VOLUNTARY CORRECTIVE MEASURES IMPLEMENTATION REPORT

NUCLEAR EFFECTS REACTOR FACILITY WASTE PONDS #1 AND #2

WHITE SANDS MISSILE RANGE

September 2004
**Voluntary Corrective Measures Implementation Report for the Nuclear Effects Reactor Facility Waste Ponds #1 and #2**

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**ABSTRACT (MAXIMUM 200 WORDS)**
This document describes the Voluntary Corrective Action (VCA) for closure of Waste Pond #2 and includes the re-sampling at the backfilled site of Waste Pond #1. This report on the VCAs at Waste Ponds #1 and #2 describes the excavation, soil removal, sampling, and restoration activities completed at the PCB-contaminated waste pond areas.
VOLUNTARY CORRECTIVE MEASURES IMPLEMENTATION REPORT
FOR THE NUCLEAR EFFECTS REACTOR FACILITY
WASTE PONDS #1 AND #2

Submitted to:

U.S. Army
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EXECUTIVE SUMMARY

The Nuclear Effects Reactor Facility (NERF) located south of the main post at White Sands Missile Range, conducts testing related to the effects of nuclear reactions. Waste management practices at the facility from the 1960s until 1996 involved two earthen waste ponds that received both laboratory and sanitary wastes from various buildings within the NERF. Waste Pond #1 is located southeast of Building 21225, the former NED Laboratory Building. The area surrounding the pond is a mixture of natural cover and barren ground. The pond was approximately 50 feet in diameter and 5 feet deep. Waste Pond #2 is located east of Building 21235 within the 300 foot perimeter fence surrounding the Nuclear Effects Reactor. The pond had an approximate diameter of 45 feet and depth of 5 feet. A detailed history of the ponds and possible constituents of the waste streams are not known.

A site investigation at each of the waste ponds was performed in September 1997 to determine the nature and extent of potential contamination. Due to the limited historical information regarding wastewater received at the pond, samples were analyzed for a wide range of radiological and non-radiological parameters. All detections were then screened according to Tier 1 and Tier 2 Risk-Based Levels (see Section 1.4 of this report for discussion of risk-based screening). Arsenic and PCB-1254 exceeded Tier 2 Risk-Based Levels; however, arsenic concentrations were similar to background concentrations in the region. Also, arsenic levels were below New Mexico Environment Department (NMED) soil screening levels for industrial/occupational exposure (NMED et. al., 2004). Analytical results indicated the contaminated soils were non-hazardous.

From 21 through 23 May 2001, corrective action activities were completed at Waste Pond #1 (Mevatec and URS, 2001). Approximately 208 cubic yards of soil and miscellaneous pieces of concrete and cast iron pipe were excavated from Waste Pond #1 during closure activities. All excavated material was transported from White Sands and disposed of at a Subtitle D land disposal facility, the Camino Real Environmental Center in Sunland Park, New Mexico. The initial confirmation sampling at Waste Pond #1 was further supplemented with NMED directed action/sampling plan. Additional soil samples were taken May 2004 from the restored location of Waste Pond #1 using direct push methods. Five samples were retrieved from approximately 20 feet below ground surface and analyzed for PCB-Aroclor 1254 at an independent laboratory by EPA Method 8082A.

As WSMR was initially unable to gain approval from the Army Reactor Council (ARC) for the work at Waste Pond #2, corrective action activities were not initiated at the second pond until 21 through 25 June 2004. Approximately 164 cubic yards of soil with small amounts of concrete debris and iron pipe were removed from Waste Pond #2 during corrective action activities. This material was sent to the Camino Real Environmental Center. Once excavation at Waste Pond #2 reached approximately two feet in depth, five samples were collected in a predetermined pattern and sent to an independent laboratory and analyzed for PCB-Aroclor 1254 by EPA Method 8082A. One of these samples was split for quality assurance (QA) purposes. Field analysis was carried out for qualitative purposes.
Laboratory analysis revealed limited presence of PCBs from both Waste Pond #1 (direct push samples) and Waste Pond #2 (post excavation samples). The largest value of PCBs detected in the samples retrieved from Waste Pond #1 and #2 was 260 µg/kg. Thus, the concentration of remaining PCBs was below Tier 2 screening levels (i.e. an Industrial Risk Based Level of 2,860 µg/kg) as well as below NMED soil screening levels (i.e. a Residential Risk Based Level of 2.22 mg/kg). Therefore, it is apparent that sufficient PCB-Aroclor 1254 contamination was removed during the voluntary corrective actions at Waste Pond #1 and Waste Pond #2. White Sands will submit these sites for No Further Action/Class III Permit Modification request in the near future.
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LIST OF ACRONYMS

ARC   Army Reactor Council
ASTM  American Society for Testing and Materials
BTEX  Benzene, toluene, ethylbenzene, xylenes
yd^3 Cubic Yard(s)
EPA   Environmental Protection Agency
HWB   Hazardous Waste Bureau of the NMED
LCS/LCSD Laboratory Control Sample/Laboratory Control Sample Duplicate
mg/kg Milligrams per kilogram
µg/kg Micrograms per kilogram
ND    Non Detect
NED   Nuclear Effects Directorate
NERF  Nuclear Effects Reactor Facility
NMED  New Mexico Environment Department
PCBs  Polychlorinated Biphenyls
ppm   Parts per million
QA/QC Quality Assurance/Quality Control
RPD   Relative percent difference
SOP   Standard Operating Procedure
SVOCs Semivolatile Organic Compounds
TPH   Total Petroleum Hydrocarbons
VCA   Voluntary Corrective Action
VOCs  Volatile Organic Compounds
WSMR White Sands Missile Range
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1.0 INTRODUCTION

This report describes the re-sampling activities at Waste Pond #1 and the corrective action activities at Waste Pond #2 at the Nuclear Effects Directorate (NED) Reactor Facility, White Sands Missile Range, New Mexico. Operations were conducted according to the Corrective Measures Implementation Work Plan for Closure of Two Waste Ponds at the Nuclear Effects Reactor Facility (MEVATEC and Radian, 1999), and the Addendum to the Work Plan for Closure of Two Waste Ponds (WSMR, 2004).

1.1 Background

The recommendation of the initial investigation (Mevatec & Radian, 1998) was to simply fill in each of the inactive waste ponds in order to minimize possible infiltration from precipitation events and limit trip/fall hazards. However, based on direction from NMED, it was proposed to remove approximately two feet of sediment from each of the ponds, dispose of removed soil, and backfill the waste ponds to match existing ground. This volunteer corrective action was acceptable if confirmation sampling revealed sufficient contamination had been removed. The corrective action for both ponds was to occur in the same field effort, but appropriate clearance was not obtained for both ponds. Thus, activities at Waste Pond #1 were completed prior to those at Waste Pond #2. Shortly before activities at Waste Pond #2, additional sampling was carried out at Waste Pond #1 to confirm remediation was complete.

The objective for the corrective actions at Waste Pond #1 was:

- Re-sampling.

The objectives for the corrective actions at Waste Pond #2 included:

- Excavation,
- Confirmation sampling, and
- Backfill and contouring.

1.2 Re-Sampling and Corrective Action Approach

Waste Pond #1 corrective action activities took place 21 through 23 May 2001. Re-sampling activities took place at Waste Pond #1 in May 2004 and included use of a direct push sampler to collect five samples of soil from approximately 20 feet below ground surface at the backfilled and regraded location of Waste Pond #1. One sample was split for QC purposes.

Waste Pond #2 closure activities took place 21 through 24 June 2004. The Scope of Work for this site included:
• Excavation: the upper two feet of sediment and soil were removed along with the concrete overflow structure. The influent pipe had already been removed and any remaining pipe could not be located.

• Sampling: confirmation sampling of excavated pond consisting of five samples taken from floor of excavation and sent to independent lab for analysis of PCB concentrations. One sample was split for QC purposes. Sampling took place June 2004.

• Disposal of excavated soil: theSubtitle D land disposal facility, Camino Real Environmental Center, accepted the excavated material from Waste Pond #2.

• Backfill: clean borrow material was utilized to backfill the excavation to match surrounding ground level.

• Surfacing of Waste Pond #2: “cold mix” asphalt and gravel were placed on the backfilled surface and graded to match the surrounding area.

1.3 Site Location

The Main Post Area of White Sands is located at the southwestern corner of the installation, approximately 27 miles east-northeast of Las Cruces, New Mexico, and 45 miles north of El Paso, Texas (see Figure 1-1). The Nuclear Effects Reactor Facility site is located approximately 3 miles south of the Main Post, just northwest of the White Sands south gate (War Road) entrance. Figure 1-2 shows the location of the NED Facility in relation to the Main Post Area.

1.4 Site Description

Waste Pond #1 is located southeast of Building 21225, the former NED Laboratory Building, and near the first Guard House entrance to the NED Reactor Facility. The area surrounding the pond is a mixture of natural cover and barren ground. The pond is approximately 50 feet in diameter and 5 feet deep. Beginning in the 1960s, the pond received wastewater from Building 21225. This building operated as a laboratory from the early 1960s until 1985. When laboratory operations ceased in 1985, the pond stopped receiving wastewater.

Waste Pond #1 was deactivated in 1996. A detailed history of the pond and the constituents that were discharged to the pond are not documented. The wastewatertream received at the pond reportedly contained both sanitary and laboratory waste. The pond was dry upon initiation of closure activities on 21 May 2001.

Waste Pond #2 is located east of Building 21235 within the 300 foot perimeter fence surrounding the Nuclear Effects Reactor. The pond has an approximate diameter of 45 feet and depth of 5 feet. Waste Pond #2 received sanitary waste from Building 21235 from the 1960s until deactivation of the pond in 1996. A detailed history of this pond and possible constituents of the waste stream are not known. The pond was dry upon initiation of closure activities on 21 June 2004.
Figure 1-1. Location of White Sands Missile Range.
1.5 Previous Investigations

A site investigation at each of the waste ponds was performed in September 1997 to determine the nature and extent of potential contamination. Details of this investigation are presented in the Investigation of Two Waste Ponds at the Nuclear Effects Directorate, prepared by MEVATEC Corporation and Radian International, Inc. (February 1998). A total of eight samples were collected from each of the waste ponds. Soil samples were collected from three different depths at two locations within each pond to determine the vertical extent of potential contamination. Two additional surface soil samples were collected to establish the lateral extent of potential contamination; one surface sample from within each waste pond and another near the overflow drain for each pond. Due to the limited historical information regarding wastewater received at the pond, samples were analyzed for a wide range of radiological and non-radiological parameters, including gross alpha, gross beta, gamma spectroscopy, pesticides/polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals.

The low residual levels of some pesticides and PCBs were limited to surface soils (0 to 1 foot below ground surface) within each of the ponds. Several VOCs and SVOCs were also detected within the pond and in the overflow area. Concentrations of metals and radionuclides were
consistent with background levels. These results were initially evaluated based on Tier 1 risk-based parameters. Tier 1 relies on conservative residential exposure limits and pathways. Three pesticides, two organic constituents, and PCB-1254 failed Tier 1 assessment and were then evaluated based on Tier 2 parameters. Tier 2 relies on industrial exposure limits and pathways and is not as conservative as Tier 1, yet is more appropriate for land use at the NERF. Only arsenic and PCB-1254 exceeded Tier 2 Risk-Based Levels (3.8 mg/kg for arsenic and 2,860 µg/kg for PCB-1254); however, arsenic concentrations were similar to background concentrations in the region. Also, arsenic concentrations were below NMED soil screening levels for industrial/occupational exposure (NMED et. al., 2004). Analytical results indicated the contaminated soils were non-hazardous and could be transported and disposed at a Subtitle D Land Disposal Facility (Landfill).

Pertinent Waste Pond #1 and #2 information from the February 1998 report, including locations of soil samples collected, analytical results, and Tier 2 Risk-based level contaminant information, are provided in Appendix A. These calculated risk-based levels are compared with soil screening levels developed by the NMED Hazardous Waste Bureau and the Ground Water Quality Bureau Voluntary Remediation Program in the following Table 1-1.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>WSMR Risk-Based Levels</th>
<th>NMED Soil Screening Levels</th>
</tr>
</thead>
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<tr>
<td></td>
<td>Residential</td>
<td>Industrial/Occupational</td>
</tr>
<tr>
<td>Arsenic</td>
<td>0.43 mg/kg</td>
<td>3.8 mg/kg</td>
</tr>
<tr>
<td></td>
<td>3.9 mg/kg</td>
<td>17.7 mg/kg</td>
</tr>
<tr>
<td>PCB-Aroclor 1254</td>
<td>319 g/kg</td>
<td>2860 g/kg</td>
</tr>
<tr>
<td></td>
<td>1.11 mg/kg</td>
<td>8.26 mg/kg</td>
</tr>
</tbody>
</table>

Note: WSMR values taken from Mevatec & Radian report (April 1998). NMED values taken from Table A-1, Appendix A, NMED et. al. report (February 2004).

The less conservative Industrial/Occupational arsenic soil screening levels developed by NMED are greater than the arsenic detections from the original investigation conducted at Waste Pond #1 and #2 in 1998 (Mevatec & Radian). Also, when viewed in consistent units, the WSMR Risk-Based Levels for industrial/occupational exposure to PCB-Aroclor 1254 are more conservative than the NMED Soil Screening Levels for an equivalent exposure. Thus, WSMR proposes that for each of the waste ponds the risk-based levels developed in the initial investigation report (Mevatec & Radian, 1998) are protective of human health and the environment.

2.0 WASTE POND #1

Closure activities for each of the waste ponds included excavation of the upper two feet of soil within the entire area of the pond, collection of verification soil samples, and backfilling of the pond with clean borrow soil. Waste Pond #2 was also surfaced with “cold mix” asphalt and gravel once backfill procedures were complete.
2.1 Summary of Remediation Activities

The entire remediation and restoration process for Waste Pond #1 is detailed in the Final RFI for the Closure of Waste Pond #1 at the Nuclear Effects Reactor Facility (MEVATEC & Radian, September 2001). This section includes a summary of those activities.

Soil samples previously collected and analyzed were used to prepare a waste profile for disposal purposes. Composite soil samples collected from Waste Pond #1 during the 1997 investigation met this requirement. Analysis included total petroleum hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX).

Excavation of Waste Pond #1 was performed using a trackhoe. Excavated waste included approximately 208 cubic yards of soil, one cubic yard of concrete from the pond overflow structure, and eight linear feet of cast iron pipe from the abandoned wastewater influent line. Excavation proceeded to a depth of approximately two feet below the original grade prior to collecting verification samples.

Three verification soil samples were collected from randomly selected locations within the pond. Two additional soil verification samples were collected from the overflow drainage swale located outside and adjacent to Waste Pond #1. A split (duplicate) sample (WP1-02-S) was obtained and sent for analysis to an independent offsite analytical laboratory. All other samples collected were field analyzed. Once sampling was completed, excavation activities ceased and the pond was backfilled and graded to match surrounding ground surface.

2.2 Re-Sampling

After the initial closure report was submitted (September 2001), NMED issued a Notice of Deficiency (NOD) referencing the lack in adequacy in field analysis and non-acceptance regarding the number of samples sent for analysis by an independent laboratory as well as the analysis method (correspondence, June 16, 2003). Thus, WSMR proposed to re-sample Waste Pond #1 to confirm that contaminated material had been removed and remaining soil PCB concentrations at Waste Pond #1 were below soil screening levels for residential exposure. WSMR proposed to submit five samples taken from a sufficient depth below ground surface for analysis at an independent laboratory. Re-sampling efforts took place May 2004, and consisted of using a direct push rig with a continuous core sampler to collect samples from approximately 20 feet below ground surface at five locations in the restored Waste Pond #1 area. One sample was split for QC purposes. Approximate locations of the re-sampling efforts are noted in Figure 2-1.

Re-sampling efforts resulted in six samples delivered to Laucks Testing Laboratories, Inc. on 20 May 2004. Analysis for PCB-Aroclor 1254 was by EPA Method 8082A. Sampling method and shipment procedures followed BAE Systems SOPs. The results of laboratory analysis are displayed in Table 2-1, below. The laboratory analytical report and chain-of-custody form are provided in Appendix E.
Figure 2-1. Site and Sample Location Plan, Waste Pond #1.

Table 2-1. Results from Re-sampling of Waste Pond #1.

<table>
<thead>
<tr>
<th>Lab Sample ID</th>
<th>WSMR Sample ID</th>
<th>PCB Concentration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0405305-01</td>
<td>P1-SB01-0504</td>
<td>ND</td>
<td>RL = 17 g/kg</td>
</tr>
<tr>
<td>0405305-02</td>
<td>P1-SB02-0504</td>
<td>260 g/kg</td>
<td>RL = 19 g/kg</td>
</tr>
<tr>
<td>0405305-03</td>
<td>P1-SB03-0504</td>
<td>ND</td>
<td>RL = 18 g/kg</td>
</tr>
<tr>
<td>0405305-04</td>
<td>P1-SB04-0504</td>
<td>33 g/kg</td>
<td>RL = 18 g/kg</td>
</tr>
<tr>
<td>0405305-05</td>
<td>P1-SB05-0504</td>
<td>ND</td>
<td>Split sample RL = 18 g/kg</td>
</tr>
<tr>
<td>0405305-06</td>
<td>P1-SB105-0504</td>
<td>ND</td>
<td>Split sample RL = 17 g/kg</td>
</tr>
</tbody>
</table>

RL – reporting limit
ND – analyte was not detected to the limit of detection noted.
3.0 WASTE POND #2

3.1 Waste Description, Removal, & Disposal

Excavated waste included approximately 164 cubic yards of soil and one cubic yard of concrete from the pond overflow structure. Excavation was performed using a backhoe and front-end loader (Photograph 1). Waste was placed directly from the backhoe bucket into the front-end loader bucket and then into the 14 cubic yard and 20 cubic yard haul trucks provided by 2-Bit Trucking Company, located in Las Cruces, New Mexico. Waste manifests were prepared and submitted to White Sands Hazardous Waste Minimization (Haz Min) Center personnel for approval. Loaded trucks were weighed at the Haz Min weigh station prior to proceeding to Camino Real. Waste manifests, weight certificates, and disposal tickets are included in Appendix B. Concrete from the pond overflow structure was removed along with the soil. Excavation proceeded to a depth of approximately two feet below the original grade prior to collecting samples.

![Photograph 3-1. Excavation of Waste Pond #2.](image)

3.2 Waste Profile

WSMR again submitted analysis results to Camino Real for the waste profile of Waste Pond #2. For waste profile samples, the disposal facility does not require analytical results for associated QC samples. The waste profile was acceptable to Camino Real and a profile number, CRL-99-Y, was provided on 18 June 2004. The Camino Real acceptance form is included in Appendix C.
3.3 Waste Sampling Procedures

Sampling procedures for Waste Pond #2 varied slightly from Waste Pond #1. A hand auger was not utilized for collection of the soil sample. Instead, once the excavation reached a depth of approximately two feet, samples were collected by hand from the floor of the excavation in the predetermined pattern (Photograph 3-2 and Figure 3-1) described in the Work Plan Addendum (WSMR, 2004). Once collected, soil for each of the samples were homogenized, collected in 4-ounce clear glass wide mouth sample jars, placed on ice, and shipped to the analysis laboratory. A portion of soil from each of the sample locations was analyzed in the field using the ESDI “Rapid Immunoassay Screen RISC" test kit for PCBs in soil. This test was carried out as a qualitative field check due to the limited duration in which work could be carried out at the site. Field analysis did not reveal the presence of PCBs. Thus, excavation and soil removal was considered complete, pending the results of confirmation sampling sent to the independent laboratory, and backfill operations were commenced.

Photograph 3-2. Sample locations at Waste Pond #2.

3.4 Sample Analysis

Samples were delivered to Laucks Testing Laboratories, Inc. on 23 June 2004 to be analyzed using EPA Method 8082A. The reported PCB-Aroclor 1254 concentrations for each of the samples are given in Table 3-2. The laboratory analytical report and chain-of-custody form are provided in Appendix F.
Table 3-1. Results from Confirmation Sampling, Waste Pond #2.

<table>
<thead>
<tr>
<th>Lab Sample ID</th>
<th>WSMR Sample ID</th>
<th>PCB Concentration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0406320-01</td>
<td>P2-SB01-0604</td>
<td>59 g/kg</td>
<td>RL = 18 g/kg</td>
</tr>
<tr>
<td>0406320-02</td>
<td>P2-SB02-0604</td>
<td>13 g/kg</td>
<td>RL = 17 g/kg, J</td>
</tr>
<tr>
<td>0406320-03</td>
<td>P2-SB03-0604</td>
<td>ND</td>
<td>RL = 17 g/kg</td>
</tr>
<tr>
<td>0406320-04</td>
<td>P2-SB04-0604</td>
<td>15 g/kg</td>
<td>RL = 17 g/kg, J</td>
</tr>
<tr>
<td>0406320-05</td>
<td>P2-SB05-0604</td>
<td>20 g/kg</td>
<td>Split sample, RL = 17 g/kg, P</td>
</tr>
<tr>
<td>0406320-06</td>
<td>P2-SB105-0604</td>
<td>15 g/kg</td>
<td>Split sample, RL = 17 g/kg, J</td>
</tr>
</tbody>
</table>

RL – reporting limit
J – The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.
ND – analyte was not detected to the limit of detection noted.
P – GC columns differed by more than 25%, higher value reported.

Figure 3-1. Site and Sample Location Plan, Waste Pond #2.

3.5 Sample Containers, Preservation Procedure, and Holding Times

All soil samples were collected in 4-ounce clear glass wide mouth jars. Since samples analyzed using the field test kit were analyzed immediately following collection, preservation and holding times were not applicable. All samples sent for laboratory analysis were placed on ice to preserve at 4°C and delivered within the 14-day holding time.
3.6 Site Restoration

Site restoration at Waste Pond #2 followed a similar procedure as used for Waste Pond #1. The influent pipe had been removed at some prior time. The pipe was not relocated during excavation and thus no action was taken to plug the influent location. Waste Pond #2 was backfilled using native soils obtained from a borrow area approximately 0.25 mile north of Waste Pond #1 at a location just across War Road (Photograph 3-3). Approximately 427 cubic yards of clean backfill was utilized at Waste Pond #2. Compaction was accomplished with a pneumatic roller and a water truck provided needed moisture. The surface elevation of the pond was restored to match the surrounding landscape. The final surface was sloped to ensure positive drainage to prevent infiltration. The backfilled surface was also finished with compacted “cold mix” asphalt and chipped gravel (Photograph 3-4) to match the surrounding area.

Photograph 3-3. Loading borrow material for backfilling operations.

Photograph 3-4. Waste Pond #2 – completed backfill and surfacing.
4.0 QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

A Quality Assurance/Quality Control (QA/QC) program was developed to ensure that the Data Quality Objectives specified in the Work Plan (WSMR, March 1999) were met. The following sections discuss the procedures implemented to ensure proper QA/QC.

4.1 Previous Investigations

QA/QC procedures implemented during the November 1997 investigation are discussed in the September 1997 Work Plan and the Investigation of Two Waste Ponds at the Nuclear Effects Directorate (MEVATEC & Radian, February 1998).

4.2 Sample Integrity

All sampling equipment was decontaminated prior to collecting samples at each sample location. Appropriate sample log forms, labels, and chain-of-custody procedures were maintained. The following sections detail the specific procedures employed to maintain sample integrity.

4.2.1 Decontamination Procedures

Decontamination of sampling equipment was performed using Alconox and distilled water in accordance with the decontamination procedures described in BAE Systems SOP 2 in Appendix B of the September 1997 Work Plan. Field decontamination was unnecessary as new sampling equipment was used at each sample collection location.

4.2.2 Sample Log Forms

Sample collection error was controlled using standard sample collection methods and field logbook. The field logbook was maintained to record appropriate sampling information and observations about the sampling time, conditions, and locations as well as work being performed.

4.2.3 Sample Labeling

All samples were clearly labeled with an identifying sample number written with an indelible ink pen immediately following sample collection. Each label included the date and time collected, the name of the sample collector, and the analysis requested.

4.2.4 Sample Custody and Chain-of-Custody Procedures

All samples analyzed using the field test kit remained in the custody of the sample collector from collection through analysis. All samples sent to the laboratory for analysis were tracked using standard chain-of-custody procedures. Copies of the analytical laboratory chain-of-custody forms are included in the associated appendices containing the laboratory’s analytical report.
4.3 Quality Assurance and Quality Control Samples

QA/QC samples consist of field quality control samples and laboratory quality control samples, discussed separately in the following sections. Quality control was exercised during field sampling by sample collection SOPs and collection of a split sample from one of the sampling locations for each field effort. Sample analysis error was controlled by using standard analytical methods and laboratory SOPs.

4.3.1 Field Quality Control Samples

Duplicate, or split, samples were collected in the field for each sampling event and analyzed by an independent laboratory. The split sample serves as a quality control measure to assess field sampling techniques and laboratory processes and instrumentation. The split sample for the Waste Pond #1 re-sampling is identified as P1-SB105-0504. The split sample for the Waste Pond #2 confirmation sampling is identified as P2-SB105-0604. Temperature blanks were included with the shipped samples to aid in verification of sample temperature compliance.

4.3.2 Laboratory Quality Control Samples

Laboratory quality control samples provide information on the precision and accuracy of analytical results. Laboratory quality control samples for the sampling efforts included surrogate recovery, blank spike, matrix spike, matrix spike duplicate, and a method blank. These are discussed in detail in Section 4.1.

5.0 DATA VALIDATION, REDUCTION, AND RECORD KEEPING

Data validation serves as a QA/QC check to evaluate the quality and validity of the analytical data. Sampling for the field efforts discussed in this report depended on a predetermined amount of samples and sample locations, which were based on NMED requests and good engineering judgment. Data reduction was not utilized for these activities due to the limited amount of samples collected and the analytical results required. To facilitate data availability and retrieval, analytical results have been placed within the White Sands Missile Range EDMS database.

5.1 General

The QC data associated with sample analysis were evaluated to determine if measurements were made according to project specifications and to determine any adverse effects on the sample data. The following QC samples were evaluated:

- Surrogate Recovery: Surrogate compounds consist of compounds not requested for analysis, not naturally occurring, which do not interfere with requested analyses, and are chemically similar thus exhibiting similar response to the analytes that are requested for analysis. Recovery of surrogate compounds monitors the performance and effectiveness of the equipment and method for each sample matrix. Surrogate compounds are added to every sample and quality control sample.
VCM Implementation Report for the Nuclear Effects Reactor Facility
Waste Ponds #1 and #2

- **Blank Spike:** Some laboratories may refer to this quality control as a Laboratory Control Sample. The blank spike consists of a known concentration of analyte in an artificial matrix. The blank spike is prepared in the same manner as a field sample or matrix spike. Since the blank spike is in an artificial matrix it is free from the background interference that may exist in the matrix spike. The blank spike assesses the analytical process and the accuracy of analytical instrumentation.

- **Matrix Spike and Matrix Spike Duplicate (MS/MSD):** Matrix spikes measure matrix specific method performance. The matrix spike is prepared using a known quantity of the target analyte which is added to a sample prior to digestion or extraction. A third, unfortified aliquot is analyzed with the MS and MSD. The recovery of the spiked analyte, after native concentrations of the spiked analyte have been subtracted, determines the accuracy of the matrix specific method performance.

- **Method Blank:** the method blank monitors the laboratory preparation and analysis systems for any interferences or contamination from the laboratory environment. A method blank sample consists of all reagents used in the analysis process in equal volume or proportion to those used in sample processing.

### 5.2 Data Validation

Overall, quality control data associated with the analysis of samples from Waste Pond #1 and Waste Pond #2 indicate that the results are valid measurements and within the acceptance criteria specified for this project.

**Accuracy:** Laboratory accuracy can be assessed by the surrogate recovery, the matrix spike, and blank spike samples. Surrogate recovery for all samples was within control limits. The matrix spike and blank spike recoveries were within individual method control limits. The matrix spike and blank spike for Waste Pond #1 were within 30 percent of one another, while the matrix spike and blank spike were within 15 percent of one another for Waste Pond #2. The accuracy of the primary results is acceptable given the available quality control data.

**Precision:** The laboratory’s ability to reproduce analytical measurements between primary and duplicate (or split) samples is a good measurement of the laboratory’s precision. For each of the sampling efforts the MS and MSD samples were within method reproducibility control limits. The split samples collected from Waste Pond #1 resulted in non-detects for PCBs (see Table 2-1 and Appendix E). The split samples from Waste Pond #2 both detected similar amounts of PCB (see Table 3-1 and Appendix F), however as these detected concentrations were low the results must be taken as an estimate. Thus, the precision of these results may be said to be more qualitative than quantitative.

**Completeness:** This aspect can be met by developing a written sampling plan to be carried out during field work. The original work plan was amended with a revised work plan to include revised sampling and analysis (see Appendix D) in order to make more certain that sampling at the waste ponds was complete. All sampling specified by the amended work plan was carried out during field work in May and June. Thus, the sampling can be said to be complete.
Representativeness: This aspect of data collection can be qualitatively evaluated based on the degree to which the field sampling and analytical results represent actual field conditions. Practices to encourage good representation of field conditions include: Using good engineering judgment to locate field samples, obtaining an adequate number of samples, including temperature blanks when shipping samples, and analyzing all samples within holding times given in standard methods. Sample location and quantity was predetermined based on good engineering judgment. Temperature blanks for all sample shipments met the temperature requirements. Laboratory holding times for extraction and analysis were met. Thus, the analytical results can be said to be representative of field conditions at the waste ponds.

Comparability: This aspect may best be evaluated by comparing analytical results of the same sample performed by separate laboratories. This level of quality assurance is costly and unnecessary when using a certified laboratory and relying on analyses by standard methods. Analyses of samples from Waste Pond #1 and Waste Pond #2 were carried out by the same laboratory and relied on the same standard analytical method (noted in Section 4.3).

5.3 Methodology

The independent laboratory relied on EPA Method 8082A when analyzing samples collected from Waste Pond #1 and Waste Pond #2 for the presence of PCBs.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Laboratory analysis revealed limited presence of PCBs from both Waste Pond #1 (direct push samples) and Waste Pond #2 (post excavation samples). The concentration of remaining PCBs was significantly below Tier 2 screening levels (i.e. an Industrial Risk Based Level of 2,860 µg/kg) as well as below the less conservative NMED soil screening levels (i.e. an Industrial/Occupational soil screening level of 8,260 µg/kg). Thus, WSMR proposes the risk-based levels discussed in the initial investigation of the site (MEVATEC & Radian, 1998) are protective of human health and the environment, especially when one considers the limited options for land use in the immediate area of the NERF. Therefore, it is apparent that sufficient PCB-Aroclor 1254 contamination was removed during the voluntary corrective actions at Waste Pond #1 and Waste Pond #2. It is also apparent that arsenic, naturally occurring statewide, is present at the waste pond sites in concentrations below the NMED soil screening levels for industrial/occupational exposure. Thus, White Sands will submit these sites for No Further Action/Class III Permit Modification request in the near future.
REFERENCES


APPENDIX A

WASTE POND # 1 AND WASTE POND #2
ANALYTICAL RESULTS FROM PREVIOUS INVESTIGATION AND
SOIL SAMPLE LOCATIONS
Investigation of Two Waste Ponds at the
Nuclear Effects Directorate

Draft Final SWMU Assessment Report

Submitted to:

U.S. Army
White Sands Missile Range
National Range
Directorate of Environment and Safety
White Sands Missile Range, NM  88002-5048

April 1998

Submitted by:

MEVATEC Corporation and Radian International LLC
Building 126 6400 Uptown Blvd, Suite 250E
White Sands Missile Range, NM  88002 Albuquerque, NM  87110
EXECUTIVE SUMMARY

The objectives of the Investigation of Two Waste Ponds at the Nuclear Effects Directorate were to:

- Determine the nature and extent of contamination, if present; and
- Collect sufficient data to close sites or determine goals and approaches for cleanup through risk-based screen.

In order to assess nature and extent, a sampling and analysis plan was prepared and used to guide the investigation (MEVATEC and Radian, 1997). Eight samples were collected from varying depths within each of the waste ponds. These samples were analyzed for a wide range of analytical parameters (non-radiological and radiological) in order to determine the nature and extent of contamination. The results identified the presence of several organic compounds, primarily pesticides and PCB-1254, that were indicative of contamination. Concentrations of inorganic constituents were consistent throughout the waste ponds at levels representative of background conditions for the region.

All non-radiological results were initially evaluated using a Tier 1 risk-based assessment based on residential exposure parameters. Three pesticides, two inorganic constituents and PCB-1254 failed the screen and were carried forward to a Tier 2 assessment. Arsenic and PCB-1254 were the only constituents identified as requiring further evaluation. Therefore, a refined risk evaluation was performed on all constituents that failed the Tier 1 assessment to account for cumulative risk. The risk evaluation indicated that no adverse health effects are anticipated from exposure to non-radiological constituents individually, or in combination.

Gross alpha and gross beta analyses indicated the presence of potential radionuclides that were further evaluated. Gross beta results were compared to background data and found to be within the background range. Background data were not available for gross alpha results, so the alpha-emitters were speculated through gamma spectrometry. The results of the gamma spectrometry showed that the alpha-emitters were present at concentrations within the range that represents background as well.

Based on the comparison to background and the risk screen, no further action is recommended. It is also recommended that the waste ponds be backfilled and covered to minimize the risk of trips and falls and eliminate the potential for complete exposure pathways.
### Table 2-1

**Sample IDs and Sample Intervals**

<table>
<thead>
<tr>
<th>Site</th>
<th>Sample ID</th>
<th>Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Pond #1</td>
<td>WSPI-P1-01-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-01-02</td>
<td>4-6</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-01-04</td>
<td>9-10 (refusal at 10)</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-02-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-02-02</td>
<td>4-6</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-02-04</td>
<td>9-10 (refusal at 10)</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-03-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P1-04-01</td>
<td>0-1</td>
</tr>
<tr>
<td>Waste Pond #2</td>
<td>WSPI-P2-01-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-01-02</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-01-03</td>
<td>6-7 (refusal at 7)</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-02-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-02-02</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-02-03</td>
<td>6-7 (refusal at 7)</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-03-01</td>
<td>0-1</td>
</tr>
<tr>
<td></td>
<td>WSPI-P2-04-01</td>
<td>0-1</td>
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</table>

**Notes:**
- ft = foot or feet

### Table 2-2

**Analytical Methods**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Analytical Method</th>
</tr>
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<tr>
<td>Moisture content</td>
<td>ASTM 2216 Modified</td>
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<tr>
<td>PH</td>
<td>SW-846 9045B</td>
</tr>
<tr>
<td>Mercury</td>
<td>SW-846 7471A</td>
</tr>
<tr>
<td>ICPES metals</td>
<td>SW-846 6010A</td>
</tr>
<tr>
<td>Gross alpha and beta</td>
<td>SW-846 9310</td>
</tr>
<tr>
<td>Volatile organic compounds</td>
<td>SW-846 8260A</td>
</tr>
<tr>
<td>Semivolatile organic compounds</td>
<td>SW-846 8270B</td>
</tr>
<tr>
<td>Organochlorine pesticides and PCBs</td>
<td>SW-846 8081</td>
</tr>
<tr>
<td>Gamma spectrometry</td>
<td>EPA 901.1</td>
</tr>
</tbody>
</table>

**Notes:**
- ICPES metals: Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, zinc.

**References:**
- ASTM  = American Society for Testing and Materials
- ICPES  = Inductively Coupled Plasma Emission Spectroscopy
### Table 2-3

Detected Results for Pesticides and PCB's—Waste Pond #1

<table>
<thead>
<tr>
<th>Method SW846</th>
<th>WSPPE-01-01</th>
<th>WSPPE-02-02</th>
<th>WSPPE-03-04</th>
<th>WSPPE-04-04</th>
<th>WSPPE-05-05</th>
<th>WSPPE-06-06</th>
<th>WSPPE-07-07</th>
<th>WSPPE-08-08</th>
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<tbody>
<tr>
<td></td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
<td>(ppb/kg)</td>
</tr>
<tr>
<td>4,4'-DDD</td>
<td>7.8</td>
<td>ND</td>
<td>1.51</td>
<td>109</td>
<td>ND</td>
<td>4.19</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>4,4'-DDE</td>
<td>214</td>
<td>2.71</td>
<td>5.9</td>
<td>0.74</td>
<td>ND</td>
<td>0.472</td>
<td></td>
<td></td>
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<tr>
<td>4,4'-DDT</td>
<td>81.3</td>
<td>ND</td>
<td>2.47</td>
<td>28.8</td>
<td>1.11 J</td>
<td>ND</td>
<td>5.97</td>
<td></td>
</tr>
<tr>
<td>Aldrin</td>
<td>61.4</td>
<td>1.01</td>
<td>0.947</td>
<td>99.9</td>
<td>ND</td>
<td>3.51</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Chlorbene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Dieldrin</td>
<td>51.1</td>
<td>0.796</td>
<td>1.35</td>
<td>28.3</td>
<td>ND</td>
<td>4.65</td>
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<td></td>
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<tr>
<td>Endosulfan I</td>
<td>129</td>
<td>1.75</td>
<td>ND</td>
<td>19.3</td>
<td>ND</td>
<td>8.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endosulfan II</td>
<td>465</td>
<td>1.95</td>
<td>12.3</td>
<td>24.2</td>
<td>ND</td>
<td>40.3</td>
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<tr>
<td>Endosulfan Sulfate</td>
<td>4.9</td>
<td>0.568</td>
<td>2.98</td>
<td>43.1</td>
<td>ND</td>
<td>1.46</td>
<td>3.83</td>
<td>0.97</td>
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<tr>
<td>Endrin</td>
<td>61.5</td>
<td>0.618</td>
<td>1.54</td>
<td>214</td>
<td>ND</td>
<td>0.40 J</td>
<td>5.61</td>
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<tr>
<td>Endrin Aldicene</td>
<td>89.3</td>
<td>ND</td>
<td>0.0731 J</td>
<td>16.8</td>
<td>ND</td>
<td>3.09</td>
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<td></td>
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<tr>
<td>Endrin Keton</td>
<td>51.6</td>
<td>0.764</td>
<td>1.31</td>
<td>31.7</td>
<td>ND</td>
<td>3.98</td>
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<td>Heptachlor</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>44.9</td>
<td>ND</td>
<td>ND</td>
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<td>Heptachlor epoxide</td>
<td>67.4</td>
<td>ND</td>
<td>0.258</td>
<td>20.4</td>
<td>ND</td>
<td>0.192</td>
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<td>Isocarb</td>
<td>623</td>
<td>ND</td>
<td>ND</td>
<td>6.25</td>
<td>ND</td>
<td>0.317</td>
<td></td>
<td></td>
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<tr>
<td>Methoxychlor</td>
<td>241</td>
<td>0.699 J</td>
<td>4.86</td>
<td>11.2</td>
<td>ND</td>
<td>15.7</td>
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<td>Mirex</td>
<td>13.2</td>
<td>ND</td>
<td>ND</td>
<td>2.55</td>
<td>ND</td>
<td>ND</td>
<td></td>
<td></td>
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<tr>
<td>PCB-1254</td>
<td>5.10</td>
<td>64.8</td>
<td>131</td>
<td>96.3</td>
<td>13.1</td>
<td>431</td>
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<tr>
<td>alpha-BHC</td>
<td>642</td>
<td>ND</td>
<td>ND</td>
<td>12.9</td>
<td>ND</td>
<td>ND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>alpha-Chlordane</td>
<td>15.9</td>
<td>ND</td>
<td>0.0324 J</td>
<td>ND</td>
<td>ND</td>
<td>1.05</td>
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<td></td>
</tr>
<tr>
<td>delto-BHC</td>
<td>267</td>
<td>ND</td>
<td>1.25 E</td>
<td>2680</td>
<td>ND</td>
<td>2.55B</td>
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<td>gamma-BHC (Lindane)</td>
<td>777</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
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<tr>
<td>gamma-Chlordane</td>
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<td>0.644</td>
<td>12.3</td>
<td>2.13</td>
<td>ND</td>
<td>6.61</td>
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</tr>
</tbody>
</table>

**Notes:**

- B = Concentration is within range that can be considered blank contamination.
- J = Result is below instrument detection limit and cannot be accurately quantified.
- ND = Not detected
- µg/kg = micrograms per kilogram
Table 2-4

Detected Results for Pesticides and PCBs—Waste Pond #2

<table>
<thead>
<tr>
<th>Analyte</th>
<th>WSPF-P2-01-01</th>
<th>WSPF-P2-01-02</th>
<th>WSPF-P2-02-03</th>
<th>Sample IDs (units)</th>
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<tbody>
<tr>
<td></td>
<td>(μg/kg)</td>
<td>(μg/kg)</td>
<td>(μg/kg)</td>
<td>(μg/kg)</td>
</tr>
<tr>
<td>4,4'-DDE</td>
<td>3.76</td>
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<td>ND</td>
<td>29.6</td>
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<tr>
<td>4,4'-DDE</td>
<td>8.56</td>
<td>0.893</td>
<td>1.4c</td>
<td>55.8</td>
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<tr>
<td>4,4'-DDT</td>
<td>2.9</td>
<td>ND</td>
<td>ND</td>
<td>14.3</td>
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<tr>
<td>Aldrin</td>
<td>2.45</td>
<td>128</td>
<td>1.8c</td>
<td>9.08</td>
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<td>Dieldrin</td>
<td>1.71</td>
<td>ND</td>
<td>13.1</td>
<td>8.37</td>
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<td>Endosulfinate I</td>
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<td>317</td>
<td>ND</td>
<td>16.8</td>
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<td>Endosulfinate II</td>
<td>10.1</td>
<td>ND</td>
<td>0.857</td>
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<td>Endosulfinate Sulfate</td>
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<td>275</td>
<td>1.2c</td>
<td>5.84</td>
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<td>Endrin</td>
<td>1.09</td>
<td>0.17 J</td>
<td>0.396 J</td>
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<td>Endrin Allehyde</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>4.91</td>
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<tr>
<td>Endrin Ketone</td>
<td>1.12</td>
<td>0.114</td>
<td>0.58</td>
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<td>Heptachlor</td>
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<td>ND</td>
<td>0.32</td>
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<td>12.2</td>
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<td>Isodrin</td>
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<td>56</td>
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<td>2.62 J</td>
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<td>ND</td>
<td>20</td>
</tr>
<tr>
<td>PCB-125</td>
<td>162</td>
<td>31.2</td>
<td>42</td>
<td>821</td>
</tr>
<tr>
<td>alpha-Chlordane</td>
<td>19.8</td>
<td>ND</td>
<td>ND</td>
<td>3.74</td>
</tr>
<tr>
<td>beta-BHC</td>
<td>0.89</td>
<td>ND</td>
<td>0.284</td>
<td>ND</td>
</tr>
<tr>
<td>Delta-BHC</td>
<td>1.55</td>
<td>1.28 B</td>
<td>2.413</td>
<td>5.77</td>
</tr>
<tr>
<td>gamma-BHC (Lindane)</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>1.59</td>
</tr>
<tr>
<td>gamma-Chlordane</td>
<td>15.6</td>
<td>ND</td>
<td>4.09</td>
<td>14.9</td>
</tr>
</tbody>
</table>

Notes:
- **B** = Concentration is within range that can be considered blank contamination.
- **J** = Result is below instrument detection limit and cannot be accurately quantified.
- **ND** = not detected
- **μg/kg** = micrograms per kilogram
2.2.2 Volatile Organic Compounds and Semivolatile Organic Compounds

As shown in Tables 2-5 and 2-6, several VOCs and SVOCs were detected within the waste ponds. Toluene is the only constituent that was found consistently throughout both waste ponds. In Waste Pond #1, toluene concentrations ranged from non-detect (ND) in the 4-5 ft interval to 30.2 µg/kg at the surface (0-1 ft bgs). The maximum concentration came from WSPI-P1-04-01, the sample collected outside Waste Pond #1 in the suspected overflow area. Other VOCs and SVOCs at Waste Pond #1 were present mainly in the surface soil samples and were not found in deeper samples indicating that the source of the release was at the surface and has not migrated substantially since the waste pond was deactivated.

Results from Waste Pond #2 are similar to Waste Pond #1. Low levels of toluene (ND to 5.75 µg/kg) were found throughout the waste pond. In addition, WSPI-P2-03-01 contained low levels (0.01 to 0.04 µg/kg) of several polycyclic aromatic hydrocarbons (PAHs). No PAHs were identified in any of the other samples in either waste pond, which would likely indicate that the contaminated area is very isolated. Overall, the results indicate that the extent of VOC and SVOC contamination is limited to the soil within the waste ponds and the overflow area and is concentrated in the surface soil. Evaluation of these results is provided in Section 3.

2.2.3 Inorganic Constituents

Inorganic constituents are naturally occurring at varying concentrations in soil. Unlike organic constituents, results are reported for each analyte in every sample. This is due to differences in analytical instruments and methods and the presence of these constituents at low levels in the soil. Results for the inorganic constituents are presented in Tables 2-7 and 2-8. They are fairly consistent throughout the waste ponds and did not identify any areas of gross metals contamination. The normal distribution of constituents throughout the waste ponds indicates that inorganic contamination is unlikely. However, definitive interpretation of the results requires comparison of the site data to background data or risk-based levels. This comparison is discussed in Section 3.

2.2.4 Radionuclides

Gross alpha and gross beta analyses were performed to identify the levels of radionuclides present in the waste ponds. The results of these analyses are presented in Table 2-9. The levels varied throughout the waste ponds and no distinguishable pattern could be identified. The results did, however, identify the presence of alpha and beta emitting radionuclides. Gross beta levels ranged from 14-45 pCi/g in Waste Pond #1 and 35-44 pCi/g in Waste Pond #2. The alpha activity range was 13-22 pCi/g in Waste Pond #1 and 14-40 pCi/g in Waste Pond #2.
Table 2-5
Detected Results for VOCs and SVOCs—Waste Pond #1

<table>
<thead>
<tr>
<th>Analyte</th>
<th>WSPL-PT-01-01</th>
<th>WSPL-PT-02-01</th>
<th>WSPL-PT-03-01</th>
<th>WSPL-PT-04-01</th>
<th>WSPL-PT-05-01</th>
<th>WSPL-PT-06-01</th>
<th>WSPL-PT-07-01</th>
<th>Sample (Date/Time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Dichloroethene</td>
<td>20.5</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene</td>
<td>32.9</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>2-Butanone (MEK)</td>
<td>66.6</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>1.26 BJ</td>
</tr>
<tr>
<td>Acetone</td>
<td>519</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Acrolein</td>
<td>34.6</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Carbon disulfide</td>
<td>67.3</td>
<td>ND</td>
<td>ND</td>
<td>2.41</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>2.81</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>ND</td>
<td>1.66 J</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>4.66 BJ</td>
<td>2.88 B</td>
<td>4.8 B</td>
<td>3.01 E</td>
<td>2.450 BJ</td>
<td>2.81 B</td>
<td>4.53 B</td>
<td>1.92 B</td>
</tr>
<tr>
<td>Toluene</td>
<td>4.21 J</td>
<td>17.9</td>
<td>1.5</td>
<td>1.2</td>
<td>ND</td>
<td>208 J</td>
<td>12.3</td>
<td>1.92 J</td>
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<tr>
<td>Trichlorofluoromethane</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>10.1</td>
<td>ND</td>
<td>3.37 J</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Vinyl acetate</td>
<td>13.2</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
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<td>bis-2-Ethylhexylphthalate</td>
<td>3.19</td>
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<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>m,p-Xylene</td>
<td>ND</td>
<td>7.45</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>o-Xylene</td>
<td>ND</td>
<td>1.73 J</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
</tbody>
</table>

Notes:
B = Concentration is within range that can be considered blank contamination.
J = Result is below instrument detection limit and cannot be accurately quantified.
ND = not detected
SVOC = semi-volatile organic compound
μg/kg = micrograms per kilogram
VOC = volatile organic compound
<table>
<thead>
<tr>
<th>Method SSW26068270</th>
<th>Sample IDs (units)</th>
<th>2,3-butanone (MEK)</th>
<th>Carbon disulfide</th>
<th>Methylene chloride</th>
<th>Toluene</th>
<th>Benz(a)anthracene</th>
<th>Benz(a)pyrene</th>
<th>Benzo(b)fluoranthene</th>
<th>Benzo(k)fluoranthene</th>
<th>Chrysene</th>
<th>Fluoranthene</th>
<th>Pyrene</th>
<th>bis(2-Ethylhexyl)phthalate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WSFI-P2-01-01</td>
<td>WSFI-P2-01-12</td>
<td>WSFI-P2-03-03</td>
<td>WSFI-P2-02-01</td>
<td>WSFI-P2-02-02</td>
<td>WSFI-P2-02-03</td>
<td>WSFI-P2-03-03</td>
<td>WSFI-P2-04-01</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2,3-butanone (MEK)</td>
<td>1.17 BJ</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>1.03 BJ</td>
<td>ND</td>
<td>1.23 BJ</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Carbon disulfide</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>1.597</td>
<td>ND</td>
<td>ND</td>
<td>1.4 J</td>
<td>ND</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>2.45 BJ</td>
<td>4.81 B</td>
<td>2.64 BJ</td>
<td>2.95 B</td>
<td>2.59 BJ</td>
<td>4.76 B</td>
<td>463B</td>
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<tr>
<td>Toluene</td>
<td>4.34</td>
<td>5.75</td>
<td>5.25</td>
<td>ND</td>
<td>2.16 J</td>
<td>0.72 J</td>
<td>3.07</td>
<td>0.718 J</td>
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<tr>
<td>Benz(a)anthracene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.016 J</td>
<td>ND</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Benz(a)pyrene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.0099 J</td>
<td>ND</td>
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<td></td>
</tr>
<tr>
<td>Benzo(b)fluoranthene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.039</td>
<td>ND</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Benzo(k)fluoranthene</td>
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<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.039</td>
<td>ND</td>
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<tr>
<td>Chrysene</td>
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<td>ND</td>
<td>0.0261</td>
<td>ND</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluoranthene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.0431</td>
<td>ND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pyrene</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>0.0357</td>
<td>ND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bis(2-Ethylhexyl)phthalate</td>
<td>0.239</td>
<td>0.0949</td>
<td>0.5879</td>
<td>0.277</td>
<td>0.0594</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
B = Concentration is within range that can be considered blank contamination.
J = Result is below instrument detection limit and cannot be accurately quantified.
ND = not detected
μg/kg = micrograms per kilogram
### Table 2-7
**Detected Results for Inorganic Constituents—Waste Pond #1**

| Method SW846 102411 | Sample ID Number | Analyte       | WSPF-PI-01-01 | WSPF-PI-01-02 | WSPF-PI-01-04 | WSPF-PI-01-05 | WSPF-PI-02-01 | WSPF-PI-02-02 | WSPF-PI-13-03 | WSPF-PI-04-01 |
|----------------------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                      |                  |               | mg/kg         | mg/kg         | mg/kg         | mg/kg         | mg/kg         | mg/kg         | mg/kg         | mg/kg         |
| Aluminium            |                  |               | 5060          | 5170          | 3656          | 11100         | 6270          | 2830          | 11100         | 10300         |
| Antimony             |                  |               | 0.941 B       | 1.46 B        | 1.06 B        | 0.72          | 0.545 B       | 0.536 B       | 0.765 B       | 0.738 B       |
| Arsenic              |                  |               | 4.68          | 1.85          | 1.57          | 1.79          | 1.93          | 1.25          | 2.14          | 2.39          |
| Barium               |                  |               | 290           | 51.2          | 47.1          | 72            | 64.1          | 15.4          | 84.6          | 58.6          |
| Beryllium            |                  |               | 0.317         | 0.433         | 0.323         | 0.705         | 0.443         | 0.313         | 0.742         | 0.722         |
| Cadmium              |                  |               | 4.31          | 0.0748        | 0.0975        | 0.94          | 0.0765        | 0.0427        | 0.391         | 0.0985        |
| Calcium              |                  |               | 12800         | 17100         | 339           | 10400         | 31100         | 3570          | 17800         | 3720          |
| Chromium             |                  |               | 26.9          | 466           | 5.05          | 8.93          | 9.52          | 3.32          | 6.66          | 7.34          |
| Cobalt               |                  |               | 2.28          | 288           | 1.75          | 2.71          | 2.96          | 1.51          | 3.28          | 3.66          |
| Copper               |                  |               | 168           | 444           | 5.08          | 34.1          | 4.92          | 3.35          | 21            | 7.29          |
| Iron                 |                  |               | 10300         | 12000         | 1270          | 15800         | 12800         | 9090          | 16700         | 14600         |
| Lead                 |                  |               | 74.1          | 533           | 5.71          | 17.1          | 4.95          | 4.36          | 12.6          | 8.6           |
| Magnesium            |                  |               | 1590          | 1590          | 1238          | 3060          | 2900          | 1120          | 3190          | 2360          |
| Manganese            |                  |               | 87.2          | 122           | 135           | 128           | 129           | 1.5           | 134           | 244           |
| Molybdenum           |                  |               | 28.1          | 0.181         | 0.609         | 3.03          | 2.536         | 0.525         | 2.48          | 1.92          |
| Nickel               |                  |               | 16.8          | 33.2          | 2.98          | 6.81          | 4.05          | 2.2           | 6.3           | 6.23          |
| Prasium              |                  |               | 1800          | 1130          | 949           | 2910          | 1790          | 8.9           | 2700          | 3490          |
| Selenium             |                  |               | 3.83          | -0.116 BJ     | -0.146 BJ     | -0.147 BJ     | -0.338 BJ     | -0.17 BJ      | -0.08 BJ      | -0.277        |
| Silicon              |                  |               | 796           | 290           | 243           | 294           | 148           | 198           | 315           | 286           |
| Sodium               |                  |               | 2770          | 156           | 162           | 517           | 130           | 86.7          | 324           | 135           |
| Tinanium             |                  |               | -0.359 BJ     | 0.322 BJ      | 0.563         | 0.9487 B      | 0.239 BJ      | 0.124 BJ      | 0.545 BJ      | 0.588 B       |
| Vanadium             |                  |               | 69.8          | 21.5          | 26.3          | 28.2          | 24.2          | 18.4          | 31.5          | 26.3          |
| Zinc                 |                  |               | 785           | 11.2          | 23.2          | 20.9          | 16.2          | 61.0          | 30.2          |
| Mercury              |                  |               | 0.925         | 0.007 J       | 0.0151        | 0.724         | 0.00056 J     | 0.00425 J     | 0.237         | 0.0096        |

**Notes:**

- **B** = Concentration is within range that can be considered blank contamination.
- **J** = Result is below instrument detection limit and cannot be accurately quantified.
- **mg/kg** = milligrams per kilograms
Table 2-8

Detected Results for Inorganic Constituents—Waste Pond #2

<table>
<thead>
<tr>
<th>Method SW1074299</th>
<th>Sample Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analyte</strong></td>
<td><strong>WSPE-P2-01</strong></td>
</tr>
<tr>
<td></td>
<td><strong>mg/kg</strong></td>
</tr>
<tr>
<td><strong>Aluminum</strong></td>
<td>1.150</td>
</tr>
<tr>
<td><strong>Antimony</strong></td>
<td>0.939 B</td>
</tr>
<tr>
<td><strong>Arsenic</strong></td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Barium</strong></td>
<td>142 102</td>
</tr>
<tr>
<td><strong>Beryllium</strong></td>
<td>0.765 1.18</td>
</tr>
<tr>
<td><strong>Cadmium</strong></td>
<td>1.25 0.157</td>
</tr>
<tr>
<td><strong>Calcium</strong></td>
<td>6.460 2.650</td>
</tr>
<tr>
<td><strong>Chromium</strong></td>
<td>18.6 12.6</td>
</tr>
<tr>
<td><strong>Cobalt</strong></td>
<td>2.29 5.18</td>
</tr>
<tr>
<td><strong>Copper</strong></td>
<td>142 11.9</td>
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<tr>
<td><strong>Iron</strong></td>
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</tr>
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<td><strong>Lead</strong></td>
<td>35.7 10.8</td>
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</tr>
<tr>
<td><strong>Manganese</strong></td>
<td>104 566</td>
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<tr>
<td><strong>Molybdenum</strong></td>
<td>24.1 1.06</td>
</tr>
<tr>
<td><strong>Nickel</strong></td>
<td>9.43 10.1</td>
</tr>
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<td><strong>Potassium</strong></td>
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<td><strong>Selenium</strong></td>
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</tr>
<tr>
<td><strong>Silicon</strong></td>
<td>33.8 260</td>
</tr>
<tr>
<td><strong>Sodium</strong></td>
<td>807 224</td>
</tr>
<tr>
<td><strong>Thallium</strong></td>
<td>0.146 BJ</td>
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<tr>
<td><strong>Vanadium</strong></td>
<td>56.4 34.2</td>
</tr>
<tr>
<td><strong>Zinc</strong></td>
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<tr>
<td><strong>Mercury</strong></td>
<td>9.61 0.0833</td>
</tr>
</tbody>
</table>

Notes:
- **B** = Concentration is within range that can be considered blank contamination.
- **J** = Result is below instrument detection limit and cannot be accurately quantified.
- **mg/kg** = milligrams per kilogram
Table 2-9
Radionuclide Results for Waste Pond #1 and Waste Pond #2

<table>
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<tr>
<th>Method SW9910</th>
<th>Sample Description</th>
<th>WSP1-P1-01-01</th>
<th>WSP1-P1-02-02</th>
<th>WSP1-P1-03-04</th>
<th>WSP1-P1-02-01</th>
<th>WSP1-P1-02-02</th>
<th>WSP1-P1-04-01</th>
<th>WSP1-P1-04-01</th>
</tr>
</thead>
<tbody>
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<td>Gross alpha</td>
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<td>14</td>
<td>10</td>
<td>20</td>
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<td>22</td>
<td>15</td>
</tr>
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<td></td>
<td>Gross beta</td>
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<td>38</td>
<td>37</td>
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<td>35</td>
<td>42</td>
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<td>Method SW9310</td>
<td>Sample Description</td>
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<td>WSP1-P2-03-04</td>
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<td>WSP1-P2-04-01</td>
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<td>20</td>
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<td>18</td>
</tr>
<tr>
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<td>44</td>
<td>37</td>
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<td>38</td>
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</tbody>
</table>

Notes:

pCi/g = picocuries per gram
**Gamma Spectrometry**

Table 2-10 and Table 2-11 present the gamma spectrometry results for Waste Pond #1 and Waste Pond #2 respectively. Analytes that were not detected above 0.00 pCi/g in any sample are not reported here but are listed in Appendix A. Results are fairly consistent throughout the waste ponds and did not identify any areas of gross contamination. The normal distribution of constituents throughout the waste ponds indicates that contamination is unlikely. However, definitive interpretation of the results requires comparison of the site data to background data or evaluation using a health-based screen such as RESRAD (Department of Energy’s model for evaluating residual radioactivity). This comparison is discussed in Section 4.
Table 2-10

Detected Results for Gamma Spectrometry—Waste Pond #1

<table>
<thead>
<tr>
<th>Method</th>
<th>SW9310</th>
<th>WSPF-12-01-01</th>
<th>WSPF-12-01-02</th>
<th>WSPF-12-02-01</th>
<th>WSPF-12-02-02</th>
<th>WSPF-12-02-03</th>
<th>WSPF-12-02-04</th>
<th>WSPF-12-02-05</th>
<th>WSPF-12-02-06</th>
<th>WSPF-12-02-07</th>
<th>WSPF-12-02-08</th>
<th>WSPF-12-02-09</th>
<th>WSPF-12-02-10</th>
<th>WSPF-12-02-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WSPF-12-01-01</td>
<td>WSPF-12-01-02</td>
<td>WSPF-12-02-01</td>
<td>WSPF-12-02-02</td>
<td>WSPF-12-02-03</td>
<td>WSPF-12-02-04</td>
<td>WSPF-12-02-05</td>
<td>WSPF-12-02-06</td>
<td>WSPF-12-02-07</td>
<td>WSPF-12-02-08</td>
<td>WSPF-12-02-09</td>
<td>WSPF-12-02-10</td>
<td>WSPF-12-02-11</td>
<td></td>
</tr>
<tr>
<td>Actinium-228</td>
<td>0.409 J</td>
<td>1.77</td>
<td>1.92</td>
<td>2.45</td>
<td>2.24</td>
<td>2.61</td>
<td>1.73</td>
<td>2.95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bismuth-214</td>
<td>0.321</td>
<td>1.25</td>
<td>1.02</td>
<td>1.02</td>
<td>0.748</td>
<td>1.15</td>
<td>1.03</td>
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</tr>
<tr>
<td>Lead-210</td>
<td>0.277</td>
<td>1.49</td>
<td>1.05</td>
<td>1.14</td>
<td>1.01</td>
<td>1.19</td>
<td>1.26</td>
<td>2.07</td>
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<td></td>
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</tr>
<tr>
<td>Lead-212</td>
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<td>1.4</td>
<td>1.46</td>
<td>1.35</td>
<td>1.93</td>
<td>2.47</td>
<td>1.19</td>
<td>1.85</td>
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<tr>
<td>Lead-214</td>
<td>0.19</td>
<td>1.17</td>
<td>0.971</td>
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<td>1.42</td>
<td>1.6</td>
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<td></td>
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</tr>
<tr>
<td>Potassium-40</td>
<td>3.01 B</td>
<td>39.1</td>
<td>41.5</td>
<td>25.8</td>
<td>28.9</td>
<td>47.9</td>
<td>28.9</td>
<td>48.6</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Protactinium-231</td>
<td>-0.397 BJ</td>
<td>2.08 BJ</td>
<td>3.85</td>
<td>0.546 BJ</td>
<td>2.36 J</td>
<td>3.66</td>
<td>1.09 BJ</td>
<td>0.882 BJ</td>
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<tr>
<td>Radium-223</td>
<td>0.0391 J</td>
<td>0.428</td>
<td>0.556</td>
<td>0.169 J</td>
<td>0.27 J</td>
<td>0.544</td>
<td>0.368</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<td>Radium-224</td>
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<td>3.05</td>
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<td>18.8</td>
<td>18.2</td>
<td>13.4</td>
<td>5.37</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Radium-226</td>
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<td>1.02</td>
<td>1.02</td>
<td>0.748</td>
<td>1.15</td>
<td>1.03</td>
<td>1.9</td>
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<tr>
<td>Uranium-235</td>
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<td>0.235</td>
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<td>0.14 €</td>
<td>0.121</td>
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</tr>
</tbody>
</table>

*Note:*

- **B** = Concentration is within range that can be considered blank contamination.
- **J** = Result is below instrument detection limit and cannot be accurately quantified.
- **pCi/g** = picocuries per gram
Table 2-11
Detected Results for Gamma Spectrometry—Waste Pond #2

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method SW3330</th>
<th>Sample ID (date)</th>
<th>WSP1-P2-01 (pCi/g)</th>
<th>WSP1-P2-02 (pCi/g)</th>
<th>WSP1-P2-03 (pCi/g)</th>
<th>WSP1-P2-04 (pCi/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actinium-228</td>
<td>1.45</td>
<td>1.75</td>
<td>1.41</td>
<td>2.35</td>
<td>2.01</td>
<td></td>
</tr>
<tr>
<td>Bismuth-211</td>
<td>1.63 B</td>
<td>3.56</td>
<td>1.01 BJ</td>
<td>2.56 B</td>
<td>2.28 B</td>
<td>1.84 BJ</td>
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<tr>
<td>Bismuth-214</td>
<td>1.04</td>
<td>1.19</td>
<td>0.869</td>
<td>1.07</td>
<td>1.02</td>
<td>1.44</td>
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<tr>
<td>Cesium-137</td>
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<td>0.048 BJ</td>
<td>0.0325 BJ</td>
<td>0.002 BJ</td>
<td>0.0556 BJ</td>
<td>0.026 BJ</td>
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<td>0.789 J</td>
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<td>1.22 J</td>
<td>1.751 J</td>
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<tr>
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<td>1.55</td>
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<td>Lead-214</td>
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<td>2.36</td>
<td>1.81</td>
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<td>1.6</td>
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<tr>
<td>Potassium-40</td>
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<td>1.94 BJ</td>
<td>3.88</td>
<td>2.61</td>
<td>3.19</td>
<td>5.17</td>
</tr>
<tr>
<td>Protactinium-231</td>
<td>3.25</td>
<td>1.94 BJ</td>
<td>3.88</td>
<td>2.61</td>
<td>3.19</td>
<td>5.17</td>
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<tr>
<td>Protactinium-234</td>
<td>-0.535</td>
<td>-0.186 J</td>
<td>0.0016 J</td>
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</tr>
<tr>
<td>Radium-226</td>
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<td>0.337 J</td>
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<tr>
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<td>1.02</td>
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<tr>
<td>Uranium-235</td>
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<td>0.104</td>
<td>0.18</td>
<td>0.212</td>
<td>0.0744</td>
</tr>
</tbody>
</table>

Note:

B = Concentration is within range that can be considered blank contamination
J = Result is below instrument detection limit and cannot be accurately quantified.
pCi/g = picocuries per gram
Once the Tier 2 assessment is completed, the COCs have been identified and all other constituents have been eliminated from the evaluation process. At this point, an individual assessment of the remaining COCs is performed. This assessment may result in several outcomes including:

- **Recommending N/A if** the assessment indicates that no unacceptable risk is presented by the site;

- **If the COC is inorganic and potentially naturally occurring at the site, the recommendation may be to collect background data and reevaluate**;

- **If organic COCs are present, and the nature and extent of contamination is not defined, further investigation to define nature and extent is typically recommended**;

- **If the COCs are confined to a small area that can be readily cleaned up, cleanup levels can be calculated and the contaminated area excavated; or**

- **A site-specific risk assessment may be recommended to better understand the options for the site.**

Following the decision logic from start to finish allows the data set to be narrowed to only those constituents that require further evaluation. This focuses the final decision and cleanup, if applicable, on the areas and constituents that pose risk to human health or the environment.

### 3.3 Risk-based Screen

As discussed in the decision logic in Section 3.1, all detected results for non-radiological constituents were compared to residential RBLs in the Tier 1 assessment. From this comparison only 6 constituents with a total of 39 results were identified that exceeded residential screening criteria; these were designated as COPCs. Because a Tier 1 assessment is overly conservative for land use at the waste ponds, the constituents exceeding residential RBLs were then carried through to a Tier 2 assessment where they were screened against industrial RBLs. All results passed the Tier 2 assessment, with the exception of the results shown in Table 3-1. RBLs could not be calculated for calcium, magnesium, potassium, silicon, and sodium as these constituents are essential elements and are only toxic at extremely high concentrations. Toxicity values are not available for most essential elements.

Arsenic was the only inorganic constituent exceeding the RBLs for a Tier 2 assessment. The next step in the decision logic calls for comparing inorganic constituents to background values. Although the arsenic concentrations found at the site are well within the range of what is typically found in southern New Mexico (Radian, 1993), and are consistent throughout both
Table 3-1
Constituents Exceeding Tier 2 Risk-based Levels
Waste Pond #1 and Waste Pond #2

<table>
<thead>
<tr>
<th>Sample IDs</th>
<th>Depth (ft)</th>
<th>Arsenic (mg/kg)</th>
<th>PCB-1254 (μg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSPI-P1-01-01</td>
<td>0-1</td>
<td>4.68</td>
<td>5110</td>
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<td>WSPI-P1-01-02</td>
<td>4-5</td>
<td>1.85</td>
<td>64.8</td>
</tr>
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<td>WSPI-P1-01-04</td>
<td>9-10</td>
<td>1.57</td>
<td>131</td>
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<tr>
<td>WSPI-P1-02-01</td>
<td>0-1</td>
<td>1.79</td>
<td>2680</td>
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<td>WSPI-P1-02-02</td>
<td>4-5</td>
<td>1.93</td>
<td>ND</td>
</tr>
<tr>
<td>WSPI-P1-02-04</td>
<td>9-10</td>
<td>1.25</td>
<td>13.1</td>
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<tr>
<td>WSPI-P1-03-01</td>
<td>0-1</td>
<td>2.14</td>
<td>433</td>
</tr>
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<td>WSPI-P1-04-01</td>
<td>0-1</td>
<td>2.59</td>
<td>ND</td>
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</table>

<table>
<thead>
<tr>
<th>Sample IDs</th>
<th>Depth (ft)</th>
<th>Arsenic (mg/kg)</th>
<th>PCB-1254 (μg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WSPI-P2-01-01</td>
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</tr>
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<td>WSPI-P2-04-01</td>
<td>0-1</td>
<td>2.16</td>
<td>ND</td>
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</table>

Notes:

- mg/kg = milligrams per kilogram
- ND = not detected
- μg/kg = micrograms per kilogram

Waste ponds, no site-specific background values from WSMR are available for comparison. Figures 3-2 and 3-3 depict the arsenic concentrations throughout Waste Pond #1 and Waste Pond #2, respectively. The arsenic concentrations are believed to be naturally occurring. However, rather than collect additional background data for a single constituent, the exposure scenario for the site was further refined and the risk evaluated. This evaluation is discussed in Section 3.3.

PCB-1254 was the only organic constituent that failed the Tier 2 assessment. Because PCBs are not naturally occurring, the results indicate PCB contamination. The levels of PCB-1254 found at the waste ponds were very close to the RBL; and, since the exposure scenario for the Tier 2 assessment is much more conservative than the actual exposure scenario for the site, the best alternative was determined to be a more refined risk evaluation. Figures 3-4 and 3-5 depict the PCB concentrations within the waste ponds. No PCBs were identified outside the waste ponds.
Figure 3-4. PCB-1254 Concentrations in Waste Pond #1
Figure 3-5. PCB-1254 Concentrations in Waste Pond #2
3.4 Site specific Risk Evaluation

Because the industrial exposure scenario assumes that a worker works on site for 25 years, it was determined that this scenario significantly overestimates actual exposure to the waste ponds. However, in order to perform a site-specific evaluation, an exposure assessment was performed to identify potential receptors. The waste ponds are located in a remote area within the Main Post Area, approximately two miles from any populated area. The waste ponds are in a secured area and surrounded by a fence. Access is restricted due to the proximity of the waste ponds to the nuclear reactor and the NED. There are no receptors that would be routinely exposed to the waste ponds. The only receptors potentially exposed to the waste ponds are construction workers that will work at the site when the waste ponds will be filled in and closed. The exposure scenario evaluated is intended to protect workers at the site while filling in the waste ponds with clean soil and grading them to eliminate water ponding at the site. The site-specific scenario is based upon ingestion of contaminated soil or dust during construction activities at the waste ponds.

It is estimated that it will require approximately one week to cover and fill in the waste ponds. To be conservative, this estimate was doubled for the refined risk evaluation. The exposure scenario assumed that the workers were exposed to the constituents for ten hours per day over two weeks. Additionally, all constituents that failed the Tier 1 assessment were included in the evaluation to ensure that the cumulative risk was evaluated. The National Contingency Plan (NCP) risk range goal is a hazard index of less than 1.0 and a cancer risk less than 1E-06. These are levels below which no adverse effects are anticipated. The total hazard index for noncancerous constituents at the waste ponds is 0.011. The total cancer risk is 1.35 E-08. This is well within the guidelines set forth in the National Contingency Plan and provides a basis for closure of the waste ponds with acceptable risk. The site specific risk evaluation concluded that the construction workers at the site would not be exposed to contaminants at levels that could be harmful to human health. The exposure scenario and calculations are discussed further in Appendix B.

The exposure assessment also evaluated the potential for contaminant migration to groundwater and subsequent off-site transport. This exposure pathway was determined to be incomplete due to the fact that the depth to groundwater is greater than 300 ft. bgs and the contamination is concentrated in the upper 1 ft. of soil, decreasing rapidly in the upper 10 ft. Additionally, PCB-1254, the main UOC, is relatively immobile in soil and unlikely to migrate to that depth. Because the potential for contaminant migration to groundwater is limited, groundwater was not considered further in the risk evaluation.
3.5 Summary

The evaluation of non-radiological constituents was completed according to the decision-logic presented in Figure 3-1. Arsenic and PCB-1254 were the only constituents that required a site-specific risk evaluation. The site-specific risk evaluation was conducted and included all COPCs to ensure that cumulative effects were not a risk. The site-specific risk evaluation indicated that non-radiological constituents do not pose an unacceptable risk to human health at the waste ponds.
APPENDIX B

WASTE POND #2 – 
WASTE MANIFESTS, WEIGHT CERTIFICATES, AND WASTE DISPOSAL TICKETS
**NON HAZARDOUS WASTE MANIFEST**

1. **Generator's US EPA ID No.**: NM2730JUL11235
2. **MANIFEST DOCUMENT NO.**: W0425
3. **Generator's Name and Mailing Address**
   - **Bldg 1870**
   - **RCCW, JUW, IIS-MIS**
   - **W5MR, NM89002**
4. **Generator's Phone**: (505) 678-2475
5. **Transporter 1 Company Name**: 2 BIU TRUCKING
6. **Address**
7. **Transporter 2 Company Name**
8. **Address**
9. **Designated Facility Name and Site Address**
   - **Camino Real Landfill**
   - **P.O. Box 580**
   - **Sunland Park, NM 88063**
10. **US DOT Description (including Proper Shipping Name, Non-Hazardous Class, and ID Number)**
    - **Non-regulated Solid. Soil from drainage pond. Non Dot.**
11. **Containers**
    - **No.**: 1
    - **Type**: TRUCK 14
    - **Total Quantity**: 48
    - **Unit**: CY
12. **Weight**: 5
13. **Special Handling Instructions and Additional Information**
14. **Profile #: CRL 994**
15. **Truck #: Z558**
16. **Generator's Certification**: I hereby declare that the contents of this consignment are true and accurately described above in proper shipping name and are classified, packed, marked, and labeled, and are in all respects in conformance with the proper shipping name, and the classified, packed, marked, and labeled, and are in all respects in conformance with the proper shipping name, and the
17. **Transporter 1 Acknowledgement of Receipt of Materials**
   - **Printed/Typed Name**: John F. Hunter
   - **Signature**: John F. Hunter
   - **Date**: 06/21/10
18. **Transporter 2 Acknowledgement of Receipt of Materials**
   - **Printed/Typed Name**: Javer Basque
   - **Signature**: Javer Basque
   - **Date**: 06/21/10
19. **FACILITY**
   - **Ticket #: 583947**
   - **Date**: 14/4/15
20. **Facility Owner or Operator Certification**
   - **Printed/Typed Name**: Francisco Celis
   - **Signature**: Francisco Celis
   - **Date**: 06/21/10
### Non-Hazardous Waste Manifest

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<th>Item</th>
<th>Details</th>
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<td>1. Generator's US EPA ID No.</td>
<td>NM 177502/11/235</td>
</tr>
<tr>
<td>2. Page 1 of 1</td>
<td></td>
</tr>
<tr>
<td>3. Generator's Name and Mailing Address</td>
<td>WHITE SANDS MISSILE RANGE BLDG 187A, 5TH SW, MS 459, WSMR, NM 88072</td>
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<tr>
<td>4. Generator's Phone</td>
<td>(505) 678-7425</td>
</tr>
<tr>
<td>5. Transporter 1 Company Name</td>
<td>2-Bit Trucking</td>
</tr>
<tr>
<td>6. Address</td>
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<tr>
<td>7. Transporter 2 Company Name</td>
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<td>8. Address</td>
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</tr>
<tr>
<td>9. Designated Facility Name and Site Address</td>
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<td>10. US EPA ID Number</td>
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</tr>
<tr>
<td>11C.</td>
<td></td>
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<tr>
<td>16. Generator's Certification</td>
<td>I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and follow the best waste management method that is available to me and that I can afford.</td>
</tr>
<tr>
<td>Printed/Typed Name</td>
<td>John F. Hunter</td>
</tr>
<tr>
<td>Signature</td>
<td>John F. Hunter</td>
</tr>
<tr>
<td>Date</td>
<td>06/12/1</td>
</tr>
<tr>
<td>17. Transporter 1 Acknowledgement of Receipt of Materials</td>
<td></td>
</tr>
<tr>
<td>Printed/Typed Name</td>
<td>Jose Cortes</td>
</tr>
<tr>
<td>Signature</td>
<td>Jose Cortes</td>
</tr>
<tr>
<td>Date</td>
<td>06/12/1</td>
</tr>
<tr>
<td>18. Transporter 2 Acknowledgement of Receipt of Materials</td>
<td></td>
</tr>
<tr>
<td>Printed/Typed Name</td>
<td></td>
</tr>
<tr>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>19. Discrepancy Indication Space</td>
<td>Ticket # 583948 14 49</td>
</tr>
<tr>
<td>20. Facility Owner or Operator Certification of receipt of non-hazardous materials removed by the manifest except as noted in Item 10.</td>
<td>Francisco Cels</td>
</tr>
<tr>
<td>Signature</td>
<td>Francisco Cels</td>
</tr>
<tr>
<td>Date</td>
<td>06/12/1</td>
</tr>
<tr>
<td>White - Original</td>
<td>Yellow - Transporter</td>
</tr>
</tbody>
</table>
DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO ________________________________

ADDRESS ________________________________

JOB NAME Datus Pounds

GROSS 44,780
TARE 22,180
NET 22,600

TONS _______ DRIVER (*)

REMARKS ________________________________

WEIGHER J Hunter

DRIVER ON TRUCK WHEN WEIGHED: YES / NO

No. 0166
DATE 06-21-04
TIME 09:30
TRUCK NO. 26502
MATERIAL Non-Haz. 50.1

1.5502

U.S. GOVERNMENT PRINTING OFFICE 2001: 773-793
WHITE-OFICE PARK-DRIER CANTARY-BILLING GOLDEN ROD-CUSTOYER

DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO ________________________________

ADDRESS ________________________________

JOB NAME Datus Pounds

GROSS 47,280
TARE 22,858
NET 24,422

TONS _______ DRIVER (*)

REMARKS ________________________________

WEIGHER J Hunter

DRIVER ON TRUCK WHEN WEIGHED: YES / NO

No. 0287
DATE 06-21-04
TIME 09:30
TRUCK NO. 26502
MATERIAL Non-Haz. 50.1

2.9602

U.S. GOVERNMENT PRINTING OFFICE 2001: 773-793
WHITE-OFICE PARK-DRIER CANTARY-BILLING GOLDEN ROD-CUSTOYER
**Non-Hazardous Waste Manifest**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Generator's Name and Mailing Address</td>
<td>BLDG 187D WHITE SANDS MISSILE RANGE</td>
</tr>
<tr>
<td>4. Generator's Phone</td>
<td>575-678-7625</td>
</tr>
<tr>
<td>5. Transporter 1 Company Name</td>
<td>2 Bar Trading</td>
</tr>
<tr>
<td>6. Address</td>
<td></td>
</tr>
<tr>
<td>7. Transporter 2 Company Name</td>
<td></td>
</tr>
<tr>
<td>8. Address</td>
<td></td>
</tr>
<tr>
<td>9. Designated Facility Name and Site Address</td>
<td>CAMINO REAL LANDFILL P.O. Box 580 Sunland Park NM NM 88063</td>
</tr>
<tr>
<td>10. US EPA ID Number</td>
<td></td>
</tr>
<tr>
<td>11A. US DOT Description</td>
<td>Non-Regulated Solid, Soil from Drainage Ponds, Non-DOT</td>
</tr>
<tr>
<td>12. Containers No.</td>
<td>1</td>
</tr>
<tr>
<td>12. Total Quantity</td>
<td>14.6Y</td>
</tr>
<tr>
<td>13. Unit</td>
<td>Waste</td>
</tr>
</tbody>
</table>

**Handling Notice for Wastes Listed Above**

**Profile # CRL 97Y Truck # 38503**

**15. Special Handling Instructions and Additional Information**

**16. Generator's Certification**: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and a classified, packed, marked, and labeled, and are in all respects in conformance with the conditions for transport by highway according to applicable international and national governmental regulations, including applicable state regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present or future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

**Printed/Typed Name**: John E. Hunley | **Signature**: J. E. Hunley | **Month Day**: 06/21

**Transporter Acknowledgement of Receipt of Materials**

**Printed/Typed Name**: William Lambkin | **Signature**: W. Lambkin | **Month Day**: 06/21

**Discrepancy Indication Space**

**Ticket # 583957 14 6Y**
## Camino Real Landfill

**P.O. Box 580**  
Sunland Park, N.M. 88063  
(505) 399-9440

### Non-Hazardous Waste Manifest

<table>
<thead>
<tr>
<th>1. Generator's US EPA ID No.</th>
<th>MANIFEST DOCUMENT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM 2750211235</td>
<td>W0428</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Page 1 of 1</th>
</tr>
</thead>
</table>

### Generation

<table>
<thead>
<tr>
<th>Date: 06/21</th>
</tr>
</thead>
</table>

### Special Handling Instructions and Additional Information

**Profile**: CRL 994  
**Truck**: 2B516

### Generator's Certification

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and a description of the materials contained in the container. The container is adequately sealed or closed, and is in proper condition for transport by highway according to applicable federal and state regulations.

If I am a large generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable. I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and potential threats to human health and the environment. OR: I am a small quantity generator, I have made a good faith effort to minimize my waste generation and to use the best management method that is available to me and that I can afford.

**Printed/Typed Name**: John F. Hunter  
**Signature**:  
**Month**: 06  
**Day**: 21

---

### Transporter's Certification

**Printed/Typed Name**:  
**Signature**:  
**Month**: 06  
**Day**: 21

### Facility's Certification

**Printed/Typed Name**:  
**Signature**:  
**Month**: 06  
**Day**: 18

### Ticket #584105

**Date**: 20/
DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO __________________________
ADDRESS __________________________
JOB NAME DATT'S Ponds

48,980 GROSS
22,340 TARE
26,640 NET

Remarks __________________________
WEIGHTER J. Hunter
DRIVER ON TRUCK WHEN WEIGHTED: YES

DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO __________________________
ADDRESS __________________________
JOB NAME DATT'S Ponds

75,580 GROSS
34,040 TARE
41,540 NET

Remarks __________________________
WEIGHTER J. Hunter
DRIVER ON TRUCK WHEN WEIGHTED: YES

3 U.S. GOVERNMENT PRINTING OFFICE 2001: 773-793
WHITE OFFICE PINK DRIVER CANARY BILLING GOLDEN ROD CUSTOMER
### Non-Hazardous Waste Manifest

**Generator's US EPA ID No.:** NM0756211235  
**MANIFEST DOCUMENT NO.:** WD426

**3. Generator's Name and Visiting Address:** WHITE SANDS MISSILE RANGE  
**4. Generator's Phone:** 505-688-7686

**5. Transporter 1 Company Name:** 
**6. Address:** 
**7. Transporter 2 Company Name:** 
**8. Address:**

**9. Designated Facility Name and Site Address:** Camino Real Landfill  
**10. US EPA ID Number:**  
**11. US DOT Description (including Proper Shipping Name, Non-Hazard Class, and ID Number):** Non Regulated Solid, Soil from drainage pond, Non-DOT

<table>
<thead>
<tr>
<th>No.</th>
<th>Type</th>
<th>Total Quantity</th>
<th>Unit Wt/Wt</th>
<th>Waste Nbr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>20 Cy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12. Additional Descriptions for Materials Listed Above:**

**13. Hazardous Codes by Waste:**

**14. Special Handling Instructions and Additional Information:** Profile: CRL 947  
Truck: 28517

**15. Generator's Certification:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and a classified code, marked and labeled, and are in a condition to transport by highway according to applicable international and national regulations.

**16. Facility Operator Certification:**

**17. Transporter 1 Acknowledgment of Receipt of Materials:**

**18. Transporter 2 Acknowledgment of Receipt of Materials:**

**19. Discrepancy Indication Space:**

**20. Facility Review of Non-Hazardous Materials:**

**Printed/Typed Name:**

**Signature:**

**Month Day:**

**Date:**
# Camino Real Landfill

## Non-Hazardous Waste Manifest

**P.O. Box 580**
Sunland Park, N.M. 88063

### Information in the shaded area is not required by Federal law.

<table>
<thead>
<tr>
<th>1. Generator's US EPA ID No.</th>
<th>MANIFEST DOCUMENT NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMX70211235</td>
<td>WO 429</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Generator's Name and Mailing Address</th>
<th>Generator's Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHITE SANDS MISSILE RANGE</td>
<td>505-678-7725</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Transporter 1 Company Name</th>
<th>Transporter 1 Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>8D TRUCKING</td>
<td>8D TRUCKING</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Designated Facility Name and Site Address</th>
<th>UC EMT-ID Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMINO REAL LANDFILL</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11A 11. US DOT Description (Including Proper Shipping Name, Non Hazard Class, and DOT Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Regulated Solid, Soil from drainage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Truck</td>
<td>14. 07</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Instructions for Materials Listed Above:

**Profile # CRL 99Y**

**Truck # 28501**

### Generator's Certification:

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and as arranged under the provisions of the Act. All shipments are shipped in accordance with the regulations of the Environmental Protection Agency, the Department of Transportation, and all applicable state and local regulations.

I am a large volume generator, and I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present or future threat to human health and the environment. I have made a good faith effort to minimize my waste generation and reduce the unit weight management requirement to the extent I can among.

<table>
<thead>
<tr>
<th>Printed/Typed Name</th>
<th>Signature</th>
<th>Month Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>John F. Hunter</td>
<td>John Hunter</td>
<td>6/6/21</td>
</tr>
</tbody>
</table>

### Transporter 2 Acknowledgement of Receipt of Materials:

<table>
<thead>
<tr>
<th>Printed/Typed Name</th>
<th>Signature</th>
<th>Month Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky H. Buschman</td>
<td>Rocky Buschman</td>
<td>6/7/21</td>
</tr>
</tbody>
</table>

### Facility Owner or Operator: Certificate of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.

<table>
<thead>
<tr>
<th>Printed/Typed Name</th>
<th>Signature</th>
<th>Month Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oscar Romero</td>
<td>Oscar Romero</td>
<td>6/28</td>
</tr>
</tbody>
</table>

---

*Blue* - Original
*Yellow* - Transporter
*Pink* - TSS Facility
*Gold-Rio* - Generator's first copy

---

**Ticket #584103**

19/04/05
CERTIFIED WEIGHT TICKET

BILL TO: _____________________________
ADDRESS: ___________________________
JOB NAME: DATTS Ponds

72,800 - GROSS
34,640 - TARE
38,160 - NET

REMARKS: ___________________________
WEIGHER: J. Hunter
DRIVER: ____________________________

DATE: 06-21-04
TIME: 10:30
TRUCK NO: 2B577
MATERIAL: NaN

CERTIFIED WEIGHT TICKET

BILL TO: _____________________________
ADDRESS: ___________________________
JOB NAME: DATTS Ponds

118,640 - GROSS
21,740 - TARE
96,900 - NET

REMARKS: W0429
WEIGHER: J. Hunter
DRIVER: ____________________________

DATE: 06-21-04
TIME: 10:30
TRUCK NO: 2B501
MATERIAL: NaN

DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002
### NON HAZARDOUS WASTE MANIFEST

1. **Generator's US EPA ID No.**
   - NM-27532/R235

2. **MANIFEST DOCUMENT NO.**
   - W0433

3. **Generator's Name and Mailing Address**
   - WHITE SANDS MISSILE RANGE
   - BLDG. 1876
   - STN-1W-WS IE-MS
   - WSRA - NM 88002

4. **Generator's Phone**
   - 505-678-7625

5. **Transporter 1 Company Name**
   - 2-BOT TRUCKING

6. **Address**
   - WSMR - NM 88002

7. **Transporter 2 Company Name**

8. **Address**

9. **Designated Facility Name and Site Address**
   - CAMINO REAL LANDFILL
   - P.O. BOX 580
   - SUNLAND PARK, NM 88063

10. **11A US DOT Description (including Proper Shipping Name, Non-Hazardous Class, and ID Number)**
    - a. Non-regulated solid, excavated soil from pond. Non-hazardous, Non-DOT

11. **11B US DOT Description (including Proper Shipping Name, Non-Hazardous Class, and ID Number)**

12. **Containers**
    - No. Type
    - 1 SK

13. **13 Total Quantity**
    - 20 cu yd

14. **14 Unit**

15. **15 Special Handling Instructions and Additional Information**
    - PROFILE # CRL 99Y
    - TRUCK # 2B517

16. **GENERATOR'S CERTIFICATION:**
    - I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are properly packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and other applicable state regulations.

17. **Transporter 1 Acknowledgement of Receipt of Materials**
    - Printed/Typed Name: John Hunter
    - Signature: John Hunter
    - Month Day: 06 22

18. **Transporter 2 Acknowledgement of Receipt of Materials**
    - Printed/Typed Name: Robert Lee
    - Signature: Robert Lee
    - Month Day: 06 22

19. **Discrepancy Indication Space**
    - TICKET # 584240
    - 20 yds

20. **Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 10.**
    - Printed/Typed Name: Francisco Celis
    - White - Original
    - Yellow - Transporter
    - Pink - LSD Facility
    - Gold - Generator's first copy
    - Month Day: 06 22
## Non-Hazardous Waste Manifest

### 1. Generator's US EPA ID No. (NM 2750211 235)

### 2. Manifest Document No. (WD043)

### 3. Generator's Name and Mailing Address
- **White Sands Missile Range**
  - Building 1830
  - 301 M-1 SW-15

### 4. Generator's Phone Number
- 855-788-7625

### 5. Transporter 1 Company Name
- D & T Trucking

### 6. Address
- WSMR, NM 88042

### 7. Transporter 2 Company Name
- 

### 8. Address
- 

### 9. Designated Facility Name and Site Address
- Camino Real Landfill
  - P.O. Box 580
  - Sunland Park, NM 88063

### 10. US DOT Description (Including Proper Shipping Name, Non-Hazardous Class, and ID Number)

### 11. Containers
- 1 x 10 CY

### 12. Handling Code for Waste Listed Above
- 

### 13. Special Handling Instructions and Additional Information
- PROFILE # CRF 774
  - TRUCK # 28503

### Generator's Certification
- I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and that all required wording, marking, and labeling were in accordance with the condition for transportation by highway according to applicable state and federal government regulations, including applicable state regulations.

### Date of Receipt
- John F. Hunter

### Date
- 10/22

### Transporter 1 Acknowledgement of Receipt of Materials
- William Lamkin

### Date
- 01/22

### Transporter 2 Acknowledgement of Receipt of Materials
- Francisco Celis

### Date
- 01/16

### Discrepancy Indication Space
- Truck 584268

**Verified: 14/04/18**

**Title:** Non-Hazardous Waste Manifest

**Form:** National Emission Compliance Commission (NECC) Manifest Form

**Date Filled Out:** 01/16/18

**Date of Receipt:** 10/22

**Place:** Sunland Park, NM 88063

**Transporter:** D & T Trucking

**Generator:** Camino Real Landfill

**Transporter:** William Lamkin

**Facility:** Camino Real Landfill
CERTIFIED WEIGHT TICKET

BILL TO ____________________________
ADDRESS ____________________________
JOB NAME Datts Pond's

79,540 - GROSS
34,760 - TARE
44,780 - NET

DATE 06-22-04
TIME 07:10
TRUCK NO. 28543
MATERIAL New Heat So1

14,241 - GOVERNMENT
WEIGHT

DRIVER ON TRUCK WHEN WEIGHED: YES/NO

Certified Weight Ticket

BILL TO ____________________________
ADDRESS ____________________________
JOB NAME Datts Pond's

43840 - GROSS
22180 - TARE
21660 - NET

DATE 06-22-04
TIME 07:10
TRUCK NO. 28503
MATERIAL New Heat So1

14,241 - GOVERNMENT
WEIGHT

DRIVER ON TRUCK WHEN WEIGHED: YES/NO

Certified Weight Ticket
**Non-Hazardous Waste Manifest**

1. **Generator's Name and Mailing Address**: White Sands Missile Range
   - Bldg 1870
   - Spim-3W-WS15-115-M3

2. **Address**: WSMR, NM 88002

3. **Telephonenumber**: 575/678-7625

4. **Transporter 1 Company Name**: 2-Bit Trucking

5. **Transporter 2 Company Name**: 2-Bit Trucking

6. **Designated Facility Name and Site Address**: Camino Real Landfill
   - P.O. Box 580
   - Sunland Park, NM 88063

7. **US EPA ID Number**: N0 2766

8. **Non-Regulated Solid, Excavated Soil from Pond. Non-Hazardous, Non-Dot and Non-\text{Class}**, Quantity: 4 yds., Unit: Pipe - 10

9. **Shipping Instructions**: Truck # 1B582

10. **Certification**:
    - I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and class, packed, sealed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations.

11. **discrepancy Indication Space**: 584378 14 yds.

12. **Facility Owner or Generator Certification of receipt of non-hazardous materials owned by this manifest expires as noted in Item 19**
CAMINO REAL LANDFILL
P.O. Box 580
Sunland Park, N.M. 88063
(505) 569-9440

NO 2769

   NM 2750211235

2. Page of
   1

3. Generator's Name and Mailing Address
   WHITE SANDS NUCLEAR RANGE
   BLDG 1870
   SPIN-3W-WS-ES-MS

4. Generator's Phone
   505-278-555

5. Transporter 1 Company Name
   J-B Trucking

6. Address
   11600 E. TIGER LILY, NM 88002

7. Transporter 2 Company Name

8. Address

9. Regional Facility Name and Site Address
   CAMINO REAL LANDFILL
   P.O. BOX 580
   Sunland Park NM 88063

10. US EPA ID No.

11A. US DOT Description (including Proper Shipping Name, Non-Hazardous Class, and (ID Number)

   a. Non-Regulated solid, excavated soil from pond, non-hazardous non-DOT

   b. 

   c. 

   d. 

12. Containers

   No. Type
   1 Y

13. Total Quantity

   20 cy

14. Unit Weight

   -

15. Special Handling Instructions and Additional Information

   Profile # CRL 777

   TRUCK # 28514

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and class, packed, marked, and labeled, and are in strict compliance with the conditions required by the regulations issued by the DOT and the United States Environmental Protection Agency. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: John F. Hunter
Signature: John F. Hunter
Month Day: 06/22/18

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Javier Cortez
Signature: Javier Cortez
Month Day: 06/22/18

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: 
Signature: 
Month Day: 

19. Discrepancy Indication Space

   TICKET # 584208

   20/471

20. Facility Owner or Operator Certification of receipt of non-hazardous materials covered by this manifest except as noted. 
   Printed/Typed Name: Oscar Ramirez
   Signature: Oscar Ramirez
   Month Day: 06/22/18

White - Original
Yellow - Transporter
Pink - TSO Facility
Gold-Red - Generator's first copy
DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO ________________________________

ADDRESS ________________________________

JOB NAME DATIS Roads

GROSS 38,240

TARE 23,680

NET 14,560

TONS 5.62

DATE 01/22/04

TIME 07:10

TRUCK NO. 28502

MATERIAL New Haz Mat

REMARKS 16-69/1W0430

WEIGHER J Hunter

DRIVER ON TRUCK WHEN WEIGHED: YES NO

DRIVER X

© U.S. GOVERNMENT PRINTING OFFICE 2001: 774-793
WHITE OFFICE PINK DRIVER CANARY BILLING GOLDEN ROG CUSTOMER

---

DEPARTMENT OF THE ARMY
U.S. ARMY WHITE SANDS MISSILE RANGE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-

CERTIFIED WEIGHT TICKET

BILL TO ________________________________

ADDRESS ________________________________

JOB NAME DATIS Roads

GROSS 77,360

TARE 34,780

NET 42,580

DRIVER ON TRUCK WHEN WEIGHED: YES NO

DRIVER X

© U.S. GOVERNMENT PRINTING OFFICE 2001: 774-793
WHITE OFFICE PINK DRIVER CANARY BILLING GOLDEN ROG CUSTOMER
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<th>Material Types</th>
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<td>$163.80</td>
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**T**  
**New Hrs.: Mon. - Fri. 7AM-4PM**  
**1-CELL. 7**
1000 Camino Real Boulevard
Sunland Park, NM 88063
(505) 389-9440

Bill Accts: TKM Engineers I Haul Accts: MKM Engineers
Ticket #: T5839501

Vehicle #: 28517  POH: 106734

TT = 200-Commercial
PT = 1-Change

Date 06/21/04 06/21/04
Time 15:00 15:00

MT = 50-Hydrocarbon Soils
$234.00

Driver: [Signature]

Weighmaster: CRISCALOSO CELIS

NEW HRS. MORN.- FRI. 7AM-4PM
1-CELL 7

1000 Camino Real Boulevard
Sunland Park, NM 88063
(505) 389-9440

Bill Accts: TKM Engineers I Haul Accts: MKM Engineers
Ticket #: T5839571

Vehicle #: 28517  POH: 106734

TT = 200-Commercial
PT = 1-Change

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Time 15:16 15:16

MT = 50-Hydrocarbon Soils
$234.00

Driver: [Signature]

Weighmaster: CRISCALOSO CELIS
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Drivers: ______________________ Weighmasters: ______________________

NEW HRS. MON.-FRI. 7AM-4PM
i-CELL 7

Wrong Material Type

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**Driver:**

**Weightmaster:** COSCAR RAMIREZ

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**NEW HRS. MON.- FRI. 7AM-4PM**

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**NEW HRS. MON.- FRI. 7AM-4PM**

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**NEW HRS. MON.- FRI. 7AM-4PM**
CAMINO REAL ENVIRONMENTAL CENTERI

1000 Camino Real Boulevard
Sunland Park, NM 88063
(505) 589-9440

Bill Acct: TMKM Engineers I Haul Acct: TMKM Engineers Ticket#:15842081

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Tip Amt: 234.00 @ $11.70/cy. I
Tip Amt: 234.00 I
TAmount: 234.00 I
TAmount: 234.00 I

VOL/QY/CYD: 20.00

Driver: [Signature]
Weighmaster: [Signature]

NEW HRS. MON.- FRI. 7AM-4PM
I-CELL 7

CAMINO REAL ENVIRONMENTAL CENTERI

1000 Camino Real Boulevard
Sunland Park, NM 88063
(505) 589-9440

Bill Acct: TMKM Engineers I Haul Acct: TMKM Engineers Ticket#:7862401

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Tip Amt: 234.00 @ $11.70/cy. I
Tip Amt: 234.00 I
TAmount: 234.00 I
TAmount: 234.00 I

VOL/QY/CYD: 20.00

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Weighmaster: [Signature]
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Tip: $163.80

Driver: 

Weighmaster: C. FRANCISCO CELIS

NEW HR5: MON - FRI. 7AM-4PM
1-CELL: 7
To: BAE Systems  
Fax: 505-678-6090

Company: BENITO ANALVS  
Date: 6-8-04

RE:  
Total pages:  

From: JOE KING

**SPECIAL WASTE APPROVAL**

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<tr>
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<td>CAMINO</td>
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<table>
<thead>
<tr>
<th>Customer</th>
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<tbody>
<tr>
<td>BENITO ANALVS</td>
<td>CML2 99 Y</td>
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<th>Expiration Date</th>
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<td></td>
<td>2. Must be non-hazardous</td>
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<tr>
<td></td>
<td>3. Must be manifest</td>
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<th>Approval By</th>
</tr>
</thead>
<tbody>
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</tr>
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</table>

This approval is granted subject to the enforcement of the following conditions:

1. Loads may be randomly inspected upon receipt at the landfill to conform with Special Waste Profile.
2. This material must be properly contained, bagged, or tarped prior to and during shipment and disposal.
3. A completed non-hazardous shipping manifest must accompany each load received at the landfill.
4. The customer must contact the respective landfill to schedule the waste shipment prior to disposal.
Addendum to Work Plan for Closure of Two Waste Ponds

*Work Plan for the Closure of Two Waste Ponds at the Nuclear Effects Reactor Facility*

*(WSMR-09; SWMU 160-161), WSMR, NM (March 1999)*

Following submittal of the above referenced Work Plan and implementation of Closure of Waste Pond #1; the New Mexico Environment Department’s Hazardous Waste Bureau (NMED HWB) requested additional soil sampling at Waste Pond #1 to confirm closure. Implementation of closure of Waste Pond #2 was postponed due to WSMR security requirements. It is expected that the implementation of closure of Waste Pond #2 and the collection of the additional soil sampling at Waste Pond #1 will be conducted prior to September 30, 2004. This addendum includes the work procedures and support documentation for implementation of above mentioned work plan for closure of the two waste ponds. The addendum, which is enclosed, is summarized below:

Attachment 1

- *Soil Sampling Work Procedures for the Collection of Additional Soil Samples at Waste Pond #1.* These work procedures provide details for the collection of additional soil samples that will be sent to a qualified laboratory for analysis. Once the results are available a Report of Findings will be submitted to NMED HWB.

Attachment 2

- *Revised Soil Sampling Collection Work Procedures for Waste Pond #2.* A revised set of work procedures is required for two reasons; 1) based on NMED HWB recommendations additional soil samples will be collected and analyzed by a qualified laboratory and, 2) site specific work procedures have been developed due to the increase in security at the facility. At the completion of the implementation of the closure of waste pond #2, a Final RCRA Facility Investigation Report will be submitted to NMED HWB.
ATTACHMENT 1

Soil Sampling Work Procedures for the Collection of Additional Soil Samples at Waste Pond #1

1. Introduction

This work procedure provides general discussion of the proposed approach to collecting additional soil samples at Waste Pond #1 located at the Nuclear Effects Reactor Facility (NERF) at White Sands Missile Range (WSMR). The purpose of the work procedure is not to recreate the March 1999 Work Plan; however it supplements the work plan in the collection of additional samples that will be sent to a laboratory for analysis. Therefore specific activities relating to Section 4.0, Data Collection Protocol and Procedures of the March 1999 Work Plan will not change for the collection of these additional samples.

2. Background

Remediation of the PCB contaminated soils at Waste Pond #1 was performed 21-23 May 2001. As described in Final RFI for the Closure of Waste Pond #1 at the Nuclear Effects Reactor Facility, dated September 2001, approximately 208 cubic yards of soil and miscellaneous pieces of concrete and cast iron pipe were excavated from Waste Pond #1. All material excavated from the Waste Pond was transported from White Sands Missile Range to a Subtitle D land disposal facility. Five field samples were analyzed for PCB-Aroclor 1254 utilizing a field test kit to verify in the field if the contaminate was present. One split sample was submitted for laboratory analysis and analyzed for PCB-Aroclor 1254 in accordance with EPA Method 8082 at a Method detection limit of 0.010 milligrams/kilogram (mg/kg) (0.010ppm). PCB-Aroclor 1254 was not detected during analysis of field or laboratory samples. Once this confirmation was complete, previously sampled fill soil was used to fill the excavated area.

Field confirmation sampling was not accepted by NMED as a final confirmation for clean closure. Therefore, WSMR is proposing to advance five soil borings into the subsurface at Waste Pond #1 to complete confirmation of the removal of PCBs from the site. Following this confirmation, a petition will be made by WSMR to the New Mexico Environment Department (NMED) for no further action (NFA) at the site.

The general history of WSMR’s response to this site is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Waste Ponds Deactivated</td>
</tr>
<tr>
<td>September 1997</td>
<td>Submitted Initial Investigation Sampling Work Plan to NMED for review and approval</td>
</tr>
<tr>
<td>September 1997</td>
<td>Initiated Sampling Investigation to determine if release occurred</td>
</tr>
<tr>
<td>April 1998</td>
<td>Investigation Report of Two Waste Ponds at the Nuclear Effects Directorate</td>
</tr>
<tr>
<td>April 1999</td>
<td>Submitted Work Plan for NMED HWB Review and Approval</td>
</tr>
<tr>
<td>April 2001</td>
<td>WSMR letter to NMED stating that WSMR intention is to proceed with remediation of Waste Ponds at earliest opportunity</td>
</tr>
<tr>
<td>May 2001</td>
<td>Initiated remediation of soils at Waste Pond #1</td>
</tr>
</tbody>
</table>
3. Proposed Additional Confirmation Sampling

The WSMR proposal consists of five soil borings to a depth of approximately 20ft. The soil borings will be advanced using a direct push rig with a continuous core sampler. Samples will extend to a depth of approximately 15 feet below the ground surface and will be collected from five locations (dice pattern) in the vicinity of the waste pond. The location of these borings will be placed as shown on Figure 1.

A continuous core will be collected from each boring from 17ft bgs to the final depth using a split-barrel sampler. No samples will be collected from the ground surface to 17 ft bgs, as existing fill soils have shown no evidence of contamination. Samples will be collected for lab analysis from the split-barrel sampler. The appropriate sampling interval will be identified using
previous depth of excavation and good engineering judgment in the field at the time of boring installation. Samples will be collected of the native soil that existed at the site prior to the previous excavation (Section 2.0). A geologist will be onsite during sample collection to make the determination.

All soil samples collected will be sent to a certified laboratory and analyzed for PCB-Aroclor 1254 by Method 8082. Results of the sampling for PCB-Aroclor 1254 will be compared to soil screening levels (SSL) for a residential exposure.

5. Conclusions

In the event that no PCBs are detected at levels exceeding soil-screening levels, WSMR will submit a Report of Findings and will follow through with the request for no further action for SWMU 160.
ATTACHMENT 2
Revised Soil Sampling Collection Work Procedures for Waste Pond #2

1. Introduction

This work procedure provides general discussion of the proposed approach to collecting soil samples at Waste Pond #2 located at the Nuclear Effects Reactor Facility (NERF) at White Sands Missile Range (WSMR). The work specified for Waste Pond #2 in the Work Plan for the Closure of Two Waste Ponds at the Nuclear Effects Reactor Facility (WSMR-09; SWMU 160-161), WSMR, NM (March 1999) will be implemented as stated. A field test kit will be utilized to determine the presence of PCB-1254 and the results will be used only to determine when to stop the excavation. However, due to NMED comments on the closure of Waste Pond #1, five additional soil samples will be collected at the bottom of the excavation and sent to a laboratory for analysis.

2. Background

The specific contaminant of concern with Waste Pond #2 is PCB-Aroclor 1254. The general history of WSMR’s response to this site is the same as provided for Waste Pond #1 in Attachment 1 of this addendum.

3. Proposed Additional Confirmation Sampling

Verification sampling was initially proposed to be conducted similar to Waste Pond #1 as described in Section 2.2.3 of the Work Plan. Three verification samples were to be collected using a hand auger from randomly selected locations at the bottom of the excavated pond and analyzed using a PCB-1254 field test kit. Based on NMED HWB review of the Waste Pond #1 Final RFI Investigation report results, all verification samples will now be analyzed by a qualified laboratory. A field test kit will not be used for Waste Pond #2 verification sampling analysis. A minimum of 5 samples instead of 3 will be collected from the bottom of the excavated pond. Random sampling using the grid system identified in Section 4.3 of the work plan will not be utilized as well. Selection of sampling points (shown on Figure 2) will be conducted similar to that described for the re-sampling of Waste Pond #1. All other field activities mentioned in the Work Plan will remain the same.
5. Conclusions

At the completion of field activities a Final RCRA Facility Investigation Report for the closure of Waste Pond #2 will be submitted.
ENCLOSURE TO ATTACHMENT 2

SITE SPECIFIC WORK PROCEDURES

CLOSURE OF WASTE POND #2
AT THE
NUCLEAR EFFECTS REACTOR FACILITY
WHITE SANDS MISSILE RANGE, NEW MEXICO

MARCH 23, 2004
REVISION 1.0
INTRODUCTION

The revised site specific procedures provided in this document specifies specific work procedures and methods that will be used to implement the closure of Waste Pond #2, located within the 300-foot fenced enclosure of the Nuclear Effects Reactor, at the White Sands Missile Range (WSMR) Nuclear Effects Reactor Facility (NERF). Work procedures and methods specified herein are provided as clarifications to the New Mexico Environment Department approved project work plan, MEVATEC Report 400KK/99/003F, Work Plan for Closure of Two Waste Ponds at the Nuclear Effects Reactor Facility, March 1999 and the previous Waste Pond #2 Site Specific Procedures, May 16, 2001.

A readiness review was conducted on March 19, 2004 by NERF, WS-ES-EC, WSMR Security, BAE Systems, and MKM managers. Readiness review included NERF radiation awareness training and security procedures walkthrough for Post 18 and Post 15, as will be conducted during performance of this project.

General tasks to be performed during the closure of Waste Pond #2 include:

- Excavation of the upper two feet of soil from the entire pond, bottom and sidewalls;
- Confirmation sampling (after excavation) of the waste pond for PCB 1254, (using field kit) to verify that contaminant concentrations are below detection limits;
- Collect (five) samples for laboratory analysis;
- Transportation and disposal of impacted soils at a Subtitle D land disposal facility;
- Backfilling of the waste pond with clean borrow material; and
- Placement of a chip/asphalt surface over the backfilled waste pond.

A detailed description of planned field activities is provided in Section 4.3 of the MEVATEC March 1999 Work Plan and modified based on Addendum to the work plan dated April 2004.

PROJECT PLANNING

Prior to the start of work activities at Waste Pond #2, BAE Systems (BAE) with provide the full names, social security number, drivers license number, and company affiliation of every worker that will enter the Nuclear Effects Reactor Facility. It is expected that 16 people will enter the NERF for this project, however, only 6 people are expected to enter the 300-foot perimeter fence enclosing the reactor area at any given time.

Radiation training will be provided by the NERF at Building 21225 to all workers prior to entering Post 18 and Post 15. UXO training will be provided by BAE Systems. Each day workers will check in and out of the NERF at Building 21225, located outside Post 18. Health and safety tailgate meetings will be held at the start of each day and before a new task is initiated. Equipment will be decontaminated in accordance with the MEVATEC March 1999 Work Plan.

A project staging area, due west of NERF Building 21244, will be provided for parking and fueling heavy equipment. The staging area will also be used at a muster point for the start of each day’s activities.

All site activities will be documented in a field log. An authorized WSMR photographer will take project photographs.
PROJECT PERSONNEL

Only experienced personnel will be used for this project. BAE Systems subcontractor will provide a project manager, a site supervisor/health and safety officer, a foreman/operator, and an operator. BAE Systems subcontractor will be responsible for all site activities. A trucking company, assumed to be Two Bit Trucking, Las Cruces, New Mexico, will be subcontracted to transport soils from WSMR to Camino Real Environmental Center (Subtitle D land disposal facility) located in Sunland Park, New Mexico. Heavy equipment will be provided by Hertz or CAT Equipment, El Paso Texas. Other personnel that will participate in this project include a BAE site supervisor, a NERF escort, and a WSMR photographer.

EQUIPMENT

The following equipment will be used during excavation and restoration of Waste Pond #2:

- Pickup truck
- Photo-ionization detector
- PCBs field test kit
- Fire extinguisher
- First aid kit
- Hand tools
- Backhoe
- Loader
- Water truck
- Roller
- 14 or 20 cubic yard dump trucks

SECURITY PROCEDURES

The following security procedures will be reviewed by project personnel during mobilization and implemented for this project:

- Personnel will obtain temporary vehicle passes at the WSMR main gate, Building 384, at the beginning of the project.
- Personnel will check in and show picture I.D. daily at NERF Building 21225.
- Personnel will enter first security gate at Post 18. Picture I.D. will be presented and vehicles/equipment will be searched. All vehicle/equipment compartments must be opened for search. Firearms, knives, incendiary devices, radios, cell phones and pagers are not allowed within the secure area.
- Vehicles will then proceed directly towards the 325-foot fence and gate. Vehicles not required to enter the Post 15 300-foot security area will be parked in the parking area located in the 400-foot area between Post 18 and Post 15. Parked vehicles must be backed in with windows up and vehicle locked.
- Heavy equipment will proceed towards the Post 15 325-foot gate but will detour to the left at the 400-foot area, through a cable secured entrance to a gravel road. The driver must stop their equipment, get out and unhitch the cable, pass through, stop, and re-secure the cable. Continuing down the gravel road the driver will approach another cable secured entrance, located just north of the ECF personnel entry portal to the Post 15 300-foot area. This second cabled area will be opened by security personnel, unless otherwise directed. Upon opening of the second cable-secured entrance the driver will move his equipment to the 325-foot gate.
Vehicles/equipment requiring entrance to the 300-foot area will stop at the 325-foot (outer) gate. When the outer gate opens the vehicle will drive in and immediately stop at the inner gate.

The driver, and passengers, will exit the vehicle/equipment and walk back outside the first gate. They will then enter the ECF portal **one at a time**, by pushing button at gate, for picture I.D. check and submittal, receipt of a Post 15 security badge, and frisk by security guard. Only when a person has cleared the entry portal may another person enter. The new underground entrance to Post 15 may be in place when this project is implemented. Any new procedures will be reviewed during site mobilization.

After exiting the ECF portal, the driver will re-enter the vehicle through the open inner 300-foot area gate.

When leaving the 300-foot area the driver will approach the inner gate, which will be opened by security personnel. The driver will drive the vehicle/equipment to the outer gate, get out and proceed through the ECF portal. Only one person at a time is allowed in the entry portal. Personnel will turn in temporary security badges, pick up their own picture I.D., and exit the portal.

Drivers will then enter through the outer gate to their vehicle/equipment, leave the 325-foot area, and drive back to the Post 15 security gate using the same route as when entering.

At the Post 15 security gate personnel will have to show picture I.D.s prior to leaving the NERF.

**CONTINGENCY READINESS**

The following items have been considered and will be implemented in order to complete the project within the allotted time and schedule.

- Wrecker service for heavy equipment: Luchini’s Towing & Recovery, Las Cruces, NM (505) 524-2201
- Heavy equipment suppliers: Hertz Equipment, El Paso TX, (915) 590-9399
  CAT Equipment, El Paso, TX, (915) 771-6000
- Tool kit to disable vehicles if necessary.
- Equipment fueling/service will only take place at the designated staging area outside Post 18.
- Heavy equipment operators, Site Manager, and Project Manager are capable of operating all heavy equipment.
- All personnel will be provided with maps of WSMR showing main gate, Post 18, and weigh station.
- The trucking company selected will have backup trucks and drivers.
- Several extra trucking personnel will be included in the project roster as backups.
- 10-hour workdays.
- Assume 5-foot standoff of existing power lines over Waste Pond #2.
- Heavy equipment is not allowed on far west side and far south side of Waste Pond #2 due to location of septic tank and leachfield.
- Daily review of Post 18 and Post 15 alarms and muster points with all project personnel.
- Daily health & safety meetings and Task Hazard Analysis before the start of daily activities.
- Restrooms are available outside Post 18 at NERF Building 21225.
SPECIFIC DAILY PROJECT PROCEDURES

Day #1

The first half day of project activities will include the previously referenced NERF radiation awareness training and WSMR UXO awareness training. Dosimeters will not be issued as area dosimetry is conducted within work areas. Upon completion of those activities and delivery of excavation equipment, excavation of Waste pond #2 will begin. All vehicles will receive day visitor passes from the WSMR main gates prior to entering the NERF. Trucks delivering heavy equipment will offload equipment outside of security areas at the staging area located due west of Post 18 Building 21244.

Equipment will be received and driven through Post 18 and Post 15 security inspection areas as it is needed. All equipment will be driven out daily and stored in the staging area. During excavation, a backhoe, a loader, a pick-up truck with sampling equipment, and one dump truck will be required inside Post 15. The dump truck will be filled and will then leave Post 15 to transport soils to the land disposal facility. Another dump truck will then enter Post 15 for filling. Only one dump truck will be within Post 15 at one time. The exchange of empty and full dump trucks will take place until excavation of the pond is completed. In order to expedite excavation activities, it is planned to use six 20 cubic yard (cy) dump trucks and two 14 cy dump trucks, however, only 14 cy dump trucks will be used if available due to restricted driving areas and the size of the equipment. This should allow the estimated amount of impacted soil, approximately 150 cy, to be excavated and hauled by a single group of trucks within one day. To further expedite truck ingress and egress, one driver that has been cleared through Post 15, may remain within Post 15 to operate each truck within Post 15 after it has passed security inspection. This eliminates the need for each driver to pass through security. The “uncleared” driver will exit the security inspection area after parking their truck and will wait outside the enclosure until the filled truck has cleared outgoing Post 15 security inspection area. The “cleared” driver will park the filled truck in the security inspection area and enter back into Post 15. The “uncleared” driver will then re-enter the Post 15 security inspection area and drive the filled truck out of the security gate and proceed on to Post 18 security area to be cleared for exiting. Filled trucks will then proceed to the WSMR weigh station and then on to the waste disposal facility.

It is apparent that a 20 cy dump truck is longer than the length of Post 15 security inspection area (gated at both ends). To alleviate this problem, a security guard will be provided while the larger 20 cy trucks enter and leave the enclosure. The outer gate would remain open after the 20 cy truck has entered and parked in the security inspection area. The security guard could assure that no person is within the rear area of truck as it is inspected and cleared by security. After the truck is cleared the interior gate would be lifted and the truck would enter the enclosure. The outer gate would be closed as soon as the truck passes and the security guard would guard the exterior entrance until gate closure. It is estimated that a security guard would be required for 4 hours during this scenario.

After excavation is completed, soil samples will be collected from the pond. Sample analysis will confirm the completion of excavation activities. All equipment and personnel will exit Post 15 and Post 18 upon the completion of excavation and end of day activities.
**Day #2**

Waste Pond #2 backfilling activities are expected to take place on the second day. Borrow materials will be excavated from the borrow pit, located across the road from NERF Building 21225, and hauled through Post 18 to Post 15 by two 14 cy trucks. A pickup truck, backhoe, water truck, and three to four people will be required to be inside the Post 15 300-foot enclosure. All will pass through Post 18 and Post 15 security inspection areas. It is estimated that approximately 32 truckloads of borrow material will be required to backfill Waste Pond #2 and backfill activities can be completed in one day.

Another plan for backfill operations is to have a security guard ride with each truck to and from the borrow pit to assure that truck drivers and trucks remain secured. This method, if feasible, would allow trucks and drivers to enter the enclosure at a faster pace. This preferred method of operation is estimated to require only 8 hours (one day).

All equipment and personnel would exit Post 15 and Post 18 at the end of the day's activities. Equipment would be parked in the designated staging area outside Post 18.

**Day #3**

Day 3 will be utilized for completion of backfilling operations, if required, with the same equipment and personnel. At the completion of backfilling activities, a 1-1/2-inch layer of asphalt followed by a 1-1-2-inch layer of chipped gravel will be placed over the area of the former pond. It is assumed only two 14 cy trucks, one with asphalt and one with chipped gravel will be required. The trucks and drivers for the asphalt/chip mixture will be cleared through Post 18 and Post 15 security as per standard procedures, no special requests are planned. A small roller will be required to enter Post 18 and Post 15 for smoothing the asphalt/chip overlays.

All equipment and personnel would exit Post 15 and Post 18 at the end of the day's activities. All Waste Pond #2 project activities are expected to be completed by the end of Day #3. All personnel and equipment will demobilize at the end of Day 3.
APPENDIX E

WASTE POND #1 RE-SAMPLING – ANALYTICAL LABORATORY REPORT AND CHAIN-OF-CUSTODY FORM
LAUCKS TESTING LABORATORIES
SAMPLE DATA PACKAGE

BAE SYSTEMS

LABORATORY NO.: 0405305

SDG NO.: NERF1

JUNE 11, 2004
To: BAE Systems  
Project No.: 10NN  
Project Name: NERF Waste Pond #1 Re-sample  
Laboratory No.: 0405305  
SDG No.: NERF1  
Date of Report: June 11, 2004

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

<table>
<thead>
<tr>
<th>Client Sample Identification</th>
<th>Laucks Sample Identification</th>
<th>Testing Analytical Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERF-WSMR9-P1-SB01-0504</td>
<td>0405305-01</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P1-SB02-0504</td>
<td>0405305-02</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P1-SB03-0504</td>
<td>0405305-03</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P1-SB04-0504</td>
<td>0405305-04</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P1-SB05-0504</td>
<td>0405305-05</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P1-SB105-0504</td>
<td>0405305-06</td>
<td>PCB</td>
</tr>
</tbody>
</table>

Analytical Request Key:

PCB= Polychlorinated Biphenyls (6082A)

Sample Receipt Comments:

There were no anomalies associated with the receipt of the samples.

Sample Identification on Forms:

When completing forms created through the CLP software, every attempt is made to use both your sample IDs as well as the laboratory sample IDs. The forms have varied default sizes to their sample identification fields, and are not amenable to alteration or editing. When it is not possible to use your complete sample ID because of field length limitations, Laucks will usually do one of two things: 1) use as much of your ID as will fit, beginning from the RIGHT hand side of the sample ID number; or 2) select some subset of your sample identifier if it is clearly a discrete number. In addition, all forms will contain our sample IDs, which can be cross-referenced from the table above.
GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

Manual Integrations:
One or more analytes may have been manually integrated on the data system quantitation reports. All manual integrations have been flagged, initialed, and dated by the analyst. A list of the manual integration flags is detailed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Manual integration due to irregular peak shape</td>
</tr>
<tr>
<td>MS</td>
<td>Manual integration due to split peak</td>
</tr>
<tr>
<td>MR</td>
<td>Manual integration due to retention time shift</td>
</tr>
<tr>
<td>MI</td>
<td>Manual integration of correct isomer</td>
</tr>
<tr>
<td>MT</td>
<td>Manual integration due to peak tailing</td>
</tr>
<tr>
<td>MB</td>
<td>Manual integration due to irregular baseline</td>
</tr>
</tbody>
</table>

SPECIFIC REMARKS ON ORGANIC ANALYSES:

Holding Time Compliance:

Following the Contract Laboratory Program (CLP) model, Laucks calculates holding time compliance for organic determinations based on the first injection and/or analysis of an extract or sample. Subsequent analyses (for instance, for the purpose of dilution) are not tabulated.

PCBs:

The holding time to extraction is 7 days in water and 14 days in soil calculated from the date of collection. The holding time from extraction to analysis is 40 days. All samples were extracted and analyzed within the holding times.

PCB Fraction:

Data Qualifiers:
A "P" flag on sample report forms ("Organic Analysis Data Sheet") indicates analytes that demonstrated greater than 25 percent difference in response between columns.

Quality Control Analyses:
MS/MSD analyses were performed on sample NERF-WSMR9-P1-SB04-0504. All recoveries and %RPDs were within the control limits.
Sample Identifications:
Client sample identifications have been shortened by deleting the prefix “NERF-WSMR9-” due to software constraints.

All other quality control parameters were met.
LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

ABBREVIATIONS
Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

U  The analyte of interest was not detected to the limit of detection indicated.

SDL  Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.

PQL  Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.

DB  Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.

AR  As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

B  When used in relation to organics fractions, the “B” flag indicates that the analyte of interest was detected in the method blank associated with the sample, as well as in the sample itself. The “B” flag is applied without regard to the relative concentrations detected in the blank and sample.

J  The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

T  The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.

E  The flagged value was reported from an analysis that exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.

D  The value reported derives from analysis of a diluted sample of the sample extract.

P  When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the higher value.

C  The flagged analyte has been confirmed by GC/MS analysis. The value reported may be derived from either the initial of confirmatory (GC/MS) analysis. See specific report comments for details.

CRQL  Client requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.
RELEASE OF DATA

Laucks certifies that these results meet all requirements of the NELAC standards, except where otherwise noted.

"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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,

Anh Ho  
Project Manager  
6-11-04  
(DATE)

Harry Romberg  
Quality Assurance Officer  
6-11-04  
(DATE)

HOW TO CONTACT US:

All Laucks Testing Laboratories staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Laucks will accommodate your request at a fee of twenty-five cents ($0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.
ATTACHMENT A

Chain-of-Custody Copies
**BAE SYSTEMS**

**CHAIN OF CUSTODY RECORD**

**PROJECT NO.** 10NN

**PROJECT NAME** NERF WASTE POND #1 RE-SAMPLE

**SAMPLER'S SIGNATURE**

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>SAMPLE ID</th>
<th>MATRIX</th>
<th>LAB NO.</th>
<th>PCB-1254</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/19/04</td>
<td>0928</td>
<td>NERF-WSMR9-P1-SB01-0504</td>
<td>Soil</td>
<td>1</td>
<td>✓</td>
</tr>
<tr>
<td>5/19/04</td>
<td>0955</td>
<td>NERF-WSMR9-P1-SB02-0504</td>
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<td>1</td>
<td>✓</td>
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<tr>
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<td>1023</td>
<td>NERF-WSMR9-P1-SB03-0504</td>
<td>Soil</td>
<td>1</td>
<td>✓</td>
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<tr>
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<td>✓</td>
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<td>Soil</td>
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<td>✓</td>
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<tr>
<td>5/19/04</td>
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<td>Soil</td>
<td>1</td>
<td>✓</td>
</tr>
</tbody>
</table>

**PROJECT INFORMATION**

**SAMPLES RECEIVED**

**PROJECT MANAGER**

**FRED BOURGER**

**SHIPMENT NO.**

**GOOD CONDITION HILTED**

**CONFORM TO RECORD**

**SPECIAL INSTRUCTIONS/COMMENTS:**

**PLEASE USE BALL POINT PEN**

**DISTRIBUTION:** WHITE - PROJECT FILES; YELLOW - LAB; PINK - FIELD COPY
Laucks Testing Laboratories, Inc.

COOLER RECEIPT FORM

WORKORDER #: 04-05-306  Contractor Cooler  
QA Lab Cooler #  
Number of Coolers 1  

Project: DAE: WERF WASTE POND #1  Reset up  
Date samples were received at the laboratory: 05/21/84  

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 05/20/84

By: (print) Dan Mahler  (sign) O  

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO  
   If YES, record carrier name and airbill number:  
   Fullco 7920 0290 5546  

2. Were custody seals on outside of cooler? YES NO  
   How many and where:  
   Seal date: 05/18/84  
   Seal name:  

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO  
4. Did you screen samples for radioactivity using the Geiger Counter? YES NO  
5. Were custody papers sealed in a plastic bag and taped inside to the lid? YES NO  
6. Were custody papers filled out properly (ink, signed, etc.)? YES NO  
7. Did you sign custody papers in the appropriate place? YES NO  
8. Was project identifiable from custody papers? If YES, enter project name at top of this form.  
9. If required, was enough cooling material present? YES NO  
10. Have designated person initial here to acknowledge receipt of cooler:  

B. LOG-IN PHASE: Date samples were logged-in: 05/21/84  

By (print) Dan Mahler  (sign)  

11. Describe type of packing in cooler:  
12. Were all bottles sealed in separate plastic bags? YES NO  
13. Did all bottles arrive unbroken and were labels in good condition? YES NO  

Page 1 of 2
LAUCKS TESTING LABORATORIES, INC.
COOLER RECEIPT FORM (continued)

14. Were all bottle labels complete (ID, date, time signature, preservative, etc)?
   YES NO

15. Did all bottle labels agree with custody papers?
   YES NO

16. Were correct containers used for the tests indicated?
   YES NO

17. Were correct preservatives added to samples?
   YES NO

18. Was a sufficient amount of sample sent for tests indicated?
   YES NO

19. Were bubbles absent in VOA samples: If NO, list by QA #:
   YES NO  N/A

20. Was project manager called / faxed & status discussed?
    YES NO

    If YES, give details below

21. Who was called / faxed?

    By whom? ____________________________ (date)

DISCREPANCIES:

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
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__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

Page 2 of 2
Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 64-06-305
Assigned SDG Number: NERF1

<table>
<thead>
<tr>
<th>Temperature</th>
<th>pH of Bottle Types</th>
<th>Number of Cooler</th>
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</thead>
<tbody>
<tr>
<td>Blank: 4.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>2</td>
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<td></td>
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</tr>
<tr>
<td>6</td>
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</tr>
</tbody>
</table>

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature | Allowable temperature range is 4±2 degrees Celsius
---|---
Acid Preserved pH | pH must be less than 2
Base Preserved pH | pH must be greater than 12
N/C = | Not Checked for pH
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID/Matrix</th>
<th>Collected</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>0405305-01</td>
<td>NERF-WSMR9-P1-SB01-0504</td>
<td>S 05/19/04  09:28</td>
<td>05/20/04  09:00</td>
</tr>
<tr>
<td>0405305-02</td>
<td>NERF-WSMR9-P1-SB02-0504</td>
<td>S 05/19/04  09:55</td>
<td>05/20/04  09:00</td>
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<tr>
<td>0405305-03</td>
<td>NERF-WSMR9-P1-SB03-0504</td>
<td>S 05/19/04  10:23</td>
<td>05/20/04  09:00</td>
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<tr>
<td>0405305-04</td>
<td>NERF-WSMR9-P1-SB04-0504</td>
<td>S 05/19/04  10:47</td>
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<tr>
<td>0405305-05</td>
<td>NERF-WSMR9-P1-SB05-0504</td>
<td>S 05/19/04  11:12</td>
<td>05/20/04  09:00</td>
</tr>
<tr>
<td>0405305-06</td>
<td>NERF-WSMR9-P1-SB105-0504</td>
<td>S 05/19/04  11:12</td>
<td>05/20/04  09:00</td>
</tr>
</tbody>
</table>

Printed: 05/21/04
ATTACHMENT B

Index
I. Narrative: 2-6
II. Chain-of-Custody: 7-12
III. Index: 13-14
IV. PCBs by 8082A Data: PCB- 1-172
   A. QC Summary Data: 1-7
   B. Sample Data: 8-40
   C. Standards Data: 41-129
   D. Raw QC Data: 130-159
   E. Bench Sheets: 160-172

Completed and checked by: [Signature] Date: 6/11/04
QC Summary Forms

NERF1

PCBs by Method 8082A
**SURROGATE RECOVERY FORM**

Lab Name: Laucks Testing Labs, Inc.  
Matrix: SOIL

<table>
<thead>
<tr>
<th>LAB SAMPLE ID.</th>
<th>CLIENT SAMPLE ID.</th>
<th>Surr 1</th>
<th>Surr 2</th>
<th>Surr 3</th>
<th>Surr 4</th>
<th>Surr 5</th>
<th>Surr 6</th>
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<td>107</td>
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<td>0405305-02</td>
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<td>P1-SB04-0504MS</td>
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<td>0405305-04MSD</td>
<td>P1-SB04-0504MSD</td>
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<tr>
<td>0405305-05</td>
<td>P1-SB05-0504</td>
<td>111</td>
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<tr>
<td>0405305-06</td>
<td>P1-SB105-0504</td>
<td>116</td>
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</tr>
<tr>
<td>B052104GPBSLG</td>
<td>B052104GPBSLG</td>
<td>97</td>
<td>126</td>
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<td>S052104GPBSLG</td>
<td>104</td>
<td>131</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Surrogate Compound**

1 = Tetrachloro-m-xylene  
2 = Decachlorobiphenyl

<table>
<thead>
<tr>
<th></th>
<th>LCL</th>
<th>UCL</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>160</td>
</tr>
</tbody>
</table>

* = values outside of recovery limits  
D = surrogate diluted out  
LCL = Lower Control Limit  
UCL = Upper Control Limit  

Sur-Rep  
FormVer 1.0  11/23/96
Blank Spike Report

Lab Name: LAUCKS TESTING LABS
Description: PCB Spike Mix
Lab ID: S052104GPBSLG
Matrix: S
Units: UG/KG

(Database Reference: S052104_GPXS03)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Spike Added</th>
<th>Amount Found</th>
<th>% Rec</th>
<th>Recovery Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aroclor 1016-</td>
<td>166.7</td>
<td>153.00</td>
<td>92</td>
<td>67 136</td>
</tr>
<tr>
<td>Aroclor 1260-</td>
<td>166.7</td>
<td>203.00</td>
<td>122</td>
<td>74 154</td>
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</tbody>
</table>

* = Recovery exceeded control limit

Form BLKSPK-1
Blank Spike Report

Lab Sample ID: S052104GPBSLG
Description: PCB Spike Mix
Matrix: S
Units: UG/KG

(Database Reference: S052104_GPX03)

Work Orders Verified

<table>
<thead>
<tr>
<th>Work Order</th>
<th>Sample Fractions Verified</th>
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<tr>
<td>0405305 1-7</td>
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</tbody>
</table>

Form BLKSPK-2
MS/MSD Report

Lab Name : LAUCKS TESTING LABS
Client ID : NERF-WSMR9-P1-SB04-0504
Description : PCBs

(Database Reference: K052104_GPX503)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Spike Added</th>
<th>Sample Found</th>
<th>MS Found</th>
<th>MS Rec</th>
<th>Recovery Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aroclor 1016</td>
<td>177</td>
<td>0</td>
<td>203.00</td>
<td>115</td>
<td>42 128</td>
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<tr>
<td>Aroclor 1260</td>
<td>177</td>
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<td>267.00</td>
<td>151</td>
<td>49 158</td>
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<th>Spike Added</th>
<th>MSD Found</th>
<th>MSD Rec</th>
<th>RPD</th>
<th>Control Limits</th>
<th>RPD</th>
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<td>102</td>
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<tr>
<td>Aroclor 1260</td>
<td>177</td>
<td>242.00</td>
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<td>10</td>
<td>49 158</td>
<td>31</td>
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</tbody>
</table>

Comments

Form MS/MSD-1

* = Recovery or RPD exceeded control limit

Form MS/MSD-1
MS/MSD Report

Client ID : NERF-WSMR9-P1-SB04-0504
Spike Sample: 0405305-04
Description : PCBs
Matrix : SOIL
Units : UG/KG

(Database Reference: K052104_GPX03)

Work Orders Verified

<table>
<thead>
<tr>
<th>Work Order</th>
<th>Sample Fractions Verified</th>
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</thead>
<tbody>
<tr>
<td>0405305</td>
<td>1-7</td>
</tr>
</tbody>
</table>

Form MS/MSD-2
# METHOD BLANK SUMMARY REPORT

**Lab Name:** Laucks Testing Labs, Inc.

**Lab Sample ID:** B052104GPBSLG

**Matrix:** (soil/water) SOIL

**Lab File ID(1):** X6080452.D  
**Lab File ID(2):** X6080452.D

**Date Analyzed (1):** 06/09/04  
**Date Analyzed (2):** 06/09/04

**Time Analyzed (1):** 0331  
**Time Analyzed (2):** 0331

**Instrument ID (1):** 6890X.i  
**Instrument ID (2):** 6890X.i

**Column (1):** DB-35ms ID: 0.32 (mm)  
**Column (2):** DB-XLB ID: 0.32 (mm)

---

**THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:**

<table>
<thead>
<tr>
<th>CLIENT SAMPLE ID</th>
<th>LAB SAMPLE ID</th>
<th>LAB FILE 1</th>
<th>ANAL DATE(1)</th>
<th>ANAL TIME(1)</th>
<th>LAB FILE 2</th>
<th>ANAL DATE(2)</th>
<th>ANAL TIME(2)</th>
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</thead>
<tbody>
<tr>
<td>P1-SB01-0504</td>
<td>0405305-01</td>
<td>X6080454.d</td>
<td>06/09/04</td>
<td>4:05</td>
<td>X6080454.d</td>
<td>06/09/04</td>
<td>4:05</td>
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<tr>
<td>P1-SB02-0504</td>
<td>0405305-02</td>
<td>X6080455.d</td>
<td>06/09/04</td>
<td>4:22</td>
<td>X6080455.d</td>
<td>06/09/04</td>
<td>4:22</td>
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<td>P1-SB03-0504</td>
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<td>X6080456.d</td>
<td>06/09/04</td>
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<td>X6080456.d</td>
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<td>P1-SB04-0504</td>
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<td>X6080457.d</td>
<td>06/09/04</td>
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<td>X6080458.d</td>
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<td>P1-SB04-0504MSD</td>
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<td>06/09/04</td>
<td>6:06</td>
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</table>

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BikSumm-Rep  
FormVer 1.0 11/23/99

PCB - 7
Sample Results

NERF1

PCBs by Method 8082A
**ORGANICS ANALYSIS DATA SHEET**

**Lab Name:** LAUCKS TESTING LABS  
**SDG No.:** NERF1

**Matrix:** (soil/water) **SOIL**  
**Lab Sample ID:** 0405305-01

**Sample wt/vol:** 15 (g/ml) g  
**Lab File ID:** X6080454.D

**% Moisture:** 4  
**Date Collected:** 05/19/04

**Extraction:** SONC  
**Date Received:** 05/20/04

**Concentrated Extract Volume:** 5000 (µL)  
**Date Prepared:** 05/21/04

**Dilution Factor:** 1.0  
**Date Analyzed:** 06/09/04

**CONCENTRATION UNITS:**

<table>
<thead>
<tr>
<th>CAS NO.</th>
<th>COMPOUND</th>
<th>ug/kg</th>
<th>Q</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td>12674-11-2</td>
<td>Aroclor-1016</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>11104-28-2</td>
<td>Aroclor-1221</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>11141-16-5</td>
<td>Aroclor-1232</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>53469-21-9</td>
<td>Aroclor-1242</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>12672-29-6</td>
<td>Aroclor-1248</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>11097-69-1</td>
<td>Aroclor-1254</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>11096-82-5</td>
<td>Aroclor-1260</td>
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<td>17</td>
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RL = Reporting Limit
Data File: X6080454.d
Report Date: 09-Jun-2004 15:00

Laucks Testing Labs

0.5uL, DB-35ms 30m x 0.32mm, 0.25um film

Lab Smp Id: 0405305-01
Client Smp ID: P1-SB01-0504

Inj Date : 09-JUN-2004 04:05
Inst ID: 6890X.i

Operator : JK

Smp Info : 0405305-01

Misc Info : Methods 8081B/8082A

Method : \"PIII-600-02\"DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080454.d

Method Date : 09-Jun-2004 14:29 JasonK

Quant Type: ESTD

Cal Date : 03-JUN-2004 19:31

Cal File: X6030414.d

Als bottle: 1

Dil Factor: 1.00000

Sample Compound Amounts Loaded

Integrator: Falcon

Compound Sublist: 8082X.sub

Target Version: 4.00

Sample Matrix: SOIL

Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
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<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL)</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
</tr>
<tr>
<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
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<table>
<thead>
<tr>
<th>RT</th>
<th>EXP RT</th>
<th>DLRT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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</thead>
<tbody>
<tr>
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<td>4579338 0.01066</td>
<td>7.40</td>
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<td>3.977</td>
<td>3.9761</td>
<td>0.001</td>
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| $ 9 | Decachlorobiphenyl | CAS #: |
| 10.650 | 10.653 | -0.003 | 6029068 0.01267 | 8.80 |
Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080454.d
Lab Smp Id: 0405305-01
Inj Date: 09-JUN-2004 04:05
Operator: JK
Client Smp ID: P1-SB01-0504
Inst ID: 6890X.i
Smp Info: 0405305-01
Misc Info: Methods 8081B/8082A
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60340-2.m
Method Date: 09-Jun-2004 14:31 JasonK
Quant Type: ESTD
Cal Date: 03-JUN-2004 19:31
Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000
Sample Compound Amounts Loaded
Integrator: Falcon
Compound Sublist: 8082X.sub
Target Version: 4.00
Sample Matrix: SOIL
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>DF</td>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
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<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
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PCB - 13
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 11
Extraction: SONC
Concentrated Extract Volume: 5000 (uL)
Dilution Factor: 1.0

SDG No.: NERF1
Lab Sample ID: 0405305-02
Lab File ID: X6080455.D
Date Collected: 05/19/04
Date Received: 05/20/04
Date Prepared: 05/21/04
Date Analyzed: 06/09/04

CONCENTRATION UNITS:

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<thead>
<tr>
<th>CAS NO.</th>
<th>COMPOUND</th>
<th>ug/kg</th>
<th>Q</th>
<th>RL</th>
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</thead>
<tbody>
<tr>
<td>12674-11-2</td>
<td>Aroclor-1016</td>
<td>19</td>
<td>U</td>
<td>19</td>
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<tr>
<td>11104-28-2</td>
<td>Aroclor-1221</td>
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<td>11141-16-5</td>
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<td>53469-21-9</td>
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<td>12672-29-6</td>
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<td>11097-69-1</td>
<td>Aroclor-1254</td>
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<th>RT TO</th>
<th>CONCENTRATION</th>
<th>%D</th>
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<td>2</td>
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<td>232</td>
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Laucks Testing Labs

Data file : \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080455.d
Lab Smp Id: 0405305-02
Inj Date : 09-JUN-2004 04:22
Operator : JK
Smp Info : 0405305-02
Misc Info : Methods 8081B/8082A
Comment :
Method : \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\PCB60304-1.m
Meth Date : 09-JUN-2004 14:29 JasonK
Cal Date : 03-JUN-2004 19:31
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.00
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.0</td>
<td>Volume of final extract (uL)(1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.00</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>11.00</td>
<td>% Moisture</td>
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### Concentrations

<table>
<thead>
<tr>
<th>RT</th>
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<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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Average of Peak Concentrations = 263

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$ 1 Tetrachloro-m-xylene CAS #: 11097-69-1
3.9768 3.9761 0.001 4781896 0.01113 8.34

---

$ 9 Decachlorobiphenyl CAS #:
10.643 10.653 -0.010 6613896 0.01390 10.4

---

PCB - 18
Laucks Testing Labs

Data file: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080455.d
Lab Smp Id: 0405305-02
Inj Date: 09-JUN-2004 04:22
Operator: JK
Smp Info: 0405305-02
Misc Info: Methods 8081B/8082A
Comment: 
Method: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60304-2.m
Meth Date: 09-Jun-2004 14:31 JasonK
Cal Date: 03-JUN-2004 19:31
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.00
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
</tr>
<tr>
<td>M</td>
<td>11.000</td>
<td>% Moisture</td>
</tr>
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</table>

CONCENTRATIONS

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<tr>
<th>RT</th>
<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE ( ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<td>0.23498</td>
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<td>100.14- 140.14</td>
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<td>0.38788</td>
<td>290</td>
<td>61.72- 101.72</td>
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<td>9540175</td>
<td>0.40257</td>
<td>302</td>
<td>106.37- 146.37</td>
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</table>

Average of Peak Concentrations = 232

$ 1 Tetrachloro-m-xylene | CAS #: |
4.6571 | 4.6564 | 0.001 | 6919241 | 0.01085 | 8.12 |

$ 9 Decachlorobiphenyl | CAS #: |
11.557 | 11.566 | -0.009 | 5080109 | 0.01342 | 19.0 |

PCB - 19
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 6
Extraction: SONC
Concentrated Extract Volume: 5000 (uL)
Dilution Factor: 1.0

SDG No.: NERF1
Lab Sample ID: 0405305-03
Lab File ID: X6080456.D
Date Collected: 05/19/04
Date Received: 05/20/04
Date Prepared: 05/21/04
Date Analyzed: 06/09/04

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RL = Reporting Limit

RESULT FORM
Laucks Testing Labs

Data file : \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080456.d
Lab Smp Id: 0405305-03   Client Smp ID: Pb-SB03-0504
Inj Date : 09-JUN-2004 04:40
Operator : JK
Smp Info  : 0405305-03
Misc Info : Methods 8081B/8082A
Comment : Inst ID: 6890X.i
Method : \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\PCB60304-1.m
Meth Date : 09-Jun-2004 14:29 JasonK  Quant Type: ESTD
Cal Date : 03-JUN-2004 19:31 Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.00
Processing Host: PIII533-01

Sample Compound Amounts Loaded
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>DF</td>
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<td>Dilution Factor</td>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>6.000</td>
<td>% Moisture</td>
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Data File: X6080456.d  
Report Date: 09-Jun-2004 14:59

Laucks Testing Labs

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080456.d  
Lab Smp Id: 0405305-03  
Client Smp ID: P1-SB03-0504  
Inj Date : 09-JUN-2004 04:40  
Inst ID: 6890X.i
Operator : JK  
Smp Info : 0405305-03
Misc Info: Methods 8081B/8082A
Comment:
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60304-2.m
Meth Date: 09-Jun-2004 14:31 JasonK  
Quant Type: ESTD  
Cal Date : 03-JUN-2004 19:31  
Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000  
Sample Compound Amounts Loaded
Integrator: Falcon  
Compound Sublist: 8082X.sub
Target Version: 4.00  
Sample Matrix: SOIL
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<tr>
<th>Name</th>
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<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
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<td>% Moisture</td>
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<tr>
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Lab Name: LAUCKS TESTING LABS  
Matrix: (soil/water) SOIL  
Sample wt/vol: 15 (g/ml) g  
% Moisture: 6  
Extraction: SONC  
Concentrated Extract Volume: 5000 (μL)  
Dilution Factor: 1.0  
SDG No.: NERF1  
Lab Sample ID: 0405305-04  
Lab File ID: X6080457.D  
Date Collected: 05/19/04  
Date Received: 05/20/04  
Date Prepared: 05/21/04  
Date Analyzed: 06/09/04

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RL = Reporting Limit

RESULT FORM

FormVer 1.0 11/23/96

PCB - 25
CONFIRMATION SUMMARY WORKSHEET
FOR SINGLE COMPONENT ANALYTES

Lab Name: Laucks Testing Labs, Inc.
Lab Sample ID: P1-SB04-0504

Instrument ID (1): 6890X.i
Instrument ID (2): 6890X.i

Column (1): DB-35ms ID 0.32 (mm)
Column (2): DB-XLB ID: 0.32 (mm)

File (1): X6080457.d
File (2): X6080457.d

Date Analyzed (1): 06/09/04
Date Analyzed (2): 06/09/04

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<th>RT TO</th>
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X = Concentration Reported
Laucks Testing Labs

Data file: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080457.d
Lab Smp Id: 0405305-04
Inj Date: 09-JUN-2004 04:57
Operator: JK
Smp Info: 0405305-04
Misc Info: Methods 8081B/8082A
Comment:
Method: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\PC60304-1.m
Meth Date: 09-Jun-2004 14:29 JasonK
Quant Type: ESTD
Cal Date: 03-JUN-2004 19:31
Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Sample Compound Amounts Loaded
Target Version: 4.00
Compound Sublist: 8082X.sub
Sample Matrix: SOIL
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
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<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
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<td>Volume injected (uL)</td>
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<td>M</td>
<td>6.000</td>
<td>% Moisture</td>
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**CONCENTRATIONS**

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<th>EXP RT</th>
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<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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Average of Peak Concentrations = 33.4

$ 1 Tetrachloro-m-xylene
CAS #: 3.9763 | 3.9761 | 0.000 | 4697387 | 0.01094 | 7.76 |

$ 9 Decachlorobiphenyl
CAS #: 10.646 | 10.653 | -0.007 | 6912148 | 0.01453 | 10.3
Laucks Testing Labs

Data file: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080457.d
Lab Smpl Id: 0405305-04
Inj Date: 09-JUN-2004 04:57
Operator: JK
Smp Info: 0405305-04
Misc Info: Methods 8081B/8082A
Comment:
Method: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60304-2.m
Meth Date: 09-Jun-2004 14:31 JasonK
Cal Date: 03-JUN-2004 19:31
Inst ID: 6890X.i

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<td>% Moisture</td>
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<p>| CONCENTRATIONS | ________ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ | ____ |
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<th>DLT RT</th>
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<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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Average of Peak Concentrations = 29.7

$ 1 Tetrachloro-m-xylene CAS #: 6912450 0.01084 7.69

$ 9 Decachlorobiphenyl CAS #: 5061590 0.01337 9.48

PCB - 30
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 5
Extraction: SONC
Concentrated Extract Volume: 5000 (uL)
Dilution Factor: 1.0

SDG No.: NERF1
Lab Sample ID: 0405305-05
Lab File ID: X6080460.D
Date Collected: 05/19/04
Date Received: 05/20/04
Date Prepared: 05/21/04
Date Analyzed: 06/09/04

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<th>Q</th>
<th>RL</th>
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RL = Reporting Limit
Data File: X6080460.d
Report Date: 09-Jun-2004 15:01

Laucks Testing Labs

Data file: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080460.d
Lab Smp Id: 0405305-05
Client Smp ID: P1-SB05-0504
Inj Date: 09-JUN-2004 05:48
Operator: JK
Inst ID: 6890X.i
Smp Info: 0405305-05
Methods: 8081B/8082A
Misc Info: Sample Compound Amounts Loaded
Comment:
Method: \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\PCB60304-1.m
Quant Type: ESTD
Meth Date: 09-Jun-2004 14:29 JasonK
Cal Date: 03-JUN-2004 19:31
Cal File: X6030414.d
Als bottle: 1
Sample Compound: Sample Compound Sublist: 8082X.sub
Dil Factor: 1.000000
Compound Sublist: 8082X.sub
Integrator: Falcon
Sample Matrix: SOIL
Target Version: 4.00
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<tr>
<td>M</td>
<td>5.00</td>
<td>% Moisture</td>
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CONCENTRATIONS

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<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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$ 1 Tetrachloro-m-xylene
CAS #: 3.9771 3.9761 0.001 4759233 0.011308 7.78

$ 9 Decachlorobiphenyl
CAS #: 10.647 10.653 -0.006 6296586 0.01324 9.29
Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file: \III-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080460.d
Lab Smp Id: 0405305-05
Inj Date : 09-JUN-2004 05:48
Operator : JK
Smp Info : 0405305-05
Misc Info : Methods 8081B/8082A
Comment :
Method : \III-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60304-2.m
Meth Date : 09-Jun-2004 14:31 JasonK
Cal Date : 03-JUN-2004 19:31
Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.00
Processing Host: PIII533-01

Sample Compound Amounts Loaded
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.00</td>
<td>Volume of final extract (uL)(1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.00</td>
<td>Weight of sample extracted (g)</td>
</tr>
<tr>
<td>M</td>
<td>5.000</td>
<td>% Moisture</td>
</tr>
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### CONCENTRATIONS

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<tr>
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<th>EXP RT</th>
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<th>RESPONSE (ng)</th>
<th>[ug/Kg]</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<tbody>
<tr>
<td>$</td>
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<tr>
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<td>4.6574</td>
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</table>

| $  | 9      | Decachlorobiphenyl | CAS #:       |         |               |       |
|   | 11.557 | 11.566 | -0.009        | 4870069 | 0.01286       | 9.03  |
Lab Name: LAUCKS TESTING LABS  
Matrix: (soil/water) SOIL  
Sample wt/vol: 15 (g/ml) g  
% Moisture: 4  
Extraction: SONC  
Concentrated Extract Volume: 5000 (µL)  
Dilution Factor: 1.0

SDG No.: NERF1  
Lab Sample ID: 0405305-06  
Lab File ID: X6080461.D  
Date Collected: 05/19/04  
Date Received: 05/20/04  
Date Prepared: 05/21/04  
Date Analyzed: 06/09/04

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<th>CAS NO.</th>
<th>COMPOUND</th>
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RL = Reporting Limit
Laucks Testing Labs

Data file : \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\X6080461.d
Lab Smp Id: 0405305-06  
Client Smp ID: P1-SB105-0504
Inj Date : 09-JUN-2004 06:06
Operator : JK
Inst ID: 6890X.i
Smp Info : 0405305-06
Misc Info : Methods 8081B/8082A
Comment : Sample Compound Amounts Loaded
Method : \PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-1.b\PCB60304-1.m
Meth Date: 09-Jun-2004 14:29 JasonK
Quant Type: ESTD
Cal Date : 03-JUN-2004 19:31
Cal File: X6030414.d
Als bottle: 1
Sample Sublist: 8082X.sub
Dil Factor: 1.00000
Sample Matrix: SOIL
Integrator: Falcon
Target Version: 4.00
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
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<td>Ws</td>
<td>15.000</td>
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<tr>
<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
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</table>

<table>
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<tr>
<th>RT</th>
<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>[ug/kg]</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<td>CAS #:</td>
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PCB - 39
Laucks Testing Labs

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\X6080461.d
Lab Smp Id: 0405305-06 Client Smp ID: P1-SB105-0504
Inj Date: 09-JUN-2004 06:06
Operator: JK Inst ID: 6890X.i
Smp Info: 0405305-06
Misc Info: Methods 8081B/8082A
Comment:
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X60704PCB-2.b\PCB60304-2.m
Meth Date: 09-Jun-2004 14:31 JasonK Quant Type: ESTD
Cal Date: 03-JUN-2004 19:31 Cal File: X6030414.d
Als bottle: 1
Dil Factor: 1.00000 Sample Compound Amounts Loaded
Integrator: Falcon Compound Sublist: 8082X.sub
Target Version: 4.00 Sample Matrix: SOIL
Processing Host: PIII533-01

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
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<th>Description</th>
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<tr>
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<td>1.000</td>
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<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
</tr>
</tbody>
</table>

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<tr>
<th>CONCENTRATIONS</th>
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PCB - 40
APPENDIX F

WASTE POND #2 –
ANALYTICAL LABORATORY REPORT AND CHAIN-OF-CUSTODY FORM
LAUCKS TESTING LABORATORIES
SAMPLE DATA PACKAGE

BAE SYSTEMS

LABORATORY NO.: 0406320

SDG NO.: NERF2

JUNE 30, 2004
To: BAE Systems  
Project No.: 20RR  
Project Name: Nerf Waste Pond #2 Sample  
Laboratory No.: 0406320  
SDG No.: NERF2  
Date of Report: June 30, 2004

SAMPLE RECEIPT, IDENTIFICATION, AND GENERAL COMMENTS:

Sample Receipt and Identification:

The samples submitted under the laboratory number(s) indicated above were identified and analyzed as tabulated below. The samples were collected and received on the dates noted on the enclosed chain-of-custody copies, Attachment A.

<table>
<thead>
<tr>
<th>Client Sample Identification</th>
<th>Laucks Sample Identification</th>
<th>Testing Analytical Request</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERF-WSMR9-P2-SB01-0604</td>
<td>0406320-01</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P2-SB02-0604</td>
<td>0406320-02</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P2-SB03-0604</td>
<td>0406320-03</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P2-SB04-0604</td>
<td>0406320-04</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P2-SB05-0604</td>
<td>0406320-05</td>
<td>PCB</td>
</tr>
<tr>
<td>NERF-WSMR9-P2-SB105-00604</td>
<td>0406320-06</td>
<td>PCB</td>
</tr>
</tbody>
</table>

Analytical Request Key:

PCB= Polychlorinated Biphenyls (8082A)

Sample Receipt Comments:

The temperature blank was measured at a temperature below the control limits of 4°C ± 2°C.

Sample Identification on Forms:

When completing forms created through the CLP software, every attempt is made to use both your sample IDs as well as the laboratory sample IDs. The forms have varied default sizes to their sample identification fields, and are not amenable to alteration or editing. When it is not possible to use your complete sample ID because of field length limitations, Laucks will usually do one of two things: 1) use as much of your ID as will fit, beginning from the RIGHT hand side of the sample ID number; or 2) select some subset of your sample identifier if it is clearly a discrete number. In addition, all forms will contain our sample IDs, which can be cross-referenced from the table above.
GENERAL REMARKS ON ORGANIC ANALYSES:

The following comments describe general analysis conditions. For remarks specific to the samples reported in this case, see "SPECIFIC REMARKS ON ORGANIC ANALYSIS."

**Manual Integrations:**
One or more analytes may have been manually integrated on the data system quantitation reports. All manual integrations have been flagged, initialed, and dated by the analyst. A list of the manual integration flags is detailed below.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Manual integration due to irregular peak shape</td>
</tr>
<tr>
<td>MS</td>
<td>Manual integration due to split peak</td>
</tr>
<tr>
<td>MR</td>
<td>Manual integration due to retention time shift</td>
</tr>
<tr>
<td>MI</td>
<td>Manual integration of correct isomer</td>
</tr>
<tr>
<td>MT</td>
<td>Manual integration due to peak tailing</td>
</tr>
<tr>
<td>MB</td>
<td>Manual integration due to irregular baseline</td>
</tr>
</tbody>
</table>

SPECIFIC REMARKS ON ORGANIC ANALYSES:

**Holding Time Compliance:**

Following the Contract Laboratory Program (CLP) model, Laucks calculates holding time compliance for organic determinations based on the first injection and/or analysis of an extract or sample. Subsequent analyses (for instance, for the purpose of dilution) are not tabulated.

**PCBs:**

The holding time to extraction is 7 days in water and 14 days in soil calculated from the date of collection. The holding time from extraction to analysis is 40 days. All samples were extracted and analyzed within the holding times.

**PCB Fraction:**

**Sample Identification:**
Due to software constraints all Client Sample IDs were truncated by deleting the prefix "NERF-WSMR9-".

All quality control parameters were met.
ABBREVIATIONS
Several abbreviations can appear in our reports. The most commonly employed abbreviations are as follows:

U  The analyte of interest was not detected to the limit of detection indicated.
SDL Sample Detection Limit. The SDL can vary from sample to sample, depending on sample size, matrix interferences, moisture content and other sample-specific conditions.
PQL Practical Quantitation Limit. The limit is drawn from the test method and usually represents the SDL multiplied by a matrix-specific factor.
DB Dry Basis. The value reported has been back-calculated to normalize for the moisture content of the sample.
AR As-Received. The value has not been normalized for moisture.

ORGANIC ANALYSES:

B  When used in relation to organics fractions, the “B” flag indicates that the analyte of interest was detected in the method blank associated with the sample, as well as in the sample itself. The “B” flag is applied without regard to the relative concentrations detected in the blank and sample.

J  The analyte of interest was detected below the routine reporting limit. This value should be regarded as an estimate.

T  The flagged values represent the SUM of two co-eluting compounds. The SUM of these two values is shown as though it were a result for each of them. The two figures should not be added together.

E  The flagged value was reported from an analysis that exceeded the linear range of the instrument. See additional comments for further discussion of the circumstances. Values so flagged should be considered estimates.

D  The value reported derives from analysis of a diluted sample of the sample extract.

P  When a dual column GC technique is employed, this flag indicates that test results from the two columns differ by more than 25%. Generally, we report the higher value.

C  The flagged analyte has been confirmed by GC/MS analysis. The value reported may be derived from either the initial of confirmatory (GC/MS) analysis. See specific report comments for details.

CRQL Client requested Quantitation Limit, usually the limit of detection specified at your request. Might also be referred to as Contract Required Quantitation Limit.
LAUCKS TESTING LABORATORIES
940 S. Harney
Seattle, WA 98108

RELEASE OF DATA

Laucks certifies that these results meet all requirements of the NELAC standards, except where otherwise noted.

"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 diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature."

Respectfully submitted,

[Signature]
Anh Ho
Project Manager

[Signature]
Harry Romberg
Quality Assurance Officer

7-1-04
(DATE)

6-30-04
(DATE)

HOW TO CONTACT US:

All Laucks Testing Laboratories staff members can be reached at the same telephone and facsimile numbers: (206) 767-5060 by phone, (206) 767-5063 by FAX.

REQUESTS FOR DUPLICATE COPIES:

This packet has been checked for accuracy. All pages are present and in sequential order. Please see Attachment B for a detailed record.

In the event that duplicate data copies are needed, Laucks will accommodate your request at a fee of twenty-five cents ($0.25) per copy, plus shipping. If the data are in storage, there will also be a fee for retrieval.
ATTACHMENT A

Chain-of-Custody Copies
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-22-04</td>
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<td></td>
</tr>
<tr>
<td>6-22-04</td>
<td>1052</td>
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<td>PCB1254</td>
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</tbody>
</table>

Chain of Custody Record

BAE SYSTEMS
COOLER RECEIPT FORM

WORKORDER #: 0406320
Contractor Cooler
QA Lab Cooler #
Number of Coolers

Project: NERF Waste Pond #2 Sample
Date samples were received at the laboratory: 6/23/04

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 6/23/04

By: (print) Pam Johnson (sign) A

1. Did cooler come with a shipping slip (airbill, etc.)? YES NO
   If YES, record carrier name and airbill number: FedEx 8346 0197 3489

2. Were custody seals on outside of cooler? YES NO
   How many and where: 1 F, 10
   Seal date: 6/22/04 Seal name: Illegible

3. Were custody seals unbroken and intact at the date and time of arrival? YES NO

4. Did you screen samples for radioactivity using the Geiger Counter? YES NO

5. Were custody papers sealed in a plastic bag and taped inside to the lid? YES NO

6. Were custody papers filled out properly (ink, signed, etc.)? YES NO

7. Did you sign custody papers in the appropriate place? YES NO

8. Was project identifiable from custody papers? IF YES, enter project name at top of this form.

9. If required, was enough cooling material present? YES NO

10. Have designated person initial here to acknowledge receipt of cooler: 6/23/04

B. LOG-IN PHASE: Date samples were logged-in: 6/23/04

By: (print) Pam Johnson (sign) A

11. Describe type of packing in cooler: bubble wrap

12. Were all bottles sealed in separate plastic bags? YES NO

13. Did all bottles arrive unbroken and were labels in good condition? YES NO
14. Were all bottle labels complete (ID, date, time signature, preservative, etc.)?  
   YES  NO

15. Did all bottle labels agree with custody papers?  
   YES  NO

16. Were correct containers used for the tests indicated?  
   YES  NO

17. Were correct preservatives added to samples?  
   YES  NO  NA

18. Was a sufficient amount of sample sent for tests indicated?  
   YES  NO  NA

19. Were bubbles absent in VOA samples: If NO, list by QA #:  
   YES  NO

20. Was project manager called / faxed & status discussed?  
   YES  NO

   If YES, give details below

21. Who was called / faxed?  
   By whom?  (date)

DISCREPANCIES:

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
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   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

Page 2 of 2
Laucks Testing Laboratories, Inc., Supplemental Sample Receipt Log

Work Order Number: 0400320
Assigned SDG Number: NERF2

<table>
<thead>
<tr>
<th>Temperature</th>
<th>pH of Bottle Types</th>
<th>Number of Cooler</th>
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</thead>
<tbody>
<tr>
<td>1.5°C</td>
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</tr>
<tr>
<td>1.6°C</td>
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</tbody>
</table>

Allowable temperature and pH ranges (neutral pH defined as a value between 5 and 9)

Temperature                        | Allowable temperature range is 4±2 degrees Celsius

- Acid Preserved pH: pH must be less than 2
- Base Preserved pH: pH must be greater than 12
- N/C = Not Checked for pH
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Client ID/Matrix</th>
<th>Collected</th>
<th>Received</th>
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<tr>
<td>0406320-01</td>
<td>NERF-WSMR9-P2-SB01-0604</td>
<td>S 06/22/04 10:45</td>
<td>06/23/04 09:00</td>
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<td>06/23/04 09:00</td>
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</tbody>
</table>

Printed: 06/23/04
ATTACHMENT B

Index
BAE Systems

Laboratory No.: 0406320
SDG No.: NERF2

I. Narrative: 2-5
II. Chain-of-Custody: 6-11
III. Index: 12-13
IV. PCBs by 8082A Data: PCB- 1-175
   A. QC Summary Data: 1-7
   B. Sample Data: 8-43
   C. Standards Data: 44-132
   D. Raw QC Data: 133-162
   E. Bench Sheets: 163-175

Completed and checked by: Ouyv Ecklund Date: 6/30/04
QC Summary Forms

NERF2

PCBs by Method 8082A
## SURROGATE RECOVERY FORM

Lab Name: Laucks Testing Labs, Inc  
Matrix: SOIL

<table>
<thead>
<tr>
<th>LAB SAMPLE ID.</th>
<th>CLIENT SAMPLE ID.</th>
<th>Surr 1</th>
<th>Surr 2</th>
<th>Surr 3</th>
<th>Surr 4</th>
<th>Surr 5</th>
<th>Surr 6</th>
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<td>0406320-06</td>
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<td>S062304GPBSLG</td>
<td>118</td>
<td>130</td>
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</table>

### Surrogate Compound  
1 = Tetrachloro-m-xylene  
LCL  
UCL

2 = Decachlorobiphenyl  
LCL  
UCL

* = values outside of recovery limit  
D = surrogate diluted out  
LCL = Lower Control Limi  
UCL = Upper Control Limi

Sur-Rep

FormVer 1.0  11/23/96

PCB - 2
Blank Spike Report

Lab Name : LAUCKS TESTING LABS

Description : PCB Spike Mix
Lab ID : S062304GPBSLG
Matrix : S
Units : UG/KG

(Database Reference: S062304_GPX501)

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Spike Added</th>
<th>Amount Found</th>
<th>% Rec</th>
<th>Recovery Limits</th>
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<tbody>
<tr>
<td>Aroclor 1016-----</td>
<td>166.7</td>
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<td>67 136</td>
</tr>
<tr>
<td>Aroclor 1260-----</td>
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<td>202.00</td>
<td>121</td>
<td>74 154</td>
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</tbody>
</table>

* = Recovery exceeded control limit

Form BLKSPK-1
Blank Spike Report

Lab Sample ID: S062304GPBSLG
Description: PCB Spike Mix
Matrix: S
Units: UG/KG

(Database Reference: S062304_GPX501)

Work Orders Verified

<table>
<thead>
<tr>
<th>Work Order</th>
<th>Sample Fractions Verified</th>
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<tbody>
<tr>
<td>0406320</td>
<td>01-06</td>
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MS/MSD Report

Lab Name : LAUCKS TESTING LABS
Client ID : NERF-WSMR9-P2-SB05-0604
Description : PCBs

(Database Reference: K062304_GPXS01)

<table>
<thead>
<tr>
<th>Analyte</th>
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<th>MS Found</th>
<th>MS Rec</th>
<th>Recovery Limits</th>
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</thead>
<tbody>
<tr>
<td>Aroclor 1016----</td>
<td>174</td>
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<td>Aroclor 1260----</td>
<td>174</td>
<td>218.00</td>
<td>125</td>
<td>49 158</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>MSD Found</th>
<th>MSD Rec</th>
<th>Control Limits</th>
<th>RPD</th>
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<tbody>
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<td>125</td>
<td>42 128</td>
<td>16</td>
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<tr>
<td>Aroclor 1260----</td>
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<td>238.00</td>
<td>137</td>
<td>49 158</td>
<td>31</td>
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Comments

* = Recovery or RPD exceeded control limit
MS/MSD Report

Client ID : NERF-WSMR9-P2-SB05-0604  
Spike Sample: 0406320-05  
Description : PCBs  
Matrix : SOIL  
Units : UG/KG

(Database Reference: K062304_GPXS01)

Work Orders Verified

<table>
<thead>
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<th>Work Order</th>
<th>Sample Fractions Verified</th>
</tr>
</thead>
<tbody>
<tr>
<td>0406320</td>
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</tr>
</tbody>
</table>

Form MS/MSD-2
Lab Name: Laucks Testing Labs, Inc.
Lab Sample ID: B062304GPBSLG
Matrix: (soil/water) SOIL
Lab File ID(1): X6230418.D
Date Prepared: 06/23/04
Lab File ID(2): X6230418.D
Date Analyzed (1): 06/23/04
Time Analyzed (1): 19:23
Instrument ID (1): 6890X.i
Date Analyzed (2): 06/23/04
Time Analyzed (2): 19:23
Instrument ID (2): 6890X.i
Column (1): DB-35ms ID: 0.32 (mm)
Column (2): DB-XLB ID: 0.32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC:

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>SAMPLE ID</th>
<th>LAB SAMPLE ID</th>
<th>LAB FILE 1</th>
<th>ANAL DATE(1)</th>
<th>ANAL TIME(1)</th>
<th>LAB FILE 2</th>
<th>ANAL DATE(2)</th>
<th>ANAL TIME(2)</th>
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</thead>
<tbody>
<tr>
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<td>0406320-01</td>
<td>X6230420.d</td>
<td>06/23/04</td>
<td>19:57</td>
<td>X6230420.d</td>
<td>06/23/04</td>
<td>19:57</td>
<td></td>
</tr>
<tr>
<td>P2-SB02-0604</td>
<td>0406320-02</td>
<td>X6230421.d</td>
<td>06/23/04</td>
<td>20:14</td>
<td>X6230421.d</td>
<td>06/23/04</td>
<td>20:14</td>
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<tr>
<td>P2-SB03-0604</td>
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<td>X6230422.d</td>
<td>06/23/04</td>
<td>20:31</td>
<td>X6230422.d</td>
<td>06/23/04</td>
<td>20:31</td>
<td></td>
</tr>
<tr>
<td>P2-SB05-0604</td>
<td>0406320-05</td>
<td>X6230424.d</td>
<td>06/23/04</td>
<td>21:06</td>
<td>X6230424.d</td>
<td>06/23/04</td>
<td>21:06</td>
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<tr>
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<td>X6230425.d</td>
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<tr>
<td>P2-SB05-0604MSD</td>
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<td>X6230426.d</td>
<td>06/23/04</td>
<td>21:40</td>
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<td>06/23/04</td>
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<td>X6230427.d</td>
<td>06/23/04</td>
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<td>X6230419.d</td>
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</tr>
</tbody>
</table>
Sample Results

NERF2

PCBs by Method 8082A
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 5
Extraction: SONC
Concentrated Extract Volume: 5000 (uL)
Dilution Factor: 1.0

SDG No.: NERF2
Lab Sample ID: 0406320-01
Lab File ID: X6230420.D
Date Collected: 06/22/04
Date Received: 06/23/04
Date Prepared: 06/23/04
Date Analyzed: 06/23/04

<table>
<thead>
<tr>
<th>CAS NO.</th>
<th>COMPOUND</th>
<th>ug/kg</th>
<th>Q</th>
<th>RL</th>
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</thead>
<tbody>
<tr>
<td>12874-11-2</td>
<td>Aroclor-1016</td>
<td>18</td>
<td>U</td>
<td>18</td>
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<tr>
<td>11104-28-2</td>
<td>Aroclor-1221</td>
<td>18</td>
<td>U</td>
<td>18</td>
</tr>
<tr>
<td>11141-16-5</td>
<td>Aroclor-1232</td>
<td>18</td>
<td>U</td>
<td>18</td>
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<tr>
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<td>Aroclor-1242</td>
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<td>Aroclor-1248</td>
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<tr>
<td>11097-69-1</td>
<td>Aroclor-1254</td>
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<td>11096-82-5</td>
<td>Aroclor-1260</td>
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</table>

RL = Reporting Limit

RESULT FORM

FormVer 1.0 11/23/96

PCB - 9
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<th>RT TO</th>
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<td>5.65</td>
<td>48.6</td>
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<tr>
<td></td>
<td>2</td>
<td>7.13</td>
<td>7.20</td>
<td>59.4 X</td>
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Laucks Testing Labs

Data File: X6230420.d
Report Date: 24-Jun-2004 13:16

0.5uL, DB-35ms 30m x 0.32mm, 0.25um film

Data file : \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230420.d
Lab Smp Id : 0406320-01
Client Smp ID: P2-SB01-0604
Inj Date : 23-JUN-2004 19:57
Inst ID : 6890X.i
Operator : JK
Smp Info : 0406320-01
Methods 8081B/8082A
Comment :
Method : \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m
Meth Date : 24-Jun-2004 09:19 jasonk
Quant Type: ESTD
Cal Date : 14-JUN-2004 21:25
Cal File: X6140416.d
Als bottle: 1
Sample Compound Amounts Loaded
Dil Factor: 1.00000
Compound Sublist: 8082X.sub
Target Version: 4.03
Sample Matrix: SOIL
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.00</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
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<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>5.000</td>
<td>% Moisture</td>
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<table>
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<tr>
<th>RT</th>
<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<tbody>
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<td>1599999</td>
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</table>

Average of Peak Concentrations = 48.6

1 Tetrachloro-m-xylene
CAS #: 120-97-9
3.9461 3.9451 0.001 5086454 0.01049 7.36

9 Decachlorobiphenyl
CAS #: 6043505 0.01170 8.21

PCB - 13
Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230420.d
Lab Smp Id: 0406320-01
Inj Date: 23-JUN-2004 19:57
Operator: JK
Smp Info: 0406320-01
Misc Info: Methods 8081B/8082A
Comment: Inst ID: 6890X.i
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m
Meth Date: 24-Jun-2004 09:20 jasonk
Cal Date: 14-JUN-2004 21:25
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02

Sample Compound Amounts Loaded
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * UF * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
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<tr>
<td>UF</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.00</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
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<tr>
<td>Ws</td>
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<tr>
<td>M</td>
<td>5.000</td>
<td>% Moisture</td>
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</tbody>
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<table>
<thead>
<tr>
<th>RT</th>
<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
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<th>RATIO</th>
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<td>FINAL</td>
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<td>0.05728</td>
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</tbody>
</table>

Average of Peak Concentrations = 59.4

$ 1 Tetrachloro-m-xylene

| 4.6294 | 4.6321 | -0.003 | 8035706 | 0.01206 | 8.46 |

$ 9 Decachlorobiphenyl

<p>| 11.529 | 11.542 | -0.013 | 5750339 | 0.01271 | 8.92 |</p>
<table>
<thead>
<tr>
<th>CAS NO.</th>
<th>COMPOUND</th>
<th>ug/kg</th>
<th>Q</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td>12674-11-2</td>
<td>Aroclor-1016</td>
<td>17</td>
<td>U</td>
<td>17</td>
</tr>
<tr>
<td>11104-28-2</td>
<td>Aroclor-1221</td>
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<td>Aroclor-1260</td>
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<td>U</td>
<td>17</td>
</tr>
</tbody>
</table>

RL = Reporting Limit
**CONFIRMATION SUMMARY WORKSHEET FOR SINGLE COMPONENT ANALYTES**

Lab Name: Laucks Testing Labs, Inc.  
Lab Sample ID: 0406320-02  
Instrument ID (1): 6890X.i  
Column (1): DB-35ms ID 0.32 (mm)  
File (1): X6230421.d  
Date Analyzed (1): 06/23/04

<table>
<thead>
<tr>
<th>ANALYTE</th>
<th>COL</th>
<th>RT</th>
<th>FROM</th>
<th>TO</th>
<th>Final Units: ug/kg</th>
<th>%D</th>
</tr>
</thead>
<tbody>
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<td>5.51</td>
<td>5.65</td>
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<tr>
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<td>7.13</td>
<td>7.06</td>
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X = Concentration Reported
Laucks Testing Labs

0.5uL, DB-35ms 30m x 0.32mm, 0.25um film

Data file: \PRII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230421.d

Lab Smp Id: 0406320-02

Inj Date: 23-JUN-2004 20:14

Operator: JK

Smp Info: 0406320-02

Misc Info: Methods 8081B/8082A

Comment:

Method: \PRII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m

Meth Date: 24-Jun-2004 09:19 jasonk

Quant Type: ESTD

Cal Date: 14-JUN-2004 21:25

Cal File: X6140416.d

Als bottle: 1

Dil Factor: 1.00000

Integrator: Falcon

Target Version: 4.03

Processing Host: PRII-600-02

Sample Compound Amounts Loaded

Compound Sublist: 8082X.sub

Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
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<td>Dilution Factor</td>
</tr>
<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
</tr>
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<table>
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<th>CONCENTRATIONS</th>
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<tr>
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<td>7.3924</td>
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<td>7.6260</td>
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<tr>
<td>8.0160</td>
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Average of Peak Concentrations = 11.3

$ 1 Tetrachloro-m-xylene | CAS #: 11097-69-1 |
| 3.9460 | 3.9461 | 0.001 | 4666265 | 0.00962 | 6.68 |

$ 9 Decachlorobiphenyl | CAS #: |
| 10.629 | 10.642 | -0.013 | 6122527 | 0.01186 | 8.23 |
Laucks Testing Labs

Data file : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230421.d
Lab Smp Id: 0406320-02
Inj Date : 23-JUN-2004 20:14
Operator : JK
Smp Info : 0406320-02
Misc Info : Methods 8081B/8082A
Comment :
Method : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m
Meth Date : 24-Jun-2004 09:20 jasonk
Cal Date : 14-JUN-2004 21:25
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
<thead>
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<th>Value</th>
<th>Description</th>
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<td>DF</td>
<td>1.000</td>
<td>Dilution Factor</td>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
</tr>
<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
</tr>
<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
</tr>
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</table>

Concentrations

<table>
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<tr>
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<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<td>6.80</td>
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<td>7.9359</td>
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<td>502496</td>
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Average of Peak Concentrations = 12.8

$ 1 Tetrachlorom-xylene | CAS #: |
4.6294 | 4.323 | 0.003 | 7656177 | 0.01149 | 7.98 |

$ 9 Decachlorobiphenyl | CAS #: |
11.529 | 11.542 | 0.013 | 5347604 | 0.01182 | 8.21 |
**ORGANICS ANALYSIS DATA SHEET**

**Lab Name:** LAUCKS TESTING LABS  
**Matrix:** (soil/water)  
**Sample wt/vol:** 15 (g/ml) g  
**% Moisture:** 3  
**Extraction:** SONC  
**Concentrated Extract Volume:** 5000 (uL)  
**Dilution Factor:** 1.0

**SDG No.:** NERF2  
**Lab Sample ID:** 0406320-03  
**Lab File ID:** X6230422.D  
**Date Collected:** 06/22/04  
**Date Received:** 06/23/04  
**Date Prepared:** 06/23/04  
**Date Analyzed:** 06/23/04

### CONCENTRATION UNITS:

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<th>ug/kg</th>
<th>Q</th>
<th>RL</th>
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<td>12674-11-2</td>
<td>Aroclor-1016</td>
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<td>U</td>
<td>17</td>
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<td>11104-28-2</td>
<td>Aroclor-1221</td>
<td>17</td>
<td>U</td>
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</tr>
<tr>
<td>11141-16-5</td>
<td>Aroclor-1232</td>
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<td>12672-29-6</td>
<td>Aroclor-1248</td>
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<tr>
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<tr>
<td>11096-82-5</td>
<td>Aroclor-1260</td>
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</table>

**RL** = Reporting Limit
Laucks Testing Labs

0.5uL, DB-35ms 30m x 0.32mm, 0.25um film

Data file : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230422.d
Lab Smp Id: 0406320-03   Client Smp ID: P2-SB03-0604
Inj Date : 23-JUN-2004 20:31
Operator : JK   Inst ID: 6890X.i
Smp Info : 0406320-03
Misc Info : Methods 8081B/8082A
Comment :
Method : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m
Meth Date : 24-Jun-2004 09:19 jasonk   Quant Type: ESTD
Cal Date : 14-JUN-2004 21:25   Cal File: X6140416.d
Als bottle: 1
Dil Factor: 1.00000   Sample Compound Amounts Loaded
Integrator: Falcon   Compound Sublist: 8082X.sub
Target Version: 4.03   Sample Matrix: SOIL
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Vs * (100 - M)/100)

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<th>Name</th>
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<tr>
<td>Uf</td>
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<td>Correction factor</td>
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<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
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<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Vs</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<td>M</td>
<td>3.000</td>
<td>% Moisture</td>
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### CONCENTRATIONS

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<tr>
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<th>EXP RT</th>
<th>DLT RT</th>
<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<tbody>
<tr>
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<td>------</td>
<td>--------------</td>
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</table>

$ 1 Tetrachloro-m-xylene
RT: 3.9475 3.951 0.002
RESPONSE: 4957229 0.01024
TARGET RANGE: 7.04

$ 9 Decachlorobiphenyl
RT: 10.628 10.642 -0.014
RESPONSE: 6064202 0.01175
TARGET RANGE: 8.07
Laucks Testing Labs

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230422.d
Lab Smp Id: 0406320-03
Inj Date: 23-JUN-2004 20:31
Operator: JK
Smp Info: 0406320-03
Misc Info: Methods 8081B/8082A
Comment: 
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m
Meth Date: 24-Jun-2004 09:20 jasonk
Cal Date: 14-JUN-2004 21:25
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

<table>
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<th>Value</th>
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<tr>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
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<tr>
<td>Vt</td>
<td>5000.00</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
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<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Ws</td>
<td>15.00</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>3.000</td>
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**CONCENTRATIONS**

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$ 1 Tetrachloro-m-xylene
4.6309 4.6321 -0.001 8027424 0.01204 8.28

$ 9 Decachlorobiphenyl
11.528 11.542 -0.014 5571858 0.01232 8.46

---
PCB - 25
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 3
Extraction: SONC
Concentrated Extract Volume: 5000 (uL)
Dilution Factor: 1.0

SDG No.: NERF2
Lab Sample ID: 0406320-04
Lab File ID: X6230423.D
Date Collected: 06/22/04
Date Received: 06/23/04
Date Prepared: 06/23/04
Date Analyzed: 06/23/04

### CONCENTRATION UNITS:

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<th>CAS NO.</th>
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<th>ug/kg</th>
<th>Q</th>
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<td>12674-11-2</td>
<td>Aroclor-1016</td>
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<td>17</td>
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<td>Aroclor-1248</td>
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</table>

RL = Reporting Limit

RESULT FORM
### CONFIRMATION SUMMARY WORKSHEET FOR SINGLE COMPONENT ANALYTES

**Lab Name:** Laucks Testing Labs, Inc.  
**Lab Sample ID:** 0406320-04  
**Instrument ID (1):** 6890X.i  
**Column (1):** DB-35ms ID 0.32 (mm)  
**File (1):** X6230423.d  
**Date Analyzed (1):** 06/23/04  
**Instrument ID (2):** 6890X.i  
**Column (2):** DB-XLB ID 0.32 (mm)  
**File (2):** X6230423.d  
**Date Analyzed (2):** 06/23/04

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<td>7.06</td>
<td>7.20</td>
<td>15.1 X</td>
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*X = Concentration Reported*
Laucks Testing Labs

Data file: \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230423.d
Lab Smpl ID: 0406320-04
Inj Date: 23-JUN-2004 20:48
Operator: JK
Smp Info: 0406320-04
Misc Info: Methods 8081B/8082A
Method: \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m
Meth Date: 24-JUN-2004 09:19 jasonk
Quant Type: ESTD
Cal Date: 14-JUN-2004 21:25
Cal File: X6140416.d
Als bottle: 1
Dil Factor: 1.00000
Sample Compound Amounts Loaded
Integrator: Falcon
Compound Sublist: 8082X.sub
Target Version: 4.03
Sample Matrix: SOIL
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<td>Vt</td>
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<tr>
<td>Vi</td>
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<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<tr>
<td>M</td>
<td>3.000</td>
<td>% Moisture</td>
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</tbody>
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<p>| CONCENTRATIONS |
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<tr>
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</table>

Average of Peak Concentrations = 113.3

$1 Tetrachloro-m-xylene
CAS #:
3.9470 | 3.9451 | 0.002 |
5162028 | 0.01064 | 7.31 |

$9 Decachlorobiphenyl
CAS #:
10.627 | 10.642 | -0.015 |
6282940 | 0.01217 | 8.36 |
Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230423.d
Lab Smp Id: 0406320-04       Client Smp ID: P2-SB04-0604
Inj Date : 23-JUN-2004 20:48
Operator : JK
Smp Info : 0406320-04
Misc Info : Methods 8081B/8082A
Comment :
Method : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m
Meth Date : 24-Jun-2004 09:20 jasonk   Quant Type: ESTD
Cal Date : 14-JUN-2004 21:25       Cal File: X6140416.d
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02

Sample Compound Amounts Loaded:
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

Name | Value | Description
----- | ----- | -----------------
DF   | 1.000 | Dilution Factor
Uf   | 1.000 | Correction factor
Vt   | 5000.000 | Volume of final extract (uL)
Vi   | 0.500 | Volume injected (uL)
Ws   | 15.000 | Weight of sample extracted (g)
M    | 3.000 | % Moisture

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Average of Peak Concentrations = 15.1

$ 1 Tetrachloro-o-xylene | CAS #:
| 4.6304 | 4.6321 | -0.002 | 8176986 | 0.01227 | 8.43 |

$ 9 Decachlorobiphenyl | CAS #:
| 11.527 | 11.542 | -0.015 | 5488549 | 0.01213 | 8.34 |
Lab Name: LAUCKS TESTING LABS
Matrix: (soil/water) SOIL
Sample wt/vol: 15 (g/ml) g
% Moisture: 4
Extraction: SONC
Concentrated Extract Volume: 5000 (μL)
Dilution Factor: 1.0

SDG No.: NERF2
Lab Sample ID: 0406320-05
Lab File ID: X6230424.D
Date Collected: 06/22/04
Date Received: 06/23/04
Date Prepared: 06/23/04
Date Analyzed: 06/23/04

CONCENTRATION UNITS:

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<th>Q</th>
<th>RL</th>
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<td>Aroclor-1221</td>
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RL = Reporting Limit
CONFIRMATION SUMMARY WORKSHEET
FOR SINGLE COMPONENT ANALYTES

Lab Name: Laucks Testing Labs, Inc.
Lab Sample ID: 0406320-05
Instrument ID (1): 6890X.i Instrument ID (2): 6890X.i
Column (1): DB-35ms ID 0.32 (mm) Column (2): DB-XLB ID: 0.32 (mm)
Date Analyzed (1): 06/23/04 Date Analyzed (2): 06/23/04

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<th>TO</th>
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<th>%D</th>
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<td>12.4</td>
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<td>7.06</td>
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X = Concentration Reported
Laucks Testing Labs

0.5uL, DB-35ms 30m x 0.32mm, 0.25um film
Data file : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230424.d
Lab Smp Id: 0406320-05  
Inj Date : 23-JUN-2004 21:06  
Operator : JK  
Smp Info : 0406320-05  
Misc Info : Methods 8081B/8082A  
Comment : 
Method : \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m
Meth Date : 24-JUN-2004 09:19 jasonk  
Cal Date : 14-JUN-2004 21:25  
Inst ID: 6890X.i  
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02
Sample Compound Amounts Loaded
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<th>Description</th>
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<tr>
<td>Uf</td>
<td>1.000</td>
<td>Correction factor</td>
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<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
</tr>
<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Ws</td>
<td>15.000</td>
<td>Weight of sample extracted (g)</td>
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<td>M</td>
<td>4.000</td>
<td>% Moisture</td>
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</tbody>
</table>

<table>
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<tr>
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<th>DLT RT</th>
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<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
<th>RATIO</th>
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<td>ON-COL</td>
<td>FINAL</td>
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7 Aroclor-1254  
5.5801 5.5833 -0.003  
6.3701 6.3767 -0.007  
7.3901 7.4033 -0.013  
7.5268 7.5367 -0.010  
8.0168 8.0300 -0.013  
88270 0.00650 4.52  
255722 0.01062 7.38  
319451 0.01640 11.4  
480527 0.02973 20.6  
685409 0.02590 18.0  
80.00 - 120.00 290.84  
54.76 - 94.76 361.90  
51.55 - 91.55 544.38  
75.06 - 115.06 776.49  
Average of Peak Concentrations = 12.4

$ 1 Tetrachloro-m-xylene  
3.9468 3.9451 0.002  
4870704 0.01004 6.97

$ 9 Decachlorobiphenyl  
10.630 10.642 -0.012  
6213492 0.01203 8.36

PCB - 36
Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file : \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230424.d
Lab Smp Id: 0406320-05
Instr ID: 6890X.i

Inj Date : 23-JUN-2004 21:06
Operator : JK

Smp Info : 0406320-05

Misc Info : Methods 8081B/8082A

Method : \PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m

Meth Date : 24-JUN-2004 09:20 jasonk

Cal Date : 14-JUN-2004 21:25

Cal File: X6140416.d

Quant Type: ESTD

Als bottle : 1

Dil Factor: 1.00000

Sample Compound Amounts Loaded

Integrator: Falcon

Compound Sublist: 8082X.sub

Sample Matrix: SOIL

Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<tr>
<td>Vt</td>
<td>5000.000</td>
<td>Volume of final extract (uL) (1000 low, 2</td>
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<tr>
<td>Vi</td>
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<td>Ws</td>
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<td>Weight of sample extracted (g)</td>
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CONCENTRATIONS

ON-COL FINAL

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<th>RESPONSE (ng)</th>
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<td>1254</td>
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Average of Peak Concentrations = 19.8

$ 1 Tetrachloro-m-xylene CAS #:
| 4.6301 | 4.6321 | -0.002 | 7887732 0.01183 | 8.22 |

$ 9 Decachlorobiphenyl CAS #:
<p>| 11.530 | 11.542 | -0.012 | 5536728 0.01223 | 8.49 |</p>
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RL = Reporting Limit
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<th>FROM</th>
<th>TO</th>
<th>Final Units: ug/kg</th>
<th>%D</th>
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<tbody>
<tr>
<td>Aroclor-1254</td>
<td>1</td>
<td>5.58</td>
<td>5.51</td>
<td>5.65</td>
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<td>7.13</td>
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X = Concentration Reported
Laucks Testing Labs

Data file: \III-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\X6230427.d
Lab Smp Id: 0406320-06
Inj Date: 23-JUN-2004 21:57
Operator: JK
Smp Info: 0406320-06
Misc Info: Methods 8081B/8082A
Comment:
Method: \III-600-02\DROOT\CHEM\6890X.i\X61404PCB-1.b\PCB61404-1.m
Meth Date: 24-JUN-2004 09:19 jasonk
Cal Date: 14-JUN-2004 21:25
Als bottle: 1
Dil Factor: 1.00000
SampleCompoundAmountsLoaded
Integrator: Falcon
Compound Sublist: 8082X.sub
Target Version: 4.03
Sample Matrix: SOIL
Processing Host: PIII-600-02

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

Name       Value       Description
----------- ----------- ---------------------
DF          1.000       Dilution Factor
Uf          1.000       Correction factor
Vt          5000.000    Volume of final extract (uL) (1000 low, 2
Vi          0.500       Volume injected (uL)
Ws          15.000      Weight of sample extracted (g)
M           4.000       % Moisture

CONCENTRATIONS

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<th>(ug/Kg)</th>
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Average of Peak Concentrations = 13.2

$ 1 Tetrachloro-m-xylene

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$ 9 Decachlorobiphenyl

<table>
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<th>RESPONSE (ng)</th>
<th>(ug/Kg)</th>
<th>TARGET RANGE</th>
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Laucks Testing Labs

0.5ul DB-XLB 30m x 0.32mm, 0.50 film

Data file: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\X6230427.d
Lab Smp Id: 0406320-06
Inj Date: 23-JUN-2004 21:57
Operator: JK
Smp Info: 0406320-06
Misc Info: Methods 8081B/8082A
Comment:
Method: \\PIII-600-02\DROOT\CHEM\6890X.i\X61404PCB-2.b\PCB61404-2.m
Meth Date: 24-Jun-2004 09:20 jasonk
Cal Date: 14-JUN-2004 21:25
Als bottle: 1
Dil Factor: 1.00000
Integrator: Falcon
Target Version: 4.03
Processing Host: PIII-600-02

Sample Compound Amounts Loaded
Compound Sublist: 8082X.sub
Sample Matrix: SOIL

Concentration Formula: Amt * DF * Uf * Vt/(Vi * Ws * (100 - M)/100)

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<td>Vt</td>
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<td>Volume of final extract (uL) (1000 low, 2</td>
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<tr>
<td>Vi</td>
<td>0.500</td>
<td>Volume injected (uL)</td>
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<tr>
<td>Ws</td>
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<td>M</td>
<td>4.000</td>
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CONCENTRATIONS

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<td>21.7</td>
<td>106.37-146.37</td>
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Average of Peak Concentrations = 15.2

$ 1 Tetrachloro-m-xylene
Cas #: | 4.6309 | 4.6121 | -0.001 | 8632036 | 0.01295 | 8.99 |

$ 9 Decachlorobiphenyl
Cas #: | 11.531 | 11.542 | -0.011 | 5180602 | 0.01145 | 7.95 |