1.01

* Indicates ratio out of acceptable range

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN CCC	PCDD/PCDF CC3	Z072204	07/22/96	13:36:00
SOIL Blank	96LE1248-MB1	Z072205	07/22/96	14:21:00
SOIL Blank Spike	96LE1248-MB1S	Z072208	07/22/96	16:33:

PCDD PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-3399-0
Client : LANL - REQ#2408
Instrument ID: 46002
Beginning Lab File ID : Z072203
End Lab File ID : Z072212
Date Analyzed : 07/22/96
Date Analyzed : 07/22/96
Time Analyzed : 12:51:00
Time Analyzed : 19:39:00
Analyst (1) : JDL
Analyst (2) : JDL

INTERNAL STANDARD	ANALYTES	RRT WINDOW
13C12-2,3,7,8-TCDD	TCDD	0.932-1.032
	PeCDD	1.083-1.177
13C12-2,3,7,8-TCDF	TCDF	0.919-1.055
	PeCDF	1.062-1.210
13C12-1,2,3,6,7,8-HxCDD	HxCDD	0.948-1.012
	HpCDD	1.104-1.134
13C12-1,2,3,4,6,7,8-HpCDF	HxCDF	0.851-0.940
	HpCDF	1.000-1.056
13C12-OCDD	OCDD	1.000
	OCDF	1.005

FIFA

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : R. F. Weston, Inc. Lionville — W.O. # : 02744-064-001-3399-00

Client : LANL - PEO#2408 — Instrument ID: 46002

Beginning Lab File ID : C072402 — End Lab File ID : C072417

Date Analyzed : 07/24/96 — Date Analyzed : 07/25/96

Time Analyzed : 12:49:00 — Time Analyzed : 0:01:00

Analyst (1) : JTL — Analyst (2) : JTL

COMPOUND	IONS	RATIO	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDD	320 / 322		0.78	0.77	0.65 - 0.89
1,2,3,9-Tetra CDD	320 / 322		0.77	0.79	0.65 - 0.89
13C12-1,2,3,4-Tetra CDD	332 / 334		0.81	0.82	0.65 - 0.89
13C12-2,3,7,8-Tetra CDD	332 / 334		0.80	0.79	0.65 - 0.89
1,2,4,6,8/1,2,4,7,8-Penta CDD	358 / 356		0.65	0.66	0.55 - 0.75
1,2,3,8,9-Penta CDD	358 / 356		0.64	0.67	0.55 - 0.75
1,2,4,6,7,8/1,2,4,6,8,9-Hexa CDD	392 / 390		0.80	0.81	0.69 - 0.93
1,2,3,6,7,8-Hexa CDD	[illegible]		[illegible]	[illegible]	[illegible]
13C12-1,2,3,4,7,8-Hexa CDD	[illegible]		[illegible]	[illegible]	[illegible]
13C12-1,2,3,7,8,9-Hexa CDD	404 / 402		0.81	0.82	0.69 - 0.93
1,2,3,4,6,7,9-Hepta CDD	426 / 424		1.02	1.00	0.83 - 1.12
1,2,3,4,6,7,8-Hepta CDD	426 / 424		1.02	1.00	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDD	458 / 460		0.89	0.90	0.75 - 1.01
13C12-Octa CDD	470 / 472		0.87	0.87	0.75 - 1.01

* Indicates ratio out of acceptable range.

	BEG. VALLEY	END VALLEY
RESOLUTION CHECK (VALLEY < 25%)	PASS	PASS

0000035

FIFF

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-9999-00

Client : LANL - PEQ#2408
Instrument ID: 4600Z

Beginning Lab File ID : Z072402
End Lab File ID : Z072417

Date Analyzed : 07/24/96
Date Analyzed : 07/25/96

Time Analyzed : 12:49:00
Time Analyzed : 0:01:00

Analyst (1) : JDL
Analyst (2) : JDL

COMPOUND	IONS RATIOED	BEG. RATIO	END RATIO	RATIO LIMITS
1,3,6,8-Tetra CDF	304 / 306	0.75	0.86	0.65 - 0.89
1,2,8,9-Tetra CDF	304 / 306	0.77	0.80	0.65 - 0.89
13C12-2,3,7,8-Tetra CDF	316 / 318	0.80	0.80	0.65 - 0.89
1,3,4,6,8-Penta CDF	342 / 340	0.64	0.65	0.55 - 0.75
1,2,3,8,9-Penta CDF	342 / 340	0.63	0.65	0.55 - 0.75
1,2,3,4,6,8-Hexa CDF	376 / 374	0.84	0.84	0.69 - 0.93
1,2,3,4,8,9-Hexa CDF	376 / 374	0.85	0.83	0.69 - 0.93
1,2,3,4,6,7,8-Hepta CDF	410 / 408	0.98	0.94	0.83 - 1.12
1,2,3,4,7,8,9-Hepta CDF	410 / 408	0.96	0.96	0.83 - 1.12
13C12-1,2,3,4,6,7,8-Hepta CDF	422 / 420	0.95	0.94	0.83 - 1.12
1,2,3,4,6,7,8,9-Octa CDF	442 444	0.85	0.84	0.75 - 1.01

* Indicates ratio out of acceptable range
THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
DIOXIN CCC	PCDD/PCDF CC3	Z072403	07/24/96	13:34:00
0835-96-0003 01	9607L169-003	Z072404	07/24/96	14:19:00
- -0006 01	9607L169-006	Z072405	07/24/96	15:01:00
- -0007 01	9607L169-007	Z072406	07/24/96	15:44:00
- -0010 01	9607L169-010	Z072407	07/24/96	16:28:00
- -0013 01	9607L169-013	Z072411	07/24/96	19:29:00
- -0014 01	9607L169-014	Z072412	07/24/96	20:13:00
- -0008 01	9607L169-008	Z072413	07/24/96	20:58:00

HRGC

PCDD/PCDF WINDOW DEFINING MIXTURE SUMMARY
60m x 0.32mm ID x 0.25 um DB-5 COLUMN

Lab Name : Roy F. Weston, Inc. Lionville
W.O. # : 02744-064-001-3999-00

Client : LANL - REQ#2408
Instrument ID: 46007

Beginning Lab File ID : Z072402
End Lab File ID : Z072417

Date Analyzed : 07/24/96
Date Analyzed : 07/25/96

Time Analyzed : 12:49:00
Time Analyzed : 0:01:00

Analyst (1) : JDL
Analyst (2) : JDL

INTERNAL STANDARD	ANALYTES	RRT WINDOW
13C12-2,3,7,8-TCDD	TCDD	0.933-1.031
	PeCDD	1.082-1.174
13C12-2,3,7,8-TCDF	TCDF	0.920-1.054
	PeCDF	1.060-1.206
13C12-1,2,3,6,7,8-HxCDD	HxCDD	0.948-1.012
	HpCDD	1.105-1.136
13C12-1,2,3,4,6,7,8-HpCDF	HxCDF	0.850-0.940
	HpCDF	1.000-1.056
13C12-OCDD	OCDD	1.000
	OCDF	1.004

REPORT OF ANALYSES

DETERMINATION OF METALS BY INDUCTIVELY COUPLED PLASMA, TRACE ANALYZER AND ATOMIC ABSORPTION

PAI WO# 96-07-114
Request Number 2409

Prepared for:

Los Alamos National Laboratory
SMO
Attn: Dr. John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

July 26, 1996

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Section 1: Case Narrative
Section 2: Chain of Custody
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Appendix A: Digestion Bench Sheets
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Appendix C: LCS Soil Control Limits

Section 1: Case Narrative

1.1 Sample Logistics

All samples were received cool and intact on the dates shown on the FORM I's. The chain custody reports follow this narrative in Section 2.

1.2 Analysis of Metals

These samples were analyzed using the Thermo Jarrell Ash 61E ICAP Trace Analyzer, Thermo Jarrell Ash 61 conventional ICAP and Leeman PS200 cold vapor atomic absorption analyzer and reported using CLP methods for the ICAP's and mercury.

Due to the limitations of our Ward software, some mercury values appear as 0.0, where this occurs the actual value is hand entered.

For Mercury, the ICB is also used as the preparation blank, therefore the run chronology will show the same time for both.

The matrix specific quality control sample for this request number is client sample ID 0835-96-0001 (PAI # 96-07-114-01). A five fold serial dilution was performed on the Trace Analyzer control sample to evaluate potential matrix effects.

Cobalt and lead results in the diluted sample did not agree within 10% with the undiluted sample results. Results for these elements are flagged with an "E" indicating a potential matrix effect. The concentrations of cobalt in the diluted and undiluted samples were below the CRDL. The relatively low cobalt concentration may have contributed to the greater than 10% difference between the two results. The difference in lead

concentrations between the diluted and undiluted sample was 10.4% indicating a slight matrix effect.

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Lab Manager

SECTION 2: Chain of Custody

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL - Smo SHIPPING CONTAINER #: -

WORKORDER NO. 96-07-114 INITIALS: B DATE: 7/16/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many 4	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes__ No__ Requested Analysis: Yes ✓ No__		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No__ Sample ID's: Yes ✓ No__ Matrix: Yes ✓ No__ No. of Containers: Yes ✓ No__		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: ____

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ATI FRM 201FC5 (2/21/96)

SECTION 3: Inorganic Qualifiers

July 15, 1996

Request Nbr 2409

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-114

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2409 per agreement number 7794L0014-9S

INORGANIC TO ATI, 35-8888, RB.

Program fund code: MA5X

Analysis Type: INORGANIC ANALYSIS

Turn Around Time 30 Days

Screening:

Approx.Report Due Date: 15-AUG-96

Contact person at CST Joylene Valdez Mail Stop: E509 Phone: (505) 665-9968

Signature: Joylene Valdez

Total Containers: 28

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
METTALCN	STD	0835-96-0001	02	Soil	07/15/96	-01
SULFIDE	STD	0835-96-0001	05	Soil	07/15/96	
METTALCN	STD	0835-96-0002	02	Soil	07/15/96	-02
SULFIDE	STD	0835-96-0002	05	Soil	07/15/96	
METTALCN	STD	0835-96-0003	02	Soil	07/15/96	-03
SULFIDE	STD	0835-96-0003	05	Soil	07/15/96	
METTALCN	STD	0835-96-0004	02	Soil	07/15/96	-04
SULFIDE	STD	0835-96-0004	05	Soil	07/15/96	
METTALCN	STD	0835-96-0005	02	Soil	07/15/96	-05
SULFIDE	STD	0835-96-0005	05	Soil	07/15/96	
METTALCN	STD	0835-96-0006	02	Soil	07/15/96	-06
SULFIDE	STD	0835-96-0006	05	Soil	07/15/96	
METTALCN	STD	0835-96-0007	02	Soil	07/15/96	-07
SULFIDE	STD	0835-96-0007	05	Soil	07/15/96	
METTALCN	STD	0835-96-0008	02	Soil	07/15/96	-08
SULFIDE	STD	0835-96-0008	05	Soil	07/15/96	
METTALCN	STD	0835-96-0009	02	Soil	07/15/96	-09
SULFIDE	STD	0835-96-0009	05	Soil	07/15/96	
METTALCN	STD	0835-96-0010	02	Soil	07/15/96	-10
SULFIDE	STD	0835-96-0010	05	Soil	07/15/96	
METTALCN	STD	0835-96-0011	02	Soil	07/15/96	-11

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July 15, 1996 Request Nbr 2409

Los Alamos
NATIONAL LABORATORY

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
SULFIDE	STD	0835-96-0011	05	Soil	07/15/96	-11 cont
METTALCN	STD	0835-96-0012	02	Soil	07/15/96	
SULFIDE	STD	0835-96-0012	05	Soil	07/15/96	-12
METTALCN	STD	0835-96-0013	02	Soil	07/15/96	
SULFIDE	STD	0835-96-0013	05	Soil	07/15/96	-13
METTALCN	STD	0835-96-0014	02	Soil	07/15/96	
SULFIDE	STD	0835-96-0014	05	Soil	07/15/96	-14

000007

LOS ALAMOS
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2318

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Request Number: 2409

Analysis Type: INORG

Sample Number	Type / Size	Comments
0835-96-0001 02	125 ml Polyethylene	METTALCN
0835-96-0001 05	125 ml Glass	SULFIDE
0835-96-0002 02	125 ml Polyethylene	METTALCN
0835-96-0002 05	125 ml Glass	SULFIDE
0835-96-0003 02	125 ml Polyethylene	METTALCN
0835-96-0003 05	125 ml Glass	SULFIDE
0835-96-0004 02	125 ml Polyethylene	METTALCN
0835-96-0004 05	125 ml Glass	SULFIDE
0835-96-0005 02	125 ml Polyethylene	METTALCN
0835-96-0005 05	125 ml Glass	SULFIDE
0835-96-0006 02	125 ml Polyethylene	METTALCN
0835-96-0006 05	125 ml Glass	SULFIDE
0835-96-0007 02	125 ml Polyethylene	METTALCN
0835-96-0007 05	125 ml Glass	SULFIDE
0835-96-0008 02	125 ml Polyethylene	METTALCN
0835-96-0008 05	125 ml Glass	SULFIDE
0835-96-0009 02	125 ml Polyethylene	METTALCN
0835-96-0009 05	125 ml Glass	SULFIDE

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Jayne Vaz	7/15/96	3:15	V. BAYLY 7/16/96 10:00

Received for Disposal By (print name and sign			Remarks

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Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2318

Sample Number	Type / Size	Comments
Analysis Type:	INORG	
0835-96-0010 02	125 ml Polyethylene	METTALCN
0835-96-0010 05	125 ml Glass	SULFIDE
0835-96-0011 02	125 ml Polyethylene	METTALCN
0835-96-0011 05	125 ml Glass	SULFIDE
0835-96-0012 02	125 ml Polyethylene	METTALCN
0835-96-0012 05	125 ml Glass	SULFIDE
0835-96-0013 02	125 ml Polyethylene	METTALCN
0835-96-0013 05	125 ml Glass	SULFIDE
0835-96-0014 02	125 ml Polyethylene	METTALCN
0835-96-0014 05	125 ml Glass	SULFIDE

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
[signature]	7/15/96	3:15	

Received for Disposal By (print name and sign			Remarks

An Equal Opportunity Employer/Operated by the University of California

Laboratory Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- C (Concentration) qualifier – A "B" is entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected a "U" is entered.

- Q qualifier – Specified entries and their meanings are as follows:

  E - The reported value is estimated because of the presence of interference. An explanatory note may be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if the problem is an isolated one.)

  M - Duplicate injection precision was not met.

  N - Spiked sample recovery not within control limits. Associated data is flagged.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.

  F - Relative percent difference between the matrix spike and matrix spike duplicate is not within control limits. No further action is taken.

  * - Duplicate analysis not within control limits. Associated data is flagged.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

- M (Method) qualifier –
  - "P" for ICP
  - "A" for Flame AA
  - "AV" for Automated Cold Vapor AA
  - "CA" for Mini-Distillation Spectrophotometric
  - "AS" for Semi-Automated Spectrophotometric
  - "C" for Manual Spectrophotometric
  - "T" for Titrimetric
  - " " where no data has been entered
  - "NR" if the analyte is not required to be analyzed

SECTION 4: Sample Results

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0001

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-01

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	9020			P
7440-36-0	Antimony_	0.66	U	N	P
7440-38-2	Arsenic__	4.0			P
7440-39-3	Barium___	132			P
7440-41-7	Beryllium	0.90	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	8.7			P
7440-48-4	Cobalt___	9.3	B	E	P
7440-50-8	Copper___	6.6			P
7439-92-1	Lead____	15.2		E*	P
7439-97-6	Mercury__	0.01	B		AV
7440-02-0	Nickel___	8.5			P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	1.6	B		P
7440-62-2	Vanadium_	19.5			P
7440-66-6	Zinc____	28.0			P
7440-31-5	Tin_____	5.0			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0002

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-02

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _92.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8710	_		P_
7440-36-0	Antimony_	0.65	U	N	P_
7440-38-2	Arsenic__	4.3	_		P_
7440-39-3	Barium___	122	_		P_
7440-41-7	Beryllium	0.95	B		P_
7440-43-9	Cadmium__	0.06	U		P_
7440-47-3	Chromium_	8.7	_		P_
7440-48-4	Cobalt___	5.6	B	E	P_
7440-50-8	Copper___	6.7	_		P_
7439-92-1	Lead____	13.3	_	E*	P_
7439-97-6	Mercury__	0.07	B		AV
7440-02-0	Nickel___	8.6	_		P_
7782-49-2	Selenium_	0.89	B		P_
7440-22-4	Silver___	0.22	U		P_
7440-28-0	Thallium_	2.3	_		P_
7440-62-2	Vanadium_	20.1	_		P_
7440-66-6	Zinc____	27.4	_		P_
7440-31-5	Tin_____	5.6	_		P_
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Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0003

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-03

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _93.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8080			P
7440-36-0	Antimony_	0.64	U	N	P
7440-38-2	Arsenic__	3.9			P
7440-39-3	Barium___	118			P
7440-41-7	Beryllium	0.89	B		P
7440-43-9	Cadmium__	0.06	U		P
7440-47-3	Chromium_	7.7			P
7440-48-4	Cobalt___	5.2	B	E	P
7440-50-8	Copper___	6.0			P
7439-92-1	Lead____	13.4		E*	P
7439-97-6	Mercury__	0.09	B		AV
7440-02-0	Nickel___	7.7			P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver___	0.21	U		P
7440-28-0	Thallium_	1.1	B		P
7440-62-2	Vanadium_	17.7			P
7440-66-6	Zinc____	26.6			P
7440-31-5	Tin_____	4.2	B		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0004

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-04

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _90.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8730			P
7440-36-0	Antimony_	0.67	U	N	P
7440-38-2	Arsenic__	4.5			P
7440-39-3	Barium___	170			P
7440-41-7	Beryllium	1.1			P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	6.7			P
7440-48-4	Cobalt___	3.3	B	E	P
7440-50-8	Copper___	6.3			P
7439-92-1	Lead____	13.4		E*	P
7439-97-6	Mercury__	0.03	B		AV
7440-02-0	Nickel___	8.8			P
7782-49-2	Selenium_	0.40	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	0.97	B		P
7440-62-2	Vanadium_	15.0			P
7440-66-6	Zinc____	26.8			P
7440-31-5	Tin_____	7.3			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0005

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-05

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _95.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4570			P
7440-36-0	Antimony	0.63	U	N	P
7440-38-2	Arsenic	2.1			P
7440-39-3	Barium	87.8			P
7440-41-7	Beryllium	0.57	B		P
7440-43-9	Cadmium	0.06	U		P
7440-47-3	Chromium	4.4			P
7440-48-4	Cobalt	2.6	B	E	P
7440-50-8	Copper	16.2			P
7439-92-1	Lead	11.3		E*	P
7439-97-6	Mercury	0.04	B		AV
7440-02-0	Nickel	3.7	B		P
7782-49-2	Selenium	0.38	U		P
7440-22-4	Silver	0.21	U		P
7440-28-0	Thallium	0.71	U		P
7440-62-2	Vanadium	8.9	B		P
7440-66-6	Zinc	31.0			P
7440-31-5	Tin	3.8	B		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0006

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-06

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7330	_		P_
7440-36-0	Antimony_	0.66	U	N	P_
7440-38-2	Arsenic__	3.5	_		P_
7440-39-3	Barium___	110	_		P_
7440-41-7	Beryllium	0.77	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	8.1	_		P_
7440-48-4	Cobalt___	6.2	B	E	P_
7440-50-8	Copper___	5.7	_		P_
7439-92-1	Lead____	14.2	_	E*	P_
7439-97-6	Mercury__	0.25	_		AV
7440-02-0	Nickel___	7.1	_		P_
7782-49-2	Selenium_	0.39	U		P_
7440-22-4	Silver___	0.22	U		P_
7440-28-0	Thallium_	1.1	B		P_
7440-62-2	Vanadium_	18.6	_		P_
7440-66-6	Zinc_____	26.1	_		P_
7440-31-5	Tin_____	4.7	_		P_
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Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0007

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-07

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _92.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6990			P
7440-36-0	Antimony_	0.65	U	N	P
7440-38-2	Arsenic__	3.7			P
7440-39-3	Barium___	106			P
7440-41-7	Beryllium	0.77	B		P
7440-43-9	Cadmium__	0.06	U		P
7440-47-3	Chromium_	7.8			P
7440-48-4	Cobalt___	4.5	B	E	P
7440-50-8	Copper___	5.2	B		P
7439-92-1	Lead____	10.8		E*	P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	7.4			P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	0.80	B		P
7440-62-2	Vanadium_	16.0			P
7440-66-6	Zinc____	26.1			P
7440-31-5	Tin_____	4.9			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0008

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-08

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _90.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7470			P
7440-36-0	Antimony_	0.66	U	N	P
7440-38-2	Arsenic__	3.1			P
7440-39-3	Barium___	112			P
7440-41-7	Beryllium	0.71	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	6.3			P
7440-48-4	Cobalt___	4.5	B	E	P
7440-50-8	Copper___	7.7			P
7439-92-1	Lead____	33.2		E*	P
7439-97-6	Mercury__	0.07	B		AV
7440-02-0	Nickel___	5.9			P
7782-49-2	Selenium_	0.40	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	1.0	B		P
7440-62-2	Vanadium_	16.6			P
7440-66-6	Zinc_____	34.9			P
7440-31-5	Tin_____	4.6			P

Color Before: BROW ___ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0009

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-09

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _91.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7230	_		P_
7440-36-0	Antimony_	0.66	U	N	P_
7440-38-2	Arsenic__	3.4	_		P_
7440-39-3	Barium___	104	_		P_
7440-41-7	Beryllium	0.78	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	5.8	_		P_
7440-48-4	Cobalt___	2.7	B	E	P_
7440-50-8	Copper___	4.4	B		P_
7439-92-1	Lead____	8.6	_	E*	P_
7439-97-6	Mercury__	0.03	B		AV
7440-02-0	Nickel___	6.3	_		P_
7782-49-2	Selenium_	0.39	U		P_
7440-22-4	Silver___	0.22	U		P_
7440-28-0	Thallium_	0.74	U		P_
7440-62-2	Vanadium_	11.8	_		P_
7440-66-6	Zinc_____	22.3	_		P_
7440-31-5	Tin_____	4.6	_		P_
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Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0010

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-10

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _92.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3420			P
7440-36-0	Antimony_	0.65	U	N	P
7440-38-2	Arsenic__	2.3			P
7440-39-3	Barium___	52.3			P
7440-41-7	Beryllium	0.43	B		P
7440-43-9	Cadmium__	0.06	U		P
7440-47-3	Chromium_	4.0			P
7440-48-4	Cobalt___	2.0	B	E	P
7440-50-8	Copper___	3.2	B		P
7439-92-1	Lead____	7.3		E*	P
7439-97-6	Mercury__	0.01	B		AV
7440-02-0	Nickel___	3.5	B		P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	0.93	B		P
7440-62-2	Vanadium_	7.0	B		P
7440-66-6	Zinc____	24.5			P
7440-31-5	Tin_____	6.1			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0011

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-11

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _87.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	2720			P
7440-36-0	Antimony_	0.69	U	N	P
7440-38-2	Arsenic__	2.7			P
7440-39-3	Barium___	51.1			P
7440-41-7	Beryllium	0.51	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	2.4			P
7440-48-4	Cobalt___	2.1	B	E	P
7440-50-8	Copper___	2.2	B		P
7439-92-1	Lead____	7.1		E*	P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	3.8	B		P
7782-49-2	Selenium_	0.41	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	1.4	B		P
7440-62-2	Vanadium_	6.4	B		P
7440-66-6	Zinc____	24.1			P
7440-31-5	Tin_____	5.1			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0012

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-12

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _85.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3500			P
7440-36-0	Antimony_	0.70	U	N	P
7440-38-2	Arsenic__	2.2	B		P
7440-39-3	Barium___	50.7			P
7440-41-7	Beryllium	0.53	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	3.6			P
7440-48-4	Cobalt___	2.0	B	E	P
7440-50-8	Copper___	2.7	B		P
7439-92-1	Lead____	5.9		E*	P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	3.6	B		P
7782-49-2	Selenium_	0.42	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.80	U		P
7440-62-2	Vanadium_	7.1	B		P
7440-66-6	Zinc____	28.3			P
7440-31-5	Tin_____	5.2			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0013

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-13

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _90.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	4560	_		P_
7440-36-0	Antimony_	0.67	U	N	P_
7440-38-2	Arsenic__	2.5	_		P_
7440-39-3	Barium___	72.6	_		P_
7440-41-7	Beryllium	0.43	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	5.0	_		P_
7440-48-4	Cobalt___	3.2	B	E	P_
7440-50-8	Copper___	4.6	B		P_
7439-92-1	Lead____	5.9	_	E*	P_
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	4.8	_		P_
7782-49-2	Selenium_	0.40	U		P_
7440-22-4	Silver___	0.22	U		P_
7440-28-0	Thallium_	0.75	U		P_
7440-62-2	Vanadium_	13.1	_		P_
7440-66-6	Zinc____	19.1	_		P_
7440-31-5	Tin_____	5.6	_		P_

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0014

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Lab Sample ID: S114-14

Level (low/med): LOW__ Date Received: 07/16/96

% Solids: _85.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3480			P
7440-36-0	Antimony_	0.70	U	N	P
7440-38-2	Arsenic__	1.8	B		P
7440-39-3	Barium___	48.2			P
7440-41-7	Beryllium	0.35	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	3.3			P
7440-48-4	Cobalt___	2.0	B	E	P
7440-50-8	Copper___	3.6	B		P
7439-92-1	Lead____	5.0		E*	P
7439-97-6	Mercury__	0.03	B		AV
7440-02-0	Nickel___	3.0	B		P
7782-49-2	Selenium_	0.42	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.80	U		P
7440-62-2	Vanadium_	8.1	B		P
7440-66-6	Zinc_____	16.9			P
7440-31-5	Tin_____	5.4			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

SECTION 5: Summary Report Forms

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

SOW No.: ILM02.1

EPA Sample No.	Lab Sample ID
_0835-96-0001_	_S114-01_____
_0835-96-0001_	_S114-01D_____
_0835-96-0001_	_S114-01S_____
_0835-96-0002_	_S114-02_____
_0835-96-0003_	_S114-03_____
_0835-96-0004_	_S114-04_____
_0835-96-0005_	_S114-05_____
_0835-96-0006_	_S114-06_____
_0835-96-0007_	_S114-07_____
_0835-96-0008_	_S114-08_____
_0835-96-0009_	_S114-09_____
_0835-96-0010_	_S114-10_____
_0835-96-0011_	_S114-11_____
_0835-96-0012_	_S114-12_____
_0835-96-0013_	_S114-13_____
_0835-96-0014_	_S114-14_____
_____	_____
_____	_____
_____	_____
_____	_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

_____

_____

_____

_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	25250.0	25423.28	100.7	50500.0	51121.77	101.2	51883.64	102.7	P
Antimony	250.0	256.83	102.7	500.0	488.71	97.7	495.54	99.1	P
Arsenic	250.0	257.89	103.2	500.0	498.42	99.7	508.09	101.6	P
Barium	250.0	253.12	101.2	500.0	490.75	98.2	496.46	99.3	P
Beryllium	250.0	261.55	104.6	500.0	509.20	101.8	515.03	103.0	P
Cadmium	250.0	249.85	99.9	500.0	480.13	96.0	485.37	97.1	P
Chromium	250.0	248.58	99.4	500.0	494.65	98.9	500.26	100.1	P
Cobalt	250.0	259.14	103.7	500.0	497.47	99.5	503.66	100.7	P
Copper	250.0	249.97	100.0	500.0	491.46	98.3	496.07	99.2	P
Lead	250.0	249.74	99.9	500.0	477.46	95.5	480.62	96.1	P
Mercury	5.0	5.04	100.8	5.0	5.32	106.4	5.53	110.6	AV
Nickel	250.0	253.03	101.2	500.0	489.14	97.8	494.27	98.9	P
Selenium	250.0	260.65	104.3	500.0	494.21	98.8	498.35	99.7	P
Silver	250.0	255.23	102.1	500.0	505.77	101.2	511.28	102.3	P
Thallium	250.0	258.23	103.3	500.0	487.10	97.4	490.43	98.1	P
Vanadium	250.0	256.06	102.4	500.0	498.52	99.7	504.24	100.8	P
Zinc	250.0	247.19	98.9	500.0	483.76	96.8	487.24	97.4	P
Tin	500.0	508.11	101.6	1000.0	1031.30	103.1	1022.49	102.2	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				50500.0	51461.50	101.9			P
Antimony				500.0	490.81	98.2			P
Arsenic				500.0	502.15	100.4			P
Barium				500.0	495.28	99.1			P
Beryllium				500.0	509.46	101.9			
Cadmium				500.0	483.27	96.7			[illegible]
Chromium				500.0	496.77	99.4			P
Cobalt				500.0	498.45	99.7			P
Copper				500.0	491.09	98.2			P
Lead				500.0	478.93	95.8			P
Mercury									NR
Nickel				500.0	490.20	98.0			P
Selenium				500.0	494.91	99.0			P
Silver				500.0	507.60	101.5			P
Thallium				500.0	490.79	98.2			P
Vanadium				500.0	501.21	100.2			P
Zinc				500.0	482.57	96.5			P
Tin				1000.0	1042.10	104.2	1029.73	103.0	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum				400.0	583.20	145.8	409.45	102.4
Antimony				120.0	129.15	107.6	127.00	105.8
Arsenic				20.0	22.20	111.0	21.86	109.3
Barium				400.0	397.43	99.4	398.11	99.5
Beryllium				10.0	10.84	108.4	10.58	105.8
Cadmium				10.0	10.10	101.0	9.54	95.4
Chromium				20.0	21.41	107.0	21.19	106.0
Cobalt				100.0	100.52	100.5	99.95	100.0
Copper				50.0	49.70	99.4	49.37	98.7
Lead				6.0	5.89	98.2	4.41	73.5
Mercury	0.2	0.19	95.0					
Nickel				80.0	80.10	100.1	80.37	100.5
Selenium				10.0	10.43	104.3	7.36	73.6
Silver				20.0	21.66	108.3	20.69	103.4
Thallium				20.0	25.90	129.5	20.22	101.1
Vanadium				100.0	101.98	102.0	101.77	101.8
Zinc				40.0	43.11	107.8	45.87	114.7
Tin				40.0	45.90	114.8	37.02	92.6

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3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	23.8	B	24.6	B	18.6	B	64.1	B	8.394	B	P
Antimony	4.6	B	5.6	B	3.7	B	4.3	B	0.600	U	P
Arsenic	4.6	B	2.6	B	1.6	U	2.4	B	0.322	B	P
Barium	0.9	B	0.1	B	0.1	U	0.1	U	0.014	U	[illegible]
Beryllium	1.1	B	0.2	B	0.1	U	0.2	B	0.020	U	P
Cadmium	0.4	B	-0.4	B	-0.6	B	-0.4	B	-0.096	B	P
Chromium	0.6	B	0.5	U	0.5	U	0.5	U	0.100	U	P
Cobalt	1.6	B	0.7	B	0.6	B	0.6	B	0.090	B	P
Copper	0.9	B	0.5	U	0.5	U	0.5	U	0.100	U	P
Lead	1.2	U	-1.8	B	-1.5	B	-1.5	B	0.240	U	P
Mercury	0.02	U	0.02	U	0.02	U			0.010	U	AV
Nickel	1.5	B	0.6	U	0.6	U	0.6	U	0.450	B	P
Selenium	1.8	U	1.8	U	1.8	U	1.8	U	-0.702	B	P
Silver	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Thallium	6.0	B	3.4	U	3.4	U	3.4	U	0.940	B	P
Vanadium	0.6	U	0.6	U	0.6	U	0.6	U	-0.130	B	P
Zinc	1.2	B	0.4	U	-0.5	B	-0.5	B	1.534	B	P
Tin	13.1	U	13.1	U	13.1	U	13.1	U	3.836	B	P

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3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Antimony											NR
Arsenic											NR
Barium											NR
Beryllium											NR
Cadmium											NR
Chromium											NR
Cobalt											NR
Copper											NR
Lead											NR
Mercury											NR
Nickel											NR
Selenium											NR
Silver											NR
Thallium											NR
Vanadium											NR
Zinc											NR
Tin			13.1	U							P

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No: _____ SDG No.: 2409__

ICP ID Number: TJA 61E 3___ ICS Source: HIGH PURITY_

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	510980	509918.3	102.0	511347	511048.6	102.2
Antimony								
Arsenic								
Barium		500		486.7	97.3		486.5	97.3
Beryllium		500		483.5	96.7		485.5	97.1
Cadmium		1000		881.7	88.2		891.4	89.1
Chromium		500		460.0	92.0		464.1	92.8
Cobalt		500		444.3	88.9		447.8	89.6
Copper		500		503.0	100.6		499.7	99.9
Lead		1000		892.3	89.2		900.8	90.1
Mercury								
Nickel		1000		862.2	86.2		870.7	87.1
Selenium								
Silver		1000		1029.5	103.0		1030.6	103.1
Thallium								
Vanadium		500		472.1	94.4		474.3	94.9
Zinc		1000		866.0	86.6		875.8	87.6
Tin								

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

0835-96-0001

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL__ Level (low/med): LOW __

% Solids for Sample: _91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	68.7921		0.6565	U	109.41	62.9	N	P
Arsenic	75-125	458.1488		3.9650		437.64	103.8		P
Barium	75-125	591.1510		131.8009		437.64	105.0		P
Beryllium	75-125	12.6783		0.8972	B	10.94	107.7		P
Cadmium	75-125	10.8315		0.0656	U	10.94	99.0		P
Chromium	75-125	55.5033		8.7374		43.76	106.9		P
Cobalt	75-125	119.5974		9.3085	B	109.41	100.8		P
Copper	75-125	64.5930		6.6039		54.70	106.0		P
Lead	75-125	124.2407		15.1926		109.41	99.7		P
Mercury	75-125	0.6455		0.0120	B	0.55	115.2		AV
Nickel	75-125	121.9300		8.5317		109.41	103.6		P
Selenium	75-125	435.3829		0.3939	U	437.64	99.5		P
Silver	75-125	10.9891		0.2188	U	10.94	100.4		P
Thallium	75-125	437.6783		1.6236	B	437.64	99.6		P
Vanadium	75-125	133.5755		19.4902		109.41	104.3		P
Zinc	75-125	140.0941		27.9956		109.41	102.5		P
Tin	75-125	119.6214		4.9978		109.41	104.8		P

Comments:

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6
DUPLICATES

EPA SAMPLE NO.

0835-96-0001

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _91.4 % Solids for Duplicate: __91.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		9023.7396		7447.2516		19.1		P
Antimony		0.6565	U	0.6565	U			P
Arsenic	2.1880	3.9650		3.4858		12.9		P
Barium	43.7640	131.8009		94.8009		32.7		P
Beryllium		0.8972	B	0.7702	B	15.2		P
Cadmium		0.0656	U	0.0656	U			P
Chromium	2.1880	8.7374		6.7330		25.9		P
Cobalt		9.3085	B	4.1991	B	75.7		P
Copper	5.4700	6.6039		5.1466	B	24.8		P
Lead		15.1926		10.7790		34.0	*	P
Mercury		0.0120	B	0.0186	B	43.1		AV
Nickel	4.3760	8.5317		6.8665		21.6		P
Selenium		0.3939	U	0.3939	U			P
Silver		0.2188	U	0.2188	U			P
Thallium		1.6236	B	1.1182	B	36.9		P
Vanadium	10.9410	19.4902		15.8775		20.4		P
Zinc		27.9956		25.4311		9.6		P
Tin	4.3760	4.9978		4.7943		4.2		P

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7

LABORATORY CONTROL SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Solid LCS Source: ERA229_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				4590.0	3328.7		2280.0	7590.0	72.5
Antimony				39.8	34.9		8.4	119.0	87.7
Arsenic				75.4	70.[illegible]		37.1	112.0	93.6
Barium				106.0	91.[illegible]		74.3	139.0	86.0
Beryllium				51.0	44.4		11.7	90.3	87.1
Cadmium				45.4	40.2		11.9	79.0	88.5
Chromium				71.0	61.2		38.0	100.0	86.2
Cobalt				49.6	45.7		29.8	70.5	92.1
Copper				112.0	104.2		63.9	162.0	93.0
Lead				53.5	49.2		28.1	75.9	92.0
Mercury				1.5	1.6		0.4	2.4	106.7
Nickel				39.4	34.7		21.5	57.5	88.1
Selenium				72.3	67.3		37.8	108.0	93.1
Silver				116.0	115.5		58.2	170.0	99.6
Thallium				40.0	37.2		20.0	60.0	93.0
Vanadium				65.9	56.7		32.0	88.9	86.0
Zinc				134.0	122.2		72.2	199.0	91.2
Tin				102.0	101.3		35.9	168.0	99.3

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9

ICP SERIAL DILUTION

EPA SAMPLE NO

0835-96-0001

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	41238.49		40606.90		1.5		P
Antimony	3.00	U	15.00	U			P
Arsenic	18.12		26.70	B	47.4		P
Barium	602.33		604.60	B	0.4		P
Beryllium	4.10	B	3.60	B	12.2		P
Cadmium	0.30	U	1.50	U			P
Chromium	39.93		39.40	B	1.3		P
Cobalt	42.54	B	47.90	B	12.6	E	P
Copper	30.18		28.00	B	7.2		P
Lead	69.43		62.20		10.4	E	P
Mercury							NR
Nickel	38.99		38.00	B	2.5		P
Selenium	1.80	U	9.00	U			P
Silver	1.00	U	5.00	U			P
Thallium	7.42	B	26.65	B	259.2		P
Vanadium	89.07		88.10	B	1.1		P
Zinc	127.94		126.00		1.5		P
Tin	22.84		68.75	B	201.0		P

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10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA_61_3____ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3		NR
Mercury			0.2		NR
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin	189.90		20	13.1	P

Comments:

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: _____ Date: 07/01/96

Flame AA ID Number : LEEMAN_3____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3	7/25	NR
Mercury	253.70		0.2	0.02 ~~0.0~~	AV
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin			20		NR

Comments:

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA_61E_3___ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	6.5	P
Antimony	206.84		60	3.0	P
Arsenic	189.04		10	1.6	P
Barium	493.41		200	0.1	P
Beryllium	313.04		5	0.1	P
Cadmium	226.50		5	0.3	P
Chromium	267.72		10	0.5	P
Cobalt	228.62		50	0.4	P
Copper	324.75		25	0.5	P
Lead	220.35		3	1.2	P
Mercury			0.2		NR
Nickel	231.60		20	0.6	P
Selenium	196.03		5	1.8	P
Silver	328.07		10	1.0	P
Thallium	190.86		10	3.4	P
Vanadium	292.40		50	0.6	P
Zinc	206.20		20	0.4	P
Tin			20		NR

Comments:

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BA_
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony_	217.50	0.0001730	0.0000000	-0.0000700	0.0000000	0.0000000
Arsenic__	193.60	0.0041900	0.0000000	0.0003280	0.0000000	0.0000000
Barium___	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000300	0.0000000	0.0002950	0.0000000	0.0000000
Chromium_	267.70	0.0000000	0.0000000	-0.0000410	0.0000000	0.0000000
Cobalt___	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0001880
Copper___	324.70	0.0000000	0.0000000	-0.0000450	0.0000000	0.0000000
Lead____	220.30	0.0008690	0.0000000	0.0001130	0.0000000	0.00000
Mercury__						
Nickel___	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium_	196.00	0.0000000	0.0000000	0.0003760	0.0000000	0.0000000
Silver___	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium_	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium_	292.40	0.0000000	-0.0000300	0.0000500	0.0000000	0.0000000
Zinc____	206.20	0.0000000	0.0000000	0.0000390	0.0000370	0.0000000
Tin____	189.90	-0.0000600	0.0000000	0.0001300	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : BE_	CD_	CO_	CR_	)_
Aluminum	308.22	0.0000000	0.0000000	-0.0047560	0.0000000	0.0084920
Antimony	217.50	0.0019940	0.0000000	0.0000000	0.0000000	-0.0004360
Arsenic	193.60	0.0000000	0.0000000	0.0006940	0.0009930	0.0008130
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0001370	0.0000000	0.0001390
Chromium	267.70	0.0000000	0.0002200	0.0000000	0.0000000	-0.0037690
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0002450	-0.0019700
Copper	324.70	0.0000000	0.0000000	-0.0003080	0.0000000	0.0006200
Lead	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0004950	0.0000000	-0.0018550
Selenium	196.00	0.0000000	0.0000000	0.0009940	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	-0.0108000
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0022430	0.0005240
Tin	189.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0023950

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : NI_	PB_	SN_	TI_	TL_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	217.50	0.0011230	0.0009465	0.0000000	0.0000000	0.0000000
Arsenic	193.60	0.0009940	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	-0.0005820	0.0000000	0.0000000	0.0001910	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0001660	0.0000000
Cobalt	228.60	0.0000000	0.0000000	-0.0014620	0.0017260	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0004930	0.0000000
Lead	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.00000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0014850
Selenium	196.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0162630	0.0000000	0.0000000	-0.1373560	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0005070	0.0000000
Zinc	206.20	-0.0007590	0.0000000	0.0000000	0.0000000	0.0000000
Tin	189.90	0.0000000	0.0000000	0.0000000	0.0016690	0.0000000

Comments:

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11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : V__	___	___	___	___
Aluminum	308.22	-0.0198620				
Antimony	217.50	0.0011570				
Arsenic	193.60	0.0102320				
Barium	493.40	0.0000000				
Beryllium	313.00	0.0018680				
Cadmium	226.50	0.0000000				
Chromium	267.70	0.0011460				
Cobalt	228.60	0.0000000				
Copper	324.70	0.0000000				
Lead	220.30	0.0000000				
Mercury						
Nickel	231.60	-0.0003500				
Selenium	196.00	0.0000000				
Silver	328.00	-0.0053240				
Thallium	377.50	0.0000000				
Vanadium	292.40	0.0000000				
Zinc	206.20	0.0000000				
Tin	189.90	0.0000000				

Comments:

U.S. EPA - CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61E 3___ Date: 01/01/95

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	CO_
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0310000
Antimony_	206.84	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic__	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium___	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000000	0.0000000	0.0000860	0.0000000	0.0000000
Chromium_	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt___	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper___	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.00000(
Lead____	220.35	-0.0001820	0.0000000	0.0000420	0.0000000	0.0000000
Mercury__						
Nickel___	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium_	196.03	-0.0000010	0.0000000	-0.0003050	0.0000000	0.0000000
Silver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium_	190.86	0.0000000	0.0000000	-0.0000910	0.0000000	0.0000000
Vanadium_	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc____	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tin_____						

Comments:

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61E 3___ Date: 01/01/95

Analyte	Wave-length (nm)	Interelement Correction Factors for : CR_	V__	___	___	___
Aluminum_	308.22	0.0000000	0.0000540			
Antimony_	206.84	0.0000000	0.0000000			
Arsenic__	189.04	-0.0029800	0.0000000			
Barium___	493.41	0.0000000	0.0000000			
Beryllium	313.04	0.0000000	0.0000000			
Cadmium__	226.50	0.0000000	0.0000000			
Chromium_	267.72	0.0000000	0.0000000			
Cobalt___	228.62	0.0000000	0.0000000			
Copper___	324.75	0.0000000	0.0000000			
Lead____	220.35	0.0000000	0.0000000			
Mercury__						
Nickel___	231.60	0.0000000	0.0000000			
Selenium_	196.03	0.0000000	0.0000000			
Silver___	328.07	0.0000000	0.0000000			
Thallium_	190.86	0.0000000	0.0000000			
Vanadium_	292.40	0.0000000	0.0000000			
Zinc____	206.20	0.0000000	0.0000000			
Tin_____						

Comments:

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12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61 3____ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	8.00	1000000.0	P
Antimony	8.00	10000.0	P
Arsenic	8.00	100000.0	P
Barium	8.00	50000.0	P
Beryllium	8.00	25000.0	P
Cadmium	8.00	50000.0	P
Chromium	8.00	100000.0	P
Cobalt	8.00	100000.0	P
Copper	8.00	100000.0	P
Lead	8.00	100000.0	P
Mercury			NR
Nickel	8.00	100000.0	P
Selenium	8.00	100000.0	P
Silver	8.00	10000.0	P
Thallium	8.00	100000.0	P
Vanadium	8.00	100000.0	P
Zinc	8.00	100000.0	P
Tin	8.00	100000.0	P

Comments:

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12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2409__

ICP ID Number: TJA 61E 3___ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	500000.0	P
Antimony	15.00	10000.0	P
Arsenic	15.00	10000.0	P
Barium	15.00	10000.0	P
Beryllium	15.00	10000.0	P
Cadmium	15.00	10000.0	P
Chromium	15.00	10000.0	P
Cobalt	15.00	10000.0	P
Copper	15.00	10000.0	P
Lead	15.00	10000.0	P
Mercury			NR
Nickel	15.00	10000.0	P
Selenium	15.00	10000.0	P
Silver	15.00	10000.0	P
Thallium	15.00	10000.0	P
Vanadium	15.00	10000.0	P
Zinc	15.00	10000.0	P
Tin			NR

Comments:

U.S. EPA - CLP

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PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2409__

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
0835-96	07/18/96	1.00	200
LCSS	07/18/96	1.00	200
PBS	07/18/96	1.00	200

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13
PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2409__

Method: AV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
0835-96	07/22/96	0.20	100
LCSS	07/22/96	0.20	100
PBS	07/22/96	0.20	100

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/18/96 End Date: 07/18/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
BLANK	1.00	1453		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
MIX	1.00	1457			X	X	X	X	X		X	X	X		X	X	X	X	X	X							
MIX	1.00	1500		X						X																	
ZZZZZZ	1.00	1504																									
ZZZZZZ	1.00	1507																									
ICV	1.00	1510		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICB	1.00	1514		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSA	1.00	1518		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSAB	1.00	1521		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CRI	1.00	1525		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
PBS	1.00	1528		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
LCSS	1.00	1532		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1535		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1539		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	5.00	1543		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1546			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1550		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCV	1.00	1553		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1557		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1600		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1604		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1608		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1611		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1615		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1618		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1623		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1626		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1630		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1633		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCV	1.00	1637		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1640		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1644		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/18/96 End Date: 07/18/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
0835-96-	1.00	1648		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ZZZZZZ	1.00	1651												_							_	_	_	_	_	_	_
CRI	1.00	1655		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ICSA	1.00	1658		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ICSAB	1.00	1702		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCV	1.00	1705		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCB	1.00	1709		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/19/96 End Date: 07/19/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
STD-BLAN	1.00	1212		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
A1	1.00	1216		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1	1.00	1219		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1222		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1226		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICV	1.00	1229		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICB	1.00	1233		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CRI	1.00	1236		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSA	1.00	1239		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSAB	1.00	1243		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCV	1.00	1246		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1250		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
PBS	1.00	1253		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
LCSS	1.00	1256		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1300		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1303		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1306		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	5.00	1310		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1313		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1317		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1320		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1323		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCV	1.00	1327		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1330		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1334		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1337		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1340		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1344		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1347		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1350		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1354		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1357		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/19/96 End Date: 07/19/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
0835-96-	1.00	1401																			X						
CCV	1.00	1404																			X						
CCB	1.00	1407																			X						
CRI	1.00	1411																			X						
ICSA	1.00	1414																			X						
ICSAB	1.00	1418																			X						
CCV	1.00	1421																			X						
CCB	1.00	1424																			X						

U.S. EPA - CLP

14

ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2409__

Instrument ID Number: LEEMAN 3_____ Method: AV

Start Date: 07/22/96 End Date: 07/22/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
S0	1.00	1413		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S0.2	1.00	1416		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S1	1.00	1418		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	1.00	1420		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S5	1.00	1423		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S10	1.00	1425		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ICV	1.00	1428		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ICB	1.00	1430		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
PBS	1.00	1430		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CRA	1.00	1433		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
LCSS	1.00	1435		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	.00	1437		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	.00	1439		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1442		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1444		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1446		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1449		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1451		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1453		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1455		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCB	1.00	1458		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1500		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1502		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1504		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1507		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1509		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1511		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1513		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1516		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1518		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCB	1.00	1520		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

AUG
RECEIVED

REPORT OF ANALYSES

FIELD COPY

DETERMINATION OF METALS BY INDUCTIVELY COUPLED PLASMA, TRACE ANALYZER AND ATOMIC ABSORPTION

PAI WO#'s 96-07-150
Request Number 2412

Prepared for:

Los Alamos National Laboratory
SMO
Attn: Dr. John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

Report Sent To:
Approved By:
Date Sent: 8/13/96

August 2, 1996

TABLE OF CONTENTS:

Section 1: Case Narrative
Section 2: Chain of Custody
Section 3: Inorganic Qualifiers
Section 4: Sample Results
Section 5: Summary Report Forms
Section 6: Supporting Raw Data

Appendix A: Digestion Bench Sheets
Appendix B: Non conformance and Corrective Action Reports
Appendix C: LCS Soil Control Limits

Section 1: Case Narrative

1.1 Sample Logistics

All samples were received cool and intact on the dates shown on the FORM I's. The chain of custody reports follow this narrative in Section 2.

1.2 Analysis of Metals

These samples were analyzed using the Thermo Jarrell Ash 61E ICAP Trace Analyzer, the Thermo Jarrell Ash 61 conventional ICAP and the Leeman PS200 cold vapor atomic absorption analyzer and reported using CLP methods for the ICAP and mercury instruments.

Due to the limitations of our Ward software, some mercury values appear as 0.0, where this occurs the actual value is hand entered.

For Mercury, the ICB is also used as the preparation blank, therefore the run chronology will show the same time for both.

The matrix specific quality control sample for this request number is client sample ID 0835-96-0023 (PAI # 96-07-148-01). A five fold serial dilution was performed on the Trace Analyzer control sample to evaluate potential matrix effects.

Copper results in the diluted sample did not agree within 10% with the undiluted sample results. Results for this element are flagged with an "E" indicating a potential matrix effect. The concentrations of copper in the diluted and undiluted samples were near or

below the CRDL. These relatively low concentrations may have contributed to the greater than 10% difference between the two sets of results.

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Don Gipple
Lab Manager

SECTION 2: Chain of Custody

LOS ALAMOS
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2321

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Request Number: 2412

Analysis Type: INORG

Sample Number	Type / Size	Comments
0835-96-0015 02	125 ml Polyethylene	METTALCN
0835-96-0015 05	125 ml Glass	SULFIDE
0835-96-0016 02	125 ml Polyethylene	METTALCN
0835-96-0016 05	125 ml Glass	SULFIDE
0835-96-0017 02	125 ml Polyethylene	METTALCN
0835-96-0017 05	125 ml Glass	SULFIDE
0835-96-0018 02	125 ml Polyethylene	METTALCN
0835-96-0018 05	125 ml Glass	SULFIDE
0835-96-0019 02	125 ml Polyethylene	METTALCN
0835-96-0019 05	125 ml Glass	SULFIDE
0835-96-0020 02	125 ml Polyethylene	METTALCN
0835-96-0020 05	125 ml Glass	SULFIDE
0835-96-0021 02	125 ml Polyethylene	METTALCN
0835-96-0021 05	125 ml Glass	SULFIDE
0835-96-0022 02	125 ml Polyethylene	METTALCN
0835-96-0022 05	125 ml Glass	SULFIDE

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
[illegible]	7/19/96	13:10	[illegible] 7/22/96 [illegible]

Received for Disposal By (print name and sign)			Remarks

An Equal Opportunity Employer/Operated by the University of California

July 19, 1996

Request Number: 2412

Los Alamos
NATIONAL LABORATORY

96-07-150

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2412 per agreement number 7794L0014-9S

15 DAY TURNAROUND, 35-8888, RB

Program fund code: MA5X

Analysis Type: INORGANIC ANALYSIS

Turn Around Time 21 Days

Approx.Report Due Date: 09-AUG-96

Screening:

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 16

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
METTALCN	STD	0835-96-0015	02	Soil	07/17/96	01
SULFIDE	STD	0835-96-0015	05	Soil	07/17/96	
METTALCN	STD	0835-96-0016	02	Soil	07/18/96	02
SULFIDE	STD	0835-96-0016	05	Soil	07/18/96	
METTALCN	STD	0835-96-0017	02	Soil	07/18/96	03
SULFIDE	STD	0835-96-0017	05	Soil	07/18/96	
METTALCN	STD	0835-96-0018	02	Soil	07/18/96	04
SULFIDE	STD	0835-96-0018	05	Soil	07/18/96	
METTALCN	STD	0835-96-0019	02	Soil	07/18/96	05
SULFIDE	STD	0835-96-0019	05	Soil	07/18/96	
METTALCN	STD	0835-96-0020	02	Soil	07/18/96	06
SULFIDE	STD	0835-96-0020	05	Soil	07/18/96	
METTALCN	STD	0835-96-0021	02	Soil	07/18/96	07
SULFIDE	STD	0835-96-0021	05	Soil	07/18/96	
METTALCN	STD	0835-96-0022	02	Soil	07/18/96	08
SULFIDE	STD	0835-96-0022	05	Soil	07/18/96	

000016

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-8mo SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-150 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No___ Requested Analysis: Yes ✓ No___		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No___ Sample ID's: Yes ✓ No___ Matrix: Yes ✓ No___ No. of Containers: Yes ✓ No___		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If yes, Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 3°C

SECTION 3: Inorganic Qualifiers

Laboratory Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- C (Concentration) qualifier -- A "B" is entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected a "U" is entered.

- Q qualifier -- Specified entries and their meanings are as follows:

  E - The reported value is estimated because of the presence of interference. An explanatory note may be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if the problem is an isolated one.)

  M - Duplicate injection precision was not met.

  N - Spiked sample recovery not within control limits. Associated data is flagged.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.

  F - Relative percent difference between the matrix spike and matrix spike duplicate is not within control limits. No further action is taken.

  * - Duplicate analysis not within control limits. Associated data is flagged.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

- M (Method) qualifier --
  - "P" for ICP
  - "A" for Flame AA
  - "AV" for Automated Cold Vapor AA
  - "CA" for Mini-Distillation Spectrophotometric
  - "AS" for Semi-Automated Spectrophotometric
  - "C" for Manual Spectrophotometric
  - "T" for Titrimetric
  - " " where no data has been entered
  - "NR" if the analyte is not required to be analyzed

SECTION 4: Sample Results

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0015

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-01

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _92.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	9490	_		P_
7440-36-0	Antimony_	0.65	U	N	P_
7440-38-2	Arsenic__	3.0	_		P_
7440-39-3	Barium___	286	_	N*	P_
7440-41-7	Beryllium	0.80	B		P_
7440-43-9	Cadmium__	0.06	U		P_
7440-47-3	Chromium_	6.5	_		P_
7440-48-4	Cobalt___	3.5	B		P_
7440-50-8	Copper___	6.0	_	E	P_
7439-92-1	Lead____	9.0	_		P_
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	6.2	_		P_
7782-49-2	Selenium_	0.39	U		P_
7440-22-4	Silver___	0.22	U		P_
7440-28-0	Thallium_	0.73	U		P_
7440-62-2	Vanadium_	14.5	_		P_
7440-66-6	Zinc____	28.0	_		P_
7440-31-5	Tin_____	4.4	_		P_
			_		
			_		
			_		
			_		
			_		
			_		
			_		

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0016

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-02

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _86.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6930	_		P_
7440-36-0	Antimony_	0.70	U	N	P_
7440-38-2	Arsenic__	3.3	_		P_
7440-39-3	Barium___	92.3	_	N*	P_
7440-41-7	Beryllium	0.68	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	5.1	_		P_
7440-48-4	Cobalt___	3.4	B		P_
7440-50-8	Copper___	4.5	B	E	P_
7439-92-1	Lead____	9.1	_		P_
7439-97-6	Mercury__	0.01	B		AV
7440-02-0	Nickel___	5.5	_		P_
7782-49-2	Selenium_	0.44	B		P_
7440-22-4	Silver___	0.23	U		P_
7440-28-0	Thallium_	0.81	B		P_
7440-62-2	Vanadium_	12.3	_		P_
7440-66-6	Zinc____	26.0	_		P_
7440-31-5	Tin_____	4.8	_		P_

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0017

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-03

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _86.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7590			P
7440-36-0	Antimony_	0.69	U	N	P
7440-38-2	Arsenic__	3.2			P
7440-39-3	Barium___	93.7		N*	P
7440-41-7	Beryllium	0.72	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	5.0			P
7440-48-4	Cobalt___	3.4	B		P
7440-50-8	Copper___	4.6	B	E	P
7439-92-1	Lead____	8.8			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	5.7			P
7782-49-2	Selenium_	0.63	B		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.79	U		P
7440-62-2	Vanadium_	13.3			P
7440-66-6	Zinc____	27.5			P
7440-31-5	Tin_____	5.8			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0018

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-04

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _83.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	15600	_		P_
7440-36-0	Antimony_	0.72	U	N	P_
7440-38-2	Arsenic__	4.3	_		P_
7440-39-3	Barium___	271	_	N*	P_
7440-41-7	Beryllium	1.0	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	9.0	_		P_
7440-48-4	Cobalt___	5.5	B		P_
7440-50-8	Copper___	7.4	_	E	P_
7439-92-1	Lead____	11.7	_		P_
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	8.2	_		P_
7782-49-2	Selenium_	0.81	B		P_
7440-22-4	Silver___	0.24	U		P_
7440-28-0	Thallium_	0.82	U		P_
7440-62-2	Vanadium_	22.7	_		P_
7440-66-6	Zinc____	28.0	_		P_
7440-31-5	Tin_____	6.7	_		P_

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0019

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-05

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _84.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	16300			P
7440-36-0	Antimony_	0.71	U	N	P
7440-38-2	Arsenic__	4.1			P
7440-39-3	Barium___	172		N*	P
7440-41-7	Beryllium	1.2	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	10.1			P
7440-48-4	Cobalt___	8.2	B		P
7440-50-8	Copper___	7.6		E	P
7439-92-1	Lead____	13.6			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	9.6			P
7782-49-2	Selenium_	0.66	B		P
7440-22-4	Silver___	0.24	U		P
7440-28-0	Thallium_	0.81	U		P
7440-62-2	Vanadium_	26.4			P
7440-66-6	Zinc____	26.0			P
7440-31-5	Tin_____	6.4			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0020

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-06

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _84.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	7330			P
7440-36-0	Antimony_	0.71	U	N	P
7440-38-2	Arsenic__	2.7			P
7440-39-3	Barium___	89.5		N*	P
7440-41-7	Beryllium	0.58	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	5.2			P
7440-48-4	Cobalt___	3.7	B		P
7440-50-8	Copper___	3.9	B	E	P
7439-92-1	Lead____	9.4			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	5.4			P
7782-49-2	Selenium_	0.46	B		P
7440-22-4	Silver___	0.24	U		P
7440-28-0	Thallium_	0.80	U		P
7440-62-2	Vanadium_	12.7			P
7440-66-6	Zinc_____	30.4			P
7440-31-5	Tin_____	8.1			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM03.0

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0021

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-07

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _84.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3110			P_
7440-36-0	Antimony_	0.71	U	N	P_
7440-38-2	Arsenic__	2.1	B		P_
7440-39-3	Barium___	82.5		N*	P_
7440-41-7	Beryllium	0.39	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	2.3	B		P_
7440-48-4	Cobalt___	2.7	B		P_
7440-50-8	Copper___	2.4	B	E	P_
7439-92-1	Lead____	5.7			P_
7439-97-6	Mercury__	0.01	B		AV
7440-02-0	Nickel___	3.9	B		P_
7782-49-2	Selenium_	0.53	B		P_
7440-22-4	Silver___	0.24	U		P_
7440-28-0	Thallium_	0.81	U		P_
7440-62-2	Vanadium_	6.4	B		P_
7440-66-6	Zinc_____	29.7			P_
7440-31-5	Tin_____	3.9	B		P_

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

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1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0022

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Lab Sample ID: S150-08

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _86.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6630			P
7440-36-0	Antimony_	0.69	U	N	P
7440-38-2	Arsenic__	2.7			P
7440-39-3	Barium___	79.5		N*	P
7440-41-7	Beryllium	0.66	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	4.6			P
7440-48-4	Cobalt___	3.0	B		P
7440-50-8	Copper___	4.3	B	E	P
7439-92-1	Lead____	8.4			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	5.6			P
7782-49-2	Selenium_	0.53	B		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.78	U		P
7440-62-2	Vanadium_	11.7			P
7440-66-6	Zinc____	29.1			P
7440-31-5	Tin_____	3.0	U		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

SECTION 5: Summary Report Forms

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

SOW No.: ILM03.0

EPA Sample No.	Lab Sample ID
_0835-96-0015_	_S150-01_____
_0835-96-0015_	_S150-01D_____
_0835-96-0015_	_S150-01S_____
_0835-96-0016_	_S150-02_____
_0835-96-0017_	_S150-03_____
_0835-96-0018_	_S150-04_____
_0835-96-0019_	_S150-05_____
_0835-96-0020_	_S150-06_____
_0835-96-0021_	_S150-07_____
_0835-96-0022_	_S150-08_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: _____

Date: _____ Title: _____

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	25250.0	25658.06	101.6	50500.0	51541.80	102.1	52022.19	103.0	P
Antimony	250.0	249.85	99.9	500.0	491.21	98.2	491.95	98.4	P
Arsenic	250.0	255.77	102.3	500.0	505.87	101.2	504.20	100.8	P
Barium	250.0	245.91	98.4	500.0	484.59	96.9	481.36	96.3	P
Beryllium	250.0	259.18	103.7	500.0	507.64	101.5	507.33	101.5	P
Cadmium	250.0	246.04	98.4	500.0	479.17	95.8	475.94	95.2	P
Chromium	250.0	238.90	95.6	500.0	476.37	95.3	475.80	95.2	P
Cobalt	250.0	255.51	102.2	500.0	495.43	99.1	493.96	98.8	P
Copper	250.0	245.11	98.0	500.0	484.67	96.9	483.71	96.7	P
Lead	250.0	241.44	96.6	500.0	473.32	94.7	456.43	91.3	P
Mercury	5.0	5.41	108.2	5.0	5.06	101.2	5.21	104.2	AV
Nickel	250.0	251.93	100.8	500.0	480.07	96.0	477.01	95.4	P
Selenium	250.0	249.46	99.8	500.0	485.68	97.1	468.40	93.7	P
Silver	250.0	252.33	100.9	500.0	503.14	100.6	501.69	100.3	P
Thallium	250.0	244.73	97.9	500.0	481.70	96.3	471.41	94.3	P
Vanadium	250.0	252.94	101.2	500.0	495.25	99.0	493.41	98.7	P
Zinc	250.0	236.97	94.8	500.0	463.95	92.8	465.13	93.0	P
Tin	500.0	518.21	103.6	1000.0	1045.30	104.5	1051.18	105.1	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				50500.0	51411.72	101.8	53759.50	106.5	P
Antimony				500.0	480.01	96.0	504.28	100.9	P
Arsenic				500.0	502.39	100.5	521.01	104.2	P
Barium				500.0	482.20	96.4	502.83	100.6	P
Beryllium				500.0	506.34	101.3	520.02	104.0	P
Cadmium				500.0	475.12	95.0	496.35	99.3	P
Chromium				500.0	477.08	95.4	492.16	98.4	P
Cobalt				500.0	493.99	98.8	508.36	101.7	P
Copper				500.0	481.81	96.4	503.36	100.7	P
Lead				500.0	470.11	94.0	493.08	98.6	P
Mercury				5.0	5.32	106.4			AV
Nickel				500.0	476.64	95.3	495.89	99.2	P
Selenium				500.0	484.50	96.9	507.15	101.4	P
Silver				500.0	505.87	101.2	527.98	105.6	P
Thallium				500.0	482.21	96.4	501.76	100.4	P
Vanadium				500.0	494.54	98.9	509.69	101.9	P
Zinc				500.0	466.22	93.2	480.52	96.1	P
Tin				1000.0	1042.63	104.3	1022.31	102.2	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum_				50500.0	53298.88	105.5	53080.43	105.1	P_
Antimony_				500.0	494.79	99.0	496.43	99.3	P_
Arsenic__				500.0	514.94	103.0	516.51	103.3	P_
Barium___				500.0	495.62	99.1	497.14	99.4	P_
Beryllium				500.0	516.77	103.4	515.20	103.0	P_
Cadmium__				500.0	488.98	97.8	491.40	98.3	P_
Chromium_				500.0	489.18	97.8	490.27	98.1	P_
Cobalt___				500.0	502.84	100.6	503.72	100.7	P_
Copper___				500.0	497.29	99.5	498.47	99.7	P_
Lead____				500.0	469.02	93.8	484.58	96.9	P_
Mercury__									NR
Nickel___				500.0	497.17	99.4	498.60	99.7	P_
Selenium_				500.0	483.84	96.8	505.80	101.2	P_
Silver___				500.0	523.82	104.8	524.95	105.0	P_
Thallium_				500.0	494.18	98.8	494.19	98.8	P_
Vanadium_				500.0	505.14	101.0	506.32	101.3	P_
Zinc____				500.0	474.95	95.0	471.98	94.4	P_
Tin____									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				400.0	597.75	149.4	445.18	111.3
Antimony				120.0	122.57	102.1	129.65	108.0
Arsenic				20.0	22.42	112.1	21.37	106.8
Barium				400.0	387.64	96.9	395.68	98.9
Beryllium				10.0	10.62	106.2	10.71	107.
Cadmium				10.0	9.83	98.3	8.99	89.
Chromium				20.0	20.01	100.0	19.89	99.4
Cobalt				100.0	100.14	100.1	101.47	101.5
Copper				50.0	48.91	97.8	49.82	99.6
Lead				6.0	3.01	50.2	4.45	74.2
Mercury	0.2	0.18	90.0					
Nickel				80.0	81.72	102.2	82.89	103.6
Selenium				10.0	8.31	83.1	11.72	117.2
Silver				20.0	21.38	106.9	22.05	110.2
Thallium				20.0	20.82	104.1	20.32	101.6
Vanadium				100.0	101.58	101.6	104.52	104.5
Zinc				40.0	41.52	103.8	39.66	99.2
Tin				40.0	40.07	100.2	42.68	106.7

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3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	7.7	B	24.0	B	20.8	B	30.4	B	2.900	B	P
Antimony	3.0	U	3.0	U	3.0	U	4.9	B	0.600	U	P
Arsenic	2.7	B	2.5	B	1.6	B	2.4	B	0.320	U	P
Barium	0.7	B	-1.2	B	-1.1	B	-1.0	B	-0.306	B	P
Beryllium	1.4	B	-0.6	B	-0.6	B	-0.6	B	-0.266	B	P
Cadmium	0.9	B	-0.9	B	-1.0	B	-0.9	B	-0.304	B	P
Chromium	0.5	U	-2.1	B	-2.0	B	-1.7	B	-0.366	B	P
Cobalt	1.5	B	0.4	U	0.4	U	0.4	U	-0.198	B	P
Copper	1.2	B	0.5	U	0.5	U	0.5	U	-0.236	B	P
Lead	-1.6	B	1.2	U	1.2	U	-1.3	B	0.240	U	P
Mercury	0.02	U	-0.02	B	-0.02	B	-0.02	B	0.010	U	AV
Nickel	1.2	B	-6.9	B	-7.0	B	-7.0	B	-1.604	B	P
Selenium	1.8	U	1.8	U	1.8	U	1.8	U	0.360	U	P
Silver	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Thallium	3.4	U	3.4	U	3.4	U	3.4	U	0.680	U	P
Vanadium	1.1	B	-1.0	B	-0.9	B	-0.8	B	-0.334	B	P
Zinc	2.6	B	0.8	B	1.1	B	0.9	B	0.166	B	P
Tin	13.1	U	13.1	U	13.1	U	13.1	U	2.620	U	P

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3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			6.5	U	29.8	B	74.2	B			P
Antimony			3.0	U	3.0	U	3.0	U			P
Arsenic			1.6	U	1.6	U	1.6	U			P
Barium			-0.8	B	-0.4	B	-0.6	B			P
Beryllium			0.1	U	0.1	U	0.2	B			P
Cadmium			-0.9	B	-1.4	B	-1.2	B			P
Chromium			0.5	U	0.5	U	0.5	U			P
Cobalt			0.4	U	0.7	B	0.5	B			P
Copper			-0.7	B	0.5	U	0.5	U			P
Lead			1.2	U	1.2	U	1.2	U			P
Mercury											NR
Nickel			-0.6	B	0.6	U	0.6	U			P
Selenium			1.8	U	1.8	U	1.8	U			P
Silver			1.0	U	1.0	U	1.0	U			P
Thallium			3.4	U	3.4	U	3.4	U			P
Vanadium			-0.6	B	0.6	U	0.6	U			P
Zinc			1.2	B	2.4	B	2.5	B			P
Tin			13.1	U							P

U.S. EPA - CLP

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No: _____ SDG No.: 2412__

ICP ID Number: TJA 61E 3___ ICS Source: HIGH PURITY_

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	510974	508953.1	101.8	530231	527692.7	105.5
Antimony								
Arsenic								
Barium		500		475.8	95.2		485.5	97.1
Beryllium		500		480.8	96.2		489.6	97.9
Cadmium		1000		874.7	87.5		901.1	90.1
Chromium		500		445.0	89.0		456.3	91.3
Cobalt		500		441.2	88.2		450.1	90.0
Copper		500		495.5	99.1		510.4	102.1
Lead		1000		881.4	88.1		909.5	91.0
Mercury								
Nickel		1000		854.5	85.4		880.0	88.0
Selenium								
Silver		1000		1032.8	103.3		1072.0	107.2
Thallium								
Vanadium		500		466.0	93.2		478.7	95.7
Zinc		1000		850.0	85.0		865.0	86.5
Tin								

U.S. EPA - CLP

5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

0835-96-0015

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _92.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	73.6620		0.6459	U	107.64	68.4	N	P
Arsenic	75-125	445.5931		3.0140		430.57	102.8		P
Barium	75-125	536.8073		286.0560		430.57	58.2	N	P
Beryllium	75-125	12.0452		0.7987	B	10.76	104.5		P
Cadmium	75-125	10.5361		0.0646	U	10.76	97.9		P
Chromium	75-125	50.4564		6.4952		43.06	102.1		P
Cobalt	75-125	115.2831		3.4682	B	107.64	103.9		P
Copper	75-125	63.1733		6.0108		53.82	106.2		P
Lead	75-125	121.8751		8.9903		107.64	104.9		P
Mercury	75-125	0.5366		0.0199	B	0.54	95.7		AV
Nickel	75-125	117.6986		6.2347		107.64	103.6		P
Selenium	75-125	430.9128		0.3875	U	430.57	100.1		P
Silver	75-125	11.0678		0.2153	U	10.76	102.9		P
Thallium	75-125	427.3003		0.7320	U	430.57	99.2		P
Vanadium	75-125	126.4629		14.5361		107.64	104.0		P
Zinc	75-125	136.8030		27.9656		107.64	101.1		P
Tin	75-125	117.6276		4.4220		107.64	105.2		P

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

0835-96-0015

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _92.9 % Solids for Duplicate: __92.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		9490.4543		8627.8170		9.5		P
Antimony		0.6459	U	0.6459	U			P
Arsenic	2.1530	3.0140		3.3498		10.6		P
Barium	43.0570	286.0560		110.9214		88.2	*	P
Beryllium		0.7987	B	0.7922	B	0.8		P
Cadmium		0.0646	U	0.0646	U			P
Chromium	2.1530	6.4952		6.1356		5.7		P
Cobalt		3.4682	B	4.4564	B	24.9		P
Copper	5.3820	6.0108		6.7470		11.5		P
Lead		8.9903		10.2756		13.3		P
Mercury		0.0199	B	0.0156	B	24.2		AV
Nickel	4.3060	6.2347		6.5016		4.2		P
Selenium		0.3875	U	0.5899	B	200.0		P
Silver		0.2153	U	0.2153	U			P
Thallium		0.7320	U	0.7320	U			P
Vanadium	10.7640	14.5361		15.2487		4.8		P
Zinc		27.9656		28.0753		0.4		P
Tin	4.3060	4.4220		6.8654		43.3		P

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7

LABORATORY CONTROL SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Solid LCS Source: ERA229_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				4590.0	3933.6		2280.0	7590.0	85.7
Antimony				39.8	41.2		8.4	119.0	103.5
Arsenic				75.4	85.7		37.1	112.0	113.7
Barium				106.0	114.6		74.3	139.0	108.1
Beryllium				51.0	60.0		11.7	90.3	117.6
Cadmium				45.4	52.5		11.9	79.0	115
Chromium				71.0	79.7		38.0	100.0	112.[illegible]
Cobalt				49.6	58.5		29.8	70.5	117.9
Copper				112.0	129.7		63.9	162.0	115.8
Lead				53.5	58.4		28.1	75.9	109.2
Mercury				1.5	2.0		0.4	2.4	133.3
Nickel				39.4	43.2		21.5	57.5	109.6
Selenium				72.3	75.6		37.8	108.0	104.6
Silver				116.0	134.2		58.2	170.0	115.7
Thallium				40.0	44.4		20.0	60.0	111.0
Vanadium				65.9	71.5		32.0	88.9	108.5
Zinc				134.0	146.7		72.2	199.0	109.5
Tin				102.0	119.3		35.9	168.0	117.0

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9

ICP SERIAL DILUTION

EPA SAMPLE NO.

0835-96-0015

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	44083.16		43258.90		1.9		P
Antimony	3.00	U	15.00	U			P
Arsenic	14.00		18.05	B	28.9		P
Barium	1328.73		1332.50		0.3		P
Beryllium	3.71	B	3.10	B	16.4		P
Cadmium	0.30	U	1.50	U			P
Chromium	30.17		27.50	B	8.8		P
Cobalt	16.11	B	16.80	B	4.3		P
Copper	27.92		24.75	B	11.4	E	P
Lead	41.76		40.55		2.9		P
Mercury							NR
Nickel	28.96		29.50	B	1.9		P
Selenium	1.80	U	9.00	U			P
Silver	1.00	U	5.00	U			P
Thallium	3.40	U	17.00	U			P
Vanadium	67.52		66.10	B	2.1		P
Zinc	129.90		131.15		1.0		P
Tin	20.54		65.50	U	100.0		P

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10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA_61_3____ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3		NR
Mercury			0.2		NR
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin	189.90		20	13.1	P

Comments:

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: _____ Date: 07/01/96

Flame AA ID Number : LEEMAN_3____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3		NR
Mercury	253.70		0.2	0.02 ~~0.0~~	AV
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin			20		NR

Comments:

U.S. EPA - CLP

10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA_61E_3___ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	6.5	P
Antimony	217.50		60	3.0	P
Arsenic	193.60		10	1.6	P
Barium	493.41		200	0.1	P
Beryllium	313.04		5	0.1	P
Cadmium	226.50		5	0.3	P
Chromium	267.72		10	0.5	P
Cobalt	228.62		50	0.4	P
Copper	324.75		25	0.5	P
Lead	220.35		3	1.2	P
Mercury			0.2		NR
Nickel	231.60		20	0.6	P
Selenium	196.03		5	1.8	P
Silver	328.07		10	1.0	P
Thallium	377.50		10	3.4	P
Vanadium	292.40		50	0.6	P
Zinc	206.20		20	0.4	P
Tin			20		NR

Comments:

U.S. EPA - CLP

11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BA_
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony_	217.50	0.0001730	0.0000000	-0.0000700	0.0000000	0.0000000
Arsenic__	193.60	0.0041900	0.0000000	0.0003280	0.0000000	0.0000000
Barium___	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000300	0.0000000	0.0002950	0.0000000	0.0000000
Chromium_	267.70	0.0000000	0.0000000	-0.0000410	0.0000000	0.0000000
Cobalt___	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0001880
Copper___	324.70	0.0000000	0.0000000	-0.0000450	0.0000000	0.0000000
Lead____	220.30	0.0008690	0.0000000	0.0001130	0.0000000	0.0000000
Mercury__						
Nickel___	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium_	196.00	0.0000000	0.0000000	0.0003760	0.0000000	0.0000000
Silver___	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium_	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium_	292.40	0.0000000	-0.0000300	0.0000500	0.0000000	0.0000000
Zinc____	206.20	0.0000000	0.0000000	0.0000390	0.0000370	0.0000000
Tin_____	189.90	-0.0000600	0.0000000	0.0001300	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for :				
		BE_	CD_	CO_	CR_	MO_
Aluminum_	308.22	0.0000000	0.0000000	-0.0047560	0.0000000	0.0084920
Antimony_	217.50	0.0019940	0.0000000	0.0000000	0.0000000	-0.0004360
Arsenic__	193.60	0.0000000	0.0000000	0.0006940	0.0009930	0.0008130
Barium___	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000000	0.0000000	0.0001370	0.0000000	0.0001390
Chromium_	267.70	0.0000000	0.0002200	0.0000000	0.0000000	-0.0037690
Cobalt___	228.60	0.0000000	0.0000000	0.0000000	0.0002450	-0.0019700
Copper___	324.70	0.0000000	0.0000000	-0.0003080	0.0000000	0.000620
Lead____	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.00000
Mercury__						
Nickel___	231.60	0.0000000	0.0000000	0.0004950	0.0000000	-0.0018550
Selenium_	196.00	0.0000000	0.0000000	0.0009940	0.0000000	0.0000000
Silver___	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium_	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium_	292.40	0.0000000	0.0000000	0.0000000	0.0000000	-0.0108000
Zinc____	206.20	0.0000000	0.0000000	0.0000000	0.0022430	0.0005240
Tin_____	189.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0023950

Comments:

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11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : NI_	PB_	SN_	TI_	TL_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	217.50	0.0011230	0.0009460	0.0000000	0.0000000	0.0000000
Arsenic	193.60	0.0009940	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	-0.0005820	0.0000000	0.0000000	0.0001910	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0001660	0.0000000
Cobalt	228.60	0.0000000	0.0000000	-0.0014620	0.0017260	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0004930	0.0000000
Lead	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0014850
Selenium	196.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0162630	0.0000000	0.0000000	-0.1373560	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0005070	0.0000000
Zinc	206.20	-0.0007590	0.0000000	0.0000000	0.0000000	0.0000000
Tin	189.90	0.0000000	0.0000000	0.0000000	0.0016690	0.0000000

Comments:

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : V__	___	___	___	___
Aluminum	308.22	-0.0198620				
Antimony	217.50	0.0011570				
Arsenic	193.60	0.0102320				
Barium	493.40	0.0000000				
Beryllium	313.00	0.0018680				
Cadmium	226.50	0.0000000				
Chromium	267.70	0.0011460				
Cobalt	228.60	0.0000000				
Copper	324.70	0.0000000				
Lead	220.30	0.0000000				
Mercury						
Nickel	231.60	-0.0003500				
Selenium	196.00	0.0000000				
Silver	328.00	-0.0053240				
Thallium	377.50	0.0000000				
Vanadium	292.40	0.0000000				
Zinc	206.20	0.0000000				
Tin	189.90	0.0000000				

Comments:

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11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61E 3___ Date: 04/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	CO_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0310000
Antimony	217.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000860	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	-0.0001820	0.0000000	0.0000420	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	-0.0000010	0.0000000	-0.0003050	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0000000	0.0000000	-0.0000910	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tin						

Comments:

U.S. EPA - CLP

11B

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61E 3___ Date: 04/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : CR_	V__	___	___	___
Aluminum	308.22	0.0000000	0.0000540			
Antimony	217.50	0.0000000	0.0000000			
Arsenic	193.60	-0.0029800	0.0000000			
Barium	493.41	0.0000000	0.0000000			
Beryllium	313.04	0.0000000	0.0000000			
Cadmium	226.50	0.0000000	0.0000000			
Chromium	267.72	0.0000000	0.0000000			
Cobalt	228.62	0.0000000	0.0000000			
Copper	324.75	0.0000000	0.0000000			
Lead	220.35	0.0000000	0.0000000			
Mercury						
Nickel	231.60	0.0000000	0.0000000			
Selenium	196.03	0.0000000	0.0000000			
Silver	328.07	0.0000000	0.0000000			
Thallium	377.50	0.0000000	0.0000000			
Vanadium	292.40	0.0000000	0.0000000			
Zinc	206.20	0.0000000	0.0000000			
Tin						

Comments:

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61 3____ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	8.00	1000000.0	P
Antimony	8.00	10000.0	P
Arsenic	8.00	100000.0	P
Barium	8.00	50000.0	P
Beryllium	8.00	25000.0	P
Cadmium	8.00	50000.0	P
Chromium	8.00	100000.0	P
Cobalt	8.00	100000.0	P
Copper	8.00	100000.0	P
Lead	8.00	100000.0	P
Mercury			NR
Nickel	8.00	100000.0	P
Selenium	8.00	100000.0	P
Silver	8.00	10000.0	P
Thallium	8.00	100000.0	P
Vanadium	8.00	100000.0	P
Zinc	8.00	100000.0	P
Tin	8.00	100000.0	P

Comments:

U.S. EPA - CLP

12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2412__

ICP ID Number: TJA 61E 3___ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	500000.0	P
Antimony	15.00	10000.0	P
Arsenic	15.00	10000.0	P
Barium	15.00	10000.0	P
Beryllium	15.00	10000.0	P
Cadmium	15.00	10000.0	P
Chromium	15.00	10000.0	
Cobalt	15.00	10000.0	
Copper	15.00	10000.0	P
Lead	15.00	10000.0	P
Mercury			NR
Nickel	15.00	10000.0	P
Selenium	15.00	10000.0	P
Silver	15.00	2000.0	P
Thallium	15.00	10000.0	P
Vanadium	15.00	10000.0	P
Zinc	15.00	10000.0	P
Tin			NR

Comments:

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2412__

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
LCSS	07/27/96	1.00	200
PBS	07/27/96	1.00	200

U.S. EPA - CLP

13
PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2412__

Method: AV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
LCSS	07/29/96	0.20	100
PBS	07/29/96	0.20	100

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/31/96 End Date: 07/31/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
STD-BLAN	1.00	1000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
A1	1.00	1003		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
B1	1.00	1006		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1010		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1013		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
ICV	1.00	1017		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICB	1.00	1020		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CRI	1.00	1024		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSA	1.00	1027		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSAB	1.00	1030		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCV	1.00	1034		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1037		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
PBS	1.00	1041		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
LCSS	1.00	1044		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1047		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1051		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1054		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	5.00	1057		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1101		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1104		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1107		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1111		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1114		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1118		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1121		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1124		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1128		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1131		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1134		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1138		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	5.00	1141		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1145		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/31/96 End Date: 07/31/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
0835-96-	1.00	1148																			X						
0835-96-	1.00	1151																			X						
CCV	1.00	1155																			X						
CCB	1.00	1158																			X						
0835-96-	1.00	1202																			X						
0835-96-	1.00	1205																			X						
0835-96-	1.00	1208																			X						
0835-96-	1.00	1212																			X						
CRI	1.00	1215																			X						
ICSA	1.00	1219																			X						
ICSAB	1.00	1222																			X						
CCV	1.00	1225																			X						
CCB	1.00	1232																			X						

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: LEEMAN 3_____ Method: AV

Start Date: 07/29/96 End Date: 07/29/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
S0	1.00	1311		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S0.2	1.00	1314		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S1	1.00	1316		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S2	1.00	1318		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S5	1.00	1321		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
S10	1.00	1323		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ICV	1.00	1329		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ICB	1.00	1332		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
PBS	1.00	1332		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CRA	1.00	1334		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
LCSS	10.00	1336		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1338		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1341		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1343		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1345		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1347		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1350		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1352		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1354		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1356		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCB	1.00	1359		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1403		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1405		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1408		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1410		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1412		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1414		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1417		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1419		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1421		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1424		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-

U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: LEEMAN 3_____ Method: AV

Start Date: 07/29/96 End Date: 07/29/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
CCB	1.00	1426		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1428		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1430		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1433		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
CCB	1.00	1435		-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-

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U.S. EPA - CLP

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
BLANK	1.00	1014		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
MIX	1.00	1017			X	X	X	X	X		X	X	X		X	X	X	X	X	X							
MIX	1.00	1019		X						X																	
ZZZZZZ	1.00	1022																									
ZZZZZZ	1.00	1027																									
ICV	1.00	1031		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICB	1.00	1035		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSA	1.00	1037		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSAB	1.00	1040		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CRI	1.00	1044		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ZZZZZZ	1.00	1047																									
ZZZZZZ	1.00	1050																									
ZZZZZZ	1.00	1052																									
ZZZZZZ	1.00	1055																									
ZZZZZZ	1.00	1058																									
ZZZZZZ	1.00	1110																									
ZZZZZZ	1.00	1113																									
CCV	1.00	1117		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1121		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ZZZZZZ	1.00	1127																									
ZZZZZZ	1.00	1130																									
ZZZZZZ	1.00	1134																									
ZZZZZZ	1.00	1137																									
ZZZZZZ	5.00	1140																									
ZZZZZZ	1.00	1143																									
ZZZZZZ	1.00	1146																									
ZZZZZZ	1.00	1150																									
PBS	1.00	1154		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
LCSS	1.00	1157		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCV	1.00	1200		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1203		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ZZZZZZ	1.00	1206																									

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
ZZZZZZ	1.00	1209		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	5.00	1212		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1215		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1219		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1222		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1224		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1227		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1230		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1233		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1236		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCB	1.00	1239		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
ZZZZZZ	1.00	1242		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1245		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1248		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	5.00	1251		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CCV	1.00	1423		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCB	1.00	1435		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
ZZZZZZ	1.00	1437		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0835-96-	1.00	1440		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1443		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	5.00	1446		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1449		-	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1453		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1456		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1459		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1502		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1505		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCV	1.00	1508		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCB	1.00	1511		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1514		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
0835-96-	1.00	1517		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
ZZZZZZ	1.00	1520		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

U.S. EPA - CLP

14
ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2412__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
ZZZZZZ	1.00	1522		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
CRI	1.00	1525		X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	–	–	–	–	–	–	–
ICSA	1.00	1528		X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	–	–	–	–	–	–	–
ICSAB	1.00	1531		X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	–	–	–	–	–	–	–
CCV	1.00	1534		X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	–	–	–	–	–	–	–
CCB	1.00	1538		X	X	X	X	X	X	X	X	X	X	–	X	X	X	X	X	X	–	–	–	–	–	–	–

REPORT OF ANALYSES

DETERMINATION OF METALS BY INDUCTIVELY COUPLED PLASMA, TRACE ANALYZER AND ATOMIC ABSORPTION

FIELD COPY

PAI WO# 96-07-148
Request Number 2415

Report Sent To: _____
Approved By: _____
Date Sent: 8/13/96

Prepared for:

Los Alamos National Laboratory
SMO
Attn: Dr. John Miglio
TA-3, Bldg. 271
MS H865
Drop Point 01U
Los Alamos, NM 87545

August 2, 1996

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Appendix A: Digestion Bench Sheets
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Appendix C: LCS Soil Control Limits

Section 1: Case Narrative

1.1 Sample Logistics

All samples were received cool and intact on the dates shown on the FORM I's. The chain of custody reports follow this narrative in Section 2.

1.2 Analysis of Metals

These samples were analyzed using the Thermo Jarrell Ash 61E ICAP Trace Analyzer, the Thermo Jarrell Ash 61 conventional ICAP and the Leeman PS200 cold vapor atomic absorption analyzer and reported using CLP methods for the ICAP and mercury instrument.

Due to the limitations of our Ward software, some mercury values appear as 0.0, where this occurs the actual value is hand entered.

For Mercury, the ICB is also used as the preparation blank, therefore the run chronology will show the same time for both.

The matrix specific quality control sample for this request number is client sample ID 0835-96-0023 (PAI # 96-07-148-01).

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete, and correct within the limitations of the methods employed.

Steven Fry

Don Gipple
Lab Manager

Request # 415
Metals 0000003

SECTION 2: Chain of Custody

July 19, 1996

Request Number: 2415

Los Alamos
NATIONAL LABORATORY

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

96-07-148

Please analyze the enclosed samples according to the schedule below. These samples are on LANL request no: 2415 per agreement number 7794L0014-9S

15 DAY TURNAROUND, RB, 35-8888

Program fund code: MA5X

Analysis Type: INORGANIC ANALYSIS

Turn Around Time 21 Days

Screening:

Approx.Report Due Date: 09-AUG-96

Contact person at CST Adrianna Sparks Mail Stop: H865 Phone: (505) 665-6809

Signature: Adrianna Sparks

Total Containers: 16

Analysis Order Code	Analyte(s)	Sample id		Matrix	Date Sampled	Remarks
METTALCN	STD	0835-96-0023	02	Soil	07/18/96	-01
SULFIDE	STD	0835-96-0023	05	Soil	07/18/96	
METTALCN	STD	0835-96-0024	02	Soil	07/18/96	-02
SULFIDE	STD	0835-96-0024	05	Soil	07/18/96	
METTALCN	STD	0835-96-0025	02	Soil	07/17/96	03
SULFIDE	STD	0835-96-0025	05	Soil	07/17/96	
METTALCN	STD	0835-96-0026	02	Soil	07/17/96	04
SULFIDE	STD	0835-96-0026	05	Soil	07/17/96	
METTALCN	STD	0835-96-0027	02	Soil	07/18/96	05
SULFIDE	STD	0835-96-0027	05	Soil	07/18/96	
METTALCN	STD	0835-96-0028	02	Soil	07/18/96	06
SULFIDE	STD	0835-96-0028	05	Soil	07/18/96	
METTALCN	STD	0835-96-0029	02	Soil	07/18/96	07
SULFIDE	STD	0835-96-0029	05	Soil	07/18/96	
METTALCN	STD	0835-96-0030	02	Soil	07/17/96	08
SULFIDE	STD	0835-96-0030	05	Soil	07/17/96	

LOS ALAMOS
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

CHAIN OF CUSTODY DOCUMENT 2324

Steve Fry
ATI
225 COMMERCE
FT. COLLINS, CO 80524

Request Number: 2415

Analysis Type: INORG

Sample Number	Type / Size	Comments
0835-96-0023 02	125 ml Polyethylene	METTALCN
0835-96-0023 05	125 ml Glass	SULFIDE
0835-96-0024 02	125 ml Polyethylene	METTALCN
0835-96-0024 05	125 ml Glass	SULFIDE
0835-96-0025 02	125 ml Polyethylene	METTALCN
0835-96-0025 05	125 ml Glass	SULFIDE
0835-96-0026 02	125 ml Polyethylene	METTALCN
0835-96-0026 05	125 ml Glass	SULFIDE
0835-96-0027 02	125 ml Polyethylene	METTALCN
0835-96-0027 05	125 ml Glass	SULFIDE
0835-96-0028 02	125 ml Polyethylene	METTALCN
0835-96-0028 05	125 ml Glass	SULFIDE
0835-96-0029 02	125 ml Polyethylene	METTALCN
0835-96-0029 05	125 ml Glass	SULFIDE
0835-96-0030 02	125 ml Polyethylene	METTALCN
0835-96-0030 05	125 ml Glass	SULFIDE

Relinquished by (print name and sign)	Date	Time	Received By (print name & sign)
Joylene Valdez	7/19/96	13:10	[illegible] 7/22/96

Received for Disposal By (print name and sign)			Remarks

000006

An Equal Opportunity Employer/Operated by the University of California

Paragon Analytics - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: LANL-8mo SHIPPING CONTAINER #: –

WORKORDER NO. 96-07-148 INITIALS: [illegible] DATE: 7/22/96

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature_____ b. Lot No's._____ c. Airbill Number _____		Yes	No
2.	Are custody seals on the cooler intact? If so, how many _____	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No__ Requested Analysis: Yes ✓ No__		Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No__ Sample ID's: Yes ✓ No__ Matrix: Yes ✓ No__ No. of Containers: Yes ✓ No__		Yes	No
7.	Are the samples preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require ATI disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):_____

Was the client contacted? Yes____ No____

If y Date:_____ Name of person contacted:_____

Describe actions taken or client instructions:_____

Group Leader's Signature:_____ Date:_____

Cooler Temperature: 3°C

ATI FRM 201FC5 (2/21/96)

SECTION 3: Inorganic Qualifiers

Laboratory Inorganic Data Reporting Qualifiers

The following qualifiers are used by the laboratory when reporting results of inorganic analyses.

- C (Concentration) qualifier -- A "B" is entered if the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL). If the analyte was analyzed for but not detected a "U" is entered.

- Q qualifier -- Specified entries and their meanings are as follows:

  E - The reported value is estimated because of the presence of interference. An explanatory note may be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I-IN (if the problem is an isolated one.)

  M - Duplicate injection precision was not met.

  N - Spiked sample recovery not within control limits. Associated data is flagged.

  S - The reported value was determined by the Method of Standard Additions (MSA).

  W - Post-digestion spike for Furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.

  F - Relative percent difference between the matrix spike and matrix spike duplicate is not within control limits. No further action is taken.

  * - Duplicate analysis not within control limits. Associated data is flagged.

  + - Correlation coefficient for the MSA is less than 0.995.

  Entering "S", "W", or "+" is mutually exclusive. No combination of these qualifiers can appear in the same field for an analyte.

- M (Method) qualifier --
  - "P" for ICP
  - "A" for Flame AA
  - "AV" for Automated Cold Vapor AA
  - "CA" for Mini-Distillation Spectrophotometric
  - "AS" for Semi-Automated Spectrophotometric
  - "C" for Manual Spectrophotometric
  - "T" for Titrimetric
  - " " where no data has been entered
  - "NR" if the analyte is not required to be analyzed

SECTION 4: Sample Results

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0023

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-01

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _87.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	6680	_		P_
7440-36-0	Antimony_	0.69	U	N	P_
7440-38-2	Arsenic__	2.6	_		P_
7440-39-3	Barium___	92.6	_		P_
7440-41-7	Beryllium	0.32	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	4.8	_		P_
7440-48-4	Cobalt___	3.8	B		P_
7440-50-8	Copper___	5.6	B		P_
7439-92-1	Lead____	21.4	_		P_
7439-97-6	Mercury__	0.05	B		AV
7440-02-0	Nickel___	3.2	B		P_
7782-49-2	Selenium_	0.41	U		P_
7440-22-4	Silver___	0.23	U		P_
7440-28-0	Thallium_	0.78	U		P_
7440-62-2	Vanadium_	13.4	_		P_
7440-66-6	Zinc____	31.1	_		P_
7440-31-5	Tin_____	4.1	B		P_

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN ILM03.0

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0024

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-02

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _84.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	8000	_		P_
7440-36-0	Antimony_	0.71	U	N	P_
7440-38-2	Arsenic__	3.4	_		P_
7440-39-3	Barium___	133	_		P_
7440-41-7	Beryllium	0.42	B		P_
7440-43-9	Cadmium__	0.07	U		P_
7440-47-3	Chromium_	5.5	_		P_
7440-48-4	Cobalt___	9.1	B		P_
7440-50-8	Copper___	6.1	_		P_
7439-92-1	Lead____	33.1	_		P_
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	5.1	_		P_
7782-49-2	Selenium_	0.43	U		P_
7440-22-4	Silver___	0.24	U		P_
7440-28-0	Thallium_	2.7	_		P_
7440-62-2	Vanadium_	18.2	_		P_
7440-66-6	Zinc____	31.4	_		P_
7440-31-5	Tin_____	3.1	U		P_
			_		
			_		
			_		
			_		
			_		
			_		
			_		

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

000012

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0025

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-03

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _86.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	4090			P
7440-36-0	Antimony_	0.69	U	N	P
7440-38-2	Arsenic__	2.7			P
7440-39-3	Barium___	44.7	B		P
7440-41-7	Beryllium	0.29	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	2.4			P
7440-48-4	Cobalt___	1.7	B		P
7440-50-8	Copper___	4.4	B		P
7439-92-1	Lead____	22.4			P
7439-97-6	Mercury__	0.04	B		AV
7440-02-0	Nickel___	1.6	B		P
7782-49-2	Selenium_	0.42	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.79	U		P
7440-62-2	Vanadium_	6.9	B		P
7440-66-6	Zinc____	26.4			P
7440-31-5	Tin_____	3.0	U		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

000013

FORM I - IN ILM03.0

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0026

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-04

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _87.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	3260			P
7440-36-0	Antimony_	0.68	U	N	P
7440-38-2	Arsenic__	2.5			P
7440-39-3	Barium___	26.9	B		P
7440-41-7	Beryllium	0.33	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	1.4	B		P
7440-48-4	Cobalt___	0.95	B		P
7440-50-8	Copper___	2.9	B		P
7439-92-1	Lead____	7.0			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	1.1	B		P
7782-49-2	Selenium_	0.41	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.77	U		P
7440-62-2	Vanadium_	4.6	B		P
7440-66-6	Zinc____	24.2			P
7440-31-5	Tin_____	4.1	B		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0027

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-05

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _92.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	4610			P
7440-36-0	Antimony_	0.65	U	N	P
7440-38-2	Arsenic__	2.4			P
7440-39-3	Barium___	64.3			P
7440-41-7	Beryllium	0.21	B		P
7440-43-9	Cadmium__	0.06	U		P
7440-47-3	Chromium_	4.6			P
7440-48-4	Cobalt___	2.3	B		P
7440-50-8	Copper___	4.7	B		P
7439-92-1	Lead____	15.3			P
7439-97-6	Mercury__	0.10	B		AV
7440-02-0	Nickel___	2.6	B		P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver___	0.22	U		P
7440-28-0	Thallium_	0.73	U		P
7440-62-2	Vanadium_	8.9	B		P
7440-66-6	Zinc____	27.5			P
7440-31-5	Tin_____	5.4			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0028

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-06

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _86.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5180			P
7440-36-0	Antimony_	0.70	U	N	P
7440-38-2	Arsenic__	2.0	B		P
7440-39-3	Barium___	79.4			P
7440-41-7	Beryllium	0.24	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	4.0			P
7440-48-4	Cobalt___	2.8	B		P
7440-50-8	Copper___	5.2	B		P
7439-92-1	Lead____	14.3			P
7439-97-6	Mercury__	0.02	B		AV
7440-02-0	Nickel___	2.8	B		P
7782-49-2	Selenium_	0.42	U		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.79	U		P
7440-62-2	Vanadium_	10.6	B		P
7440-66-6	Zinc____	32.3			P
7440-31-5	Tin_____	4.9			P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

FORM I - IN

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0029

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-07

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _93.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	5110			P
7440-36-0	Antimony_	0.64	U	N	P
7440-38-2	Arsenic__	2.6			P
7440-39-3	Barium__	103			P
7440-41-7	Beryllium	0.30	B		P
7440-43-9	Cadmium__	0.06	U		P
7440-47-3	Chromium_	3.9			P
7440-48-4	Cobalt__	2.4	B		P
7440-50-8	Copper__	5.3	B		P
7439-92-1	Lead____	13.5			P
7439-97-6	Mercury__	0.06	B		AV
7440-02-0	Nickel__	2.9	B		P
7782-49-2	Selenium_	0.39	U		P
7440-22-4	Silver__	0.21	U		P
7440-28-0	Thallium_	0.73	U		P
7440-62-2	Vanadium_	9.4	B		P
7440-66-6	Zinc____	31.7			P
7440-31-5	Tin_____	3.2	B		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

000017

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

0835-96-0030

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Lab Sample ID: S148-08

Level (low/med): LOW__ Date Received: 07/22/96

% Solids: _88.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	2320			P
7440-36-0	Antimony_	0.68	U	N	P
7440-38-2	Arsenic__	1.9	B		P
7440-39-3	Barium___	23.8	B		P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium__	0.07	U		P
7440-47-3	Chromium_	1.4	B		P
7440-48-4	Cobalt___	1.1	B		P
7440-50-8	Copper___	2.0	B		P
7439-92-1	Lead____	7.1			P
7439-97-6	Mercury__	0.01	U		AV
7440-02-0	Nickel___	2.0	B		P
7782-49-2	Selenium_	0.53	B		P
7440-22-4	Silver___	0.23	U		P
7440-28-0	Thallium_	0.77	U		P
7440-62-2	Vanadium_	4.7	B		P
7440-66-6	Zinc____	23.3			P
7440-31-5	Tin_____	3.0	U		P

Color Before: BROWN____ Clarity Before: N/A___ Texture: MEDIUM

Color After: TAN_____ Clarity After: CLEAR_ Artifacts: _____

Comments:

SECTION 5: Summary Report Forms

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ANALYTICAL TECHNOLOGIES Contract: _____

Lab Code: NA Case No.: _____ SAS No.: _____ SDG No.: 2415

SOW No.: ILM03.0

EPA Sample No.	Lab Sample ID
0835-96-0023	S148-01
0835-96-0023	S148-01D
0835-96-0023	S148-01S
0835-96-0024	S148-02
0835-96-0025	S148-03
0835-96-0026	S148-04
0835-96-0027	S148-05
0835-96-0028	S148-06
0835-96-0029	S148-07
0835-96-0030	S148-08

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Steve Fry Name: Steve Fry for Dan Triple

Date: 8/27/96 Title: Lab Manager

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COVER PAGE - IN ILM03.0

Regular 2415 pm labs

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	25250.0	25658.06	101.6	50500.0	51541.80	102.1	52022.19	103.0	P
Antimony	250.0	249.85	99.9	500.0	491.21	98.2	491.95	98.4	P
Arsenic	250.0	255.77	102.3	500.0	505.87	101.2	504.20	100.8	P
Barium	250.0	245.91	98.4	500.0	484.59	96.9	481.36	96.3	P
Beryllium	250.0	259.18	103.7	500.0	507.64	101.5	507.33	101.5	P
Cadmium	250.0	246.04	98.4	500.0	479.17	95.8	475.94	95.2	P
Chromium	250.0	238.90	95.6	500.0	476.37	95.3	475.80	95.2	P
Cobalt	250.0	255.51	102.2	500.0	495.43	99.1	493.96	98.8	P
Copper	250.0	245.11	98.0	500.0	484.67	96.9	483.71	96.7	P
Lead	250.0	241.44	96.6	500.0	473.32	94.7	456.43	91.3	P
Mercury	5.0	5.41	108.2	5.0	5.06	101.2	5.21	104.2	AV
Nickel	250.0	251.93	100.8	500.0	480.07	96.0	477.01	95.4	P
Selenium	250.0	249.46	99.8	500.0	485.68	97.1	468.40	93.7	P
Silver	250.0	252.33	100.9	500.0	503.14	100.6	501.69	100.3	P
Thallium	250.0	244.73	97.9	500.0	481.70	96.3	471.41	94.3	P
Vanadium	250.0	252.94	101.2	500.0	495.25	99.0	493.41	98.7	P
Zinc	250.0	236.97	94.8	500.0	463.95	92.8	465.13	93.0	P
Tin	500.0	518.21	103.6	1000.0	1045.30	104.5	1051.18	105.1	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				50500.0	51411.72	101.8	53759.50	106.5	P
Antimony				500.0	480.01	96.0	504.28	100.9	P
Arsenic				500.0	502.39	100.5	521.01	104.2	P
Barium				500.0	482.20	96.4	502.83	100.6	P
Beryllium				500.0	506.34	101.3	520.02	104.0	P
Cadmium				500.0	475.12	95.0	496.35	99.3	P
Chromium				500.0	477.08	95.4	492.16	98.4	P
Cobalt				500.0	493.99	98.8	508.36	101.7	P
Copper				500.0	481.81	96.4	503.36	100.7	P
Lead				500.0	470.11	94.0	493.08	98.6	P
Mercury									NR
Nickel				500.0	476.64	95.3	495.89	99.2	P
Selenium				500.0	484.50	96.9	507.15	101.4	P
Silver				500.0	505.87	101.2	527.98	105.6	P
Thallium				500.0	482.21	96.4	501.76	100.4	P
Vanadium				500.0	494.54	98.9	509.69	101.9	P
Zinc				500.0	466.22	93.2	480.52	96.1	P
Tin				1000.0	1042.63	104.3	1022.31	102.2	P

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Initial Calibration Source: PLASMACHEM__

Continuing Calibration Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				50500.0	53298.88	105.5	53080.43	105.1	P
Antimony				500.0	494.79	99.0	496.43	99.3	P
Arsenic				500.0	514.94	103.0	516.51	103.3	P
Barium				500.0	495.62	99.1	497.14	99.4	P
Beryllium				500.0	516.77	103.4	515.20	103.0	P
Cadmium				500.0	488.98	97.8	491.40	98.3	P
Chromium				500.0	489.18	97.8	490.27	98.1	P
Cobalt				500.0	502.84	100.6	503.72	100.7	P
Copper				500.0	497.29	99.5	498.47	99.7	P
Lead				500.0	469.02	93.8	484.58	96.9	P
Mercury									NR
Nickel				500.0	497.17	99.4	498.60	99.7	P
Selenium				500.0	483.84	96.8	505.80	101.2	P
Silver				500.0	523.82	104.8	524.95	105.0	P
Thallium				500.0	494.18	98.8	494.19	98.8	P
Vanadium				500.0	505.14	101.0	506.32	101.3	P
Zinc				500.0	474.95	95.0	471.98	94.4	P
Tin									NR

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

U.S. EPA - CLP

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: PLASMACHEM__

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum				400.0	597.75	149.4	445.18	111.3
Antimony				120.0	122.57	102.1	129.65	108.0
Arsenic				20.0	22.42	112.1	21.37	106.8
Barium				400.0	387.64	96.9	395.68	98.9
Beryllium				10.0	10.62	106.2	10.71	107.1
Cadmium				10.0	9.83	98.3	8.99	89.9
Chromium				20.0	20.01	100.0	19.89	99.4
Cobalt				100.0	100.14	100.1	101.47	101.5
Copper				50.0	48.91	97.8	49.82	99.6
Lead				6.0	3.01	50.2	4.45	74.2
Mercury	0.2	0.18	90.0					
Nickel				80.0	81.72	102.2	82.89	103.6
Selenium				10.0	8.31	83.1	11.72	117.2
Silver				20.0	21.38	106.9	22.05	110.2
Thallium				20.0	20.82	104.1	20.32	101.6
Vanadium				100.0	101.58	101.6	104.52	104.5
Zinc				40.0	41.52	103.8	39.66	99.2
Tin				40.0	40.07	100.2	42.68	106.7

U.S. EPA - CLP

3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	7.7	B	24.0	B	20.8	B	30.4	B	2.900	B	P
Antimony	3.0	U	3.0	U	3.0	U	4.9	B	0.600	U	P
Arsenic	2.7	B	2.5	B	1.6	B	2.4	B	0.320	U	P
Barium	0.7	B	-1.2	B	-1.1	B	-1.0	B	-0.306	B	P
Beryllium	1.4	B	-0.6	B	-0.6	B	-0.6	B	-0.266	B	P
Cadmium	0.9	B	-0.9	B	-1.0	B	-0.9	B	-0.304	B	P
Chromium	0.5	U	-2.1	B	-2.0	B	-1.7	B	-0.366	B	P
Cobalt	1.5	B	0.4	U	0.4	U	0.4	U	-0.198	B	P
Copper	1.2	B	0.5	U	0.5	U	0.5	U	-0.236	B	P
Lead	-1.6	B	1.2	U	1.2	U	-1.3	B	0.240	U	P
Mercury	0.02	U	-0.02	B	-0.04	B			0.010	U	AV
Nickel	1.2	B	-6.9	B	-7.0	B	-7.0	B	-1.604	B	P
Selenium	1.8	U	1.8	U	1.8	U	1.8	U	0.360	U	P
Silver	1.0	U	1.0	U	1.0	U	1.0	U	0.200	U	P
Thallium	3.4	U	3.4	U	3.4	U	3.4	U	0.680	U	P
Vanadium	1.1	B	-1.0	B	-0.9	B	-0.8	B	-0.334	B	P
Zinc	2.6	B	0.8	B	1.1	B	0.9	B	0.166	B	P
Tin	13.1	U	13.1	U	13.1	U	13.1	U	2.620	U	P

FORM III - IN

U.S. EPA - CLP

3
BLANKS

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			6.5	U	29.8	B	74.2	B			P
Antimony			3.0	U	3.0	U	3.0	U			P
Arsenic			1.6	U	1.6	U	1.6	U			P
Barium			-0.8	B	-0.4	B	-0.6	B			P
Beryllium			0.1	U	0.1	U	0.2	B			P
Cadmium			-0.9	B	-1.4	B	-1.2	B			P
Chromium			0.5	U	0.5	U	0.5	U			P
Cobalt			0.4	U	0.7	B	0.5	B			P
Copper			-0.7	B	0.5	U	0.5	U			P
Lead			1.2	U	1.2	U	1.2	U			P
Mercury											NR
Nickel			-0.6	B	0.6	U	0.6	U			P
Selenium			1.8	U	1.8	U	1.8	U			P
Silver			1.0	U	1.0	U	1.0	U			P
Thallium			3.4	U	3.4	U	3.4	U			P
Vanadium			-0.6	B	0.6	U	0.6	U			P
Zinc			1.2	B	2.4	B	2.5	B			P
Tin			13.1	U							P

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4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No: _____ SDG No.: 2415__

ICP ID Number: TJA 61E 3___ ICS Source: HIGH PURITY_

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum	500000	500000	510974	508953.1	101.8	530231	527692.7	105.5
Antimony								
Arsenic								
Barium		500		475.8	95.2		485.5	97.1
Beryllium		500		480.8	96.2		489.6	97.9
Cadmium		1000		874.7	87.5		901.1	90.1
Chromium		500		445.0	89.0		456.3	91.3
Cobalt		500		441.2	88.2		450.1	90.0
Copper		500		495.5	99.1		510.4	102.1
Lead		1000		881.4	88.1		909.5	91.0
Mercury								
Nickel		1000		854.5	85.4		880.0	88.0
Selenium								
Silver		1000		1032.8	103.3		1072.0	107.2
Thallium								
Vanadium		500		466.0	93.2		478.7	95.7
Zinc		1000		850.0	85.0		865.0	86.5
Tin								

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5A
SPIKE SAMPLE RECOVERY

EPA SAMPLE NO.

0835-96-0023

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL__ Level (low/med): LOW___

% Solids for Sample: _87.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Antimony	75-125	79.7317		0.6881	U	114.68	69.5	N	P
Arsenic	75-125	467.7683		2.5780		458.72	101.4		P
Barium	75-125	554.0940		92.6032		458.72	100.6		P
Beryllium	75-125	12.3968		0.3188	B	11.47	105.3		P
Cadmium	75-125	11.0505		0.0688	U	11.47	96.3		P
Chromium	75-125	51.7569		4.7638		45.87	102.4		P
Cobalt	75-125	121.8303		3.7867	B	114.68	102.9		P
Copper	75-125	66.0413		5.6284	B	57.34	105.4		P
Lead	75-125	145.6881		21.3601		114.68	108.4		P
Mercury	75-125	0.6021		0.0470	B	0.57	97.4		AV
Nickel	75-125	120.4450		3.1766	B	114.68	102.3		P
Selenium	75-125	453.8394		0.4128	U	458.72	98.9		P
Silver	75-125	11.6399		0.2294	U	11.47	101.5		P
Thallium	75-125	448.4725		0.7798	U	458.72	97.8		P
Vanadium	75-125	132.6032		13.4151		114.68	103.9		P
Zinc	75-125	146.5894		31.1078		114.68	100.7		P
Tin	75-125	126.5894		4.0940	B	114.68	106.8		P

Comments:

U.S. EPA - CLP

6
DUPLICATES

EPA SAMPLE NO.

0835-96-0023

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _87.2 % Solids for Duplicate: __87.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		6677.7913		7375.8463		9.9		P
Antimony		0.6881	U	0.6881	U			P
Arsenic	2.2940	2.5780		2.8073		8.5		P
Barium	45.8720	92.6032		99.3005		7.0		P
Beryllium		0.3188	B	0.3532	B	10.2		P
Cadmium		0.0688	U	0.0688	U			P
Chromium	2.2940	4.7638		5.3096		10.8		P
Cobalt		3.7867	B	3.8211	B	0.9		P
Copper	5.7340	5.6284	B	6.0229		6.8		P
Lead		21.3601		21.3280		0.2		P
Mercury		0.0470	B	0.0229	B	69.0		AV
Nickel		3.1766	B	4.0344	B	23.8		P
Selenium		0.4128	U	0.4128	U			P
Silver		0.2294	U	0.2294	U			P
Thallium		0.7798	U	0.7798	U			P
Vanadium	11.4680	13.4151		14.5344		8.0		P
Zinc		31.1078		30.5252		1.9		P
Tin		4.0940	B	3.0046	U	200.0		P

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7

LABORATORY CONTROL SAMPLE

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: A____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Solid LCS Source: ERA229_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				4590.0	3933.6		2280.0	7590.0	85.7
Antimony				39.8	41.2		8.4	119.0	103.5
Arsenic				75.4	85.7		37.1	112.0	113.7
Barium				106.0	114.6		74.3	139.0	108.1
Beryllium				51.0	60.0		11.7	90.3	117.6
Cadmium				45.4	52.5		11.9	79.0	115.6
Chromium				71.0	79.7		38.0	100.0	112.3
Cobalt				49.6	58.5		29.8	70.5	117.9
Copper				112.0	129.7		63.9	162.0	115.8
Lead				53.5	58.4		28.1	75.9	109.2
Mercury				1.5	2.0		0.4	2.4	133.3
Nickel				39.4	43.2		21.5	57.5	109.6
Selenium				72.3	75.6		37.8	108.0	104.6
Silver				116.0	134.2		58.2	170.0	115.7
Thallium				40.0	44.4		20.0	60.0	111.0
Vanadium				65.9	71.5		32.0	88.9	108.5
Zinc				134.0	146.7		72.2	199.0	109.5
Tin				102.0	119.3		35.9	168.0	117.0

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9

ICP SERIAL DILUTION

EPA SAMPLE NO.

0835-96-0023

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	29115.17		28765.00		1.2		P
Antimony	3.00	U	15.00	U			P
Arsenic	11.24		15.20	B	35.2		P
Barium	403.75		398.05	B	1.4		P
Beryllium	1.39	B	0.50	U	100.0		P
Cadmium	0.30	U	1.50	U			P
Chromium	20.77		12.90	B	37.9		P
Cobalt	16.51	B	14.15	B	14.3		P
Copper	24.54	B	21.40	B	12.8		P
Lead	93.13		84.85		8.9		P
Mercury							NR
Nickel	13.85	B	3.00	U	100.0		P
Selenium	1.80	U	9.00	U			P
Silver	1.00	U	5.00	U			P
Thallium	3.40	U	17.00	U			P
Vanadium	58.49		52.85	B	9.6		P
Zinc	135.63		122.90		9.4		P
Tin	17.85	B	65.50	U	100.0		P

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10

Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA_61_3____ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3		NR
Mercury			0.2		NR
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin	189.90		20	13.1	P

Comments:

U.S. EPA - CLP

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Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: _____ Date: 07/01/96

Flame AA ID Number : LEEMAN_3____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			200		NR
Antimony			60		NR
Arsenic			10		NR
Barium			200		NR
Beryllium			5		NR
Cadmium			5		NR
Chromium			10		NR
Cobalt			50		NR
Copper			25		NR
Lead			3	8/2/96	NR
Mercury	253.70		0.2	0.02 KH ~~0.0~~	AV
Nickel			20		NR
Selenium			5		NR
Silver			10		NR
Thallium			10		NR
Vanadium			50		NR
Zinc			20		NR
Tin			20		NR

Comments:

U.S. EPA - CLP

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Instrument Detection Limits (Quarterly)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA_61E_3___ Date: 07/01/96

Flame AA ID Number : _____

Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		200	6.5	P
Antimony	217.50		60	3.0	P
Arsenic	193.60		10	1.6	P
Barium	493.41		200	0.1	P
Beryllium	313.04		5	0.1	P
Cadmium	226.50		5	0.3	P
Chromium	267.72		10	0.5	P
Cobalt	228.62		50	0.4	P
Copper	324.75		25	0.5	P
Lead	220.35		3	1.2	P
Mercury			0.2		NR
Nickel	231.60		20	0.6	P
Selenium	196.03		5	1.8	P
Silver	328.07		10	1.0	P
Thallium	377.50		10	3.4	P
Vanadium	292.40		50	0.6	P
Zinc	206.20		20	0.4	P
Tin			20		NR

Comments:

U.S. EPA - CLP

11A
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BA_
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony_	217.50	0.0001730	0.0000000	-0.0000700	0.0000000	0.0000000
Arsenic__	193.60	0.0041900	0.0000000	0.0003280	0.0000000	0.0000000
Barium___	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000300	0.0000000	0.0002950	0.0000000	0.0000000
Chromium_	267.70	0.0000000	0.0000000	-0.0000410	0.0000000	0.0000000
Cobalt___	228.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0001880
Copper___	324.70	0.0000000	0.0000000	-0.0000450	0.0000000	0.000000[illegible]
Lead____	220.30	0.0008690	0.0000000	0.0001130	0.0000000	0.000000[illegible]
Mercury__						
Nickel___	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium_	196.00	0.0000000	0.0000000	0.0003760	0.0000000	0.0000000
Silver___	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium_	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium_	292.40	0.0000000	-0.0000300	0.0000500	0.0000000	0.0000000
Zinc____	206.20	0.0000000	0.0000000	0.0000390	0.0000370	0.0000000
Tin_____	189.90	-0.0000600	0.0000000	0.0001300	0.0000000	0.0000000

Comments:

U.S. EPA - CLP

11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : BE_	CD_	CO_	CR_	MO_
Aluminum	308.22	0.0000000	0.0000000	-0.0047560	0.0000000	0.0084920
Antimony	217.50	0.0019940	0.0000000	0.0000000	0.0000000	-0.0004360
Arsenic	193.60	0.0000000	0.0000000	0.0006940	0.0009930	0.0008130
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0001370	0.0000000	0.0001390
Chromium	267.70	0.0000000	0.0002200	0.0000000	0.0000000	-0.0037690
Cobalt	228.60	0.0000000	0.0000000	0.0000000	0.0002450	-0.0019700
Copper	324.70	0.0000000	0.0000000	-0.0003080	0.0000000	0.0006200
Lead	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0004950	0.0000000	-0.0018550
Selenium	196.00	0.0000000	0.0000000	0.0009940	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	-0.0108000
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0022430	0.0005240
Tin	189.90	0.0000000	0.0000000	0.0000000	0.0000000	0.0023950

Comments:

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11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : NI_	PB_	SN_	TI_	TL_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	217.50	0.0011230	0.0009460	0.0000000	0.0000000	0.0000000
Arsenic	193.60	0.0009940	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	-0.0005820	0.0000000	0.0000000	0.0001910	0.0000000
Chromium	267.70	0.0000000	0.0000000	0.0000000	0.0001660	0.0000000
Cobalt	228.60	0.0000000	0.0000000	-0.0014620	0.0017260	0.0000000
Copper	324.70	0.0000000	0.0000000	0.0000000	0.0004930	0.0000000
Lead	220.30	0.0000000	0.0000000	0.0000000	0.0000000	0.00000C
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0014850
Selenium	196.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.00	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0162630	0.0000000	0.0000000	-0.1373560	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0005070	0.0000000
Zinc	206.20	-0.0007590	0.0000000	0.0000000	0.0000000	0.0000000
Tin	189.90	0.0000000	0.0000000	0.0000000	0.0016690	0.0000000

Comments:

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11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61 3____ Date: 01/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : V__	___	___	___	___
Aluminum	308.22	-0.0198620				
Antimony	217.50	0.0011570				
Arsenic	193.60	0.0102320				
Barium	493.40	0.0000000				
Beryllium	313.00	0.0018680				
Cadmium	226.50	0.0000000				
Chromium	267.70	0.0011460				
Cobalt	228.60	0.0000000				
Copper	324.70	0.0000000				
Lead	220.30	0.0000000				
Mercury						
Nickel	231.60	-0.0003500				
Selenium	196.00	0.0000000				
Silver	328.00	-0.0053240				
Thallium	377.50	0.0000000				
Vanadium	292.40	0.0000000				
Zinc	206.20	0.0000000				
Tin	189.90	0.0000000				

Comments:

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11A

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61E 3___ Date: 04/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	C...	Fe	Mg	CO_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0310000
Antimony	217.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	193.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000860	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cobalt	228.62	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.75	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	-0.0001820	0.0000000	0.0000420	0.0000000	0.00000(
Mercury						
Nickel	231.60	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.03	-0.0000010	0.0000000	-0.0003050	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	377.50	0.0000000	0.0000000	-0.0000910	0.0000000	0.0000000
Vanadium	292.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	206.20	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Tin						

Comments:

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11B
ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61E 3___ Date: 04/01/96

Analyte	Wave-length (nm)	Interelement Correction Factors for : CR_	V__	___	___	___
Aluminum_	308.22	0.0000000	0.0000540			
Antimony_	217.50	0.0000000	0.0000000			
Arsenic__	193.60	-0.0029800	0.0000000			
Barium___	493.41	0.0000000	0.0000000			
Beryllium	313.04	0.0000000	0.0000000			
Cadmium__	226.50	0.0000000	0.0000000			
Chromium_	267.72	0.0000000	0.0000000			
Cobalt___	228.62	0.0000000	0.0000000			
Copper___	324.75	0.0000000	0.0000000			
Lead____	220.35	0.0000000	0.0000000			
Mercury__						
Nickel___	231.60	0.0000000	0.0000000			
Selenium_	196.03	0.0000000	0.0000000			
Silver___	328.07	0.0000000	0.0000000			
Thallium_	377.50	0.0000000	0.0000000			
Vanadium_	292.40	0.0000000	0.0000000			
Zinc____	206.20	0.0000000	0.0000000			
Tin_____						

Comments:

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12
ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61 3____ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	8.00	1000000.0	P
Antimony	8.00	10000.0	P
Arsenic	8.00	100000.0	P
Barium	8.00	50000.0	P
Beryllium	8.00	25000.0	P
Cadmium	8.00	50000.0	P
Chromium	8.00	100000.0	P
Cobalt	8.00	100000.0	P
Copper	8.00	100000.0	P
Lead	8.00	100000.0	P
Mercury			NR
Nickel	8.00	100000.0	P
Selenium	8.00	100000.0	P
Silver	8.00	10000.0	P
Thallium	8.00	100000.0	P
Vanadium	8.00	100000.0	P
Zinc	8.00	100000.0	P
Tin	8.00	100000.0	P

Comments:

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12

ICP LINEAR RANGES (QUARTERLY)

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.: 2415__

ICP ID Number: TJA 61E 3___ Date: 07/01/96

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	5.00	500000.0	P
Antimony	15.00	10000.0	P
Arsenic	15.00	10000.0	P
Barium	15.00	10000.0	P
Beryllium	15.00	10000.0	P
Cadmium	15.00	10000.0	P
Chromium	15.00	10000.0	P
Cobalt	15.00	10000.0	P
Copper	15.00	10000.0	P
Lead	15.00	10000.0	P
Mercury			NR
Nickel	15.00	10000.0	P
Selenium	15.00	10000.0	P
Silver	15.00	2000.0	P
Thallium	15.00	10000.0	P
Vanadium	15.00	10000.0	P
Zinc	15.00	10000.0	P
Tin			NR

Comments:

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13
PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2415__

Method: P_

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
0835-96	07/27/96	1.00	200
LCSS	07/27/96	1.00	200
PBS	07/27/96	1.00	200

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13
PREPARATION LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.:_____ SAS No.: _____ SDG No.:2415__

Method: AV

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
0835-96	07/29/96	0.20	100
LCSS	07/29/96	0.20	100
PBS	07/29/96	0.20	100

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/31/96 End Date: 07/31/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
STD-BLAN	1.00	1000		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
A1	1.00	1003		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B1	1.00	1006		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1010		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1013		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ICV	1.00	1017		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICB	1.00	1020		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CRI	1.00	1024		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSA	1.00	1027		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ICSAB	1.00	1030		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCV	1.00	1034		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1037		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
PBS	1.00	1041		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
LCSS	1.00	1044		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1047		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1051		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1054		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	5.00	1057		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1101		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1104		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1107		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1111		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCV	1.00	1114		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
CCB	1.00	1118		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1121		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1124		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
0835-96-	1.00	1128		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	-	-
ZZZZZZ	1.00	1131		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1134		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1138		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	5.00	1141		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ZZZZZZ	1.00	1145		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: TJA 61 3_____ Method: P_

Start Date: 07/31/96 End Date: 07/31/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
ZZZZZZ	1.00	1148																									
ZZZZZZ	1.00	1151																									
CCV	1.00	1155																			X						
CCB	1.00	1158																			X						
ZZZZZZ	1.00	1202																									
ZZZZZZ	1.00	1205																									
ZZZZZZ	1.00	1208																									
ZZZZZZ	1.00	1212																									
CRI	1.00	1215																			X						
ICSA	1.00	1219																			X						
ICSAB	1.00	1222																			X						
CCV	1.00	1225																			X						
CCB	1.00	1232																			X						

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: LEEMAN 3_____ Method: AV

Start Date: 07/29/96 End Date: 07/29/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
S0	1.00	1311												X													
S0.2	1.00	1314												X													
S1	1.00	1316												X													
S2	1.00	1318												X													
S5	1.00	1321												X													
S10	1.00	1323												X													
ICV	1.00	1329												X													
ICB	1.00	1332												X													
PBS	1.00	1332												X													
CRA	1.00	1334												X													
LCSS	10.00	1336												X													
0835-96-	1.00	1338												X													
0835-96-	1.00	1341												X													
0835-96-	1.00	1343												X													
0835-96-	1.00	1345												X													
0835-96-	1.00	1347												X													
0835-96-	1.00	1350												X													
0835-96-	1.00	1352												X													
0835-96-	1.00	1354												X													
CCV	1.00	1356												X													
CCB	1.00	1359												X													
0835-96-	1.00	1401												X													
0835-96-	1.00	1403												X													
ZZZZZZ	1.00	1405																									
ZZZZZZ	1.00	1408																									
ZZZZZZ	1.00	1410																									
ZZZZZZ	1.00	1412																									
ZZZZZZ	1.00	1414																									
ZZZZZZ	1.00	1417																									
ZZZZZZ	1.00	1419																									
ZZZZZZ	1.00	1421																									
CCV	1.00	1424												X													

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: LEEMAN 3_____ Method: AV

Start Date: 07/29/96 End Date: 07/29/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
CCB	1.00	1426												X													

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
BLANK	1.00	1014		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
MIX	1.00	1017			X	X	X	X	X		X	X	X		X	X	X	X	X	X							
MIX	1.00	1019		X						X																	
ZZZZZZ	1.00	1022																									
ZZZZZZ	1.00	1027																									
ICV	1.00	1031		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICB	1.00	1035		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSA	1.00	1037		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ICSAB	1.00	1040		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CRI	1.00	1044		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ZZZZZZ	1.00	1047																									
ZZZZZZ	1.00	1050																									
ZZZZZZ	1.00	1052																									
ZZZZZZ	1.00	1055																									
ZZZZZZ	1.00	1058																									
ZZZZZZ	1.00	1110																									
ZZZZZZ	1.00	1113																									
CCV	1.00	1117		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1121		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
ZZZZZZ	1.00	1127																									
ZZZZZZ	1.00	1130																									
ZZZZZZ	1.00	1134																									
ZZZZZZ	1.00	1137																									
ZZZZZZ	5.00	1140																									
ZZZZZZ	1.00	1143																									
ZZZZZZ	1.00	1146																									
ZZZZZZ	1.00	1150																									
PBS	1.00	1154		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
LCSS	1.00	1157		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCV	1.00	1200		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
CCB	1.00	1203		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							
0835-96-	1.00	1206		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X							

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
0835-96-	1.00	1209		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	5.00	1212		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1215		_	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1219		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1222		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1224		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1227		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1230		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1233		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCV	1.00	1236		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCB	1.00	1239		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ZZZZZZ	1.00	1242																									
ZZZZZZ	1.00	1245		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1248		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	5.00	1251		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
CCV	1.00	1423		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCB	1.00	1435		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
0835-96-	1.00	1437		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ZZZZZZ	1.00	1440																									
ZZZZZZ	1.00	1443		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	5.00	1446		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1449		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1453		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1456		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1459		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1502		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1505																									
CCV	1.00	1508		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
CCB	1.00	1511		X	X	X	X	X	X	X	X	X	X	_	X	X	X	X	X	X	_	_	_	_	_	_	_
ZZZZZZ	1.00	1514																									
ZZZZZZ	1.00	1517		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
ZZZZZZ	1.00	1520		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
				_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_

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ANALYSIS RUN LOG

Lab Name: ANALYTICAL_TECHNOLOGIES__ Contract: _____

Lab Code: NA____ Case No.: _____ SAS No.: _____ SDG No.:2415__

Instrument ID Number: TJA 61E 3____ Method: P_

Start Date: 07/30/96 End Date: 07/30/96

EPA Sample No.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CR	CO	CU	PB	HG	NI	SE	AG	TL	V	ZN	SN						
ZZZZZZ	1.00	1522		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CRI	1.00	1525		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
ICSA	1.00	1528		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
ICSAB	1.00	1531		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCV	1.00	1534		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-
CCB	1.00	1538		X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X	X	-	-	-	-	-	-	-

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FORM XIV - IN

ILM03.0

Paragon Analytics, Inc.

INORGANICS CASE NARRATIVE

FIELD COPY

Los Alamos National Laboratory

Request Number 2409

Client ID	PAI-ID
0835-96-0001	96-07-114-01
0835-96-0002	96-07-114-02
0835-96-0003	96-07-114-03
0835-96-0004	96-07-114-04
0835-96-0005	96-07-114-05
0835-96-0006	96-07-114-06
0835-96-0007	96-07-114-07
0835-96-0008	96-07-114-08
0835-96-0009	96-07-114-09
0835-96-0010	96-07-114-10
0835-96-0011	96-07-114-11
0835-96-0012	96-07-114-12
0835-96-0013	96-07-114-13
0835-96-0014	96-07-114-14

1. This report consists of data for 14 soil samples analyzed for reactive cyanide and reactive sulfide.
2. The samples were received cool and intact on 07/16/96.
3. The samples had been correctly preserved for the requested analyses.
4. The samples were analyzed for Reactive Cyanide and Reactive Sulfide using procedures described in Chapter Seven of USEPA SW-846.
5. All standards were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.
7. Sample results which are below the reporting limit are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.

Report Sent To: _____

Approved By: _____

Date Sent: _____

- A reagent blank was analyzed with each batch of 20 samples or less.
- A matrix duplicate was analyzed for every 10 samples or less.
- The reagent blank result associated with the analytical batch was below the reporting limits for the requested analyte. This indicates that no contaminants were introduced to the samples during the analysis.
- The matrix duplicate associated with each batch was within acceptance limits.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Reporter's Initials	8-4-96 Date
Steve Workman Inorganics Supervisor	8/4/96 Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

REACTIVE CYANIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/15/96

Client Project ID: 2409

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-114

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Cyanide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-114 RB	ND	0.5
0835-96-0001	96-07-114-01	ND	0.5
0835-96-0002	96-07-114-02	ND	0.5
0835-96-0003	96-07-114-03	ND	0.5
0835-96-0004	96-07-114-04	ND	0.5
0835-96-0005	96-07-114-05	ND	0.5
0835-96-0006	96-07-114-06	ND	0.5
0835-96-0007	96-07-114-07	ND	0.5
0835-96-0008	96-07-114-08	ND	0.5
0835-96-0009	96-07-114-09	ND	0.5
0835-96-0010	96-07-114-10	ND	0.5
0835-96-0011	96-07-114-11	ND	0.5
0835-96-0012	96-07-114-12	ND	0.5
0835-96-0013	96-07-114-13	ND	0.5
0835-96-0014	96-07-114-14	ND	0.5

ND = Not Detected

REACTIVE SULFIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/15/96

Client Project ID: 2409

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-114

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Sulfide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-114 RB	ND	50
0835-96-0001	96-07-114-01	ND	50
0835-96-0002	96-07-114-02	ND	50
0835-96-0003	96-07-114-03	ND	50
0835-96-0004	96-07-114-04	ND	50
0835-96-0005	96-07-114-05	ND	50
0835-96-0006	96-07-114-06	ND	50
0835-96-0007	96-07-114-07	ND	50
0835-96-0008	96-07-114-08	ND	50
0835-96-0009	96-07-114-09	ND	50
0835-96-0010	96-07-114-10	ND	50
0835-96-0011	96-07-114-11	ND	50
0835-96-0012	96-07-114-12	ND	50
0835-96-0013	96-07-114-13	ND	50
0835-96-0014	96-07-114-14	ND	50

ND = Not Detected

DUPLICATE DATA FOR INORGANIC ANALYSES
NONMETALS

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Lab Workorder ID: 96-07-114

Client Project ID: 2409

Sample Matrix: Soil

Analyte	Client Sample ID	Paragon Lab Sample ID	Sample Conc. (mg/kg)	Duplicate Conc. (mg/kg)	RPD %	Analysis Date
Reactive Cyanide	0835-96-0001	96-07-114-01	< 0.5	< 0.5	NA	08/01/96
Reactive Cyanide	0835-96-0009	96-07-114-09	< 0.5	< 0.5	NA	08/01/96
Reactive Sulfide	0835-96-0001	96-07-114-01	< 50	< 50	NA	08/01/96
Reactive Sulfide	0835-96-0009	96-07-114-09	< 50	< 50	NA	08/01/96

NA = Not Applicable

Paragon Analytics, Inc.

INORGANICS CASE NARRATIVE

Los Alamos National Laboratory

Request Number 2412

Client ID	PAI-ID
0835-96-0015	96-07-150-01
0835-96-0016	96-07-150-02
0835-96-0017	96-07-150-03
0835-96-0018	96-07-150-04
0835-96-0019	96-07-150-05
0835-96-0020	96-07-150-06
0835-96-0021	96-07-150-07
0835-96-0022	96-07-150-08

1. This report consists of data for 8 soil samples analyzed for reactive cyanide and reactive sulfide.
2. The samples were received cool and intact on 07/22/96.
3. The samples had been correctly preserved for the requested analyses.
4. The samples were analyzed for Reactive Cyanide and Reactive Sulfide using procedures described in Chapter Seven of USEPA SW-846.
5. All standards were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.
7. Sample results which are below the reporting limit are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
   - A reagent blank was analyzed with each batch of 20 samples or less.
   - A matrix duplicate was analyzed for every 10 samples or less.
   - The reagent blank result associated with the analytical batch was below the reporting limits for the requested analyte. This indicates that no contaminants were introduced to the samples during the analysis.

- The matrix duplicates associated with each batch were within acceptance limits.

The data contained in the following report have been reviewed and approved by the personnel listed below:

BJ	8-4-96
Reporter's Initials	Date
Steve Workman	8/4/96
Steve Workman Inorganics Supervisor	Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

REACTIVE CYANIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/18/96

Client Project ID: 2412

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-150

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Cyanide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-150 RB	ND	0.5
0835-96-0015	96-07-150-01	ND	0.5
0835-96-0016	96-07-150-02	ND	0.5
0835-96-0017	96-07-150-03	ND	0.5
0835-96-0018	96-07-150-04	ND	0.5
0835-96-0019	96-07-150-05	ND	0.5
0835-96-0020	96-07-150-06	ND	0.5
0835-96-0021	96-07-150-07	ND	0.5
0835-96-0022	96-07-150-08	ND	0.5

ND = Not Detected

REACTIVE SULFIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/18/96

Client Project ID: 2412

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-150

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Sulfide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-150 RB	ND	50
0835-96-0015	96-07-150-01	ND	50
0835-96-0016	96-07-150-02	ND	50
0835-96-0017	96-07-150-03	ND	50
0835-96-0018	96-07-150-04	ND	50
0835-96-0019	96-07-150-05	ND	50
0835-96-0020	96-07-150-06	ND	50
0835-96-0021	96-07-150-07	ND	50
0835-96-0022	96-07-150-08	ND	50

ND = Not Detected

DUPLICATE DATA FOR INORGANIC ANALYSES
NONMETALS

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Lab Workorder ID: 96-07-150

Client Project ID: 2412

Sample Matrix: Soil

Analyte	Client Sample ID	Paragon Lab Sample ID	Sample Conc. (mg/kg)	Duplicate Conc. (mg/kg)	RPD %	Analysis Date
Reactive Cyanide	0835-96-0018	96-07-150-04	< 0.5	< 0.5	NA	08/01/96
Reactive Sulfide	0835-96-0018	96-07-150-04	< 50	< 50	NA	08/01/96

NA = Not Applicable

Paragon Analytics, Inc.

INORGANICS CASE NARRATIVE

Los Alamos National Laboratory

Request Number 2415

Client ID	PAI-ID
0835-96-0023	96-07-148-01
0835-96-0024	96-07-148-02
0835-96-0025	96-07-148-03
0835-96-0026	96-07-148-04
0835-96-0027	96-07-148-05
0835-96-0028	96-07-148-06
0835-96-0029	96-07-148-07
0835-96-0030	96-07-148-08

1. This report consists of data for 8 soil samples analyzed for reactive cyanide and reactive sulfide.
2. The samples were received cool and intact on 07/22/96.
3. The samples had been correctly preserved for the requested analyses.
4. The samples were analyzed for Reactive Cyanide and Reactive Sulfide using procedures described in Chapter Seven of USEPA SW-846.
5. All standards were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.
7. Sample results which are below the reporting limit are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
   - A reagent blank was analyzed with each batch of 20 samples or less.
   - A matrix duplicate was analyzed for every 10 samples or less.
   - The reagent blank result associated with the analytical batch was below the reporting limits for the requested analyte. This indicates that no contaminants were introduced to the samples during the analysis.

- The matrix duplicates associated with each batch were within acceptance limits.

The data contained in the following report have been reviewed and approved by the personnel listed below:

BS	8-4-96
Reporter's Initials	Date
Steve Workman	8/4/96
Steve Workman Inorganics Supervisor	Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

REACTIVE CYANIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/18/96

Client Project ID: 2415

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-148

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Cyanide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-148 RB	ND	0.5
0835-96-0023	96-07-148-01	ND	0.5
0835-96-0024	96-07-148-02	ND	0.5
0835-96-0025	96-07-148-03	ND	0.5
0835-96-0026	96-07-148-04	ND	0.5
0835-96-0027	96-07-148-05	ND	0.5
0835-96-0028	96-07-148-06	ND	0.5
0835-96-0029	96-07-148-07	ND	0.5
0835-96-0030	96-07-148-08	ND	0.5

ND = Not Detected

REACTIVE SULFIDE

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Date Collected: 07/18/96

Client Project ID: 2415

Date Distilled: 07/30-31/96

Lab Workorder ID: 96-07-148

Date Analyzed: 08/01/96

Sample Matrix: Soil

Sample ID	Lab Sample ID	Reactive Sulfide Conc (mg/kg)	Detection Limit (mg/kg)
Reagent Blank	96-07-148 RB	ND	50
0835-96-0023	96-07-148-01	ND	50
0835-96-0024	96-07-148-02	ND	50
0835-96-0025	96-07-148-03	ND	50
0835-96-0026	96-07-148-04	ND	50
0835-96-0027	96-07-148-05	ND	50
0835-96-0028	96-07-148-06	ND	50
0835-96-0029	96-07-148-07	ND	50
0835-96-0030	96-07-148-08	ND	50

ND = Not Detected

DUPLICATE DATA FOR INORGANIC ANALYSES
NONMETALS

Lab Name: Paragon Analytics, Inc.

Client Name: Los Alamos National Laboratory

Lab Workorder ID: 96-07-148

Client Project ID: 2415

Sample Matrix: Soil

Analyte	Client Sample ID	Paragon Lab Sample ID	Sample Conc. (mg/kg)	Duplicate Conc. (mg/kg)	RPD %	Analysis Date
Reactive Cyanide	0835-96-0026	96-07-148-04	< 0.5	< 0.5	NA	08/01/96
Reactive Sulfide	0835-96-0026	96-07-148-04	< 50	< 50	NA	08/01/96

NA = Not Applicable

APPENDIX B

Letter Addressing Data Analysis Variations

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511 ◆ (970) 490-1511 ◆ FAX (970) 490-1522

August 23, 1996

Roy Bohn
Los Alamos National Laboratory
1900 Diamond Drive
MS M992
Los Alamos, NM 87545

Update to Supplementary Narrative Information on Samples for Modified Appendix IX Analyses on TA-35, TSL-85 samples, LANL Request Numbers: 2407, 2409, 2410, 2412, 2413, & 2415.

The letter addresses the questions noted in your 8/23/96 fax:

1. **Five Compounds Reported as TICs versus the April, 1996 Paragon Appendix IX Compound List:**

   a. Three of the five compounds were reported as TICs (Isobutyl Alcohol, 2,6-Dichlorophenol, a-a'-Dimethylphenethyl amine), because their calibrations exceeded 1 year by the time we received the samples in July, 1996. During delay between discussions of our Appendix IX compound capabilities (10/95 - 4/96) and receipt of samples (7/96), we had some compounds exceed our 1 year calibration threshold. As such, Isobutyl Alcohol, 2,6-Dichlorophenol, a-a'-Dimethylphenethyl amine were correctly reported as TICs, incidentally all "Not Found".

   b. Vinyl Acetate should have been reported as a normal Method 8260 compound. It's detection limit is 5 ug/L in water and 5 ug/kg in soil. No Vinyl Acetate hits were found in any samples.

   c. 1,4-Dioxane was correctly reported as a Method 8270 TIC, per the Paragon Appendix IX list. Please note the method number listed (in *italics)* for 1,4-Dioxane was 8270, even though it was included in the Volatiles section. 1,4-Dioxane, while listed as a VOA compound on state & federal lists, is best done as a Semivolatile organic.

2. **Cyanide and Sulfide as Totals versus Reactive:** Cyanide and Sulfide were reported as reactive for two reasons.

   a. Appendix IX is (was promulgated) for waters, not for soils. We sent Appendix IX lists from a previous water project, with Methods listed that applied to both waters and soils, except for CN & S. We inadvertently left in waters method numbers for CN & S.

   b. When we received the samples, (all soils), we recognized the error, ***and analyzed the CN & S by the appropriate soils method for determining whether a sample is a hazardous material, under RCRA guidelines.*** We can analyze the samples for Total CN & S by modifying the listed waters method, but this could result in non-useful data due to the modifications using waters methods on soils.

3. **Chlordane Reporting by Method 8081:** Per Method guidelines, the Chlordane results were reported as alpha Chlordane, Gamma Chlordane, and Heptachlor, since no hits were found. Total Chlordane (or Technical Chlordane) is only reported when multiple chlordane peaks are found, characteristic of Total Chlordane.

4. **Reporting of Method 8080 versus Method 8081:** The analyses were performed under Method 8081 guidelines, but inadvertently reported as Method 8080, (due to Paragon not updating the software template).

Please include this information in all of the hardcopy versions of our reports.

Thanks for your understanding on these issues.

Dr. Steven M. Fry,
Program Director

cy: Dr. John Miglio, Sample Management Officer

APPENDIX C

Baseline Validation Results

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2407** LAB NAME: **Weston** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **21 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- **X** VOLATILES
- **X** SEMIVOLATILES
- **X** PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Additional analytes were requested. A list of the analytes included in this report was provided by Paragon and follows this page. Only routine analytes were validated.

Signature/1st validation: _____ 22 Aug 96

Signature/2nd validation: _____ 8/22/96

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

VOLATILES (V)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantitation of the associated analytes and the correct quantiitatiion of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results.

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 SMC (surrogate) % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a SMC % recovery < lower limit but > 10%, which indicates a potential low bias in the results.

3b SMC recovery < 10%, which indicates an increased potential for a low bias in the results.

3c Indicates that the quantitation limit is approximated for non-detects because of SMC recovery < lower limit but > 10%, which also indicates an increased potential for false negative results.

3d SMC % recovery < 10% and result is a non-detect, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X (10X for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations.

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8 Instrument Performance Check has ion ratios our of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

SEMIVOLATILES (SV)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantiitation of the associated analytes and the correct quantitation of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 2 or more surrogates in either SV fraction have a % recovery > upper limit, which indicates a potential high bias in the results and a potentail for false positive results.

3a 2 or more surrogates in either fraction have a % recovery > 10% but < lower limit, which indicates a potential low bias in the results.

3b A surrogate in the related fraction has a recovery of < 10%, which indicates an increased potential low bias in the results.

3c Result is a non-detect and 2 or more surrogates have a recovery of > 10% but < the lower limit, which indicates an increased potential for false negative results.

3d Result is a non-detect and a surrogate in the related fraction has a % recovery of < 10%, which indicates a greatly increased potential for false negative results.

3e Recovery of one surrogate in a fraction is > the upper limit and one is < the lower limit but > 10%, which potential bias

in the results, however, the direction of the bias is uncertain.

4 Sample result > EQL and < 5X (10X for common phthalates) and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8. Instrument Performance Check has "important" ion(s) or ion ratios out of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10 The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

<u>ORGANOCHLORINE PESTICIDES/AROCLORS (P)</u>

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
VOLATILES			
Instrument Performance Check Present? X yes no	NA	Obtain from lab. Q=A	
Initial calibration: Present? X yes no Continuing Calibration Present? X yes no	NA	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Internal Standards **Present? X yes no** **Required IS:** **chlorobenzene-d5** **1,4-difluorobenzene** **1,4-dichlorbenzene -d4** **RT must be < ± 30 sec. from previous continuing calibraition** **Response area must not vary by > factor of 2 (+100, -50) from previous continuing calibration** The internal standard area was out of control in samples 0835-96-0001, and 0835-96-0008. Sample 0835-96-0001, analyzed on 23 July 96,was qualified as R,PM. It was reanalyzed on 30 July 96 with the internal standard in control.	UJ, J, R,PM	**Check manually during baseline validation.** **Obtain from lab. Q=A** **If RT varies by > 30 seconds, qualify with PM, in which case focused validation checks the chromato-graphic profile for false + or -.** **If an IS area count is outside the -50 +100 % criterion, qualify positive results quantified by the IS with J,PM** **Non-detects quantified by the IS as UJ if area count < 50 %** **Very low or abrupt drop-off, R** **Enter % variation in FIMAD table**	 V1 V1a V2

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>System Monitoring Compounds (SMC) or surrogates</u> Present? X yes no % recovery <u>Water</u> Toluene-d8 88-110% BFB 86-115% Dibromofluoromethane 86-118% % recovery <u>Soil</u> Toluene-d8 81-117% BFB 74-121 Dibromofluoromethane 80-120	OK	Obtain from lab. Q=A If SMC % recovery > upper limit, detected target compounds are qualified with <u>J+</u>. For non-detects, not qualified If SMC has % recovery < lower limit but 3 10%, qualify detected compounds with <u>J-</u> For detected compounds, same J- qualifier if recovery of SMC < 10% For non-detects, the quantitation limit is qualified as approximated, <u>UJ</u>, when SMC is ≥10% For non-detected analytes, if SMC recovery <10%, reject <u>R</u>, <u>PM</u> Do not qualify results for diluted samples based on SMC/ Surrogate recoveries Enter % recovery in FIMAD table	<u>V3</u> <u>V3a</u> <u>V3b</u> <u>V3c</u> <u>V3d</u>

M22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method Blanks **Present? X yes no** **Separate blank for each method, matrix and/or 12 hour batch** **Target compounds must be ≤ EQL except acetone, methylene chloride, and 2-butanone which can be present at ≤ 5 X EQL.** The incorrect blank pages were included in this package. LanceSteere of Paragon was contacted 22 Aug. 96 and he faxed the corrected pages. The pages being replaced are 162 and 163. A copy has been included in both the validation and original data packages. In the method blanks analyzed on 24 July 96 and 30 July 95, methylene chloride had a result of 3 ug/Kg.	U	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 V4 V5
Holding time **Analysis within 14 days of sample collection for soil and 7 days for water.** The reanalysis of sample 0835-96-0001 missed holding times by one day.	PM	**Compare date of analysis with sampling date on Analytical Request** **Q=PM if not met**	

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>TICs</u> (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	See comment.		

A1 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
SEMIVOLATILES			
Instrument performance check (DFTPP) Present? X yes no	NA	Obtain from lab. Q=A	
Initial Calibration Present? X yes no (Continuing calibration Present? X yes no	NA	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	

1722 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Internal Standards	UJ, J,PM	Check manually during baseline validation	
Present? X yes no		Obtain from lab. Q=A	
Required IS: 1,4-dichlorobenzene-d4 naphthalene -d8 acenaphthene-d10 phenanthrene-d10 chrysene-d12 perylene-d12		If RT varies by > 30 seconds, qualify with PM, in which case check the chromatographic profile for false + or -.	
		If an IS area count is outside the -50 +100 % criterion, qualify positve results quantified by the IS with J,PM	SV1
		Non-detects quantified by the IS as UJ if area count < 50 %	SV1a
RT < 30 sec. for previous daily calibration		Very low or abrupt drop-off, R	SV2
Response area must not vary by > +100, -50% from previoius daily calibration		Enter % variation in FIMAD table	
Internal standard areas are out of control in sample 0835-96-0008.			

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Surrogates: **Present? X yes no** **% recovery Water** **Nitrobenzene-d5 35-114** **2-Fluorobiphenyl 43-116** **p-Terphenyl 33-141** **Phenol-d6 10-94** **2-Fluorophenol 21-100** **2,4,6-Tribromophenol 10-123** **% recovery Soil** **Nitrobenzene-d5 23-120** **2-Fluorobiphenyl 30-115** **p-Terphenyl 18-137** **Phenol-d6 24-113** **2-Fluo-ophenol 25-121** **2,4,6-Tribromophenol 19-122** The surrogate was diluted out of sample 0835-96-0008 which was analyzed at a 10X dilution.	OK	**Obtain from lab. Q=A** **If 2 or more surrogates in either SV fraction have a recovery > UL, specify the fraction being qualified and qualify detected target compounds with J+ and no qualifier for non-detects.** **If 2 or more surrogates in either fraction have a recovery 3 10% but < LL, specifiy the fractin being qualified and qualify as J-.** **Qualify non-detected target compounds as U,J.** **If > 2 surrogates out in either fraction, one with a recovery > UL and one with a recovery 3 10% but < LL, qualify as above.** **If any surrogate in either fraction < 10% recovery, specify the fraction being qualifed and qualify detected compounds as J-** **and non-detects as R, PM.** **Do not qualify results for diluted samples based on surrogate recoveries.** **Enter % recovery in FIMAD table**	SV3 SV3a SV3c SV3e SV3b SV3d

22Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method Blanks **Present? X yes no** **1 for each method, matrix, and/or analytical batch.** - **Target analytes ≤ EQL except for common phthalates, which can be up to 5X EQL.** Bis(2-ethylhexyl)phthalate has a result of 120ug/Kg in the blank. The first reagent blank (Lab ID: SRB1 07-20-96) did not go through the GPC cleanup as per Steve Fry of Paragon on 22 Aug. 96.	U	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 SV4 SV5
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water.** **Analysis within 40 days of extraction**	OK	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=PM**	
TICs (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	See comment.		

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
ORGANOCHLORINE PESTICIDES/AROCLORS			
Initial calibration: **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** **% recovery** **Tetrachloro-m-xylene 50-160** **Decachlorbiphenyl50-160**	**OK**	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 **P3** **P3a** **P3c** **P3b** **P3d**
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** The retention times were from the continuing calibration analyzed on 26 Jul. 96 at 06:11.	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	

A122Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method blanks Present? X yes no Separate for each method, matrix, and/or analytical batch Target analytes < EQL	OK	Obtain from lab. Q=A If target compound found in blank but not in sample, no qualifier. Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U. Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U. Sample result > 5X multiple, OK	 P4 P5
Breakdown criteria Present? X yes no ≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.	OK	Obtain from lab. Q=A Q=P	
Holding time Extraction within 14 days of sample collection for soil and 7 days for water Analyses within 40 days of extraction	OK	Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=PM	

M 22 Aug 96

CCS/VALIDATION COVER SHEET

M A5X

M Code___ SDG/RN: 2407 LAB NAME Paragon LAB CODE_____

NAME OF CCS CHECKER_____ COMPANY_____

NAME OF VALIDATOR_____ COMPANY_____

CCS DATE_____ VALIDATION DATE_____ EDS ENTRY DATE_____

ANALYTICAL SUITE:
- ☐ VOLATILES
- ☑ SEMIVOLATILES
- ☑ PESTICIDES/AROCLORS
- ☐ HIGH EXPLOSIVES
- ☐ INORGANICS
- ☐ RADIOCHEMISTRY

- herb's.

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	____
2.	Airbills (no. Of shipments___)	____
3.	Chain-of-custody records	____
4.	Sample tags	____
5.	Sample log-in sheets	____
6.	Internal lab sample transfer records and tracking sheets	____
7.	Other? Identify_____	____

Are all samples assigned to the SDG present? ☑ YES ☐ NO

8/13

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

_____

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_____

2nd Validation

Signature ~~ccs~~ [signature] 3/22/96 Signature/validation [signature] 22 May 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2410** LAB NAME: **Weston** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **22 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- **X** VOLATILES
- **X** SEMIVOLATILES
- **X** PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Additional analytes were requested. A list of the analytes included in this report was provided by Paragon and follows this page. Only routine analytes were validated.

Signature/1st validation: 22Aug96

Signature/2nd validation: 8/23/96

Qualifiers entered by: Date:

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

VOLATILES (V)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantitation of the associated analytes and the correct quantiitatiion of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results.

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 SMC (surrogate) % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a SMC % recovery < lower limit but > 10%, which indicates a potential low bias in the results.

3b SMC recovery < 10%, which indicates an increased potential for a low bias in the results.

3c Indicates that the quantitation limit is approximated for non-detects because of SMC recovery < lower limit but > 10%, which also indicates an increased potential for false negative results.

3d SMC % recovery < 10% and result is a non-detect, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X (10X for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations.

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8 Instrument Performance Check has ion ratios our of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

<u>SEMIVOLATILES (SV)</u>

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantiitation of the associated analytes and the correct quantitation of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 2 or more surrogates in either SV fraction have a % recovery > upper limit, which indicates a potential high bias in the results and a potentail for false positive results.

3a 2 or more surrogates in either fraction have a % recovery > 10% but < lower limit, which indicates a potential low bias in the results.

3b A surrogate in the related fraction has a recovery of < 10%, which indicates an increased potential low bias in the results.

3c Result is a non-detect and 2 or more surrogates have a recovery of > 10% but < the lower limit, which indicates an increased potential for false negative results.

3d Result is a non-detect and a surrogate in the related fraction has a % recovery of < 10%, which indicates a greatly increased potential for false negative results.

3e Recovery of one surrogate in a fraction is > the upper limit and one is < the lower limit but > 10%, which potential bias

in the results, however, the direction of the bias is uncertain.

4 Sample result > EQL and < 5X (10X for common phthalates) and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8. Instrument Performance Check has "important" ion(s) or ion ratios out of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10 The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
VOLATILES			
Instrument Performance Check Present? X Yes no	NA	Obtain from lab. Q=A	
Initial calibration: Present? X yes no Continuing Calibration Present? X yes no	NA	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	
Internal Standards Present? X yes no Required IS: chlorobenzene-d5 1,4-difluorobenzene 1,4-dichlorbenzene -d4 RT must be < ± 30 sec. from previous continuing calibraition Response area must not vary by > factor of 2 (+100, -50) from previous continuing calibration	OK	Check manually during baseline validation. Obtain from lab. Q=A If RT varies by > 30 seconds, qualify with PM, in which case focused validation checks the chromato-graphic profile for false + or -. If an IS area count is outside the -50 +100 % criterion, qualify positive results quantified by the IS with J.PM Non-detects quantified by the IS as UJ if area count < 50 % Very low or abrupt drop-off, R Enter % variation in FIMAD table	 V1 V1a V2

1722 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>System Monitoring Compounds (SMC) or surrogates</u> Present? X yes no % recovery <u>Water</u> Toluene-d8 88-110% BFB 86-115% Dibromofluoromethane 86-118% % recovery <u>Soil</u> Toluene-d8 81-117% BFB 74-121 Dibromofluoromethane 80-120	OK	Obtain from lab. Q=A If SMC % recovery > upper limit, detected target compounds are qualified with <u>J+</u>. For non-detects, not qualified If SMC has % recovery < lower limit but 3 10%, qualify detected compounds with <u>J-</u> For detected compounds, same J- qualifier if recovery of SMC < 10% For non-detects, the quantitation limit is qualified as approximated, <u>UJ</u>, when SMC is ≥10% For non-detected analytes, if SMC recovery <10%, reject <u>R</u>, <u>PM</u> Do not qualify results for diluted samples based on SMC/ Surrogate recoveries Enter % recovery in FIMAD table	<u>V3</u> <u>V3a</u> <u>V3b</u> <u>V3c</u> <u>V3d</u>

MT22Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method Blanks **Present? X yes no** **Separate blank for each method, matrix and/or 12 hour batch** **Target compounds must be ≤ EQL except acetone, methylene chloride, and 2-butanone which can be present at ≤ 5 X EQL.** All three method blank had trace levels of methylene chloride in them. ~~All methylene chloride results were qualified.~~ KJ	~~U~~ OK KJ	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 V4 V5
Holding time **Analysis within 14 days of sample collection for soil and 7 days for water.**	OK	**Compare date of analysis with sampling date on Analytical Request** **Q=PM if not met**	
TICs (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	See comment.		

KJ 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
SEMIVOLATILES			
Instrument performance check (DFTPP) Present? X yes no	NA	Obtain from lab. Q=A	
Initial Calibration Present? X yes no Continuing calibration Present? X yes no	NA	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	

1722Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Internal Standards	OK	Check manually during baseline validation	
Present? X yes no		Obtain from lab. Q=A	
Required IS: 1,4-dichlorobenzene-d4 naphthalene -d8 acenaphthene-d10 phenanthrene-d10 chrysene-d12 perylene-d12		If RT varies by > 30 seconds, qualify with PM, in which case check the chromatographic profile for false + or -.	
		If an IS area count is outside the -50 +100 % criterion, qualify positve results quantified by the IS with J,PM	SV1
		Non-detects quantified by the IS as UJ if area count < 50 %	SV1a
RT < 30 sec. for previous daily calibration		Very low or abrupt drop-off, R	SV2
Response area must not vary by > +100, -50% from previoius daily calibration		Enter % variation in FIMAD table	

AT 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REA CODE
Surrogates: **Present? X yes no** **% recovery Water** **Nitrobenzene-d5 35-114** **2-Fluorobiphenyl 43-116** **p-Terphenyl 33-141** **Phenol-d6 10-94** **2-Fluorophenol 21-100** **2,4,6-Tribromophenol 10-123** **% recovery Soil** **Nitrobenzene-d5 23-120** **2-Fluorobiphenyl 30-115** **p-Terphenyl 18-137** **Phenol-d6 24-113** **2-Fluorophenol 25-121** **2,4,6-Tribromophenol 19-122** Sample 0835-96-0019 had two surrogates out of control with one surrogate with < 10% recovery. The sample was reanalyzed at a dilution and the surrogates in that sample were diluted out.	**J-, R,PM**	**Obtain from lab. Q=A** **If 2 or more surrogates in either SV fraction have a recovery > UL, specify the fraction being qualified and qualify detected target compounds with J+ and no qualifier for non-detects.** **If 2 or more surrogates in either fraction have a recovery 3 10% but < LL, specifiy the fractin being qualified and qualify as J-.** **Qualify non-detected target compounds as U,J.** **If > 2 surrogates out in either fraction, one with a recovery > UL and one with a recovery 3 10% but < LL, qualify as above.** **If any surrogate in either fraction < 10% recovery, specify the fraction being qualifed and qualify detected compounds as J-** **anc on-detects as R, PM.** **Do not qualify results for diluted samples based on surrogate recoveries.** **Enter % recovery in FIMAD table**	**SV3** **SV3a** **SV3c** **SV3e** **SV3b** **SV3d**

MZZ Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method Blanks **Present? X yes no** **1 for each method, matrix, and/or analytical batch.** **Target analytes ≤ EQL except for common phthalates, which can be up to 5X EQL.**	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample res s to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **SV4** **SV5**
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water.** **Analysis within 40 days of extraction**	**OK**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=PM**	
TICs (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	See comment.		

MZZ Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
ORGANOCHLORINE PESTICIDES/AROCLORS			
Initial calibration:			
Present? X yes no	NA	Obtain from lab. Q=A	
Daily calibration verification			
Present? X yes no	NA	Obtain from lab. Q=A	
Surrogates:	OK		
Present? X yes no		Obtain from lab. Q=A	
% recovery Tetrachloro-m-xylene 50-160 Decachlorbiphenyl50-160		If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.	P3
		If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-	P3a
		and non-detected target analytes as UJ.	P3c
		If either surrogate's % recovery <10%, qualify detected compounds as J-	P3b
		and non-detects as R, PM.	P3d
		Enter % recovery in FIMAD table	

M22Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** Retention time windows determined from the continuing calibration analyzed on 6 Aug. 96	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL**	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? X yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**OK**	**Obtain from lab. Q=A** **Q=P**	

M 22 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REAS CODE
<u>Holding time</u> Extraction within 14 days of sample collection for soil and 7 days for water Analyses within 40 days of extraction	OK	Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=<u>PM</u>	

M 22 Aug 96

CCS/VALIDATION COVER SHEET

MASX

M Code___ SDG/RN: 2410 LAB NAME Paragon LAB CODE_____

NAME OF CCS CHECKER_____ COMPANY_____

NAME OF VALIDATOR A. Tallarico COMPANY LATA

CCS DATE_____ VALIDATION DATE 8/22/96 EDS ENTRY DATE_____

ANALYTICAL SUITE:
- ☑ VOLATILES
- ☑ SEMIVOLATILES
- ☑ PESTICIDES/AROCLORS
- ✓ Herb.
- ☐ HIGH EXPLOSIVES
- ☐ INORGANICS
- ☐ RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	____
2.	Airbills (no. Of shipments___)	____
3.	Chain-of-custody records	____
4.	Sample tags	____
5.	Sample log-in sheets	____
6.	Internal lab sample transfer records and tracking sheets	____
7.	Other? Identify_____	____

Are all samples assigned to the SDG present? ☑ YES ☐ NO

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

Signature/CCS [illegible] 8/23/96 Signature/validation [illegible] 22 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2413** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **21 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

X VOLATILES	o HIGH EXPLOSIVES
X SEMIVOLATILES	o INORGANICS
X PESTICIDES/AROCLORS	o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Additional analytes were requested. A list of the analytes included in this report was provided by Paragon and follows this page. Only routine analytes were validated.

Signature/1st validation: [signature] 21Aug96

Signature/2nd validation: [signature] 8/22/96

Qualifiers entered by: Date:

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

VOLATILES (V)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantitation of the associated analytes and the correct quantiitatiion of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results.

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 SMC (surrogate) % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a SMC % recovery < lower limit but > 10%, which indicates a potential low bias in the results.

3b SMC recovery < 10%, which indicates an increased potential for a low bias in the results.

3c Indicates that t quantitation limit is approximated for non-detects beca e of SMC recovery < lower limit but > 10%, which also indicates an increased potential for false negative results.

3d SMC % recovery < 10% and result is a non-detect, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X (10X for acetone, methylene chloride, and 2-butanone) the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations.

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8 Instrument Performance Check has ion ratios our of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

SEMIVOLATILES (SV)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantiitation of the associated analytes and the correct quantitation of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 2 or more surrogates in either SV fraction have a % recovery > upper limit, which indicates a potential high bias in the results and a potentail for false positive results.

3a 2 or more surrogates in either fraction have a % recovery > 10% but < lower limit, which indicates a potential low bias in the results.

3b A surrogate in the related fraction has a recovery of < 10%, which indicates an increased potential low bias in the results.

3c Result is a non-detect and 2 or more surrogates have a recovery of > 10% but < the lower limit, which indicates an increased potential for false negative results.

3d Result is a non-detect and a surrogate in the related fraction has a % recovery of < 10%, which indicates a greatly increased potential for false negative results.

3e Recovery of one surrogate in a fraction is > the upper limit and one is < the lower limit but > 10%, which potential bias

in the results, however, the direction of the bias is uncertain.

4 Sample result > EQL and < 5X (10X for common phthalates) and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8. Instrument Performance Check has "important" ion(s) or ion ratios out of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10 The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentratiion.

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
VOLATILES			
Instrument Performance Check Present? X yes no	NA	Obtain from lab. Q=A	
Initial calibration: Present? X yes no Continuing Calibration Present? X yes no	NA	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	
Internal Standards Present? X yes no Required IS: chlorobenzene-d5 1,4-difluorobenzene 1,4-dichlorbenzene -d4 RT must be < ± 30 sec. from previous continuing calibraition Response area must not vary by > factor of 2 (+100, -50) from previous continuing calibration Internal standard areas are out of control in samples 0835-96-0025 and 0835-96-0026.	UJ, J,PM	Check manually during baseline validation. Obtain from lab. Q=A If RT varies by > 30 seconds, qualify with PM, in which case focused validation checks the chromato-graphic profile for false + or -. If an IS area count is outside the -50 +100 % criterion, qualify positive results quantified by the IS with J,PM Non-detects quantified by the IS as UJ if area count < 50 % Very low or abrupt drop-off, R Enter % variation in FIMAD table	 V1 V1a V2

21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>System Monitoring Compounds (SMC) or surrogates</u>	OK		
Present? X yes no		Obtain from lab. Q=A	
% recovery <u>Water</u> Toluene-d8 88-110% BFB 86-115% Dibromofluoromethane 86-118%		If SMC % recovery > upper limit, detected target compounds are qualified with <u>J+</u>. For non-detects, not qualified	<u>V3</u>
% recovery <u>Soil</u> Toluene-d8 81-117% BFB 74-121 Dibromofluoromethane 80-120		If SMC has % recovery < lower limit but 3 10%, qualify detected compounds with <u>J-</u>	<u>V3a</u>
		For detected compounds, same J- qualifier if recovery of SMC < 10%	<u>V3b</u>
		For non-detects, the quantitation limit is qualified as approximated, <u>UJ</u>, when SMC is ≥10%	<u>V3c</u>
		For non-detected analytes, if SMC recovery <10%, reject <u>R</u>, <u>PM</u>	<u>V3d</u>
		Do not qualify results for diluted samples based on SMC/ Surrogate recoveries	
		Enter % recovery in FIMAD table	

M 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method Blanks **Present? X yes no** **Separate blank for each method, matrix and/or 12 hour batch** **Target compounds must be ≤ EQL except acetone, methylene chloride, and 2-butanone which can be present at ≤ 5 X EQL.** Methylene chloride was found at the EQL.	U	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 V4 V5
Holding time **Analysis within 14 days of sample collection for soil and 7 days for water.**	OK	**Compare date of analysis with sampling date on Analytical Request** **Q=PM if not met**	
TICs (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	TICS requested.		

M 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
SEMIVOLATILES			
Instrument performance check (DFTPP) Present? X yes no	NA	Obtain from lab. Q=A	
Initial Calibration Present? X yes no (Continuing calibration Present? X yes no	OK	Obtain from lab. Q=A Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form Obtain from lab. Q=A Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form	

A1 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	RE[illegible]ON CODE
Internal Standards	OK	Check manually during baseline validation	
Present? X yes no		Obtain from lab. Q=A	
Required IS:		If RT varies by > 30 seconds, qualify with PM, in which case check the chromatographic profile for false + or -.	
1,4-dichlorobenzene-d4 naphthalene -d8 acenaphthene-d10 phenanthrene-d10 chrysene-d12 perylene-d12		If an IS area count is outside the -50 +100 % criterion, qualify positve results quantified by the IS with J,PM	SV1
RT < 30 sec. for previous daily calibration		Non-detects quantified by the IS as UJ if area count < 50 %	SV1a
Response area must not vary by > +100, -50% from previoius daily calibration		Very low or abrupt drop-off, R Enter % variation in FIMAD table	SV2

M 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Surrogates:	OK		
Present? X yes no		Obtain from lab. Q=A	
% recovery Water Nitrobenzene-d5 35-114 2-Fluorobiphenyl 43-116 p-Terphenyl 33-141 Phenol-d6 10-94 2-Fluorophenol 21-100 2,4,6-Tribromophenol 10-123 % recovery Soil Nitrobenzene-d5 23-120 2-Fluorobiphenyl 30-115 p-Terphenyl 18-137 Phenol-d6 24-113 2-Fluorophenol 25-121 2,4,6-Tribromophenol 19-122		If 2 or more surrogates in either SV fraction have a recovery > UL, specify the fraction being qualified and qualify detected target compounds with J+ and no qualifier for non-detects.	SV3
		If 2 or more surrogates in either fraction have a recovery 3 10% but < LL, specifiy the fractin being qualified and qualify as J-.	SV3a
		Qualify non-detected target compounds as U,J.	SV3c
		If > 2 surrogates out in either fraction, one with a recovery > UL and one with a recovery 3 10% but < LL, qualify as above.	SV3e
		If any surrogate in either fraction < 10% recovery, specify the fraction being qualifed and qualify detected compounds as J-	SV3b
		and non-detects as R, PM.	SV3d
		Do not qualify results for diluted samples based on surrogate recoveries.	
		Enter % recovery in FIMAD table	

M 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	RE. ON CODE
Method Blanks **Present? X yes no** **1 for each method, matrix, and/or analytical batch.** **Target analytes ≤ EQL except for common phthalates, which can be up to 5X EQL.**	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **SV4** **SV5**
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water.** **Analysis within 40 days of extraction**	**OK**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=PM**	
TICs (if requested) **Present X yes no** Additional analytes were requested and they were reported as TICS. The additional analytes were not found in the samples.	TICS requested.		

AT 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
ORGANOCHLORINE PESTICIDES/AROCLORS			
Initial calibration: **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** **% recovery** **Tetrachloro-m-xylene 50-160** **Decachlorbiphenyl50-160**	**OK**	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** The retention times were taken from the continuing calibration analyzed on 06 Aug. 96 at 02:28.	~~Aug. 11~~ OK	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	

M 21 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>Method blanks</u> Present? X yes no Separate for each method, matrix, and/or analytical batch Target analytes < EQL	OK	 Obtain from lab. Q=A If target compound found in blank but not in sample, no qualifier. Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as <u>U</u>. Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as <u>U</u>. Sample result > 5X multiple, OK	 <u>P4</u> <u>P5</u>
<u>Breakdown criteria</u> Present? X yes no ≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.	OK	 Obtain from lab. Q=A Q=P	
<u>Holding time</u> Extraction within 14 days of sample collection for soil and 7 days for water Analyses within 40 days of extraction	OK	 Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=<u>PM</u>	

M 21 Aug 96

CCS/VALIDATION COVER SHEET

M Code MASX SDG/RN: 2413 LAB NAME Paragon LAB CODE _____

NAME OF CCS CHECKER _____ COMPANY _____

NAME OF VALIDATOR _____ COMPANY _____

CCS DATE _____ VALIDATION DATE _____ EDS ENTRY DATE _____

ANALYTICAL SUITE:
- ☑ VOLATILES
- ☑ SEMIVOLATILES
- ☑ PESTICIDES/AROCLORS / herbs
- ☐ HIGH EXPLOSIVES
- ☐ INORGANICS
- ☐ RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments ___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify _____	_____

Are all samples assigned to the SDG present? ☑ YES ☐ NO Ted 8/1.3

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

_____

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_____

2nd Validation

Signature ~~recs~~ Ruth J. Sherman Signature/validation [signature]

7/12/96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2407** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **27 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- **X** OP Pesticides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The criteria developed for Organochlorine Pesticides was used to baseline validate the Organophosphorus Pesticide analysis. Deviations from the baseline validation are included in the appropiate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: 27Aug96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

- The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
ORGANOPHOSPHORUS PESTICIDES			
Initial calibration: **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** Triphenylphosphate was one of the surrogates recommended in method 8141A . The recovery limits were reported to be 5-203% for soils. No recovery limits were specified in the method.	**OK**	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.**	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	

M 27 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** The EQL was determined by multipling the Method detection limit found in table 1 times the factor found in table 2 of method 8141A which follows the comment section of this report.	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No soil holding time was suggested in the method. The samples were extracted and analyzed within the soil acceptance criteria for Organochlorine Pesticides listed in bold print above.	**NA**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction. Q=PM**	

A126 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2410** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **27 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- **X** OP Pesticides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The criteria developed for Organochlorine Pesticides was used to baseline validate the Organophosphorus Pesticide analysis. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: 27 Aug 96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
ORGANOPHOSPHORUS PESTICIDES			
Initial calibration: **Present? X yes no**	NA	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	NA	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** Triphenylphosphate was one of the surrogates recommended in method 8141A . The recovery limits were reported to be 5-203% for soils. No recovery limits were specified in the method.	OK	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d

M 27 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REA[illegible] CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** Retention time windows were determined from the continuing calibration verification analyzed on 29 July 96 at 6:24PM. The retention time labled as RT#1 was out of control in sample 0835-96-0020. The results were qualified as PM.	**PM**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** The EQL was determined by multipling the Method detection limit found in table 1 times the factor found in table 2 of method 8141A which follows the comment section of this report.	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	

M 27 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>Holding time</u> **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No soil holding time was suggested in the method. The samples were extracted and analyzed within the soil acceptance criteria for Organochlorine Pesticides listed in bold print above.	NA	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=<u>PM</u>**	

M 27 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2413** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **27 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- **X** OP Pesticides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The criteria developed for Organochlorine Pesticides was used to baseline validate the Organophosphorus Pesticide analysis. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: 27 Aug 96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REAS CODE
ORGANOPHOSPHORUS PESTICIDES			
Initial calibration: **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** Triphenylphosphate was one of the surrogates recommended in method 8141A . The recovery limits were reported to be 5-203% for soils. No recovery limits were specified in the method.	**OK**	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d

M 27 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** Retention time windows were determined from the continuing calibration verification analyzed on 29 July 96 at 6:24PM.	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** The EQL was determined by multipling the Method detection limit found in table 1 times the factor found in table 2 of method 8141A which follows the comment section of this report.	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	

M 27 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>Holding time</u> **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No soil holding time was suggested in the method. The samples were extracted and analyzed within the soil acceptance criteria for Organochlorine Pesticides listed in bold print above.	**NA**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=<u>PM</u>**	

27Aug96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2407** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- **X** Herbicides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sneets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Herbicides were analyzed by method 8150B. A copy of the method follows this sheet.

The criteria developed for Organochlorine Pesticides was used to baseline validate the Herbicide analysis. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: 28 Aug 96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Exp nation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
HERBICIDES			
Initial calibration: **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	**NA**	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** **% recovery** The method recommended surrogate is 2,4-Dichlorophenylacetic acid. No specific surrogate limits were suggested by the method. Paragon used the method recommended surrogate and reported surrogate limits of 54-142%.	**OK**	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d

M 28 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REAS CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** The retention time windows were determined from the calibration verification analyzed no 10 Aug. 96 at 01:37am.	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** EQLs were determined from method 8150B. A copy of the method follows the comment page. EQL=(Method detection limit from table 1)X(Factor found on table 2)	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	

M28Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>Holding time</u> **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No extraction holding times were suggested by the method however it did require that analyses be within 40 days of extraction. Samples were extracted within 14 days of collection as specified by the pesticide method.	OK	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=<u>PM</u>**	

A128Aug96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2410** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- X Herbicides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ó if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? - YES - NO

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Herbicides were analyzed by method 8150B.

The criteria developed for Organochlorine Pesticides was used to baseline validate the Herbicide analysis. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: _____ 28Aug96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REA. CODE
HERBICIDES			
Initial calibration: Present? X yes no	NA	Obtain from lab. Q=A	
Daily calibration verification Present? X yes no	NA	Obtain from lab. Q=A	
Surrogates: Present? X yes no % recovery The method recommended surrogate is 2,4-Dichlorophenylacetic acid. No specific surrogate limits were suggested by the method. Paragon used the method recommended surrogate and reported surrogate limits of 54-142%.	OK	Obtain from lab. Q=A If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+. If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J- and non-detected target analytes as UJ. If either surrogate's % recovery <10%, qualify detected compounds as J- and non-detects as R, PM. Enter % recovery in FIMAD table	P3 P3a P3c P3b P3d

M 28Aug96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	EASON CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** The retention time windows were determined from the calibration verification analyzed no 10 Aug. 96 at 01:37am.	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** EQLs were determined from method 8150B. A copy of the method follows the comment page. EQL=(Method detection limit from table 1)X(Factor found on table 2)	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 P4 P5
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	

M 28 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REAS CODE
<u>Holding time</u> **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No extraction holding times were suggested by the method however it did require that analyses be within 40 days of extraction. Samples were extracted within 14 days of collection as specified by the pesticide method.	OK	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=<u>PM</u>**	

A128Aug96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2413** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- **X** Herbicides
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? - YES - NO

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Herbicides were analyzed by method 8150B.

The criteria developed for Organochlorine Pesticides was used to baseline validate the Herbicide analysis. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. A copy of the method follows this page. The method was provided by FAX from Paragon on 26 Aug.96.

Signature/1st validation: _____ 28 Aug

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR ALIDATION QUALIFIERS

ORGANOCHLORINE PESTICIDES/AROCLORS (P)

3 Surrogate % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a Surrogate % recovery is > 10% but < the lower limit, which indicates a potential low bias in the results.

3b Surrogate % recovery < 10%, which indicates an increased potential low bias in the results..

3c Result is non-detect and the surrogate % recovery > 10 % but < lower limit, which indicates a potential for false negative results.

3d Result is a non-detect and the surrogate recovery < 10%, which indicates a greatly increased potential for false negative results.

4 Sample result > EQL and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 % RSD or % D exceeds the specification - apply to a positive result, which indicates potential quantitation problems in the analyses and the potential for false positive results.

7 % RSD or %D exceeds the specification - apply to a non-detect, which indicates potential quantitation problems in the analyses and the potential false negative results.

8. Analyte concentration exceeds linear range and sample not diluted to within that range. This usually results in a negative bias in the reported concentratiion.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10. Breakdown criteria have been exceeded, indicating poor instrument performance which can result in a low bias in the reported results and potential false negative results for labile compounds and potential false positive results for breakdown procucts.

11. Surrogate retention time has shifted by > 0.05 minutes, possibly affecting analyte identification and causing false positives or negatives.

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
HERBICIDES			
Initial calibration: **Present? X yes no**	NA	**Obtain from lab. Q=A**	
Daily calibration verification **Present? X yes no**	NA	**Obtain from lab. Q=A**	
Surrogates: **Present? X yes no** **% recovery** The method recommended surrogate is 2,4-Dichlorophenylacetic acid. No specific surrogate limits were suggested by the method. Paragon used the method recommended surrogate and reported surrogate limits of 54-142%.	OK	**Obtain from lab. Q=A** **If either surrogate's % recovery is more than upper limit, detected target compounds are are qualified with J+.** **If either surrogate's % recovery is ≥ 10% but ≤ lower limit, qualify detected compounds with J-** **and non-detected target analytes as UJ.** **If either surrogate's % recovery <10%, qualify detected compounds as J-** **and non-detects as R, PM.** **Enter % recovery in FIMAD table**	 P3 P3a P3c P3b P3d

M 28 Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REAS CODE
Retention Time Windows **Present? X yes no** **Surrogates' retention time should not shift by ± 0.05 minutes.** The retention time windows were determined from the calibration verification analyzed no 10 Aug. 96 at 01:37am.	**OK**	**Obtain from lab. Q=A** **If either of the surrogate's RT shifts >± 0.05 minutes, qualify the results as PM. (An examination of chromatographic peaks will be required to determine if target analytes are present).**	
Method blanks **Present? X yes no** **Separate for each method, matrix, and/or analytical batch** **Target analytes < EQL** EQLs were determined from method 8150B. A copy of the method follows the comment page. EQL=(Method detection limit from table 1)X(Factor found on table 2)	**OK**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **P4** **P5**
Breakdown criteria **Present? yes no** **≤ 20% for either 4,4'-DDT or endrin or 30% for combined breakdown.**	**NA**	**Obtain from lab. Q=A** **Q=P**	

M 28Aug 96

CRITERIA	MET? NO/Q	VALIDATION QUALIFIER (Q) RULES	REASON CODE
<u>Holding time</u> **Extraction within 14 days of sample collection for soil and 7 days for water** **Analyses within 40 days of extraction** No extraction holding times were suggested by the method however it did require that analyses be within 40 days of extraction. Samples were extracted within 14 days of collection as specified by the pesticide method.	OK	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=<u>PM</u>**	

A128Aug96

CCS/VALIDATION COVER SHEET Revised for Dioxins by Method 8280

M Code_MA54_ SDG/RN:_2408_ LAB NAME:_Weston_ LAB CODE_____

NAME OF VALIDATOR: Bart Vanden Plas COMPANY: **LATA**

VALIDATION DATE:_8/29/96_ EDS ENTRY DATE_____

ANALYTICAL ITE:

- o VOLATILES
- **X** SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" * if "no"
1.	Case Narrative	_✓__
2.	Airbills (no. Of shipments___)	_✓__
3.	Chain-of-custody records	_✓__
4.	Sample tags	_NA__
5.	Sample log-in sheets	_✓__
6.	Internal lab sample transfer records and tracking sheets	_✓__
7.	Other? Identify_____	

Are all samples assigned to the SDG present? ¨ **YES** ¨ NO
Identify any samples in the assigned SDG/RN that are missing

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)
The semivolatile baseline validation process was used as a basis for the checks conducted on the dioxin data in this data package. The checks were conducted on the forms following the baseline validation process and the actual mass chromatograms and other raw data were not checked, nor were the calculations used checked for accuracy. Significant deviations to the items checked are noted on the following sheets (in unbolded text). **Criteria from SW-846, method 8280 were used as the baseline requirements, as described in the method SOPs from Weston (dated August 27, 1996). Only those items indicated on the following pages were checked.**
Using the criteria specified on the following pages, the only data that require qualification are the results for sample 0835-96-0010. The results are qualified as UJ (reason code SV2) because of the low internal standard recovery. However, because of the nature of method 8280, the data are not qualified as RPM following the semivolatile procedure. Method 8280 is an isotope dilution method that takes internal standard recovery into account in the reported estimated detection limit. For this sample the EDL is raised because of the low recovery of the IS and the results are acceptable for use as qualified. The laboratory is going to provide a re-analysis of this sample under separate cover that may provide for lower detection limits, depending on the internal standard recoveries.

Signature/1st validation: _____ 8/30/96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date:

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgment based on data use . It usually has an "M" with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time exceedence, the project manager/delegee can decide to use the data with no qualification when analytes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

SEMIVOLATILES (SV)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantitation of the associated analytes and the correct quantitation of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 2 or more surrogates in either SV fraction have a % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a 2 or more surrogates in either fraction have a % recovery > 10% but < lower limit, which indicates a potential low bias in the results.

3b A surrogate in the related fraction has a recovery of < 10%, which indicates an increased potential low bias in the results.

3c Result is a non-detect and 2 or more surrogates have a recovery of > 10% but < the lower limit, which indicates an increased potential for false negative results.

3d Result is a non-detect and a surrogate in the related fraction has a % recovery of < 10%, which indicates a greatly increased potential for false negative results.

3e Recovery of one surrogate in a fraction is > the upper limit and one is < the lower limit but > 10%, which potential bias in the results, however, the direction of the bias is uncertain.

4 Sample result > EQL and < 5X (10X for common phthalates) and < 5X the concentration of the related analyte in the blank,

which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8. Instrument Performance Check has "important" ion(s) or ion ratios out of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10 The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentration.

SEMIVOLATILES

Instrument performance check (DFTPP) **Present?** ☐ **yes** ☐ **no**	**NA**	Window defining mix present **Obtain from lab. Q=A**	
Initial Calibration **Present?** ☐ **yes** ☐ **no** (**Continuing calibration** **Present?** ☐ **yes** ☐ **no**	**Yes** **Yes**	**Obtain from lab. Q=A** **Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form** **Obtain from lab. Q=A** **Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form** Method 8280 criteria used from Weston SOP.	

8/30/96

Internal Standards		**Check manually during baseline validation**	
Present? ☐ **yes** ☐ **no**	**Yes**	**Obtain from lab. Q=A**	
Required IS: **1,4-dichlorobenzene-d4** **naphthalene -d8** **acenaphthene-d10** **phenanthrene-d10** **chrysene-d12** **perylene-d12**		**If RT varies by > 30 seconds, qualify with PM, in which case check the chromatographic profile for false + or -.** **If an IS area count is outside the -50 +100 % criterion, qualify positive results quantified by the IS with J,PM**	**SV1**
RT < 30 sec. for previous daily calibration	**Yes**	**Non-detects quantified by the IS as UJ if area count < 50 %**	**SV1a**
Response area must not vary by > +100, -50% from previous daily calibration 40% lower limit used from Weston SOP.	**No/ UJ**	**Very low or abrupt drop-off, R** **Enter % variation in FIMAD table**	**SV2**

8/30/96

Surrogates:		SW-846 criteria used from Weston SOP.	
Present? ☐ yes ☐ no	**Yes**	**Obtain from lab. Q=A**	
% recovery **Water** **Nitrobenzene-d5** 35-114 **2-Fluorobiphenyl** 43-116 **p-Terphenyl** 33-141 **Phenol-d6** 10-94 **2-Fluorophenol** 21-100 **2,4,6-Tribromophenol** 10-123 **% recovery** **Soil** **Nitrobenzene-d5** 23-120 **2-Fluorobiphenyl** 30-115 **p-Terphenyl** 18-137 **Phenol-d6** 24-113 **2-Fluorophenol** 25-121 **2,4,6-Tribromophenol** 19-122		**If 2 or more surrogates in either SV fraction have a recovery > UL, specify the fraction being qualified and qualify detected target compounds with J+ and no qualifier for non-detects.** **If 2 or more surrogates in either fraction have a recovery 3 10% but < LL, specify the fraction being qualified and qualify as J-.** **Qualify non-detected target compounds as U,J.** **If > 2 surrogates out in either fraction, one with a recovery > UL and one with a recovery 3 10% but < LL, qualify as above.** **If any surrogate in either fraction < 10% recovery, specify the fraction being qualified and qualify detected compounds as J-** **and non-detects as R, PM.** **Do not qualify results for diluted samples based on surrogate recoveries.** **Enter % recovery in FIMAD table**	**SV3** **SV3a** **SV3c** **SV3e** **SV3b** **SV3d**

8/20/96

Method Blanks **Present? ☐ yes ☐ no** **1 for each method, matrix, and/or analytical batch.** **Target analytes ≤ EQL except for common phthalates, which can be up to 5X EQL.**	**Yes**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **SV4** **SV5**
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water.** **Analysis within 40 days of extraction**	**Yes**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=PM**	
TICs (if requested) **Present ☐ yes ☐ no**	**NA**		

Other items checked for Dioxins (presence or absence and forms checked for compliance with Weston SOP):

Case Narrative
Window Defining Mix
Calibration Raw data
2,3,7,8-TCDD/1,2,3,4-TCDD valley
Signal to noise ratio for 200ng/ml standard
IS recoveries
%D for initial calibrations
RRF for initial calibrations
Method blank results
Matrix Spike recoveries

KJU 8/30/92

CCS/VALIDATION COVER SHEET Revised for Dioxins by Method 8280

M Code_MA5X_ SDG/RN:_2411 & 2414_ LAB NAME:_Weston_ LAB CODE_____

NAME OF VALIDATOR: Bart Vanden Plas COMPANY: **LATA**

VALIDATION DATE:_8/29/96_ EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- **X** SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- o INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" * if "no"
1.	Case Narrative	_✓__
2.	Airbills (no. Of shipments___)	_✓__
3.	Chain-of-custody records	_✓__
4.	Sample tags	_NA__
5.	Sample log-in sheets	_✓__
6.	Internal lab sample transfer records and tracking sheets	_✓__
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " **YES** " NO
Identify any samples in the assigned SDG/RN that are missing

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The semivolatile baseline validation process was used as a basis for the checks conducted on the dioxin data in this data package. The checks were conducted on the forms following the baseline validation process and the actual mass chromatograms and other raw data were not checked, nor were the calculations used checked for accuracy. Significant deviations to the items checked are noted on the following sheets (in unbolded text). **Criteria from SW-846, method 8280 were used as the baseline requirements, as described in the method SOPs from Weston (dated August 27, 1996). Only those items indicated on the following pages were checked.**

Using the criteria specified on the following pages, the only sample that had QC results outside criteria was the method blank. The method blank showed low internal standard recovery for two internal standards. However, because of the nature of method 8280, the data are still acceptable. Method 8280 is an isotope dilution method that takes internal standard recovery into account in the reported estimated detection limit. For the method blank sample the EDL is raised because of the low recovery of the IS and the results are acceptable for use as qualified. There were no detections of dioxins in the other samples, so the raised EDLs in the blank are not a data quality problem.

Signature/1st validation: _____ 8/30/96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

8/20/96

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgment based on data use . It usually has an "M" with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time exceedence, the project manager/delegee can decide to use the data with no qualification when analytes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

SEMIVOLATILES (SV)

0 The internal standard retention time has shifted by more than ±30 seconds, which could affect compound identification and cause false positives or negatives.

1 The internal standard area count for the quantitating internal standard is outside the - 50, + 100 % window in relation to the previous continuing calibration, which could affect the accuracy of the quantitation of the associated analytes and the correct quantitation of surrogate recoveries.

1a Non-detected results, and the area count for the quantitating internal standard is < 50 % of the area count for the previous continuing calibration, which greatly increases the potential for false negative results

2 Very low or abrupt drop-off of quantitating internal standard, which indicates an increased potential for false negative results and possibly other problems with sample quantitation.

3 2 or more surrogates in either SV fraction have a % recovery > upper limit, which indicates a potential high bias in the results and a potential for false positive results.

3a 2 or more surrogates in either fraction have a % recovery > 10% but < lower limit, which indicates a potential low bias in the results.

3b A surrogate in the related fraction has a recovery of < 10%, which indicates an increased potential low bias in the results.

3c Result is a non-detect and 2 or more surrogates have a recovery of > 10% but < the lower limit, which indicates an increased potential for false negative results.

3d Result is a non-detect and a surrogate in the related fraction has a % recovery of < 10%, which indicates a greatly increased potential for false negative results.

3e Recovery of one surrogate in a fraction is > the upper limit and one is < the lower limit but > 10%, which potential bias in the results, however, the direction of the bias is uncertain.

4 Sample result > EQL and < 5X (10X for common phthalates) and < 5X the concentration of the related analyte in the blank, which indicates the reported detection is considered to be indistinguishable from blank contamination.

5 Sample result < EQL and < 5X (10X as above) the concentration of the analyte in the blank, which indicates the detected result was indistinguishable from blank contamination and the detected result was changed to non-detected at the EQL.

5a Sample result > EQL and > 5X (10X as above) the concentration of the analyte in the blank, which indicates the reported result is not likely to be related to the contamination in the associated blank.

6 Response factor for the analytes is <0.05, indicating a sensitivity problem that could prohibit detection if present at low concentrations

7 % RSD or % D exceeds the specification which may affect quantitation, which indicates potential quantitation problems in the analyses.

8. Instrument Performance Check has "important" ion(s) or ion ratios out of specification, which may affect compound identification.

9. Holding time is exceeded. An evaluation of the data of interest with respect to holding time exceedance impact (technically) is recommended. Factors to consider include sample preservation, sample storage practices, use of the data, levels of contamination found in the sample, and the physical, chemical, and biological stability of the target analytes in the sample matrix.

10 The result is higher than the high point of the calibration (or outside the linear range). This usually results in a negative bias in the reported concentration.

SEMIVOLATILES

Instrument performance check (DFTPP) **Present? yes no**	**NA**	Window defining mix present **Obtain from lab. Q=A**	
Initial Calibration **Present? yes no** (**Continuing calibration** **Present? yes no**	**Yes** **Yes**	**Obtain from lab. Q=A** **Analytes not meeting RRF or % RSD criteria should be circled on Initial Calibration Form** **Obtain from lab. Q=A** **Analytes not meeting RRF or % D criteria should be circled on Continuing Calibration Form** Method 8280 criteria used from Weston SOP.	

6/30/96

Internal Standards		**Check manually during baseline validation**	
Present? yes no	**Yes**	**Obtain from lab. Q=A**	
Required IS: **1,4-dichlorobenzene-d4** **naphthalene -d8** **acenaphthene-d10** **phenanthrene-d10** **chrysene-d12** **perylene-d12**		**If RT varies by > 30 seconds, qualify with PM, in which case check the chromatographic profile for false + or -.** **If an IS area count is outside the -50 +100 % criterion, qualify positive results quantified by the IS with J,PM**	**SV1**
RT < 30 sec. for previous daily calibration	**Yes**	**Non-detects quantified by the IS as UJ if area count < 50 %**	**SV1a**
Response area must not vary by > +100, -50% from previous daily calibration 40% lower limit used from Weston SOP.	**No/ NA**	**Very low or abrupt drop-off, R** Only internal standards in blank outside of limits, data are OK.- **Enter % variation in FIMAD table**	**SV2**

6/30/96

Surrogates:		SW-846 criteria used from Weston SOP.	
Present? yes no	**Yes**	**Obtain from lab. Q=A**	
% recovery Water **Nitrobenzene-d5 35-114** **2-Fluorobiphenyl 43-116** **p-Terphenyl 33-141** **Phenol-d6 10-94** **2-Fluorophenol 21-100** **2,4,6-Tribromophenol 10-123**		**If 2 or more surrogates in either SV fraction have a recovery > UL, specify the fraction being qualified and qualify detected target compounds with J+ and no qualifier for non-detects.**	**SV3**
		If 2 or more surrogates in either fraction have a recovery 3 10% but < LL, specify the fraction being qualified and qualify as J-.	**SV3a**
% recovery Soil **Nitrobenzene-d5 23-120** **2-Fluorobiphenyl 30-115** **p-Terphenyl 18-137** **Phenol-d6 24-113** **2-Fluorophenol 25-121** **2,4,6-Tribromophenol 19-122**		**Qualify non-detected target compounds as U,J.**	**SV3c**
		If > 2 surrogates out in either fraction, one with a recovery > UL and one with a recovery 3 10% but < LL, qualify as above.	**SV3e**
		If any surrogate in either fraction < 10% recovery, specify the fraction being qualified and qualify detected compounds as J-	**SV3b**
		and non-detects as R, PM.	**SV3d**
		Do not qualify results for diluted samples based on surrogate recoveries.	
		Enter % recovery in FIMAD table	

SJV 6/30/96

Method Blanks **Present? yes no** **1 for each method, matrix, and/or analytical batch.** **Target analytes ≤ EQL except for common phthalates, which can be up to 5X EQL.**	**Yes**	**Obtain from lab. Q=A** **If target compound found in blank but not in sample, no qualifier.** **Sample result > EQL and < 5 X (< 10x for noted exceptions) multiple of blank, elevate EQL to sample result and qualify as U.** **Sample result < EQL and < 5X (< 10x for noted exceptions) multiple of blank, elevate sample results to EQL and qualify as U.** **Sample result > 5X multiple, OK**	 **SV4** **SV5**
Holding time **Extraction within 14 days of sample collection for soil and 7 days for water.** **Analysis within 40 days of extraction**	**Yes**	**Compare date of extraction with sampling date on Analytical Request and date of analysis with date of extraction.** **Q=PM**	
TICs (if requested) **Present yes no**	**NA**		

Other items checked for Dioxins (presence or absence and forms checked for compliance with Weston SOP):

Case Narrative
Window Defining Mix
Calibration Raw data
2,3,7,8-TCDD/1,2,3,4-TCDD valley
Signal to noise ratio for 200ng/ml standard
IS recoveries
%D for initial calibrations
RRF for initial calibrations
Method blank results
Matrix Spike recoveries

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN:**2409** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **20 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- **X** INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? O if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

Reactive Cyanide and reactive Sulfide results are reported in this package.
No validation criteria was available for SN.
Steve Fry was contacted 20 Aug. 96 reqarding the discrepency between the chain of custody and the analytes reported. No explaination was provided in the case narrative. The cations, Fe, and Mn were missing from the metals target analyte list and reactive cynide and reactive sulfide were analyzed in place of cynide and sulfide. Steve Fry said that Roy Bohn, John Miglio and the State of New Mexico had agreeded on the list of analytes provided in this report. A complete list of analytes requested follows.

Signature/1st validation: [signature] 20 Aug 96

Signature/2nd validation: [signature] 8/21/96

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

3 Spike recovery > upper limit (125%) and the results > the EDL.

3a Spike recovery < lower limit (75%) and the results are > the EDL.

3d Spike recovery < 30 % and results < EDL.

3e Spike recovery 30-74% and sample results < EDL.

4 Using the worse case blank, the sample results > the EDL but < 5X the concentration of the related analyte in the blank.

6 Recovery of analyte in the LCS > upper limit.

6a Recovery of analyte in the LCS < lower limit.

7 ICS recovery > 120% and results > EDL.

7a ICS recovery 50-79% .

7b ICS recovery < 50% and result < EDL.

8a For ICV and CCV, recovery is lower than specification

For ICV and CCV, recovery is higher than specification

8c For ICV and CCV, results are positive, but < MDL and recovery is lower than the specification.

8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

INORGANICS

Calibration **Present? X yes ☐ no** **Initial calibration verification** **Present? X yes ☐ no** **Continuing calibration verification** **Present? X yes ☐ no**	**NA**	**Obtain from lab. Q=A** **Obtain form lab. Q=A**	
Blanks (Applies to each) **Present? X yes ☐ no** **Initial & continuing calibration blanks** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **Preparation blank** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** The qualifiers were applied because of results in the calibration blanks not results in the prep blank.	**U**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as U.**	**I4**

M 20 Aug 96

<u>ICP Interference check sample</u> Present? X yes ☐ no Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn Analyze at beginning of each run Each wavelength used for samples ICS results must be ± 20%of true value	OK	Obtain from lab. Q=A If the ICS recovery is >120% and the results are >EDL, qualify data as <u>J+</u> If recovery is 50-79%, qualify data as <u>J-</u> If ICS recovery is < 50% and results are < EDL, qualify results as <u>R</u>, <u>PM</u>	 I7 I7a I7b
<u>Spike sample analysis</u> Present? X yes ☐ no One per run, per matrix, concentration, SDG % recovery: 75-125% (unless conc. > 4X spike conc.) ~~Sb ion~~ The matrix spike is out of control for Sb.	UJ	Obtain from lab. Q=A If spike recovery > 125% and results < EDL, OK If spike recovery < 75% and results are >EDL, qualify results as <u>J-</u> if same matrix, <u>P</u> if not. If spike recovery > 125% and results are >EDL, qualify data as <u>J+</u> if same matrix, <u>P</u> if not. If spike recovery 30-74% and sample results < EDL, qualify as <u>UJ</u> if same matrix, <u>P</u> if not. If spike recovery results < 30% and results < EDL, qualify as <u>R</u>, <u>PM</u>.	 <u>I3a</u> <u>I3</u> <u>I3e</u> <u>I3d</u>

M 29 Aug 96

Duplicate **Present? X yes ☐ no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**P**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.**	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A solid LCS was analyzed. All the results met the aqueous criteria except for Sb.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	**I6a** **I6**
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection**	**NA**	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

172 9 Aug 96

CCS/VALIDATION COVER SHEET

MA5X

M Code___ SDG/RN: 2409 LAB NAME Paragon LAB CODE_____

NAME OF CCS CHECKER_____ COMPANY_____

NAME OF VALIDATOR_____ COMPANY_____

CCS DATE_____ VALIDATION DATE_____ EDS ENTRY DATE_____

ANALYTICAL SUITE:
- ☐ VOLATILES
- ☐ SEMIVOLATILES
- ☐ PESTICIDES/AROCLORS
- ☐ HIGH EXPLOSIVES
- ☒ INORGANICS
- ☐ RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	____
2.	Airbills (no. Of shipments___)	____
3.	Chain-of-custody records	____
4.	Sample tags	____
5.	Sample log-in sheets	____
6.	Internal lab sample transfer records and tracking sheets	____
7.	Other? Identify_____	____

Are all samples assigned to the SDG present? ☑ YES ☐ NO Ted 8/13

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

Signature/CCS [signature] 8/21/96 Signature/validation [signature] 20 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN:**2412** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **20 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- **X** INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon da-: of resolution and lab contact: (attach additional comment sheets as :cessary)

Reactive Cyanide and reactive Sulfide results are reported in this package.
No validation criteria was available for Sn.
Steve Fry was contacted 20 Aug. 96 reqarding the discrepency between the chain of custody and the analytes reported. No explaination was provided in the case narrative. The cations, Fe, and Mn were missing from the metals target analyte list and reactive cynide and reactive sulfide were analyzed in place of cynide and sulfide. Steve Fry said that Roy Bohn, John Miglio and the State of New Mexico had agreeded on the list of analytes provided in this report. A complete list of analytes requested follows.

Signature/1st validation: _____ 20 Aug 96

Signature/2nd validation: _____ 8/21/96

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

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PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

3 Spike recovery > upper limit (125%) and the results > the EDL.

3a Spike recovery < lower limit (75%) and the results are > the EDL.

3d Spike recovery < 30 % and results < EDL.

3e Spike recovery 30-74% and sample results < EDL.

4 Using the worse case blank, the sample results > the EDL but < 5X the concentration of the related analyte in the blank.

6 Recovery of analyte in the LCS > upper limit.

6a Recovery of analyte in the LCS < lower limit.

7 ICS recovery > 120% and results > EDL.

7a ICS recovery 50-79% .

7b ICS recovery < 50% and result < EDL.

8a For ICV and CCV, recovery is lower than specification

8b For ICV and CCV, recovery is higher than specification

8c For ICV and CCV, results are positive, but < MDL and recovery is lower than the specification.

8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

INORGANICS

Calibration **Present? X yes ☐ no** **Initial calibration verification** **Present? X yes ☐ no** **Continuing calibration verification** **Present? X yes ☐ no**	**NA**	**Obtain from lab. Q=A** **Obtain form lab. Q=A**	
Blanks (Applies to each) **Present? X yes ☐ no** **Initial & continuing calibration blanks** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **Preparation blank** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** The qualifiers were applied because of results in the calibration blanks not results in the prep blank.	**U**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as U.**	**I4**

M20 Aug 96

<u>ICP Interference check sample</u> Present? X yes ☐ no Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn Analyze at beginning of each run Each wavelength used for samples ICS results must be ± 20%of true value	OK	Obtain from lab. Q=A If the ICS recovery is >120% and the results are >EDL, qualify data as <u>J+</u> If recovery is 50-79%, qualify data as <u>J-</u> If ICS recovery is < 50% and results are < EDL, qualify results as <u>R</u>, <u>PM</u>	I7 I7a I7b
<u>Spike sample analysis</u> Present? X yes ☐ no One per run, per matrix, concentration, SDG % recovery: 75-125% (unless conc. > 4X spike conc.) The matrix spike for Ba & Sb are out of control. 17	UJ, J-	Obtain from lab. Q=A If spike recovery > 125% and results < EDL, OK If spike recovery < 75% and results are >EDL, qualify results as <u>J-</u> if same matrix, <u>P</u> if not. If spike recovery > 125% and results are >EDL, qualify data as <u>J+</u> if same matrix, <u>P</u> if not. If spike recovery 30-74% and sample results < EDL, qualify as <u>UJ</u> if same matrix, <u>P</u> if not. If spike recovery results < 30% and results < EDL, qualify as <u>R</u>, <u>PM</u>.	<u>I3a</u> <u>I3</u> <u>I3e</u> <u>I3d</u>

17 20 Aug 96

Duplicate **Present? X yes ☐ no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**P**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.** Ba is out of control in the duplicate	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A solid LCS was analyzed. All the results met the aqueous criteria except for Hg.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	I6a I6
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection**	**NA**	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

M 20 Aug 96

CCS/VALIDATION COVER SHEET

MASX

M Code___ SDG/RN: 2412 LAB NAME Paragon LAB CODE_____

NAME OF CCS CHECKER_____ COMPANY_____

NAME OF VALIDATOR_____ COMPANY_____

CCS DATE_____ VALIDATION DATE_____ EDS ENTRY DATE_____

ANALYTICAL SUITE:
- ☐ VOLATILES
- ☐ SEMIVOLATILES
- ☐ PESTICIDES/AROCLORS
- ☐ HIGH EXPLOSIVES
- ☒ INORGANICS
- ☐ RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	____
2.	Airbills (no. Of shipments___)	____
3.	Chain-of-custody records	____
4.	Sample tags	____
5.	Sample log-in sheets	____
6.	Internal lab sample transfer records and tracking sheets	____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? ☐ YES ☐ NO

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

Signature/ccs 2nd Validation [signature] 8/21/96

Signature/validation [signature] 20 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN:**2415** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **20 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:
- o VOLATILES
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- **X** INORGANICS
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

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Signature/1st validation: _____ 20 Aug 96

Signature/2nd validation: _____ 8/21/96

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

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REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

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3e Spike recovery 30-74% and sample results < EDL.

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8a For ICV and CCV, recovery is lower than specification

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8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

INORGANICS

Calibration **Present? X yes ☐ no** **Initial calibration verification** **Present? X yes ☐ no** **Continuing calibration verification** **Present? X yes ☐ no**	**NA**	**Obtain from lab. Q=A** **Obtain form lab. Q=A**	
Blanks (Applies to each) **Present? X yes ☐ no** **Initial & continuing calibration blanks** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **Preparation blank** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** The qualifiers were applied because of results in the calibration blanks not results in the prep blank.	**U**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as U.**	I4

M 20 Aug 96

ICP Interference check sample Present? X yes ☐ no Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn Analyze at beginning of each run Each wavelength used for samples ICS results must be ± 20%of true value	OK	Obtain from lab. Q=A If the ICS recovery is >120% and the results are >EDL, qualify data as J+ If recovery is 50-79%, qualify data as J- If ICS recovery is < 50% and results are < EDL, qualify results as R, PM	I7 I7a I7b
Spike sample analysis Present? X yes ☐ no One per run, per matrix, concentration, SDG % recovery: 75-125% (unless conc. > 4X spike conc.) The matrix spike for Sb is out of control.	UJ,	Obtain from lab. Q=A If spike recovery > 125% and results < EDL, OK If spike recovery < 75% and results are >EDL, qualify results as J- if same matrix, P if not. If spike recovery > 125% and results are >EDL, qualify data as J+ if same matrix, P if not. If spike recovery 30-74% and sample results < EDL, qualify as UJ if same matrix, P if not. If spike recovery results < 30% and results < EDL, qualify as R, PM.	I3a I3 I3e I3d

M 20 Aug 96

Duplicate **Present? X yes ☐ no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**OK**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.**	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A solid LCS was analyzed. All the results met the aqueous criteria except for Hg.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	I6a I6
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection**	**NA**	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

M 20 Aug 96

CCS/VALIDATION COVER SHEET

M 1/3X

M Code___ SDG/RN: 2415 LAB NAME Paragon LAB CODE_____

NAME OF CCS CHECKER_____ COMPANY_____

NAME OF VALIDATOR_____ COMPANY_____

CCS DATE_____ VALIDATION DATE_____ EDS ENTRY DATE_____

ANALYTICAL SUITE:
- ☐ VOLATILES
- ☐ SEMIVOLATILES
- ☐ PESTICIDES/AROCLORS
- ☐ HIGH EXPLOSIVES
- ☑ INORGANICS
- ☐ RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? ✓ if "yes" o if "no"
1.	Case Narrative	____
2.	Airbills (no. Of shipments___)	____
3.	Chain-of-custody records	____
4.	Sample tags	____
5.	Sample log-in sheets	____
6.	Internal lab sample transfer records and tracking sheets	____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? ☑ YES ☐ NO

Tad 8/13

Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact:

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2nd Validation

Signature/~~CCS~~ [signature] 8/21/96 Signature/validation [signature] 28 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2409** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- X INORGANICS- Reactive Cyanide/Reactive Sulfide
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? " YES " NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The method used for reactive cyanaide and reactive sulfide follows this page.

The criteria developed for Inorganic analysis was used to baseline validate the Reactive Cyanaide and Reactive Sulfide analyses. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. The method was provided by FAX from Paragon on 28 Aug.96.

Signature/1st validation: [signature] 29 Aug 96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

3 Spike recovery > upper limit (125%) and the results > the EDL.

3a Spike recovery < lower limit (75%) and the results are > the EDL.

3d Spike recovery < 30 % and results < EDL.

3e Spike recovery 30-74% and sample results < EDL.

4 Using the worse case blank, the sample results > the EDL but < 5X the concentration of the related analyte in the blank.

6 Recovery of analyte in the LCS > upper limit.

6a Recovery of analyte in the LCS < lower limit.

7 ICS recovery > 120% and results > EDL.

7a ICS recovery 50-79% .

7b ICS recovery < 50% and result < EDL.

8a For ICV and CCV, recovery is lower than specification

8b For ICV and CCV, recovery is higher than specification

8c For ICV and CCV, results are positive, but < MDL and recovery is lower than the specification.

8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

REACTIVE CYANIDE
REACTIVIE SULFIDE

Calibration **Present? X yes no** The iodine solution used as the titrant in the reactive sulfide analysis was standardized. A seven point calibration curve for reactive cyanide was analyzed with r >0.995.	**NA**	**Obtain from lab. Q=A**	
Initial calibration verification **Present? X yes no** Appicable to reactive cyinide only.		**Obtain form lab. Q=A**	
Continuing calibration verification **Present? X yes no** Continuing calibration verification standards are applicable to reactive cyanide analysis only.			

M 29 Aug 96

<u>Blanks</u> (Applies to each) **Present? X yes no** **<u>Initial & continuing calibration blanks</u>** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **<u>Preparation blank</u>** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** Paragon reported detection limits of 0.5 mg/Kg for reactive cyanides and 50 mg/Kg for reactive sulfides. The method does not specify EQLs for either type of analysis.	**OK**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as <u>U</u>.**	**<u>I4</u>**

M29 Aug 96

ICP Interference check sample **Present? yes no** **Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn** **Analyze at beginning of each run** **Each wavelength used for samples** **ICS results must be ± 20%of true value**	**NA**	**Obtain from lab. Q=A** **If the ICS recovery is >120% and the results are >EDL, qualify data as J+** **If recovery is 50-79%, qualify data as J-** **If ICS recovery is < 50% and results are < EDL, qualify results as R, PM**	 **I7** **I7a** **I7b**
Spike sample analysis **Present? yes X no** **One per run, per matrix, concentration, SDG** **% recovery: 75-125% (unless conc. > 4X spike conc.)** No matrix spike is required by the method.	**See comment.**	**Obtain from lab. Q=A** **If spike recovery > 125% and results < EDL, OK** **If spike recovery < 75% and results are >EDL, qualify results as J- if same matrix, P if not.** **If spike recovery > 125% and results are >EDL, qualify data as J+ if same matrix, P if not.** **If spike recovery 30-74% and sample results < EDL, qualify as UJ if same matrix, P if not.** **If spike recovery results < 30% and results < EDL, qualify as R, PM.**	 **I3a** **I3** **I3e** **I3d**

M 29 Aug 96

Duplicate **Present? X yes no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**OK**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.**	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A LCS was analyzed for reactive cyanide with a recovery of 95%.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	**I6a** **I6**
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection** The method does not specify a holding time for either reactive cyanide or reactive sulfide. The distillation was started for both analysis 15 days after sample collection. The samples for both analysis was started one day after distillation was complete.	See comment.	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

MZ 29 Aug 96

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2412** LAB NAME: **Paragon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATIL
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- **X** INORGANICS-Reactive Cyanide/ Reactive Sulfide
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ö if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? ˜ YES ˜ NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The method used for reactive cyanaide and reactive sulfide follows this page.

The criteria developed for Inorganic analysis was used to baseline validate the Reactive Cyanaide and Reactive Sulfide analyses. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. The method was provided by FAX from Paragon on 28 Aug.96.

Signature/1st validation: 29Aug96

Signature/2nd validation: _____

Qualifiers entered by: _____ Date: _____

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

3 Spike recovery > upper limit (125%) and the results > the EDL.

3a Spike recovery < lower limit (75%) and the results are > the EDL.

3d Spike recovery < 30 % and results < EDL.

3e Spike recovery 30-74% and sample results < EDL.

4 Using the worse case blank, the sample results > the EDL but < 5X the concentration of the related analyte in the blank.

6 Recovery of analyte in the LCS > upper limit.

6a Recovery of analyte in the LCS < lower limit.

7 ICS recovery > 120% and results > EDL.

7a ICS recovery 50-79% .

7b ICS recovery < 50% and result < EDL.

8a For ICV and CCV, recovery is lower than specification

8b For ICV and CCV, recovery is higher than specification

8c For ICV and CCV, results are positive, but < MDL and recovery is lower than the specification.

8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

REACTIVE CYANIDE
REACTIVIE SULFIDE

<u>Calibration</u> **Present? X yes no** The iodine solution used as the titrant in the reactive sulfide analysis was standardized. A seven point calibration curve for reactive cyanide was analyzed with r >0.995.	**NA**	**Obtain from lab. Q=A**	
<u>**Initial calibration verification**</u> **Present? X yes no** Appicable to reactive cyinide only.		**Obtain form lab. Q=A**	
<u>**Continuing calibration verification**</u> **Present? X yes no** Continuing calibration verification standards are applicable to reactive cyanide analysis only.			

M 29 Aug 96

<u>Blanks</u> (Applies to each) **Present? X yes no** **<u>Initial & continuing calibration blanks</u>** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **<u>Preparation blank</u>** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** Paragon reported detection limits of 0.5 mg/Kg for reactive cyanides and 50 mg/Kg for reactive sulfides. The method does not specify EQLs for either type of analysis.	**OK**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as <u>U</u>.**	**<u>I4</u>**

1729Aug96

ICP Interference check sample Present? yes no Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn Analyze at beginning of each run Each wavelength used for samples ICS results must be ± 20%of true value	NA	Obtain from lab. Q=A If the ICS recovery is >120% and the results are >EDL, qualify data as J+ If recovery is 50-79%, qualify data as J- If ICS recovery is < 50% and results are < EDL, qualify results as R, PM	 I7 I7a I7b
Spike sample analysis Present? yes X no One per run, per matrix, concentration, SDG % recovery: 75-125% (unless conc. > 4X spike conc.) No matrix spike is required by the method.	See comment.	Obtain from lab. Q=A If spike recovery > 125% and results < EDL, OK If spike recovery < 75% and results are >EDL, qualify results as J- if same matrix, P if not. If spike recovery > 125% and results are >EDL, qualify data as J+ if same matrix, P if not. If spike recovery 30-74% and sample results < EDL, qualify as UJ if same matrix, P if not. If spike recovery results < 30% and results < EDL, qualify as R, PM.	 I3a I3 I3e I3d

M 29 Aug 96

Duplicate **Present? X yes no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**OK**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.**	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A LCS was analyzed for reactive cyanide with a recovery of 95%.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	**I6a** **I6**
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection** The method does not specify a holding time for either reactive cyanide or reactive sulfide. The distillation was started for both analysis 15 days after sample collection. The samples for both analysis ~~was~~ were started one day after distillation was complete.	See comment.	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

CCS/VALIDATION COVER SHEET

M Code_____ SDG/RN: **2415** LAB NAME: **Pardgon** LAB CODE_____

NAME OF VALIDATOR: **Antonia Tallarico** COMPANY: **LATA**

VALIDATION DATE: **28 Aug. 96** EDS ENTRY DATE_____

ANALYTICAL SUITE:

- o VOLATILES
- o SEMIVOLATILES
- o PESTICIDES/AROCLORS
- o HIGH EXPLOSIVES
- **X** INORGANICS-Reactive Cyanide/ Reactive Sulfide
- o RADIOCHEMISTRY

GENERAL CHECKLIST

		PRESENT? Ô if "yes" O if "no"
1.	Case Narrative	_____
2.	Airbills (no. Of shipments___)	_____
3.	Chain-of-custody records	_____
4.	Sample tags	_____
5.	Sample log-in sheets	_____
6.	Internal lab sample transfer records and tracking sheets	_____
7.	Other? Identify_____	

Are all samples assigned to the SDG present? - YES - NO
Identify any samples in the assigned SDG/RN that are missing

_____ _____ _____ _____ _____
_____ _____ _____ _____ _____

Comments/problems noted, including information about requests to the laboratory and agreed upon data of resolution and lab contact: (attach additional comment sheets as necessary)

The method used for reactive cyanaide and reactive sulfide follows this page.

The criteria developed for Inorganic analysis was used to baseline validate the Reactive Cyanaide and Reactive Sulfide analyses. Deviations from the baseline validation are included in the appropriate validation sections. Only those items in the following report were used to qualify this data. The method was provided by FAX from Paragon on 28 Aug.96.

Pages 2-5 were missing from the Reactive Cyanide and Reactive Sulfide portion of this package. Lance Steere of Paragon faxed them on 29 Aug. 96. The missing pages have been included in both the validation report and the data package.

Signature/1st validation: _____ 29Aug96

CCS AND VALIDATION

Explanation of qualifiers (Q):

U The analyte was analyzed for but not detected above the reported EQL

J The analyte was positively identified, the associated numerical value is the approximate concentration of the analyte in the sample
J+ Likely has a high bias
J- Likely has a low bias

UJ The analyte was analyzed for but not detected. The associated value is an estimate

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. Presence or absence cannot be verified. Note: Any results qualified as "R" should be looked at for relevance for data use. Thus, "R" implies "PM" also, and must not be used alone

P Use professional judgement based on data use . It usually has an "M"with it, indicating that a manual check should be made if the data that is qualified with the "P" is important to the data user.

In addition, PM also means that a decision must be made by the project manager/delegee regarding the need for further review of the data. This review should include some consideration of potential impact that could result from using the P qualified data. (For example, in the case of holding time excedance, the project manager/delegee can decide to use the data with no qualification when analyltes of interest are known to not be adversely affected by holding time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria. Since this is likley because of sample non-homogeneity rather than lab error, the manager/delegee must decide how to use the data.)

PM Manual review of raw data is recommended to determine if the defect impacts data use, as in "R" above.

REASON CODES FOR VALIDATION QUALIFIERS

INORGANICS (I)

3 Spike recovery > upper limit (125%) and the results > the EDL.

3a Spike recovery < lower limit (75%) and the results are > the EDL.

3d Spike recovery < 30 % and results < EDL.

3e Spike recovery 30-74% and sample results < EDL.

4 Using the worse case blank, the sample results > the EDL but < 5X the concentration of the related analyte in the blank.

6 Recovery of analyte in the LCS > upper limit.

6a Recovery of analyte in the LCS < lower limit.

7 ICS recovery > 120% and results > EDL.

7a ICS recovery 50-79% .

7b ICS recovery < 50% and result < EDL.

8a For ICV and CCV, recovery is lower than specification

8b For ICV and CCV, recovery is higher than specification

8c For ICV and CCV, results are positive, but < MDL and recovery is lower than the specification.

8d For ICV and CCV, recovery is extremely low and detection may be impaired.

8e For ICV and CCV, recovery is abnormally high - apply to results > MDL.

9 Holding time for Hg has been exceeded. Positive results may be biased low and non-detects may potential be false negatives.

REACTIVE CYANIDE
REACTIVIE SULFIDE

Calibration **Present? X yes no** The iodine solution used as the titrant in the reactive sulfide analysis was standardized. A seven point calibration curve for reactive cyanide was analyzed with r >0.995.	**NA**	**Obtain from lab. Q=A**	
Initial calibration verification **Present? X yes no** Appicable to reactive cyinide only.		**Obtain form lab. Q=A**	
Continuing calibration verification **Present? X yes no** Continuing calibration verification standards are applicable to reactive cyanide analysis only.			

A129Aug9c

Blanks (Applies to each) **Present? X yes no** **Initial & continuing calibration blanks** **Analyze at each wavelength** **Beginning and end of each run** **ICB and CCB analyzed at a frequency of 10% or 2 hours** **If blank results > EDL reanalyze previous 10 samples** **Preparatic lank** **One per batch** **≤ EDL, or if concentration of analyte < 10X EDL, repeat all samples in batch** Paragon reported detection limits of 0.5 mg/Kg for reactive cyanides and 50 mg/Kg for reactive sulfides. The method does not specify EQLs for either type of analysis.	**OK**	**Obtain from lab. Q=A** **Use "worse" case blank. Sample results > EDL but < 5 X amount found in the blank should be qualified as U.**	I4

MZ 21 Aug 96

ICP Interference check sample Present? yes no Solution contains Ag, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, V, & Zn Analyze at beginning of each run Each wavelength used for samples ICS results must be ± 20%of true value	NA	Obtain from lab. Q=A If the ICS recovery is >120% and the results are >EDL, qualify data as J+ If recovery is 50-79%, qualify data as J- If ICS recovery is < 50% and results are < EDL, qualify results as R, PM	 I7 I7a I7b
Spike sample analysis Present? yes X no One per run, per matrix, concentration, SDG % recovery: 75-125% (unless conc. > 4X spike conc.) No matrix spike is required by the method.	See comment.	Obtain from lab. Q=A If spike recovery > 125% and results < EDL, OK If spike recovery < 75% and results are >EDL, qualify results as J- if same matrix, P if not. If spike recovery > 125% and results are >EDL, qualify data as J+ if same matrix, P if not. If spike recovery 30-74% and sample results < EDL, qualify as UJ if same matrix, P if not. If spike recovery results < 30% and results < EDL, qualify as R, PM.	 I3a I3 I3e I3d

MZ 9 Aug 96

Duplicate **Present? X yes no** **One per batch of sample of like matrix for each SDG** **RPD : ≤ 20% (advisory)** **If either the sample or duplicate value is less than 5 X EDL, there is a control limit of ± EDL**	**OK**	**Obtain from lab. Q=A** **Q=P because of nature of LANL samples.**	
Laboratory Control Sample (LCS) **Aqueous LCS per batch/SDG** **% recovery : 80-120% (except Ag & Sb)** A LCS was analyzed for reactive cyanide with a recovery of 95%.	**NA**	**If criterion not met, qualify each analyte associated with the LCS in the same batch as J-** **for < 80% and J+ for > 120%**	**I6a** **I6**
Holding time **Analyze water samples for Hg within 28 days of sample collection** **Analyze water samples for CN within 14 days of sample collection** The method does not specify a holding time for either reactive cyanide or reactive sulfide. The distillation was started for both analysis 15 days after sample collection. The samples for both analyses were started one day after distillation was complete.	See comment.	**Compare analysis date with date of sample collection on the Analysis Request.** **Q=PM**	

MZ 9 Aug 96

APPENDIX D

In-Depth Baseline Validation Results

Memorandum

DATE: 9 SEPT. 96

TO: DEANNA EVANS, IT CORP.

FROM: ANTONIA TALLARICO, LATA

PHONE/FAX: 662-1744 /662-1757

The following information is provided as per the request of Deanna Evans of IT Corp.

Request	Analysis Type	Sample ID	Analyte of Interest
2407	Volatile	0835-96-0001	All analytes
		0835-96-0008	All analytes
	Semivolatile	0835-96-0008	All analytes
2409	Inorganic	All samples	Sb, Pb
2410	OP Pesticides	0835-96-0020	All analytes
	Semivolatile	0835-96-0019	All analytes
2412	Inorganic	All samples	Sb, Ba
2413	Volatiles	0835-96-0025	All analytes
		0835-96-0026	All analytes
		0835-96-0030	All analytes

An in-depth baseline validation using EPA Functional Guidelines Validation criteria was done on the following requests to substantiate the qualifiers used in the previous baseline validation. Explanations of data usability were provided when appropriate.

A full EPA Functional Guidelines Validation was not done nor requested for the request of interest.

Request 2407

Volatiles:

The internal standard criteria ensures sensitivity and response during the volatile analysis.

The internal standard areas for sample # 0835-96-0001 are outside criteria with less than 10% recovery for internal standard compounds. Because the recoveries were very low indicating a severe loss of sensitivity, the results were deemed unusable. Paragon re-analyzed the sample one day out of the LANL contractually-required holding time. Currently the National Functional Guidelines for Organic Data Review has not established technical holding times for soil samples. It is unlikely that missing the contractual holding time by one day in any way compromises the technical integrity of the re-analyzed sample.

The internal standard area for sample # 0835-96-0008 was outside criteria for one standard with a recovery of 48%. Methylene chloride was reported in the sample at 4 ug/kg which is slightly below the EQL. It should be noted that 3 ug/kg of methylene chloride was present in the blank. Following EPA Functional Guidelines, the result is considered a non-detect because it is less than 10 times the amount found in the blank. All other results were non-detects. Using the current National Functional Guidelines, all results are considered approximate, however it is unlikely that the target analytes of interest are present in the sample.

Semivolatiles:

The internal standard criteria ensures sensitivity and response during the semivolatile analysis.

The internal standard acenaphthene was outside criteria in sample 0835-96-0008 with a recovery of 49.95%. It should be noted that in the sample bis(2-ethyehexyl)phthalate was reported at 390 ug/kg.
Bis(2-ethyehexyl)phthalate was reported at a concentration of 120 ug/kg in the associated blank. Following EPA Functional Guidelines, the result is considered a non-detect because it is less than 10 times the amount found in the blank. All other results were non-detects. Using the current National Functional Guidelines, all results are considered approximate, however, it is unlikely that the target analytes of interest are present in the sample. This sample was also re-analyzed at a 10X dilution. This sample is appropriate to use. All performance criteria for the diluted sample were in control.

Request 2409

Antimony:

The matrix spike sample analysis is designed to detect possible matrix interference in a sample set.

The matrix spike % recovery is 62.9% which is outside of the desired 75-125% recovery control range. Possible causes for this low recovery include matrix interference, loss during sample preparation, and sample non-homogeneity. The last cause is the least likely given the non-detect status of the Sb in the sample. A solid LCS was prepared and analyzed with this batch of samples. The recovery for Sb was 87.7% which is well within the aqueous LCS control range of 80-120% for LCS analyte recovery. These results suggest that the low spike recovery was not caused by loss of analyte in the prep. Therefore, low matrix spike recovery was most likely due to matrix interference. Based on the information provided in the data package, the spike recovery was not significantly lower than the EPA control criterion for Sb and the matrix effect was minimal. Review of the raw data indicated the samples' baselines were stable. All sample duplicate analysis for Sb were < the EQL and the IDL. It is very likely that the non-detect results reported for all the samples and duplicates is the correct result.

Lead:
The duplicate sample is used to provide analytical precision.

The %RPD (Relative Percent Differences) for Pb was 34.0%. The method control criteria for the duplicate samples is a % RPD of <20% regardless of the sample matrix type. Laboratory variability arising from subsampling of heterogeneous soil samples is a common occurrence, therefore, for data assessment purposes, a more appropriate criteria for soil samples, as suggested by the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review from February of 1994, of a % RPD of 35% can be used. The % RPD for Pb is in control using this criteria.

A second indication of the reliability of the Pb value is that the field samples 0835-96-0002 and 0835-96-0003 are duplicates of each other and the % RPD for Pb fall well below the method criteria of <20%.

Request 2410

Organophosphorus Pesticides:

The retention time window specified by the method is +/-10 seconds. Using this criteria the retention time is in control for sample 0835-96-0020. This sample is outside criteria if the organochlorine pesticide retention time window criteria from the E. R. Project baseline validation procedure is used. The sample is in control because the retention time window criteria takes into account the analysis for organophosphorus pesticides is approximately twice as long as for organochlorine pesticides. Reviewing the sample chromatogram reveals no confirmable peaks. Therefore, it is unlikely that the OP pesticides of interest are present in this sample.

Semivolatiles:

Two surrogates were outside criteria in sample 0835-96-0019. 2-Fluorobiphenyl had a recovery of 10% and 2,4,6-Tribromophenol had a recovery of 5%. A large hydrocarbon peak was observed in the chromatogram for this sample. The large hydrocarbon peak interfered with the target analyte identification and quantification. The sample was then re-analyzed at a 100X dilution. The hydrocarbon peak was still visible but quantification of the data was possible. The surrogates were diluted out but the internal standards are in control. All the samples and dilutions were processed using a GPC cleanup. The dilution results are recommended for use.

Request 2412

Antimony:

The matrix spike sample analysis is designed to detect possible matrix interference in a sample set.

A matrix spike was analyzed for sample 0835-96-0015. The matrix spike % recovery is 68.4% which is outside of the desired 75-125% recovery control range. Possible causes for this low recovery include matrix interference, losses during sample preparation, and possible sample non-homogeneity. The last cause is the least likely given the non-detect status of Sb in the samples. A solid LCS was prepped and analyzed with this set of samples. The recovery for Sb was 103.5% which is well within the aqueous LCS range of 80-120% for LCS analyte recovery. These results suggest that the low spike recovery was not

caused by loss of analyte in the prep. Therefore, low matrix spike recovery was probably due to matrix interference. Based on the information provided in the data package, the spike recovery was not significantly lower than the method criteria for Sb and the matrix effect was minimal. Review of the raw data indicated the samples' baselines were stable with all sample duplicate < the EQL and the IDL. It is very likely that the non-detect results reported for all the samples and duplicates are correct.

Barium:

The matrix spike and duplicate were analyzed on sample 0835-96-0015. Both the duplicate and matrix spike samples were outside criteria. The % recovery for the matrix spike is 58.2% and the %RPD between the sample and duplicate sample is 88.2%. The sample result for this batch range in values from 79.5-286 mg/kg. The serial dilution was in control for Ba which suggest that matrix interference was not present. If the matrix spike is calculated from the duplicate sample the spike recovery is 98.9%. The obvious explanation for the above observations is that the sample is not homogeneous and, therefore, a bias is introduced when the laboratory took a subsample. It is unclear if the samples in this data set are biased high or low. The results reported in this data package are probably within +/-50% of the reported value. The action level for Ba is 5600 ppm.

Request 2413

Volatiles:

Samples 0835-96-0025, 0835-96-0026, and 0835-96-0030 have internal standards outside criteria. The surrogates meet the criteria. No matrix problems were apparent from the chromatograms and no analytical problems were noted. The samples were re-injected.

The re-injection for 0835-96-0025 was of poor quality indicating a bad purge. Therefore, the second analysis can not be used. The results for this sample should be considered as estimated. Methylene chloride was reported at 10 ug/kg which is slightly above the EQL It should be noted that 5 ug /Kg of methylene chloride was present in the blank. Following EPA Functional Guidelines, the result is considered a non-detect because it is less than 10 times the amount found in the blank. Toluene had a reported result of 6 ug/kg which is equal to the EQL. There is no doubt of the toluene ID. All other results were non-detects.

The re-injection for sample 0835-96-0026 reproduced the low internal standard recovery. The results for this sample should be considered as estimated. Methylene chloride was reported at 10 ug/kg which is slightly above the EQL It should be noted that 5 ug/kg of methylene chloride was present in the blank. Following EPA Functional Guidelines, the result is considered a non-detect because it is less than 10 times the amount found in the blank. Toluene had a reported result of 3 ug/kg which is less than the EQL. There is no doubt of the toluene ID. All other results were non-detects.

The re-injection for sample 0835-96-0030 reproduced the low internal standard recovery. The results for this sample should be considered as estimated. Methylene chloride was reported at 7 ug/kg which is slightly above the EQL. It should be noted that 5 ug/kg of methylene chloride was present in the blank. Following EPA Functional Guidelines, the result is considered non-detected because it is less than 10 times the amount found in the blank.

APPENDIX E

Nonroutine Baseline Validation Criteria

Memorandum

DATE: AUGUST 30, 1996

TO: JEFF TUCKER, IT CORPORATION

FROM: ANTONIA TALLARICO, LATA for

PHONE/FAX: 662-1744 /662-1757

SYMBOL: LATA

This memo is in response to your request on what criteria were used to baseline validate Organophosphorus Pesticides, Herbicides, Reactive Cyanides, Reactive Sulfides and Dioxins.

Because no validation criteria were provided, the following non-routine analyses were reviewed using criteria established for the ER routine baseline validation. Raw data and calculations were not examined during this review. Only the criteria expressed below were examined and only to the extent presented below.

Organophosphorus Pesticides by Method 8141

REQUEST # 2407, 2410, and 2413:

Calibration: Initial and continuing calibration were determined as present. The initial and continuing calibration were not examined to determine if the analytes of interest were present and in control.

Surrogates: The surrogate triphenylphosphate was recommended by the method for use. The laboratory used this surrogate and reported recoveries between 5-203% No recovery limits were included in the method.

Retention Time Windows: Retention time windows were determined from a continuing calibration verification standard. The Organochlorine criteria, stating that the surrogate retention time should not shift by more than +0.05 minutes, was used to qualify results.

Method Blanks: The EQLs were determined by multiplying the Method Detection Limit (MDL) found in Table 1 by a factor found in Table 2 of the analysis method.

Holding Times: No soil holding times were suggested in the method.

Herbicides by Method 8150

REQUEST # 2407, 2410, and 2413:

Calibration: Initial and continuing calibration were determined as present. The initial and continuing calibration were not examined to determine if the analytes of interest were present and in control.

Surrogates: 2,4-Dichlorophenylacetic acid was recommended by the method for use as the surrogate. The laboratory used this surrogate and reported recoveries between 54-142%. No recovery limits were included in the method.

Retention Time Windows: Retention time windows were determined from a continuing calibration verification standard. The Organochlorine criteria that the surrogate retention time should not shift by more than +0.05 minutes, was used to qualify results.

Method Blanks: The EQLs were determined by multiplying the Method Detection Limit (MDL) found in Table 1 by a factor found in Table 2 of the analysis method.

Holding Times: No soil holding times were suggested in the method.

Reactive Cyanide and Reactive Sulfide

REQUEST # 2409, 2412, and 2415

Calibration: The requests for Reactive Cyanide were checked to determine if the calibration was present and for reactive sulfide to determine if the iodine solution used as the titrant was standardized. Continuing Calibration Verification standard were checked to determine if they were present for Reactive Cyanide only.

Blanks: The blank results were reported as 0.5 mg/Kg for Reactive Cyanides and 50 mg/Kg for Reactive Sulfides. The method provided no specific EQLs.

Matrix Spike: The method does not require that a matrix spike be analyzed. No matrix spikes were analyzed.

Duplicate: Duplicate analyses were analyzed. The results on the forms provided by Paragon were compared. All results were non-detect and therefore in control.

Laboratory Control Sample (LCS): No LCS was required by either method. However a LCS was analyzed for Reactive Cyanide. No criteria applies.

Holding Times: The method does not specify a holding time for either method.

Low Resolution Dioxins by Method 8280

REQUEST # 2408, 2411, and 2414:

Calibration: Initial and continuing calibration were determined as present. The initial and continuing calibration were forms examined to determine if the results reported on the forms were within the laboratory-defined limits reported on the forms.

Internal Standards: The internal standard recoveries reported on the forms were checked against the criteria listed in the laboratory method. The 40% lower limit was used to qualify results for one sample.

Retention Time Windows: The window defining mix raw data were determined as present. The window defining mix results were not examined and the results were not used to qualify results.

Blank Spike, Matrix Spike and Duplicate: The spike sample results reported were examined to determine if the spiked compounds were recovered. Recovery limits listed in the laboratory method were used.

Method Blanks: The blank results reported were accepted as reported without further review. The reported blank results were reviewed to determine if any target analytes were detected.

Holding Times: The samples extraction and analysis dates were reviewed against a 14-day sample holding time and a 40-day extract holding time .

APPENDIX F

Statement of Adequacy of the Quality Assurance/Quality Control for the Performance of Phase VI Closure Activities

Document:	TA-35, TSL-85 CL RPT
Revision No.:	0.0
Date:	September 1996

STATEMENT OF ADEQUACY OF THE QUALITY ASSURANCE/QUALITY CONTROL FOR THE PERFORMANCE OF PHASE VI CLOSURE ACTIVITIES

Based on my oversight of the Technical Area (TA) 35, Ten Site Laboratory 85 Surface Impoundment closure, I believe that the quality of the performance on all key activities pertaining to this closure were done in such a manner to ensure that a clean closure of this unit has been achieved. I have reviewed all analytical and quality assurance/quality control reports and have determined that the data is accurate and adequate. All procedures described in the approved closure plan were followed with the exception of those listed in Section 2.5 of this closure report.

Roy Bohn

Roy Bohn
Environmental Restoration Project
Los Alamos National Laboratory

9/26/96

Date Signed

APPENDIX G

Memorandum Addressing Site Specific Industrial use of Surface Impoundment Area

Los Alamos
NATIONAL LABORATORY
memorandum

Chemical Science and Technology
Responsible Chemistry for America

CST-25, Chemistry Facilities Management
Los Alamos, New Mexico 87545

To/MS: Roy Bohn, ER-EM, MS 992
From/MS: Sara B. Helmick, CST-25 Facilities Manager, MS J519 *BHead for*
Phone/FAX: 7-9583/7-2964
Symbol: CST-25:96-101
Date: September 17, 1996

SUBJECT: ER AREA AT TA-35

This memorandum will confirm our discussion of September 13, 1996, regarding the area located behind Building 85 at TA-35.

There is no reason for personnel to be in this area more than 20 days each year. We will post the area to maintain control of access.

SBH:vvm

Cy: Greg Rand, CST-25, MS J519
CST-25 File

APPENDIX H

Risk Assessment Results - Neptune and Company, Inc.

Health Based Action Levels and Risk Assessment results:

The risk assessment for the TA-35, TSL-85 Amended Closure Certification Report was prepared by Neptune & Co. a subcontractor to the LANL ER Project. Spreadsheets for the calculation of health based action levels as well as risk and hazard assessment are provided in this appendix.

The following steps were taken to assure the quality of the supporting risk tables and spreadsheets submitted in this appendix:

> Carcinogenic oral Slope Factors (SF) and oral Reference Dose (RfD) values were obtained for all constituents evaluated in the risk assessment. These values were obtained directly from the Integrated Risk Information System (IRIS) electronically through the on-line TOXNET National Library of Medicine service on August 31, 1996. The oral SF and RfD values entered and utilized in risk tables and spreadsheets were checked for accuracy and completeness by cross referencing all values with oral SF and RfD values provided in the August 1, 1996 version of the EPA, Region IX Preliminary Remedial Goals document (Stanford J. Smucker, Ph.D. Region Technical Support Team).
>
> The accuracy and completeness of all risk calculations provided in the Health-Based Action Level and scenario specific Risk Assessment spreadsheets were reviewed internally by Neptune & Co. The accuracy of the calculations has bee assured through the independent review and hand calculation of the risk equations contained in the spreadsheets.

NEPTUNE AND COMPANY, INC.
1505 15th Street, Suite B
Los Alamos, NM 87544
Phone: 505-662-2121 Fax: 505-662-0500

Jeffrey Tucker
International Technology Corporation
557 Oppenheimer Road, Suite 200
Los Alamos, NM 87544

Sept. 20, 1996

Attached please find the final deliverables developed by Neptune & Co. to support the Amended Closure Certification Report for the Technical Area 35, Ten Site Laboratory 85 Surface Impoundment. This deliverable consists of two parts:

1) Section 3 of the Closure Certification Report, the Risk Assessment and;

2) The supporting risk assessment calculations and spreadsheets, Appendix H, of the Closure report.

These deliverables have been provided in hardcopy and electronically on disc, with the text materials provided in Microsoft Word, version 6.01 for Macintosh and the spreadsheets provided in Microsoft Excel, version 5.0a for Macintosh. These deliverables have been independently reviewed and all calculations verified by Neptune & Co.. A QA copy of calculations and spreadsheets is maintained in the Neptune & Co. files.

Lance Voss

Lance Voss
(505) 662-0707, Ext:23

3.0 Human Health Risk Assessment

The human health risk assessment of the TA-35, TSL-85 surface impoundment was performed in accordance with the general guidance provided in Section 6.0 of the NMED-Approved Closure Plan. The assessment was performed using the entire Phase VI data set, excluding sample 0835-96-0019, as well as the Phase V corehole verification sample results. The purpose of this evaluation is to assess the potential for residual site contamination to elicit adverse systemic or carcinogenic effects under resident exposure scenarios. In addition, a realistic, site-specific exposure assessment for an industrial scenario has been performed.

3.1 Exposure Assessment

The TA-35, TSL-85 surface impoundment is located immediately northwest of Building 85 at TA-35, an industrial, active area at LANL which includes plutonium processing and storage areas. The site contains three general assessment areas which include the original impoundment area; the UST and piping area; and a spill path into Mortandad Canyon. The assessment area is located near the edge of the mesa above Mortandad Canyon. There are no current occupational traffic patterns (i.e., walking paths) or recreational uses for the site. The current actual exposure scenario would consist of a limited, light industrial usage, including maintenance and inspection of a bermed holding tank and air conditioning unit located adjacent to the site. Based on a memorandum from the Facility Manager at TA-35 (see Appendix G), it is not anticipated that work will be conducted at the site for more than 20 days per year.

A part of the risk assessment process is the designation of exposure units at the site for use in the risk assessment. Soil samples were collected from the impoundment area at a depth of 28 to 36 inches below the surface; from the UST and piping area at depths of 6 to 8 feet below the surface; and from within the spill path at a depth of 0 to 6 inches (i.e., surface soil). At the impoundment and UST/piping areas, samples were collected below the interfaces between the clean fill and native tuff. Generally, for the evaluation of a soil ingestion pathway, contaminant concentrations within the surface soil interval (e.g., 0 to 12 inches) are used to define the exposure unit and estimate the exposure concentration. For the purpose of this report, all sample concentrations have been evaluated as if they represent surface exposure concentrations regardless of their actual sampling interval. This results in a conservative, upper bound estimate of contaminant intake.

The three assessment areas of this site have been individually evaluated in this report. All constituents identified as potential constituents of concern from the screening process have been evaluated under resident adult, resident child, and industrial adult exposure scenarios.

3.2 Health-Based Soil Action Levels

The health-based soil action levels were calculated for the reported constituents based on oral slope factor (SF) and oral reference dose (RfD) information in the most recent IRIS database. All detected constituents as well as undetected constituents with LOQs greater than the calculated health-based action levels have been evaluated.

The health-based action levels were calculated for the soil ingestion pathway using procedures and assumptions outlined in the proposed RCRA Subpart S (Federal Register, Volume 55,

No. 145) and the NMED-Approved Closure Plan. In accordance with EPA guidance, health-based action levels were calculated assuming the receptor to be a child for systemic toxicants and an adult for carcinogenic constituents.

The governing equation for the calculation of health-based action levels for systemic toxicants is:

$$C = (RfD * W) / (I * AF)$$

where:
C = health-based action level in soil (milligrams per kilogram [mg/kg])
RfD = IRIS reference dose (constituent specific, mg/kg - day)
W = body weight (16 kilogram [kg] child)
I = soil intake (0.2 gram per day [g/day])
AF = absorption factor (default, 1)

The governing equation for the calculation of health-based action levels for carcinogenic constituents is:

$$C = (R * W * LT) / (SF * Intake * ED * AF)$$

where:
C = health-based action level in soil (mg/kg)
R = Assumed risk level (dimensionless; 10^{-6} for Class A and B, 10^{-5} for Class C carcinogens)
W = body weight (70 kg adult)
LT = lifetime (assumed 70 years)
SF = IRIS carcinogenic slope factor (constituent specific, mg/kg-day)
I = soil intake (0.1 g/day)
ED = exposure duration (70 years)
AF = absorption factor (default, 1)

The health-based action level calculations are presented in Appendix H.

3.3 Identification of Potential Constituents of Concern

3.3.1 Inorganics

The inorganics data was initially screened against LANL background UTL values as described in the "Application of LANL Background Data to ER Project Decision-Making" (Longmire, 1996b). Four inorganic constituents (i.e., copper, lead, mercury, and thallium) were reported at levels that exceed their background UTL value. None of the inorganics exceeded health-based action levels. In accordance with the NMED-Approved Closure Plan, copper, lead, and mercury were eliminated from further consideration because there are no published toxicity criteria for these constituents in the current IRIS database. Thallium is included as a COPC in the calculation of aggregate risk and hazard index.

Beryllium was reported in site samples at levels that exceed the health-based action level. However, beryllium was not detected in any sample at a level that exceeds the LANL background UTL. Based on the background comparison, beryllium is not a potential constituent of concern; therefore, beryllium was eliminated from further consideration.

3.3.2 Organics

All reported organic constituent values, either positive detects or analytical LOQ values, were screened against specific health-based action levels developed per the closure plan. Health-based action levels were calculated for all reported constituents with listed SF and/or RfD information available in the current IRIS database.

Twenty organic compounds were reported as detected in at least one of the thirty soil samples collected. Two of these compounds, Aroclor 1260 (8 detects) and hexachlorobenzene (3 detects) were reported as present in at least one sample above their health-based action level. Fifteen of these compounds, acenaphthene (1 detect), acetone (9 detects), benzene (1 detect), benzoic acid (2 detects), bis (2-ethylhexyl)phthalate (7 detects), chlorobenzene (1 detect), chloroform (5 detects, 2 of which are from the Phase V corehole verification samples), chlorotoluene[o-] (1 detect), p,p'-DDT (1 detect), di-n-butyl phthalate (1 detect), isopropylbenzene (1 detect), methylene chloride (22 detects), styrene (1 detect), toluene (10 detects), and xylenes [mixed] (1 detect), were reported at concentrations less than their health-based action level. These twenty compounds have been evaluated in the risk assessment.

The following table identifies the contaminants detected at each area of concern. It summarizes the number of detects per total number of samples collected in each area and lists the value that have been used as exposure point concentrations for the calculation of contaminant intake associated with site exposure.

	Impoundment		UST/Piping		Spill Path	
	detects	(mg/kg)	detects	(mg/kg)	detects	(mg/kg)
Acenaphthene[b]	1/7	0.15	0/12	(ND)	0/11	(ND)
Acetone[b]	0/7	(ND)	6/12	0.33	3/11	0.02
Aroclor 1260[a]	0/7	(ND)	3/12	0.116	5/11	0.21
Benzene[b]	0/7	(ND)	1/12	0.012	0/11	(ND)
Benzoic acid[b]	0/7	(ND)	0/12	(ND)	2/11	0.21
Bis(2-ethylhexyl) phthalate[b]	7/7	(ND)	7/12	2.8	6/11	2.2
Chlorobenzene[b]	0/7	(ND)	1/12	0.007	0/11	(ND)
Chloroform[b]	1/7	0.002	2/12	0.011	0/11	(ND)
DDT (p,p')[b]	0/7	(ND)	0/12	(ND)	1/11	0.002
Di-n-butyl phthalate[b]	1/7	0.44	0/12	(ND)	0/11	(ND)
Hexachlorobenzene[a]	0/7	(ND)	2/12	1.003	1/11	0.480
Isopropylbenzene[b]	0/7	(ND)	1/12	0.007	0/11	(ND)
Methylene chloride[b]	7/7	0.014	12/12	0.077	11/11	0.01
Styrene[b]	0/7	(ND)	1/12	0.006	0/11	(ND)
Thallium[b]	7/7	(ND)	12/12	(ND)	1/11	2.7
Toluene[b]	0/7	(ND)	5/12	0.039	5/11	0.006
Xylenes (mixed)[b]	0/7	(ND)	1/12	0.022	0/11	(ND)

Non-detected (ND) indicates that the contaminant was not reported in area samples at levels which exceed its action level.

[a] - Listed concentration represents 95% UCL.

[b] - listed concentration represents the maximum reported value.

Three additional organic compounds, 1,3-dichloropropane (1 detect), naphthalene (1 detect), and 1,1,1-trichloroethane (1 detect) were also detected in site samples. These compounds either do not have current toxicity information listed in IRIS or are under review and toxicity criteria have been withdrawn from IRIS. These compounds were therefore eliminated from further consideration, per the NMED-Approve Closure Plan.

Four SVOCs, 3,3'-dichlorobenzidine, n-nitrosodimethylamine, n-nitroso-di-n-propylamine, and benzo[a]pyrene, were not detected in any sample. However, one half the constituent specific LOQ was greater than the health-based action level for each compound. The industrial uses of these SVOC constituents were identified from sources including the Handbook of Toxic and Hazardous Chemicals and Carcinogens, 3rd edition (Sittig, 1991c).

- 3,3'-Dichlorobenzidine is used in the manufacture of pigments for printing ink, textiles, plastics and crayons, and is a curing agent for solid urethane plastics.

- n-Nitrosodimethylamine was formerly used in the manufacture of dimethylhydrazine (i.e., rocket fuel). It is presently used as an antioxidant, as an additive to lubricants, and as a softener of copolymers.

- n-Nitroso-di-n-propylamine is inadvertently produced during some manufacturing processes as an impurity in commonly available dinitroaniline based weed killers and during the manufacture of specific rubber products. It has been identified as a common contaminant in the herbicide, Treflan, in concentrations up to 150 ppm.

- Benzo[a]pyrene is a by-product of combustion. It is estimated that 1.8 million pounds per year are released from stationary sources including coal refuse piles, outcrops, and abandoned mines; resident coal combustion; and coke manufacturing. It is associated with coal tar processing, petroleum refining, shale refining, coal and coke processing, kerosene processing, and heat and power generating.

Consultation with LANL personnel concerning the use, past or present, of the above listed SVOCs indicates that these substances have not been and are not currently being used in conjunction with laser research operations conducted in Building 85.

The potential contribution of Building 188 to the TA-35, TSL-85 surface impoundment waste stream is uncertain, necessitating the review of its known operational process history. Consultation with LANL personnel concerning the use, past or present, of the above listed SVOCs indicates that these substances have not been and are not currently being used in Building 188 (BEC, 1991c). Building 188 was intended to be used as a high-voltage test area and was used for that purpose for a short time before becoming a facility for the analysis of chemical gases and a machine shop.

There is no reason to believe that these four SVOCs are operationally associated with the site or would be present. Therefore, in accordance with the NMED-Approved Closure Plan, these constituents could be excluded from evaluation in the risk assessment. However, to assist in the overall evaluation and management of the site, these constituents have been included in

an additional, separate, estimation of aggregate risk and hazard index for each scenario evaluated.

3.4 Concentrations of Potential Constituents of Concern

Arochlor 1260 and hexachlorobenzene were reported in site samples at levels that exceeded their health-based action levels. These constitutes were statistically evaluated with mean and 95 percent upper confidence limits (UCL) of the mean determined for each area of concern as follows:

Mean and 95 Percent UCL Values for the Spill Path

	Mean	95 Percent UCL
Arochlor	0.106	0.210
Hexachlorobenzene	0.366	0.422

Mean and 95 Percent UCL Values for the UST and Piping Area

	Mean	95 Percent UCL
Arochlor	0.052	0.116
Hexachlorobenzene	0.594	1.003

For Aroclor 1260, the 95 percent UCL value derived for the UST/piping area is based on a normal distribution of the data. The spill path area UCL was derived based on a log normal distribution of data. All analytical results for Aroclor in the impoundment area were non detects with the action level greater than 1/2 the sample specific LOQs. Therefore Aroclor 1260 was considered to be non detected (ND) within the impoundment area.

For hexachlorobenzene, the 95 percent UCL value for the UST area was derived based on a normally distributed data set. The spill path area UCL value was derived from a log normally distributed data set. All analytical results for hexachlorobenzene in the impoundment area were non detects with the action level greater than 1/2 the sample specific LOQs. Therefore hexachlorobenzene was considered to be non detected (ND) in the impoundment area.

Generally, the statistical evaluation of the data for these constituents was limited by the few detects. The UCL used represents a conservative upper bound estimate of the contaminant concentration.

The 95 percent UCL concentrations were utilized in each evaluated scenario as exposure point concentrations for Aroclor and hexachlorobenzene. Exposure point concentrations for additional organic compounds detected at the site utilized the maximum observed concentration in each assessment area. This conservative approach was adopted due to the limited number of detects in each area, the low overall level of site contamination, and the low overall relative toxicity due to these constituents.

For the evaluation of the SVOCs that were undetected in all samples at levels above their action level, the mean and 95 percent UCL values were determined based on a normal

distribution of sample specific LOQs for each assessment area. The following values have been utilized in the estimation of aggregate risk and hazard index for the total potential suite of detected and undetected constituents of concern from the site.

Mean and 95 Percent UCL Values for the Impoundment Area

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.721	0.733
n-Nitrosodimethylamine	0.361	0.364
n-Nitrosodi-n-propylamine	0.361	0.364
Benzo[a]pyrene	0.361	0.364

Mean and 95 Percent UCL Values for the UST/Piping Area

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.838	0.935
n-Nitrosodimethylamine	0.419	0.468
n-Nitrosodi-n-propylamine	0.419	0.468
Benzo[a]pyrene	0.419	0.468

Mean and 95 Percent UCL Values for the Spill Path

	Mean	95 Percent UCL
3,3'-Dichlorobenzidine	0.706	0.753
n-Nitrosodimethylamine	0.356	0.381
n-Nitrosodi-n-propylamine	0.356	0.381
Benzo[a]pyrene	0.356	0.381

3.5 Estimation of Contaminant Intake

Contaminant intake was generally calculated based on conservative default reasonable maximum exposure (RME) parameters for resident adult, resident child, and industrial adult exposure scenarios. The industrial adult exposure scenario has been modified by the utilization of a 20 day per year exposure frequency. This realistic, site-specific deviation is based on the review of area activities and is a conservative estimate of the actual occupational exposure frequency at the site (see Appendix G).

The governing equation for the calculation of intake in accordance with EPA guidance (EPA, 1989) is:

$$\text{Intake (mg/kg-day)} = (CS*IR*CF*FI*EF*ED) / (W*AT)$$

where:

CS = exposure concentration of the constituent in soil
IR = ingestion rate (milligram per day [mg/day])
CF = conversion factor (1E-06 kg/mg)
FI = fraction ingested (default, 1)
EF = exposure frequency (days/year)
ED = exposure duration (years)
W = body weight (kg)
AT = averaging time (days).

The three exposure scenarios evaluated, resident adult, resident child, and industrial adult incorporated the following scenario specific input parameters:

Resident Adult

IR = ingestion rate (100 mg/day)
EF = exposure frequency (365 days/year)
ED = exposure duration (70 years)
W = body weight (70 kg)
AT = averaging time (carcinogenic and systemic effects, 25550 days)

Resident Child

IR = ingestion rate (200 mg/day)
EF = exposure frequency (365 days/year)
ED = exposure duration (6 years)
W = body weight (16 kg)
AT = averaging time (carcinogenic effects, 25550 days; systemic effects, 2190 days)

Industrial Adult

IR = ingestion rate (100 mg/day)
EF = exposure frequency (20 days/year)
ED = exposure duration (25 years)
W = body weight (70 kg)
AT = averaging time (carcinogenic effects, 25550 days; systemic effects, 9125 days)

The hazard quotient for systemic toxicants is calculated from:

$$HQ = Intake/RfD$$

where the intake is calculated as shown above, and RfD is the constituent-specific value obtained from the current IRIS database.

The carcinogenic risk is calculated from:

$$\text{Risk} = \text{Intake} * \text{SF}$$

where the intake is calculated as shown above, and SF is the constituent-specific value from the current IRIS database.

The formula to calculate the aggregate noncancer hazard index for chronic exposure is:

$$\text{Hazard Index} = \Sigma\ HQ_i$$

where:

HQ_i = Hazard quotient for the ith toxicant.

Aggregate risk is calculated from:

$$\text{Aggregate Risk} = \Sigma\ Risk_i$$

where $Risk_i$ = risk estimate for the ith carcinogenic substance.

The hazard quotient and aggregate hazard index for contaminant specific systemic effects, as well as contaminant specific carcinogenic risk and aggregate risk have been calculated for each area of concern (see Appendix H). Two sets of results are presented for each assessment area and scenario evaluated, the detected potential constituents of concern and the detected potential constituents of concern plus the undetected potential constituents of concern with one half their LOQ greater than the health-based action levels.

3.6 Risk Characterization

The hazard indices for the resident scenarios in all of the assessed areas are less than the threshold of 1, indicating little potential for adverse systemic effects due to exposure at the site. The aggregate risk for the resident adult exposure at the site results in area risks of 3.6×10^{-6} for the UST/piping area; 3.3×10^{-6} for the spill path area; and 1.7×10^{-10} for the impoundment area. The aggregate risk for the resident child exposure at the site results in area risks of 2.7×10^{-6} for the UST/piping area; 2.5×10^{-6} for the spill path area; and 1.3×10^{-10} for the impoundment area. These values fall within the generally acceptable upper end of the 1.0×10^{-4} to 1.0×10^{-6} risk range normally evaluated by EPA. However, these aggregate risk values exceed the 1.0×10^{-6} risk threshold specified in the closure plan. Therefore, in accordance with the NMED-Approved Closure Plan, a realistic, site-specific industrial adult exposure scenario was evaluated.

Summary Table for Residential Exposure Scenarios

Area	Resident - adult		Resident - child	
	HI	Aggr. Risk	HI	Aggr. Risk
Impoundment	<0.001	1.7E-10	<0.001	1.3E-10
UST/Piping	0.002	3.6E-6	0.018	2.7E-6
Spill Path	0.049	3.3E-6	0.43	2.5E-6

The hazard indices for the industrial scenario in all of the assessed areas are less than the threshold of 1, indicating little potential for adverse systemic effects due to exposure at the site. The aggregate risk for the industrial adult exposure at the site results in area risks of 7.1 x 10^{-8} for the UST/piping area; 6.50 x 10^{-8} for the spill path area; and 3.3 x 10^{-12} for the impoundment area. These aggregate risk values are less than the threshold value of 1.0 x 10^{-6} and indicate that the site does not pose an unacceptable risk under that realistic exposure scenario and conservative current use.

Summary Table for Industrial (Adult) Scenario

Area	Industrial - adult	
	HI	Aggr. Risk
Impoundment	<0.001	3.3E-12
UST/Piping	<0.001	7.1E-8
Spill Path	0.003	6.5E-8

As previously stated, aggregate risk and hazard indices have also been calculated for all scenarios and areas of concern with the inclusion of the four undetected SVOCs evaluated as the 95 percent UCL of one half the sample specific LOQs. All resulting hazard indices were less than the threshold of 1. The aggregate risk for the industrial adult exposure at the site results in area risks of 9.4 x 10^{-7} at the UST/piping area; 7.7 x 10^{-7} for the spill path area; and 6.7 x 10^{-7} at the impoundment area. Comparison of these values to the results excluding the four SVOCs indicates that inclusion of these constituents increased the aggregate risk by approximately one order of magnitude at each area; however, these aggregate risks also did not exceed 1 x 10^{-6}. Therefore, even if the four undetected SVOCs are assumed to be present at one half their reported LOQ, they do not pose an unacceptable risk to human health and the environment.

Summary Table Incorporating SVOCs Undetected in All Samples

Area	Resident - adult	Resident - child	Industrial - adult
	Aggr. Risk	Aggr. Risk	Aggr. Risk
Impoundment	3.4E-5	2.6E-5	6.7E-7
UST/Piping	4.8E-5	3.6E-5	9.4E-7
Spill Path	3.9E-5	3.0E-5	7.7E-7

3.7 Assessment of Uncertainty

Uncertainty is inherent in the risk assessment process and arises from a lack of knowledge in areas such as site conditions, toxicology of potential constituents of concern, and exposure assumptions. Uncertainty which may have an impact on estimates of exposure, risk, and noncarcinogenic hazards are qualitatively discussed in this section.

The environmental data used to characterize site conditions was collected and analyzed in a manner to ensure the reliable valid characterization of site conditions. The selection of sampling points which ultimately constitute the exposure area for receptors can result in an over or underestimate of total exposure, hazard and/or risk. The investigation of the TSL-85 impoundment resulted in the selection of samples from areas which would be expected to show positive analytical bias. This in conjunction with the 95% UCL and maximum values utilized in the hazard and risk estimates would likely result in an overestimate of site risk. Uncertainty in sampling strategy and estimates of environmental concentrations do exist.

The exposure parameters employed in the assessment provide conservative RME estimates for the residential exposure scenario. The industrial exposure parameters utilized represent RME estimates with the exception of the exposure frequency which is a conservative site specific estimate. These would tend to provide an overestimate of potential site risks, however the actual duration, frequency, and degree of contact with media at the site is uncertain.

The oral RfD and SF values utilized in this assessment represent current conservative values from the IRIS database. These toxicity criteria are generally derived from effects observed in animals then extrapolated to humans. Due to potential physiologic and metabolic differences, extrapolation uncertainty factors of 10x or more are applied to human toxicity values which result in conservative estimates of risk.

3.8 Conclusion

The TA-35, TSL-85 surface impoundment is a small site located in an industrial area. In this most recent investigation, the site has been characterized by the collection and analysis of 30 soil samples distributed throughout three areas of concern. Analytical results for the samples generally report a large number of nondetects for individual constituents.

The risk assessment has evaluated very conservative resident and site-specific industrial exposure scenarios that incorporate conservative RME exposure parameters and assumed surface contamination. These conservative assumptions tend to maximize the calculated potential risk. The aggregate risk for the resident exposure scenarios fall within the EPA risk range of 1×10^{-4} to 1×10^{-6}. The aggregate risk for the realistic industrial exposure scenarios is less than 1×10^{-6}.

Based on the limited degree of overall contamination at the site, the lack of significant exposure at the small site, and the limited risk under all scenarios, clean closure demonstration of the site has been achieved.

Name	CAS #	car. class	SF	RfD	Risk Level	Weight (W)	LT	Intake (I)	AF	ED	Action level	Action level		TSL-85
			1/(mg/kg-day)	(mg/kg-day)	(unitless)	(kg)	(years)	(kg/day)		(yrs)	(carcinogenic)	(systemic)		(max)
											(mg/kg)	(mg/kg)		
Volatile Org. Compounds														
Dichlorodifluoromethane	75-71-8	no data	no data	2.00E-01	1.00E+00	16	1	2.00E-04	1	1		16000		
Bromomethane	74-83-9	D	no data	1.40E-03	1.00E+00	16	1	2.00E-04	1	1		112		
Trichlorofluoromethane	75-69-4	no data	no data	3.00E-01	1.00E+00	16	1	2.00E-04	1	1		24000		
Dichloroethene [1,1-]	75-35-4	C	6.00E-01		1.00E-05	70	70	1.00E-04	1	70	11.667			
				9.00E-03	1.00E+00	16	1	2.00E-04	1	1		720		
Trichloro-1,2,2-trifluoroethane [1,1,2-]	76-13-1	no data	no data	3.00E+01	1.00E+00	16	1	2.00E-04	1	1		2400000		
Acetone	67-64-1	D	no data	1.00E-01	1.00E+00	16	1	2.00E-04	1	1		8000		0.33
Carbon disulfide	75-15-0	no data	no data	1.00E-01	1.00E+00	16	1	2.00E-04	1	1		8000		
Methylene chloride	75-09-2	B2	7.50E-03		1.00E-06	70	70	1.00E-04	1	70	93.333			0.077
				6.00E-02	1.00E+00	16	1	2.00E-04	1	1		4800		
Dichloroethene [trans-1,2-]	156-60-5	no data	no data	2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Butanone [2-]	78-93-3	D	no data	6.00E-01	1.00E+00	16	1	2.00E-04	1	1		48000		
Chloroform	67-66-3	B2	6.10E-03		1.00E-06	70	70	1.00E-04	1	70	114.754			0.031
				1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
Carbon tetrachloride	56-23-5	B2	1.30E-01		1.00E-06	70	70	1.00E-04	1	70	5.385			
				7.00E-04	1.00E+00	16	1	2.00E-04	1	1		56		
Dichloroethane [1,2-]	107-06-2	B2	9.10E-02	no data	1.00E-06	70	70	1.00E-04	1	70	7.692			
Benzene	71-43-2	A	2.90E-02	review	1.00E-06	70	70	1.00E-04	1	70	24.138			0.012
Bromodichloromethane	75-27-4	B2	6.20E-02		1.00E-06	70	70	1.00E-04	1	70	11.290			
				2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Toluene	108-88-3	D	no data	2.00E-01	1.00E+00	16	1	2.00E-04	1	1		16000		0.039
Trichloroethane [1,1,2-]	79-00-5	C	5.70E-02		1.00E-05	70	70	1.00E-04	1	70	122.807			
				4.00E-03	1.00E+00	16	1	2.00E-04	1	1		320		
Tetrachloroethylene	127-18-4	no data	no data	1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
Chlorodibromomethane	124-48-1	C	8.40E-02		1.00E-05	70	70	1.00E-04	1	70	83.333			
				2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Dibromoethane [1,2-]	106-93-4	B2	8.50E+01	no data	1.00E-06	70	70	1.00E-04	1	70	0.008			
Chlorobenzene	108-90-7	D	no data	2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		0.007
Tetrachloroethane [1,1,1,2-]	630-20-6	C	2.00E-01		1.00E-05	70	70	1.00E-04	1	70	35.000			
				3.00E-02	1.00E+00	16	1	2.00E-04	1	1		2400		
Ethylbenzene	100-41-4	D	no data	1.00E-01	1.00E+00	16	1	2.00E-04	1	1		8000		
Xylenes (o + m + p) [Mixed-]	1330-20-7	D	no data	2.00E+00	1.00E+00	16	1	2.00E-04	1	1		160000		0.024
Styrene	100-42-5	no data	no data	2.00E-01	1.00E+00	16	1	2.00E-04	1	1		16000		0.006
Bromoform	75-25-2	B2	7.90E-03		1.00E-06	70	70	1.00E-04	1	70	88.608			
				2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Isopropylbenzene	98-82-8	no data	no data	4.00E-02	1.00E+00	16	1	2.00E-04	1	1		3200		0.007
Trichloropropane [1,2,3-]	96-18-4	no data	no data	6.00E-03	1.00E+00	16	1	2.00E-04	1	1		480		
Tetrachloroethane [1,1,2,2-]	79-34-5	C	2.00E-01	review	1.00E-05	70	70	1.00E-04	1	70	35.000			
Chlorotoluene [o-]	95-49-8	no data	no data	2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		0.007
Dichlorobenzene (1,2) [o-]	95-50-1	D	no data	9.00E-02	1.00E+00	16	1	2.00E-04	1	1		7200		
Trichlorobenzene [1,2,4-]	120-82-1	D	no data	1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
Hexachlorobutadiene	87-68-3	C	7.80E-02	review	1.00E-05	70	70	1.00E-04	1	70	89.744			
Semi-Volatile Organic Compounds														
Pyridine	110-86-1	no data	no data	1.00E-03	1.00E+00	16	1	2.00E-04	1	1		[illegible]		
Nitrosodimethylamine [N-]	62-75-9	B2	5.10E+01	no data	1.00E-06	70	70	1.00E-04	1	70	0.014			
Aniline	62-53-3	B2	5.70E-03	no data	1.00E-06	70	70	1.00E-04	1	70	122.807			
Phenol	108-95-2	D	no data	6.00E-01	1.00E+00	16	1	2.00E-04	1	1		48000		
Bis(2-chloroethyl)ether	111-44-4	B2	1.10E+00	no data	1.00E-06	70	70	1.00E-04	1	70	0.636			
Chlorophenol [o-]	95-57-8	no data	no data	5.00E-03	1.00E+00	16	1	2.00E-04	1	1		400		
Dichlorobenzene (1,2) [o-]	95-50-1	D	no data	9.00E-02	1.00E+00	16	1	2.00E-04	1	1		7200		
Methylphenol [2-]	95-48-7	C	no data	5.00E-02	1.00E-05	70	70	1.00E-04	1	70		35000		
Nitrosodi-n-propylamine [N-]	621-64-7	B2	7.00E+00	no data	1.00E-06	70	70	1.00E-04	1	70	0.100			

Name	CAS #	car. class	SF	RfD	Risk Level	Weight (W)	LT	Intake (I)	AF	ED	Action level	Action level		TSL-85
			1/(mg/kg-day)	(mg/kg-day)	(unitless)	(kg)	(years)	(kg/day)		(yrs)	(carcinogenic)	(systemic)		(max)
											(mg/kg)	(mg/kg)		
Hexachloroethane	67-72-1	C	1.40E-02		1.00E-05	70	70	1.00E-04	1	70	500.000			
				1.00E-03	1.00E+00	16	1	2.00E-04	1	1		80		
Nitrobenzene	98-95-3	D	no data	5.00E-04	1.00E+00	16	1	2.00E-04	1	1		4.00E+01		
Isophorone	78-59-1	C	9.50E-04		1.00E-05	70	70	1.00E-04	1	70	7368.421			
				2.00E-01	1.00E+00	16	1	2.00E-04	1	1		16000		
Dimethylphenol [2,4-]	105-67-9	no data	no data	2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Dichlorophenol [2,4-]	120-83-2	no data	no data	3.00E-03	1.00E+00	16	1	2.00E-04	1	1		240		
Benzoic acid	65-85-0	D	no data	4.00E+00	1.00E+00	16	1	2.00E-04	1	1		320000		0.21
Trichlorobenzene [1,2,4-]	120-82-1	D	no data	1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
Chloroaniline [4-]	106-47-8	no data	no data	4.00E-03	1.00E+00	16	1	2.00E-04	1	1		320		
Hexachlorobutadiene	87-68-3	C	7.80E-02	review	1.00E-05	70	70	1.00E-04	1	70	89.744			
Hexachlorocyclopentadiene	77-47-4	D	no data	7.00E-03	1.00E+00	16	1	2.00E-04	1	1		560		
Trichlorophenol [2,4,6-]	88-06-2	B2	1.10E-02	no data	1.00E-06	70	70	1.00E-04	1	70	63.636			
Trichlorophenol [2,4,5-]	95-95-4	no data	no data	1.00E-01	1.00E+00	16	1	2.00E-04	1	1		8000		
Chloronaphthalene [2-]	91-58-7	no data	no data	8.00E-02	1.00E+00	16	1	2.00E-04	1	1		6.40E+03		
Acenaphthene	83-32-9	no data	no data	6.00E-02	1.00E+00	16	1	2.00E-04	1	1		4800		0.15 (J)
Dinitrophenol [2,4-]	51-28-5	no data	no data	2.00E-03	1.00E+00	16	1	2.00E-04	1	1		160		
Dinitrotoluene [2,4-]	121-14-2	no data		2.00E-03	1.00E+00	16	1	2.00E-04	1	1		160		
Diethyl phthalate	84-66-2	D	no data	8.00E-01	1.00E+00	16	1	2.00E-04	1	1		64000		
Fluorene	86-73-7	D	no data	4.00E-02	1.00E+00	16	1	2.00E-04	1	1		3200		
Azobenzene	103-33-3	B2	1.10E-01	no data	1.00E-06	70	70	1.00E-04	1	70	6.364			
Nitrosodiphenylamine [N-]	86-30-6	B2	4.90E-03	no data	1.00E-06	70	70	1.00E-04	1	70	142.857			
Hexachlorobenzene	118-74-1	B2	1.60E+00		1.00E-06	70	70	1.00E-04	1	70	0.438			2.6
				8.00E-04	1.00E+00	16	1	2.00E-04	1	1		64		
Pentachlorophenol	87-86-5	B2	1.20E-01		1.00E-06	70	70	1.00E-04	1	70	5.833			
				3.00E-02	1.00E+00	16	1	2.00E-04	1	1		2400		
Anthracene	120-12-7	D	no data	3.00E-01	1.00E+00	16	1	2.00E-04	1	1		24000		
Di-n-butyl phthalate	84-74-2	D	no data	1.00E-01	1.00E+00	16	1	2.00E-04	1	1		8000		0.44
Fluoranthene	206-44-0	D	no data	4.00E-02	1.00E+00	16	1	2.00E-04	1	1		3200		
Pyrene	129-00-0	D	no data	3.00E-02	1.00E+00	16	1	2.00E-04	1	1		2400		
Butyl benzyl phthalate	85-68-7	C	no data	2.00E-01	1.00E+00	16	1	2.00E-04	1	1		16000		
Dichlorobenzidine [3,3'-]	91-94-1	B2	4.50E-01	no data	1.00E-06	70	70	1.00E-04	1	70	1.556			
Bis(2-ethylhexyl)phthalate	117-81-7	B2	1.40E-02		1.00E-06	70	70	1.00E-04	1	70	50.000			2.8
				2.00E-02	1.00E+00	16	1	2.00E-04	1	1		1600		
Benzo[a]pyrene	50-32-8	B2	7.30E+00		1.00E-06	70	70	1.00E-04	1	70	0.096			
				3.00E-04	1.00E+00	16	1	2.00E-04	1	1		24		
PCB/Pest														
BHC [alpha-]	319-84-6	B2	6.30E+00	no data	1.00E-06	70	70	1.00E-04	1	70	0.111			
Heptachlor	76-44-8	B2	4.50E+00		1.00E-06	70	70	1.00E-04	1	70	0.156			
				5.00E-04	1.00E+00	16	1	2.00E-04	1	1		40		
Aldrin	309-00-2	B2	1.70E+01		1.00E-06	70	70	1.00E-04	1	70	0.041			
				3.00E-05	1.00E+00	16	1	2.00E-04	1	1		2.4		
BHC [beta-]	319-85-7	C	1.80E+00	no data	1.00E-05	70	70	1.00E-04	1	70	3.889			
Heptachlor epoxide	1024-57-3	B2	9.10E+00		1.00E-06	70	70	1.00E-04	1	70	0.077			
				1.30E-05	1.00E+00	16	1	2.00E-04	1	1		1.04		
Endosulfan I	959-98-8			6.00E-03	1.00E+00	16	1	2.00E-04	1	1		480		
Chlordane [gamma-]	5103-74-2	B2	1.30E+00		1.00E-06	70	70	1.00E-04	1	70	0.538	42		
				6.00E-05	1.00E+00	16	1	2.00E-04	1	1		4.8		
Chlordane [alpha-]	5103-71-9	B2	1.30E+00		1.00E-06	70	70	1.00E-04	1	70	0.538	42		
				6.00E-05	1.00E+00	16	1	2.00E-04	1	1		4.8		
DDE [p,p'-]	72-55-9	B2	3.40E-01	no data	1.00E-06	70	70	1.00E-04	1	70	2.059			
Dieldrin	60-57-1	B2	1.60E+01		1.00E-06	70	70	1.00E-04	1	70	0.044			
				5.00E-05	1.00E+00	16	1	2.00E-04	1	1		4		

Name	CAS #	car. class	SF	RfD	Risk Level	Weight (W)	LT	Intake (I)	AF	ED	Action level	Action level		TSL-85
			1/(mg/kg-day)	(mg/kg-day)	(unitless)	(kg)	(years)	(kg/day)		(yrs)	(carcinogenic)	(systemic)		(max)
											(mg/kg)	(mg/kg)		
Endrin	72-20-8	D	no data	3.00E-04	1.00E+00	16	1	2.00E-04	1	1		24		
DDD [p,p'-]	72-54-8	B2	2.40E+01	no data	1.00E-06	70	70	1.00E-04	1	70	0.029			
Endosulfan II	33212-65-9			6.00E-03	1.00E+00	16	1	2.00E-04	1	1		480		
DDT [p,p'-]	50-29-3	B2	3.40E-01		1.00E-06	70	70	1.00E-04	1	70	2.059			0.0016
				5.00E-04	1.00E+00	16	1	2.00E-04	1	1		40		
Methoxychlor	72-43-5	D	no data	5.00E-03	1.00E+00	16	1	2.00E-04	1	1		400		
Toxaphene	8001-35-2	B2	1.10E+00	no data	1.00E-06	70	70	1.00E-04	1	70	0.636			
Aroclor [Mixed-]	1336-36-3	B2	7.70E+00		1.00E-06	70	70	1.00E-04	1	70	0.091			0.413
Chlorinated herbicides														
Dalapon	75-99-0	no data	no data	3.00E-02	1.00E+00	16	1	2.00E-04	1	1		2400		
Dicamba	1918-00-9	no data	no data	3.00E-02	1.00E+00	16	1	2.00E-04	1	1		2400		
Mecoprop	93-65-2	no data	no data	1.00E-03	1.00E+00	16	1	2.00E-04	1	1		80		
Chloro-o-tolyloxyacetic acid [4-]	94-74-6	no data	no data	5.00E-04	1.00E+00	16	1	2.00E-04	1	1		40		
D [2,4-]	94-75-7	no data	no data	1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
TP [2,4,5-]	93-72-1	D	no data	8.00E-03	1.00E+00	16	1	2.00E-04	1	1		640		
T [2,4,5-]	93-76-5	no data	no data	1.00E-02	1.00E+00	16	1	2.00E-04	1	1		800		
DB [2,4-]	94-82-6	no data	no data	8.00E-03	1.00E+00	16	1	2.00E-04	1	1		640		
Organophosphorus pesticides														
Methyl Parathion	298-00-0	no data	no data	2.50E-04	1.00E+00	16	1	2.00E-04	1	1		20		
Sulfotepp	3689-24-5	no data	no data	5.00E-04	1.00E+00	16	1	2.00E-04	1	1		40		
Metals														
Thallium	7440-28-0	D	no data	8.00E-05	1.00E+00	16	1	2.00E-04	1	1		6.4		2.7

UST/Piping: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	365	70	70		0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	100	1.00E-06	1	365	70	70		4.71E-07			1.00E-01	4.71E-06
Aroclor 1260	1336-36-3	0.116	100	1.00E-06	1	365	70	70	25550	1.66E-07	7.70E+00	1.28E-06		
Benzene	71-43-2	0.012	100	1.00E-06	1	365	70	70	25550	1.71E-08	2.90E-02	4.97E-10		
Benzoic acid	65-85-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	100	1.00E-06	1	365	70	70	25550	4.00E-06	1.40E-02	5.60E-08		
			100	1.00E-06	1	365	70	70	25550	4.00E-06			2.00E-02	2.00E-04
Chlorobenzene	108-90-7	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			2.00E-02	5.00E-07
Chloroform	67-66-3	0.031	100	1.00E-06	1	365	70	70	25550	4.43E-08	6.10E-03	2.70E-10		
			100	1.00E-06	1	365	70	70	25550	4.43E-08			1.00E-02	4.43E-06
Chlorotoluene [o-]	95-49-8	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			2.00E-02	5.00E-07
DDT [p,p'-]	50-29-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	100	1.00E-06	1	365	70	70	25550	1.43E-06	1.60E+00	2.29E-06		
			100	1.00E-06	1	365	70	70	25550	1.43E-06			8.00E-04	1.79E-03
Isopropylbenzene	98-82-8	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			4.00E-02	2.50E-07
Methylene chloride	75-09-2	0.077	100	1.00E-06	1	365	70	70	25550	1.10E-07	7.50E-03	8.25E-10		
			100	1.00E-06	1	365	70	70	25550	1.10E-07			6.00E-02	1.83E-06
Styrene	100-42-5	0.006	100	1.00E-06	1	365	70	70	25550	8.57E-09			2.00E-01	4.29E-08
Thallium	7440-28-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	100	1.00E-06	1	365	70	70	25550	5.57E-08			2.00E-01	2.79E-07
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	100	1.00E-06	1	365	70	70	25550	3.43E-08			2.00E+00	1.71E-08
											Aggregate		Hazard	
											Risk	3.63E-06	Index	0.002

UST/Piping: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	365	70	70	25550	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	100	1.00E-06	1	365	70	70	25550	4.71E-07			1.00E-01	4.71E-06
Aroclor 1260	1336-36-3	0.116	100	1.00E-06	1	365	70	70	25550	1.66E-07	7.70E+00	1.28E-06		
Benzene	71-43-2	0.012	100	1.00E-06	1	365	70	70	25550	1.71E-08	2.90E-02	4.97E-10		
Benzoic acid	65-85-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	100	1.00E-06	1	365	70	70	25550	4.00E-06	1.40E-02	5.60E-08		
			100	1.00E-06	1	365	70	70	25550	4.00E-06			2.00E-02	2.00E-04
Chlorobenzene	108-90-7	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			2.00E-02	5.00E-07
Chloroform	67-66-3	0.031	100	1.00E-06	1	365	70	70	25550	4.43E-08	6.10E-03	2.70E-10		
			100	1.00E-06	1	365	70	70	25550	4.43E-08			1.00E-02	4.43E-06
Chlorotoluene [o-]	95-49-8	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			2.00E-02	5.00E-07
DDT [p,p'-]	50-29-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	100	1.00E-06	1	365	70	70	25550	1.43E-06	1.60E+00	2.29E-06		
			100	1.00E-06	1	365	70	70	25550	1.43E-06			8.00E-04	1.79E-03
Dichlorobenzidine	91-94-1	0.935	100	1.00E-06	1	365	70	70	25550	1.34E-06	4.50E-01	6.01E-07		
Nitrosodimethylamine [N-]	62-75-9	0.468	100	1.00E-06	1	365	70	70	25550	6.69E-07	5.10E+01	3.41E-05		
Nitrosodi-n-propylamine [N-]	621-64-7	0.468	100	1.00E-06	1	365	70	70	25550	6.69E-07	7.00E+00	4.68E-06		
Benzo(a)pyrene	50-32-8	0.468	100	1.00E-06	1	365	70	70	25550	6.69E-07	7.30E+00	4.88E-06		
			100	1.00E-06	1	365	70	70	25550	6.69E-07			3.00E-04	2.23E-03
Isopropylbenzene	98-82-8	0.007	100	1.00E-06	1	365	70	70	25550	1.00E-08			4.00E-02	2.50E-07
Methylene chloride	75-09-2	0.077	100	1.00E-06	1	365	70	70	25550	1.10E-07	7.50E-03	8.25E-10		
			100	1.00E-06	1	365	70	70	25550	1.10E-07			6.00E-02	1.83E-06
Styrene	100-42-5	0.006	100	1.00E-06	1	365	70	70	25550	8.57E-09			2.00E-01	4.29E-08
Thallium	7440-28-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	100	1.00E-06	1	365	70	70	25550	5.57E-08			2.00E-01	2.79E-07
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	100	1.00E-06	1	365	70	70	25550	3.43E-08			2.00E+00	1.71E-08
											Aggregate		Hazard	
											Risk	4.79E-05	Index	0.004

Spill Path: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	365	70	70	25550	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	100	1.00E-06	1	365	70	70	25550	2.86E-08			1.00E-01	2.86E-07
Aroclor 1260	1336-36-3	0.21	100	1.00E-06	1	365	70	70	25550	3.00E-07	7.70E+00	2.31E-06		
Benzene	71-43-2		100	1.00E-06	1	365	70	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	100	1.00E-06	1	365	70	70	25550	3.00E-07			4.00E+00	7.50E-08
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	100	1.00E-06	1	365	70	70	25550	3.14E-06	1.40E-02	4.40E-08		
			100	1.00E-06	1	365	70	70	25550	3.14E-06			2.00E-02	1.57E-04
Chlorobenzene	108-90-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	6.10E-03	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	365	70	70	25550	2.86E-09			2.00E-02	1.43E-07
DDT [p,p'-]	50-29-3	0.002	100	1.00E-06	1	365	70	70	25550	2.86E-09	3.40E-01	9.71E-10		
			100	1.00E-06	1	365	70	70	25550	2.86E-09			5.00E-04	5.71E-06
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	100	1.00E-06	1	365	70	70	25550	6.03E-07	1.60E+00	9.65E-07		
			100	1.00E-06	1	365	70	70	25550	6.03E-07			8.00E-04	7.54E-04
Isopropylbenzene	98-82-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	100	1.00E-06	1	365	70	70	25550	1.43E-08	7.50E-03	1.07E-10		
			100	1.00E-06	1	365	70	70	25550	1.43E-08			6.00E-02	2.38E-07
Styrene	100-42-5		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	100	1.00E-06	1	365	70	70	25550	3.86E-06			8.00E-05	4.82E-02
Toluene	108-88-3	0.006	100	1.00E-06	1	365	70	70	25550	8.57E-09			2.00E-01	4.29E-08
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	3.32E-06	Index	0.049

Spill Path: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	365	70	70	25550	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	100	1.00E-06	1	365	70	70	25550	2.86E-08			1.00E-01	2.86E-07
Aroclor 1260	1336-36-3	0.21	100	1.00E-06	1	365	70	70	25550	3.00E-07	7.70E+00	2.31E-06		
Benzene	71-43-2		100	1.00E-06	1	365	70	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	100	1.00E-06	1	365	70	70	25550	3.00E-07			4.00E+00	7.50E-08
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	100	1.00E-06	1	365	70	70	25550	3.14E-06	1.40E-02	4.40E-08		
			100	1.00E-06	1	365	70	70	25550	3.14E-06			2.00E-02	1.57E-04
Chlorobenzene	108-90-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	6.10E-03	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3	0.002	100	1.00E-06	1	365	70	70	25550	2.86E-09	3.40E-01	9.71E-10		
			100	1.00E-06	1	365	70	70	25550	2.86E-09			5.00E-04	5.71E-06
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	100	1.00E-06	1	365	70	70	25550	6.03E-07	1.60E+00	9.65E-07		
			100	1.00E-06	1	365	70	70	25550	6.03E-07			8.00E-04	7.54E-04
Dichlorobenzidine	91-94-1	0.753	100	1.00E-06	1	365	70	70	25550	1.08E-06	4.50E-01	4.84E-07		
Nitrosodimethylamine [N-]	62-75-9	0.381	100	1.00E-06	1	365	70	70	25550	5.44E-07	5.10E+01	2.78E-05		
Nitrosodi-n-propylamine [N-]	621-64-7	0.381	100	1.00E-06	1	365	70	70	25550	5.44E-07	7.00E+00	3.81E-06		
Benzo[a]pyrene	50-32-8	0.381	100	1.00E-06	1	365	70	70	25550	5.44E-07	7.30E+00	3.97E-06		
			100	1.00E-06	1	365	70	70	25550	5.44E-07			3.00E-04	1.81E-03
Isopropylbenzene	98-82-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	100	1.00E-06	1	365	70	70	25550	1.43E-08	7.50E-03	1.07E-10		
			100	1.00E-06	1	365	70	70	25550	1.43E-08			6.00E-02	2.38E-07
Styrene	100-42-5		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	100	1.00E-06	1	365	70	70	25550	3.86E-06			8.00E-05	4.82E-02
Toluene	108-88-3	0.006	100	1.00E-06	1	365	70	70	25550	8.57E-09			2.00E-01	4.29E-08
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	3.93E-05	Index	0.051

Impoundment: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	100	1.00E-06	1	365	70	70	25550	2.14E-07			6.00E-02	3.57E-06
Acetone	67-64-1		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		100	1.00E-06	1	365	70	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		100	1.00E-06	1	365	70	70	25550	0.00E+00	1.40E-02	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	100	1.00E-06	1	365	70	70	25550	2.86E-09	6.10E-03	1.74E-11		
			100	1.00E-06	1	365	70	70	25550	2.86E-09			1.00E-02	2.86E-07
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	100	1.00E-06	1	365	70	70	25550	6.29E-07			1.00E-01	6.29E-06
Hexachlorobenzene	118-74-1		100	1.00E-06	1	365	70	70	25550	0.00E+00	1.60E+00	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-04	0.00E+00
Isopropylbenzene	98-82-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	100	1.00E-06	1	365	70	70	25550	2.00E-08	7.50E-03	1.50E-10		
			100	1.00E-06	1	365	70	70	25550	2.00E-08			6.00E-02	3.33E-07
Styrene	100-42-5		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	1.67E-10	Index	0.000

Impoundment: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (adult)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	100	1.00E-06	1	365	70	70	25550	2.14E-07			6.00E-02	3.57E-06
Acetone	67-64-1		100	1.00E-06	1	365	70	70	25550	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		100	1.00E-06	1	365	70	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		100	1.00E-06	1	365	70	70	25550	0.00E+00	1.40E-02	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	100	1.00E-06	1	365	70	70	25550	2.86E-09	6.10E-03	1.74E-11		
			100	1.00E-06	1	365	70	70	25550	2.86E-09			1.00E-02	2.86E-07
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		100	1.00E-06	1	365	70	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	100	1.00E-06	1	365	70	70	25550	6.29E-07			1.00E-01	6.29E-06
Hexachlorobenzene	118-74-1		100	1.00E-06	1	365	70	70	25550	0.00E+00	1.60E+00	0.00E+00		
			100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-04	0.00E+00
Dichlorobenzidine	91-94-1	0.733	100	1.00E-06	1	365	70	70	25550	1.05E-06	4.50E-01	4.71E-07		
Nitrosodimethylamine [N-]	62-75-9	0.364	100	1.00E-06	1	365	70	70	25550	5.20E-07	5.10E+01	2.65E-05		
Bis(2-chloroethyl)ether	111-44-4		100	1.00E-06	1	365	70	70	25550	0.00E+00	1.10E+00	0.00E+00		
Nitrosodi-n-propylamine [N-]	621-64-7	0.364	100	1.00E-06	1	365	70	70	25550	5.20E-07	7.00E+00	3.64E-06		
Benzo[a]pyrene	50-32-8	0.364	100	1.00E-06	1	365	70	70	25550	5.20E-07	7.30E+00	3.80E-06		
			100	1.00E-06	1	365	70	70	25550	5.20E-07			3.00E-04	1.73E-03
Isopropylbenzene	98-82-8		100	1.00E-06	1	365	70	70	25550	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	100	1.00E-06	1	365	70	70	25550	2.00E-08	7.50E-03	1.50E-10		
			100	1.00E-06	1	365	70	70	25550	2.00E-08			6.00E-02	3.33E-07
Styrene	100-42-5		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		100	1.00E-06	1	365	70	70	25550	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	365	70	70	25550	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	3.44E-05	Index	0.002

UST/Piping: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		200	1.00E-06	1	365	6	16	2190	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	200	1.00E-06	1	365	6	16	2190	4.13E-06			1.00E-01	4.13E-05
Aroclor 1260	1336-36-3	0.116	200	1.00E-06	1	365	6	16	25550	1.24E-07	7.70E+00	9.57E-07		
Benzene	71-43-2	0.012	200	1.00E-06	1	365	6	16	25550	1.29E-08	2.90E-02	3.73E-10		
Benzoic acid	65-85-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	200	1.00E-06	1	365	6	16	25550	3.00E-06	1.40E-02	4.20E-08		
			200	1.00E-06	1	365	6	16	2190	3.50E-05			2.00E-02	1.75E-03
Chlorobenzene	108-90-7	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			2.00E-02	4.38E-06
Chloroform	67-66-3	0.031	200	1.00E-06	1	365	6	16	25550	3.32E-08	6.10E-03	2.03E-10		
			200	1.00E-06	1	365	6	16	2190	3.88E-07			1.00E-02	3.88E-05
Chlorotoluene [o-]	95-49-8	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			2.00E-02	4.38E-06
DDT [p,p'-]	50-29-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	3.40E-01	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	200	1.00E-06	1	365	6	16	25550	1.07E-06	1.60E+00	1.72E-06		
			200	1.00E-06	1	365	6	16	2190	1.25E-05			8.00E-04	1.57E-02
Isopropylbenzene	98-82-8	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			4.00E-02	2.19E-06
Methylene chloride	75-09-2	0.077	200	1.00E-06	1	365	6	16	25550	8.25E-08	7.50E-03	6.19E-10		
			200	1.00E-06	1	365	6	16	2190	9.63E-07			6.00E-02	1.60E-05
Styrene	100-42-5	0.006	200	1.00E-06	1	365	6	16	2190	7.50E-08			2.00E-01	3.75E-07
Thallium	7440-28-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	200	1.00E-06	1	365	6	16	2190	4.88E-07			2.00E-01	2.44E-06
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	200	1.00E-06	1	365	6	16	2190	3.00E-07			2.00E+00	1.50E-07
											Aggregate		Hazard	
											Risk	2.72E-06	Index	1.75E-02

UST/Piping: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		200	1.00E-06	1	365	6	16	2190	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	200	1.00E-06	1	365	6	16	2190	4.13E-06			1.00E-01	4.13E-05
Aroclor 1260	1336-36-3	0.116	200	1.00E-06	1	365	6	16	25550	1.24E-07	7.70E+00	9.57E-07		
Benzene	71-43-2	0.012	200	1.00E-06	1	365	6	16	25550	1.29E-08	2.90E-02	3.73E-10		
Benzoic acid	65-85-0		200	1.00E-06	1	365	6	16	2190	1.50E-07			4.00E+00	3.75E-08
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	200	1.00E-06	1	365	6	16	25550	3.00E-06	1.40E-02	4.20E-08		
			200	1.00E-06	1	365	6	16	2190	3.50E-05			2.00E-02	1.75E-03
Chlorobenzene	108-90-7	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			2.00E-02	4.38E-06
Chloroform	67-66-3	0.031	200	1.00E-06	1	365	6	16	25550	3.32E-08	6.10E-03	2.03E-10		
			200	1.00E-06	1	365	6	16	2190	3.88E-07			1.00E-02	3.88E-05
Chlorotoluene [o-]	95-49-8	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			2.00E-02	4.38E-06
DDT [p,p'-]	50-29-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	3.40E-01	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	200	1.00E-06	1	365	6	16	25550	1.07E-06	1.60E+00	1.72E-06		
			200	1.00E-06	1	365	6	16	2190	1.25E-05			8.00E-04	1.57E-02
Dichlorobenzidine	91-94-1	0.935	200	1.00E-06	1	365	6	16	25550	1.00E-06	4.50E-01	4.51E-07		
Nitrosodimethylamine [N-]	62-75-9	0.468	200	1.00E-06	1	365	6	16	25550	5.01E-07	5.10E+01	2.56E-05		
Nitrosodi-n-propylamine [N-]	621-64-7	0.468	200	1.00E-06	1	365	6	16	25550	5.01E-07	7.00E+00	3.51E-06		
Benzo[a]pyrene	50-32-8	0.468	200	1.00E-06	1	365	6	16	25550	5.01E-07	7.30E+00	3.66E-06		
			200	1.00E-06	1	365	6	16	2190	5.85E-06			3.00E-04	1.95E-02
Isopropylbenzene	98-82-8	0.007	200	1.00E-06	1	365	6	16	2190	8.75E-08			4.00E-02	2.19E-06
Methylene chloride	75-09-2	0.077	200	1.00E-06	1	365	6	16	25550	8.25E-08	7.50E-03	6.19E-10		
			200	1.00E-06	1	365	6	16	2190	9.63E-07			6.00E-02	1.60E-05
Styrene	100-42-5	0.006	200	1.00E-06	1	365	6	16	2190	7.50E-08			2.00E-01	3.75E-07
Thallium	7440-28-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	200	1.00E-06	1	365	6	16	2190	4.88E-07			2.00E-01	2.44E-06
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	200	1.00E-06	1	365	6	16	2190	3.00E-07			2.00E+00	1.50E-07
											Aggregate		Hazard	
											Risk	3.59E-05	Index	3.70E-02

Spill Path: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		200	1.00E-06	1	365	6	16	2190	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	200	1.00E-06	1	365	6	16	2190	2.50E-07			1.00E-01	2.50E-06
Aroclor 1260	1336-36-3	0.21	200	1.00E-06	1	365	6	16	25550	2.25E-07	7.70E+00	1.73E-06		
Benzene	71-43-2		200	1.00E-06	1	365	6	16	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	200	1.00E-06	1	365	6	16	2190	2.63E-06			4.00E+00	6.56E-07
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	200	1.00E-06	1	365	6	16	25550	2.36E-06	1.40E-02	3.30E-08		
			200	1.00E-06	1	365	6	16	2190	2.75E-05			2.00E-02	1.38E-03
Chlorobenzene	108-90-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	6.10E-03	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3	0.002	200	1.00E-06	1	365	6	16	25550	2.14E-09	3.40E-01	7.29E-10		
			200	1.00E-06	1	365	6	16	2190	2.50E-08			5.00E-04	5.00E-05
Di-n-butyl phthalate	84-74-2		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	200	1.00E-06	1	365	6	16	25550	4.52E-07	1.60E+00	7.23E-07		
			200	1.00E-06	1	365	6	16	2190	5.28E-06			8.00E-04	6.59E-03
Isopropylbenzene	98-82-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	200	1.00E-06	1	365	6	16	25550	1.07E-08	7.50E-03	8.04E-11		
			200	1.00E-06	1	365	6	16	2190	1.25E-07			6.00E-02	2.08E-06
Styrene	100-42-5		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	200	1.00E-06	1	365	6	16	2190	3.38E-05			8.00E-05	4.22E-01
Toluene	108-88-3	0.006	200	1.00E-06	1	365	6	16	2190	7.50E-08			2.00E-01	3.75E-07
Xylenes (o + m + p) [Mixed-]	1330-20-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	2.49E-06	Index	4.30E-01

Spill Path: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		200	1.00E-06	1	365	6	16	2190	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	200	1.00E-06	1	365	6	16	2190	2.50E-07			1.00E-01	2.50E-06
Aroclor 1260	1336-36-3	0.21	200	1.00E-06	1	365	6	16	25550	2.25E-07	7.70E+00	1.73E-06		
Benzene	71-43-2		200	1.00E-06	1	365	6	16	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	200	1.00E-06	1	365	6	16	2190	2.63E-06			4.00E+00	6.56E-07
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	200	1.00E-06	1	365	6	16	25550	2.36E-06	1.40E-02	3.30E-08		
			200	1.00E-06	1	365	6	16	2190	2.75E-05			2.00E-02	1.38E-03
Chlorobenzene	108-90-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	6.10E-03	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3	0.002	200	1.00E-06	1	365	6	16	25550	2.14E-09	3.40E-01	7.29E-10		
			200	1.00E-06	1	365	6	16	2190	2.50E-08			5.00E-04	5.00E-05
Di-n-butyl phthalate	84-74-2		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	200	1.00E-06	1	365	6	16	25550	4.52E-07	1.60E+00	7.23E-07		
			200	1.00E-06	1	365	6	16	2190	5.28E-06			8.00E-04	6.59E-03
Dichlorobenzidine	91-94-1	0.753	200	1.00E-06	1	365	6	16	25550	8.07E-07	4.50E-01	3.63E-07		
Nitrosodimethylamine [N-]	62-75-9	0.381	200	1.00E-06	1	365	6	16	25550	4.08E-07	5.10E+01	2.08E-05		
Nitrosodi-n-propylamine [N-]	621-64-7	0.381	200	1.00E-06	1	365	6	16	25550	4.08E-07	7.00E+00	2.86E-06		
Benzo[a]pyrene	50-32-8	0.381	200	1.00E-06	1	365	6	16	25550	4.08E-07	7.30E+00	2.98E-06		
			200	1.00E-06	1	365	6	16	2190	4.76E-06			3.00E-04	1.59E-02
Isopropylbenzene	98-82-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	200	1.00E-06	1	365	6	16	25550	1.07E-08	7.50E-03	8.04E-11		
			200	1.00E-06	1	365	6	16	2190	1.25E-07			6.00E-02	2.08E-06
Styrene	100-42-5		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	200	1.00E-06	1	365	6	16	2190	3.38E-05			8.00E-05	4.22E-01
Toluene	108-88-3	0.006	200	1.00E-06	1	365	6	16	2190	7.50E-08			2.00E-01	3.75E-07
Xylenes (o + m + p) [Mixed-]	1330-20-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	2.95E-05	Index	4.46E-01

Impoundment: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	200	1.00E-06	1	365	6	16	2190	1.88E-06			6.00E-02	3.13E-05
Acetone	67-64-1		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		200	1.00E-06	1	365	6	16	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		200	1.00E-06	1	365	6	16	25550	0.00E+00	1.40E-02	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	200	1.00E-06	1	365	6	16	25550	2.14E-09	6.10E-03	1.31E-11		
			200	1.00E-06	1	365	6	16	2190	2.50E-08			1.00E-02	2.50E-06
Chlorotoluene [o-]	95-49-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	3.40E-01	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	200	1.00E-06	1	365	6	16	2190	5.50E-06			1.00E-01	5.50E-05
Hexachlorobenzene	118-74-1		200	1.00E-06	1	365	6	16	25550	0.00E+00	1.60E+00	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-04	0.00E+00
Isopropylbenzene	98-82-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	200	1.00E-06	1	365	6	16	25550	1.50E-08	7.50E-03	1.13E-10		
			200	1.00E-06	1	365	6	16	2190	1.75E-07			6.00E-02	2.92E-06
Styrene	100-42-5		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	1.26E-10	Index	9.17E-05

Impoundment: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Resident (child)		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	200	1.00E-06	1	365	6	16	2190	1.88E-06			6.00E-02	3.13E-05
Acetone	67-64-1		200	1.00E-06	1	365	6	16	2190	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		200	1.00E-06	1	365	6	16	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		200	1.00E-06	1	365	6	16	25550	0.00E+00	1.40E-02	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	200	1.00E-06	1	365	6	16	25550	2.14E-09	6.10E-03	1.31E-11		
			200	1.00E-06	1	365	6	16	2190	2.50E-08			1.00E-02	2.50E-06
Chlorotoluene [o-]	95-49-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		200	1.00E-06	1	365	6	16	25550	0.00E+00	3.40E-01	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	200	1.00E-06	1	365	6	16	2190	5.50E-06			1.00E-01	5.50E-05
Hexachlorobenzene	118-74-1		200	1.00E-06	1	365	6	16	25550	0.00E+00	1.60E+00	0.00E+00		
			200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-04	0.00E+00
Dichlorobenzidine	91-94-1	0.733	200	1.00E-06	1	365	6	16	25550	7.85E-07	4.50E-01	3.53E-07		
Nitrosodimethylamine [N-]	62-75-9	0.364	200	1.00E-06	1	365	6	16	25550	3.90E-07	5.10E+01	1.99E-05		
Bis(2-chloroethyl)ether	111-44-4		200	1.00E-06	1	365	6	16	25550	0.00E+00	1.10E+00	0.00E+00		
Nitrosodi-n-propylamine [N-]	621-64-7	0.364	200	1.00E-06	1	365	6	16	25550	3.90E-07	7.00E+00	2.73E-06		
Benzo[a]pyrene	50-32-8	0.364	200	1.00E-06	1	365	6	16	25550	3.90E-07	7.30E+00	2.85E-06		
			200	1.00E-06	1	365	6	16	2190	4.55E-06			3.00E-04	1.52E-02
Isopropylbenzene	98-82-8		200	1.00E-06	1	365	6	16	2190	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	200	1.00E-06	1	365	6	16	25550	1.50E-08	7.50E-03	1.13E-10		
			200	1.00E-06	1	365	6	16	2190	1.75E-07			6.00E-02	2.92E-06
Styrene	100-42-5		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		200	1.00E-06	1	365	6	16	2190	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		200	1.00E-06	1	365	6	16	2190	0.00E+00			2.00E+00	0.00E+00
											Aggregate		Hazard	
											Risk	2.58E-05	Index	1.53E-02

UST/Piping: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Adult, industrial		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	20	25	70	9125	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	100	1.00E-06	1	20	25	70	9125	2.58E-08			1.00E-01	2.58E-07
Aroclor 1260	1336-36-3	0.116	100	1.00E-06	1	20	25	70	25550	3.24E-09	7.70E+00	2.50E-08		
Benzene	71-43-2	0.012	100	1.00E-06	1	20	25	70	25550	3.35E-10	2.90E-02	9.73E-12		
Benzoic acid	65-85-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	100	1.00E-06	1	20	25	70	25550	7.83E-08	1.40E-02	1.10E-09		
			100	1.00E-06	1	20	25	70	9125	2.19E-07			2.00E-02	1.10E-05
Chlorobenzene	108-90-7	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			2.00E-02	2.74E-08
Chloroform	67-66-3	0.031	100	1.00E-06	1	20	25	70	25550	8.67E-10	6.10E-03	5.29E-12		
			100	1.00E-06	1	20	25	70	9125	2.43E-09			1.00E-02	2.43E-07
Chlorotoluene [o-]	95-49-8	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			2.00E-02	2.74E-08
DDT [p,p'-]	50-29-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	100	1.00E-06	1	20	25	70	25550	2.80E-08	1.60E+00	4.49E-08		
			100	1.00E-06	1	20	25	70	9125	7.85E-08			8.00E-04	9.81E-05
Isopropylbenzene	98-82-8	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			4.00E-02	1.37E-08
Methylene chloride	75-09-2	0.077	100	1.00E-06	1	20	25	70	25550	2.15E-09	7.50E-03	1.61E-11		
			100	1.00E-06	1	20	25	70	9125	6.03E-09			6.00E-02	1.00E-07
Styrene	100-42-5	0.006	100	1.00E-06	1	20	25	70	9125	4.70E-10			2.00E-01	2.35E-09
Thallium	7440-28-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	100	1.00E-06	1	20	25	70	9125	3.05E-09			2.00E-01	1.53E-08
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	100	1.00E-06	1	20	25	70	9125	1.88E-09			2.00E+00	9.39E-10
											Aggregate		**Hazard**	
											Risk	7.10E-08	**Index**	1.10E-04

UST/Piping: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Adult industrial		CS	IR	CF	FI	EF	ED	W	AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9		100	1.00E-06	1	20	25	70	9125	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.33	100	1.00E-06	1	20	25	70	9125	2.58E-08			1.00E-01	2.58E-07
Aroclor 1260	1336-36-3	0.116	100	1.00E-06	1	20	25	70	25550	3.24E-09	7.70E+00	2.50E-08		
Benzene	71-43-2	0.012	100	1.00E-06	1	20	25	70	25550	3.35E-10	2.90E-02	9.73E-12		
Benzoic acid	65-85-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7	2.8	100	1.00E-06	1	20	25	70	25550	7.83E-08	1.40E-02	1.10E-09		
			100	1.00E-06	1	20	25	70	9125	2.19E-07			2.00E-02	1.10E-05
Chlorobenzene	108-90-7	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			2.00E-02	2.74E-08
Chloroform	67-66-3	0.031	100	1.00E-06	1	20	25	70	25550	8.67E-10	6.10E-03	5.29E-12		
			100	1.00E-06	1	20	25	70	9125	2.43E-09			1.00E-02	2.43E-07
Chlorotoluene [o-]	95-49-8	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			2.00E-02	2.74E-08
DDT [p,p'-]	50-29-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	1.003	100	1.00E-06	1	20	25	70	25550	2.80E-08	1.60E+00	4.49E-08		
			100	1.00E-06	1	20	25	70	9125	7.85E-08			8.00E-04	9.81E-05
Dichlorobenzidine	91-94-1	0.935	100	1.00E-06	1	20	25	70	25550	2.61E-08	4.50E-01	1.18E-08		
Nitrosodimethylamine [N-]	62-75-9	0.468	100	1.00E-06	1	20	25	70	25550	1.31E-08	5.10E+01	6.67E-07		
Nitrosodi-n-propylamine [N-]	621-64-7	0.468	100	1.00E-06	1	20	25	70	25550	1.31E-08	7.00E+00	9.16E-08		
Benzo[a]pyrene	50-32-8	0.468	100	1.00E-06	1	20	25	70	25550	1.31E-08	7.30E+00	9.55E-08		
			100	1.00E-06	1	20	25	70	9125	3.66E-08			3.00E-04	1.22E-04
Isopropylbenzene	98-82-8	0.007	100	1.00E-06	1	20	25	70	9125	5.48E-10			4.00E-02	1.37E-08
Methylene chloride	75-09-2	0.077	100	1.00E-06	1	20	25	70	25550	2.15E-09	7.50E-03	1.61E-11		
			100	1.00E-06	1	20	25	70	9125	6.03E-09			6.00E-02	1.00E-07
Styrene	100-42-5	0.006	100	1.00E-06	1	20	25	70	9125	4.70E-10			2.00E-01	2.35E-09
Thallium	7440-28-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3	0.039	100	1.00E-06	1	20	25	70	9125	3.05E-09			2.00E-01	1.53E-08
Xylenes (o + m + p) [Mixed-]	1330-20-7	0.024	100	1.00E-06	1	20	25	70	9125	1.88E-09			2.00E+00	9.39E-10
											Aggregate		**Hazard**	
											Risk	9.37E-07	**Index**	2.32E-04

Spill Path: Detects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Adult industrial		**CS**	**IR**	**CF**	**FI**	**EF**	**ED**	**W**	**AT**	**Intake**	**SF**	**Risk**	**RfD**	**HQ**
Acenaphthene	83-32-9		100	1.00E-06	1	20	25	70	9125	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	100	1.00E-06	1	20	25	70	9125	1.57E-09			1.00E-01	1.57E-08
Aroclor 1260	1336-36-3	0.21	100	1.00E-06	1	20	25	70	25550	5.87E-09	7.70E+00	4.52E-08		
Benzene	71-43-2		100	1.00E-06	1	20	25	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	100	1.00E-06	1	20	25	70	9125	1.64E-08			4.00E+00	4.11E-09
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	100	1.00E-06	1	20	25	70	25550	6.15E-08	1.40E-02	8.61E-10		
			100	1.00E-06	1	20	25	70	9125	1.72E-07			2.00E-02	8.61E-06
Chlorobenzene	108-90-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	6.10E-03	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3	0.002	100	1.00E-06	1	20	25	70	25550	5.59E-11	3.40E-01	1.90E-11		
			100	1.00E-06	1	20	25	70	9125	1.57E-10			5.00E-04	3.13E-07
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	100	1.00E-06	1	20	25	70	25550	1.18E-08	1.60E+00	1.89E-08		
			100	1.00E-06	1	20	25	70	9125	3.30E-08			8.00E-04	4.13E-05
Isopropylbenzene	98-82-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	100	1.00E-06	1	20	25	70	25550	2.80E-10	7.50E-03	2.10E-12		
			100	1.00E-06	1	20	25	70	9125	7.83E-10			6.00E-02	1.30E-08
Styrene	100-42-5		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	100	1.00E-06	1	20	25	70	9125	2.11E-07			8.00E-05	2.64E-03
Toluene	108-88-3	0.006	100	1.00E-06	1	20	25	70	9125	4.70E-10			2.00E-01	2.35E-09
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E+00	0.00E+00
											Aggregate		**Hazard**	
											Risk	6.50E-08	**Index**	2.69E-03

Spill Path: Detects/nondetects		Concentration	Ingest Rate	Conv. fact.	Fract. Ingest	Exp Freq	Exp Dur	Weight	Ave time					
Adult industrial		**CS**	**IR**	**CF**	**FI**	**EF**	**ED**	**W**	**AT**	**Intake**	**SF**	**Risk**	**RfD**	**HQ**
Acenaphthene	83-32-9		100	1.00E-06	1	20	25	70	9125	0.00E+00			6.00E-02	0.00E+00
Acetone	67-64-1	0.02	100	1.00E-06	1	20	25	70	9125	1.57E-09			1.00E-01	1.57E-08
Aroclor 1260	1336-36-3	0.21	100	1.00E-06	1	20	25	70	25550	5.87E-09	7.70E+00	4.52E-08		
Benzene	71-43-2		100	1.00E-06	1	20	25	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0	0.21	100	1.00E-06	1	20	25	70	9125	1.64E-08			4.00E+00	4.11E-09
Bis(2-ethylhexyl)phthalate	117-81-7	2.2	100	1.00E-06	1	20	25	70	25550	6.15E-08	1.40E-02	8.61E-10		
			100	1.00E-06	1	20	25	70	9125	1.72E-07			2.00E-02	8.61E-06
Chlorobenzene	108-90-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	6.10E-03	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-02	0.00E+00
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3	0.002	100	1.00E-06	1	20	25	70	25550	5.59E-11	3.40E-01	1.90E-11		
			100	1.00E-06	1	20	25	70	9125	1.57E-10			5.00E-04	3.13E-07
Di-n-butyl phthalate	84-74-2		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Hexachlorobenzene	118-74-1	0.422	100	1.00E-06	1	20	25	70	25550	1.18E-08	1.60E+00	1.89E-08		
			100	1.00E-06	1	20	25	70	9125	3.30E-08			8.00E-04	4.13E-05
Dichlorobenzidine	91-94-1	0.753	100	1.00E-06	1	20	25	70	25550	2.11E-08	4.50E-01	9.47E-09		
Nitrosodimethylamine [N-]	62-75-9	0.381	100	1.00E-06	1	20	25	70	25550	1.07E-08	5.10E+01	5.43E-07		
Nitrosodi-n-propylamine [N-]	621-64-7	0.381	100	1.00E-06	1	20	25	70	25550	1.07E-08	7.00E+00	7.46E-08		
Benzo[a]pyrene	50-32-8	0.381	100	1.00E-06	1	20	25	70	25550	1.07E-08	7.30E+00	7.78E-08		
			100	1.00E-06	1	20	25	70	9125	2.98E-08			3.00E-04	9.94E-05
Isopropylbenzene	98-82-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.01	100	1.00E-06	1	20	25	70	25550	2.80E-10	7.50E-03	2.10E-12		
			100	1.00E-06	1	20	25	70	9125	7.83E-10			6.00E-02	1.30E-08
Styrene	100-42-5		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0	2.7	100	1.00E-06	1	20	25	70	9125	2.11E-07			8.00E-05	2.64E-03
Toluene	108-88-3	0.006	100	1.00E-06	1	20	25	70	9125	4.70E-10			2.00E-01	2.35E-09
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E+00	0.00E+00
											Aggregate		**Hazard**	
											Risk	7.70E-07	**Index**	2.79E-03

Impoundment: Detects Adult industrial		Concentration CS	Ingest Rate IR	Conv. fact. CF	Fract. Ingest FI	Exp Freq EF	Exp Dur ED	Weight W	Ave time AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	100	1.00E-06	1	20	25	70	9125	1.17E-08			6.00E-02	1.96E-07
Acetone	67-64-1		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		100	1.00E-06	1	20	25	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		100	1.00E-06	1	20	25	70	25550	0.00E+00	1.40E-02	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	100	1.00E-06	1	20	25	70	25550	5.59E-11	6.10E-04	3.41E-13		
			100	1.00E-06	1	20	25	70	9125	1.57E-10			1.00E-02	1.57E-08
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	100	1.00E-06	1	20	25	70	9125	3.44E-08			1.00E-01	3.44E-07
Hexachlorobenzene	118-74-1		100	1.00E-06	1	20	25	70	25550	0.00E+00	1.60E+00	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-04	0.00E+00
Isopropylbenzene	98-82-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	100	1.00E-06	1	20	25	70	25550	3.91E-10	7.50E-03	2.94E-12		
			100	1.00E-06	1	20	25	70	9125	1.10E-09			6.00E-02	1.83E-08
Styrene	100-42-5		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E+00	0.00E+00
											Aggregate Risk	3.28E-12	Hazard Index	5.74E-07

Impoundment: Detects/nondetects Adult industrial		Concentration CS	Ingest Rate IR	Conv. fact. CF	Fract. Ingest FI	Exp Freq EF	Exp Dur ED	Weight W	Ave time AT	Intake	SF	Risk	RfD	HQ
Acenaphthene	83-32-9	0.15	100	1.00E-06	1	20	25	70	9125	1.17E-08			6.00E-02	1.96E-07
Acetone	67-64-1		100	1.00E-06	1	20	25	70	9125	0.00E+00			1.00E-01	0.00E+00
Aroclor 1260	1336-36-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	7.70E+00	0.00E+00		
Benzene	71-43-2		100	1.00E-06	1	20	25	70	25550	0.00E+00	2.90E-02	0.00E+00		
Benzoic acid	65-85-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E+00	0.00E+00
Bis(2-ethylhexyl)phthalate	117-81-7		100	1.00E-06	1	20	25	70	25550	0.00E+00	1.40E-02	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chlorobenzene	108-90-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
Chloroform	67-66-3	0.002	100	1.00E-06	1	20	25	70	25550	5.59E-11	6.10E-03	3.41E-13		
			100	1.00E-06	1	20	25	70	9125	1.57E-10			1.00E-02	1.57E-08
Chlorotoluene [o-]	95-49-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-02	0.00E+00
DDT [p,p'-]	50-29-3		100	1.00E-06	1	20	25	70	25550	0.00E+00	3.40E-01	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			5.00E-04	0.00E+00
Di-n-butyl phthalate	84-74-2	0.44	100	1.00E-06	1	20	25	70	9125	3.44E-08			1.00E-01	3.44E-07
Hexachlorobenzene	118-74-1		100	1.00E-06	1	20	25	70	25550	0.00E+00	1.60E+00	0.00E+00		
			100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-04	0.00E+00
Dichlorobenzidine	91-94-1	0.733	100	1.00E-06	1	20	25	70	25550	2.05E-08	4.50E-01	9.22E-09		
Nitrosodimethylamine [N-]	62-75-9	0.364	100	1.00E-06	1	20	25	70	25550	1.02E-08	5.10E+01	5.19E-07		
Bis(2-chloroethyl)ether	111-44-4		100	1.00E-06	1	20	25	70	25550	0.00E+00	1.10E+00	0.00E+00		
Nitrosodi-n-propylamine [N-]	621-64-7	0.364	100	1.00E-06	1	20	25	70	25550	1.02E-08	7.00E+00	7.12E-08		
Benzo[a]pyrene	50-32-8	0.364	100	1.00E-06	1	20	25	70	25550	1.02E-08	7.30E+00	7.43E-08		
			100	1.00E-06	1	20	25	70	9125	2.85E-08			3.00E-04	9.50E-05
Isopropylbenzene	98-82-8		100	1.00E-06	1	20	25	70	9125	0.00E+00			4.00E-02	0.00E+00
Methylene chloride	75-09-2	0.014	100	1.00E-06	1	20	25	70	25550	3.91E-10	7.50E-03	2.94E-12		
			100	1.00E-06	1	20	25	70	9125	1.10E-09			6.00E-02	1.83E-08
Styrene	100-42-5		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Thallium	7440-28-0		100	1.00E-06	1	20	25	70	9125	0.00E+00			8.00E-05	0.00E+00
Toluene	108-88-3		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E-01	0.00E+00
Xylenes (o + m + p) [Mixed-]	1330-20-7		100	1.00E-06	1	20	25	70	9125	0.00E+00			2.00E+00	0.00E+00
											Aggregate Risk	6.74E-07	Hazard Index	9.56E-05