HSWA LANL 1/1114/03 03-056(c)

ENTERED

Los Alamos
NATIONAL LABORATORY
University of California
Environmental Science and Waste Technology (E)
Environmental Restoration (ER) Project, MS M992
Los Alamos, New Mexico 87545
(505) 667-0808/FAX (505) 665-4747

U.S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
(505) 667-7203/FAX (505) 665-4504

Date: September 27, 2001
Refer to: ER2001-0796

Mr. John Young, Corrective Action PL
Permits Management Program
NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505-6303

Mr. David Neleigh
New Mexico/Federal Facilities Section
Environmental Protection Agency – Region 6
1455 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

SUBJECT: SUBMITTAL OF VOLUNTARY CORRECTIVE ACTION (VCA) COMPLETION REPORT FOR POTENTIAL RELEASE SITE (PRS) 3-056(c)

Dear Mr. Young and Mr. Neleigh:

Enclosed are two copies each of the VCA Report for PRS 3-056(c). In a letter dated April 25, 2001, the Environmental Protection Agency (EPA) approved Los Alamos National Laboratory's (LANL's) request for extension to submit this report until October 1, 2001. This report outlines corrective action taken at a Solid Waste Management Unit in Module VIII of LANL's Hazardous Waste Facility Permit. This report also documents the remediation of this site to satisfy RCRA Corrective Action as well as EPA's mandated clean up.

LANL requests concurrence with our No Further Action determination for this site, so that LANL can request a Class 3 permit modification to remove this site in the future.

If you have any questions, please call Dave McInroy at (505) 667-0819 or David Gregory at (505) 667-5808.

Sincerely,

Julie A. Canepa

Julie A. Canepa, Program Manager
Environmental Restoration Project
Los Alamos National Laboratory

Sincerely,

Mat Johansen

Mat Johansen, Project Manager
Department of Energy
Los Alamos Area Office

JC/MJ/GLE/NR/eim

5652

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Enclosure: Voluntary Corrective Action Completion Report for Potential Release Site (PRS) 3-056(c) (ER2001-0657)

Cy (w/enc. and w/data disk):
G. Lopez Escobedo, E/ET, MS M992
D. Gregory, LAAO, MS A316
N. Dhawan, NMED-HWB
RPF, MS M707

Cy (w/enclosure and w/o data disk)
J. Davis, NMED-SWQB
M. Kirsch, E/ER, MS M992
M. Leavitt, NMED-GWQB
J. Parker, NMED-DOE OB
N. Riebe, E/ET, MS M992
C. Rodriguez, E/ER, MS M992
S. Yanicak, NMED-DOE OB, MS J993

Cy w/o enclosure:
J. Canepa, E/ER, MS M992
D. McInroy, E/ER, MS M992
M. Johansen, LAAO, MS A316
G. Turner, LAAO, MS A316
J. Bearzi, NMED-HWB
J. Kieling, NMED-HWB
E/ER File, MS M992
IM-5, MS A150

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LA-UR-01-5349
September 2001
ER2001-0657

Voluntary Corrective Action Completion Report for Potential Release Site 03-056(c)

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the United States Department of Energy under contract W-7405-ENG-36.

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Voluntary Corrective Action Completion Report for Potential Release Site 03-056(c)

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Produced by the ER Project's Remedial Actions Focus Area, Industrial Sites Team

Editor: Lisa Levine

Compositor: Lisa Levine

Illustrators: Joanne Dyer, Andi Kron

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EXECUTIVE SUMMARY

This voluntary correction action (VCA) completion report addresses the characterization, cleanup, and restoration of potential release site (PRS) 03-056(c) located in Los Alamos National Laboratory (LANL or the Laboratory), Technical Area 3 (TA-3). The main focus of the VCA was removal of soil contaminated with polychlorinated biphenyls (PCBs).

PRS 03-056(c) was a storage area located northeast of a utilities shop, Building 03-223. The Laboratory's electrical power-line maintenance contractor used the area to store cable, dielectric fluids, PCB-containing transformers, capacitors, and oil-filled drums. Operations within the area resulted in the release of high concentrations of PCBs (up to 10,000 ppm) and much lower concentrations of solvents. PCB contamination was initially discovered at this site in 1991, during the requisite sampling and analysis conducted in support of a slope-stabilization project.

Following this initial detection, a Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) confirmed that PCBs, mercury, and tetrachloroethene were present over an area of approximately 9000 ft^2 at varying depths, from surface to 3 ft. Within 10 months of identifying nature and extent through the RFI, an expedited cleanup (EC) was initiated to remove all soils with PCB concentrations of 10 ppm or greater. The excavation work was completed in November 1995 and included the removal of 1000 yd^3 of PCB- and tetrachloroethene-contaminated soil. In August 1995, the Toxic Substances Control Act (TSCA) branch of U.S. Environmental Protection Agency (EPA) Region 6 imposed the more stringent cleanup standard of <1 ppm, citing proximity to a watercourse as the reason. To comply with the more stringent standards, the ER Project began a VCA in August 2000.

Using the results of the 1995 EC verification and sampling field-screening technology, the field team identified soils that were contaminated with low-level PCBs covering a 2-acre area. Between August 2000 and March 2001, an additional 2400 yds^3 of PCB-contaminated soil were removed from this site. In general, PCB concentration in these soils ranged from 1.0 to 10.0 ppm, with areas of higher concentration.

Analysis of the VCA confirmatory samples indicated that the site met the EPA-mandated cleanup criterion of <1 ppm based upon 95 percent upper confidence limit (UCL_{95}) data. Confirmatory sample results were also used to identify chemicals of potential concern (COPCs) for further evaluation of the potential effects on human and ecological receptors. The human-health screening assessment showed that concentrations of noncarcinogenic COPCs were less than the risk-based screening action levels (SALs). Three carcinogenic COPCs—arsenic, Aroclor-1260, and tetrachloroethene—were detected at concentrations greater than their respective SALs. For arsenic and tetrachloroethene, however, the concentrations were generally low, except for a single high detection which has little effect on the overall risk associated with the site. Assessments of the residual risk at the site after the VCA, therefore, indicate that there are no unacceptable risks to human receptors.

The ecological screening assessment identified several chemicals of potential ecological concern (COPECs). These COPECs were eliminated because they were identified in a single isolated location or, as in the case of Aroclor-1260, the levels remaining have a very low potential for adverse effects on ecological receptors. The majority of exposure pathways are now incomplete, following installation of erosion controls and paved parking areas.

PRS 03-056(c) has been characterized and remediated in accordance with applicable state and federal regulations pursuant to Criterion 5 as defined in the New Mexico Environment Department (NMED) *RCRA Permits Management Program Document Requirement Guide* (NMED 1998, 57897). Also, the site PCB levels meet the EPA-mandated TSCA criterion of <1 ppm. Furthermore, all available data from

environmental investigations at this site indicated that there are no COPCs present at this site in concentrations that pose an unacceptable risk to human health or the environment. For these reasons additional investigatory or remediation activities are unwarranted and this site is recommended for no further action (NFA) (see Table ES-1).

ES-1
Summary of Proposed Actions

PRS Number	PRS Description	HSWA[a]	Radionuclide Component	Proposed Action	Rationale for Recommendation	Section Number
03-056(c)	Former storage facility	Yes	No	NFA, Criterion 5[b]	Acceptable risk to human and ecological receptors	2.0

[a] The site is listed in Module VIII of the Laboratory's Hazardous Waste Facility Permit.

[b] NFA criteria are listed in Section II.B.4.a.(4).(b), "No Further Action (NFA) Proposals Criteria," in *RCRA Permits Management Program Document Requirement Guide* (NMED 1998, 57897).

Contents

1.0 INTRODUCTION 1

2.0 PRS 03-056(c) 5

2.1 Summary of VCA Activities 5
2.2 Description and Operational History 5
2.2.1 Site Description 5
2.2.2 Operational History 6
2.3 Previous Activities 7
2.3.1 Previous Investigations 7
2.3.2 Preliminary Conceptual Model 11
2.3.2.1 Distribution of Contaminants 11
2.3.2.3 Potential Contaminant Exposure Pathways to Receptors 12
2.4 Remedial Activities 12
2.4.1 Investigative Activities During VCA 12
2.4.1.1 Pre-excavation Investigative Activities 13
2.4.1.2 Investigative Activities During Excavation 13
2.4.1.3 Confirmatory Sampling Activities 17
2.4.2 Remediation Activities 17
2.4.2.1 Excavation Activities 17
2.4.2.2 Site Mobilization and Setup 18
2.4.3 Confirmatory Sampling Data Review 21
2.4.3.1 Inorganic Chemical Comparison with Background Levels 21
2.4.3.2 Radionuclide Comparison with Background/Fallout Radionuclide Concentration 29
2.4.3.3 Evaluation of Organic Chemicals 29
2.4.3.4 Other Applicable Data Comparison with Background and/or Cleanup Levels 32
2.4.4 Revised Site Conceptual Model 32
2.4.4.1 Nature and Extent of Contamination 33
2.4.4.2 Environmental Fate 39
2.5 Site Assessments 42
2.5.1 Screening Assessments 42
2.5.1.1 Human Health 42
2.5.1.2 Ecological 47
2.5.2 Other Applicable Assessments 57
2.5.2.1 Surface Water Assessment 57
2.5.2.2 Groundwater Assessment 57
2.5.2.3 Underground Storage Tanks Assessments 57
2.5.2.4 Other Assessments 57
2.5.3 Conclusions and Recommendations 58

3.0 SITE RESTORATION **58**
3.1 Site Activities 58
3.1.1 Backfill of Excavated Area 59
3.1.2 Stabilization of Exposed Backfill Material 59
3.1.3 Backfill and Reseed of Disturbed Areas 59
3.1.4 Soil Stabilization Around Trees Within the Disturbed Area 59
3.1.5 Installation of Gabion Apron 60
3.1.6 Base Course Removal and Reseeding of Waste Storage Areas 61
3.1.7 Installation of Asphalt Paving 61
3.1.8 Installation of Chainlink Fence 61

4.0 WASTE MANAGEMENT **61**
4.1 Waste Storage 62
4.2 Waste-Characterization Requirements 62
4.3 Waste Disposal 65

5.0 REFERENCES **65**

Appendixes

Appendix A. List of Acronyms and Glossary
Appendix B. Operational and Environmental Setting
Appendix C. Results of Quality Assurance/Quality Control Activities
Appendix D. Analytical Suites and Results
Appendix E. Statistical Analyses
Appendix F. Risk Assessment Calculations
Appendix G. Comparison of Anticipated and Actual Costs
Appendix H. VCA Plan, RSI, and RSI Response
Appendix I. Photographs/Drawings
Appendix J Waste Data
Appendix K. Draft Site Restoration Plan

List of Figures

Figure 1.0-1. Location of TA-3 with respect to Laboratory technical areas and surrounding landholdings 4
Figure 2.2-1. PRS boundary and area of investigation and excavation activities 8
Figure 2.2-2. PRS 03-056(c) areas to be excavated 9
Figure 2.4-1. Pre-excavation sample locations and PCB concentrations determined during EnSys field screening 14
Figure 2.4-2. PCB contamination at PRS 03-056(c), September 2000 15
Figure 2.4-3. Confirmatory sampling locations and detected inorganic and organic chemical concentrations at PRS 03-056(c) 27
Figure 2.4-4. Confirmatory sample locations and PCB concentrations at PRS 03-056(c) 35
Figure 2.4-5. Areas excavated down to tuff and sample locations with <1 ppm PCB concentrations at PRS 03-056(c), March 2001 37
Figure 3.1-1. Site-restoration plan map for PRS 03-056(c) 60
Figure 4.2-1. Excavation zones at PRS 03-056(c) 65

List of Tables

Table 1.0-1 Chronology of ER Project Activities at PRS 03-056(c) 1
Table 2.4-1 PRS 03-056(c) Frequency of Detected Inorganic Chemicals 21
Table 2.4-2 PRS 03-056(c) Inorganic Chemicals with Concentrations or Detection Limits at or Exceeding BVs 22
Table 2.4-3 PRS 03-056(c) Results of RFI Inorganic Data Review 24
Table 2.4-4 PRS 03-056(c) Frequency of Detected Organic Chemicals 29
Table 2.4-5 PRS 03-056(c), Detected Organic Chemicals 30
Table 2.4-6 PRS 03-056(c) Results of Organic Chemical Data Review 32
Table 2.4-7 Physicochemical Properties for COPCs 39
Table 2.5-1 PRS 03-056(c) Comparison of Noncarcinogenic COPCs to SALs 43
Table 2.5-2 PRS 03-056(c) Comparison of Carcinogenic COPCs to SALs 43
Table 2.5-3 PRS 03-056(c) ESL for Each Receptor 51
Table 2.5-4 PRS 03-056(c) Comparison of Exposure Point Concentrations with Final ESLs 52
Table 2.5-5 HQ/HI Analysis 53
Table 4.0-1 Waste Descriptions and Estimated and Actual Volumes 62
Table 4.2-1 WCSF Requirements and VCA Actions 63
Table 4.2-2 TSCA and RCRA Waste Roll-off Bins and Zones of Excavation 64

1.0 INTRODUCTION

This report documents the VCA activities performed to characterize, clean up, and restore PRS 03-056(c) at LANL. This site, contaminated by PCBs, was a storage area at TA-3 (Figure 1.0-1). It is located northeast of the Johnson Controls Northern New Mexico (JCNNM) utilities shop, Building 03-223. From 1967 to 1992, this area was used by LANL's electrical power-line maintenance contractor as a storage area for electrical cable, used and unused dielectric fluids, PCB-containing transformers, capacitors, and oil-filled drums. Activities within the storage area resulted in the release of PCBs and tetrachloroethene, through spills, leaks, and handling practices.

Following this initial detection, an RFI confirmed that PCBs, mercury, and tetrachloroethene were present over an area of approximately 9000 ft^2 area at varying depths, from surface to 3 ft. Within 10 months of identifying nature and extent through the RFI, an EC was initiated to remove all soils with PCB concentrations of 10 ppm or greater. The excavation work was completed in November 1995 and included the removal of 1000 yd^3 of PCB- and tetrachloroethene-contaminated soil. In August 1995, the TSCA branch of EPA Region 6 imposed the more stringent cleanup standard of <1 ppm, citing nearness to a watercourse as the reason. (Note: To provide consistency with TSCA guidance, ppm will be used in this report instead of the equivalent milligrams per kilogram.) To comply with the more stringent standards, the ER Project began a VCA in August 2000.

Remediation and assessment activities during the VCA were conducted under RCRA corrective action because PRS 03-056(c) is included in Table A of the Hazardous and Solid Waste Amendments Module of the Laboratory's Hazardous Waste Facility Permit (EPA 1990, 01585). Confirmatory sampling followed the guidelines set forth in the approved VCA plan; waste management activities followed both TSCA and RCRA guidelines in accordance with the waste-characterization analytical results.

Upon determination that the site met the EPA-mandated cleanup criterion of <1 ppm based on UCL_{95} data, the site was restored in accordance with a site restoration plan (Appendix K). The plan was presented to and accepted by the NMED at the April 18, 2001, monthly meeting of the NMED, the Laboratory, and the DOE.

Table 1.0-1 summarizes the chronological history of PRS 3-056(c); listed are significant activities that led to performing the VCA as well as significant activities that took place during the execution of the VCA.

Table 1.0-1
Chronology of ER Project Activities at PRS 03-056(c)

Date	Activity (Reference)	Synopsis of Activity
November 1991	Site sampled (LANL 1993, 20947)	Environmental Management Group at the Laboratory samples the site, preceding a slope-stabilization project. PCBs are detected (maximum of 9600 ppm).
June 1993	RFI work plan (LANL 1993, 20947)	The "RFI Work Plan for OU 1114" was submitted to EPA; the work plan included a sampling and analysis plan for PRS 03-056(c).
August 1994	RFI sampling at site (LANL 1995, 52951)	PRS 03-056(c) sampled as part of Phase I RFI by ER Project. PCBs were detected from <1 to 9600 ppm; mercury and tetrachloroethene were also detected.

Table 1.0-1 (continued)

Date	Activity (Reference)	Synopsis of Activity
June 1, 1995	EC plan submitted (LANL 1995, 52951)	EC plan for PRS 03-056(c) submitted to EPA.
August 9, 1995	Received list of deficiencies from EPA (EPA 1995, 55740)	EPA commented on EC plan and submitted list of deficiencies; disagreed with the 10 ppm cleanup level proposed and required a more stringent cleanup level.
August 1995–March 1996	LANL executed corrective action at site	LANL conducted remedial activities (an EC): 1000 yd^3 of soil containing >10 ppm total PCBs removed from slopes and mesa top. LANL performed human health and ecological risk assessment to support the decision to leave <10 ppm PCBs on-site, and LANL responded to the notice of deficiency (NOD). LANL and the Department of Energy (DOE) engaged in discussions with the EPA about the cleanup level for the site.
April 1996	Status report (LANL 1996, 55746) submitted	LANL submitted status report to EPA and justified the 10 ppm cleanup level.
March 13, 1996	NOD received from NMED (NMED 1996, 54179)	NMED submitted NOD on status report; requested justification for 10 ppm cleanup level.
May 2, 1996	Response to NOD (LANL 1996, 54398) submitted	LANL submitted response to NOD with justification for cleanup level, with copies to EPA Region 6 TSCA.
November 6, 1996	Conference call	In a conference call with NMED and EPA Region 6 TSCA, ER Project personnel indicated that no further activity could be pursued until a regulatory decision was received on proposed cleanup level (i.e., response to the May 2, 1996, NOD response).
June 10, 1997	Correspondence sent to DOE from EPA	EPA Region 6 TSCA provided e-mail documenting the cleanup level established by the EPA Region 6 TSCA PCB program office for PRS 3-056(c). The cleanup level was established at less than 1 ppm.
September 1999	LANL submits VCA plan (LANL 1999, 64711)	VCA plan is submitted to NMED and EPA Region 6 TSCA for review and approval. Plan presents the approach for executing a cleanup at the site to meet the <1 ppm cleanup level.
August 2000	LANL makes application for risk based disposal approval (LANL 2000, 68684)	LANL prepared an application to EPA Region 6, requesting approval for disposal of <50 ppm PCB-contaminated soil as PCB remediation waste.
August 31, 2000	Approval of VCA plan (NMED 2000, 68683)	NMED approves VCA plan.
September 2000	VCA begins	VCA excavation activities begin at PRS 3-0565(c).
November 2000	EPA approves application (EPA 200, 68772)	EPA Region 6 approved the cleanup and disposal application, making it possible to dispose of most of the waste from the cleanup at an industrial landfill.
March 2001	Excavation activities completed	Excavation activities that are part of the VCA are completed.
April 18, 2001	NMED/LANL meeting	Draft site restoration plan is presented and discussed with NMED at the monthly meeting between NMED Hazardous Waste Bureau (NMED HWB) and LANL. NMED agrees to proceeding with site restoration.
August 2001	Site restoration	Site restoration at PRS 3-056(c) is completed.

Section 2 of this report comprises a summary of VCA activities; a site description and operational history; a description of previous activities performed at the site; a description of remedial activities; site assessments performed, including ecological, human-health, and surface-water assessments; and conclusions and recommendations. Section 3 of this document contains information about the site-restoration activities that were performed. Section 4 contains information about the waste-management activities. Section 5 contains a list of references.

There are 11 appendixes to this document:

- Appendix A is a list of acronyms and a glossary of terms.
- Appendix B presents the operational and environmental setting for PRS 03-056(c) and the Laboratory.
- Appendix C contains the quality assurance/quality control (QA/QC) analytical data assessment and a discussion of the use of PCB EnSys soil test kits.
- Appendix D provides the analytical suites and results.
- Appendix E contains the statistical analyses for the confirmatory results from the site.
- Appendix F includes information and criteria used in the human-health and ecological screening assessments.
- Appendix G contains a comparison of anticipated versus actual costs.
- Appendix H is the VCA plan for PRS 03-056(c), the subsequent request for supplemental information (RSI), and the response to that RSI.
- Appendix I contains photographs of the site before, during, and after excavation activities.
- Appendix J presents the waste soil roll-off bin sample data and waste disposal information table.
- Appendix K is the draft site restoration plan.

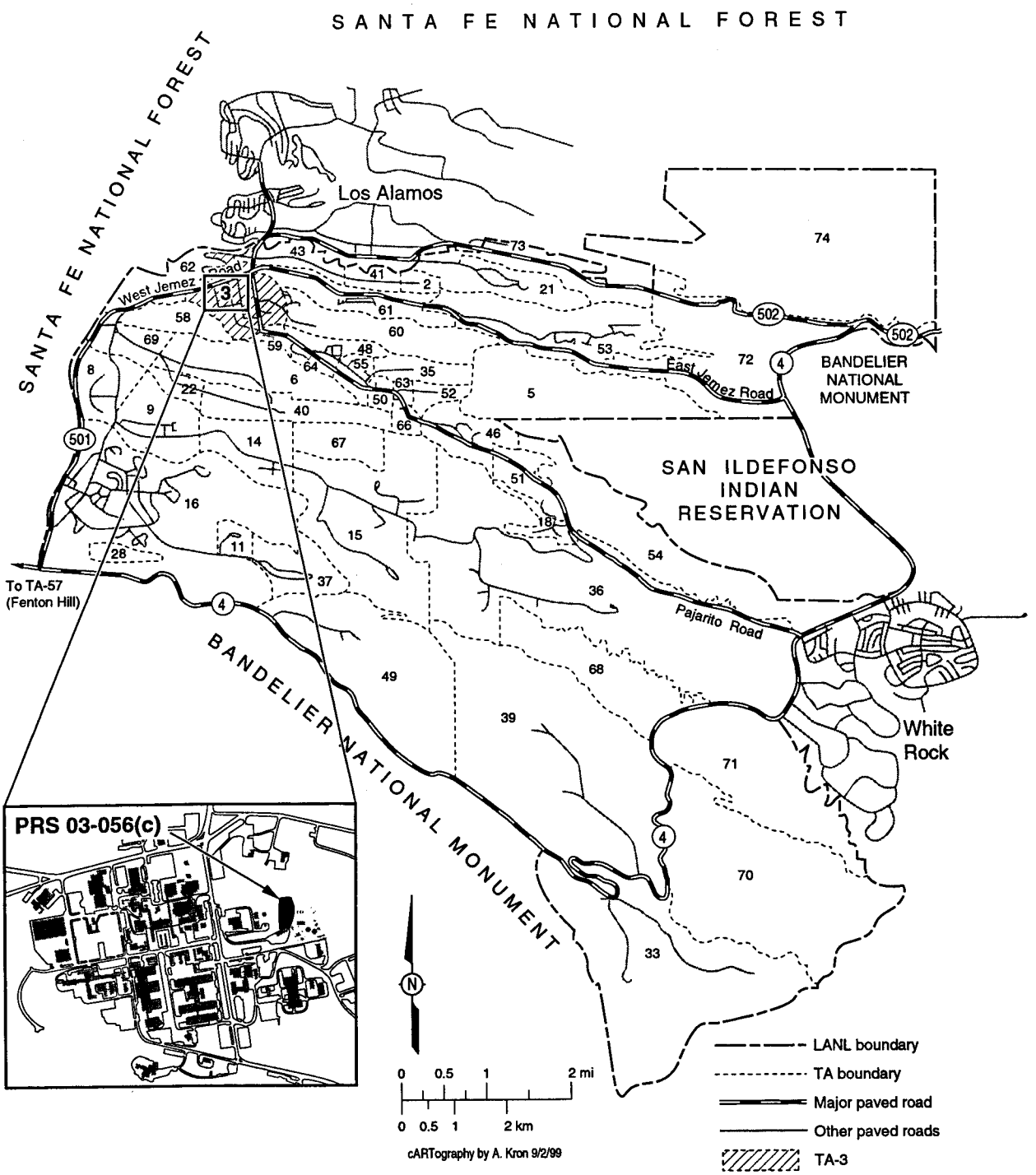

Figure 1.0-1. Location of TA-3 with respect to Laboratory technical areas and surrounding landholdings

2.0 PRS 03-056(c)

2.1 Summary of VCA Activities

PRS 03-056(c) is a storage area used by the Laboratory's electrical power-line maintenance contractor from 1967 to present. In 1995, an EC was conducted to remove the PCB contamination in soils to a cleanup level of less than or equal to (≤)10 ppm, per the requirement of the PCB spill cleanup policy contained in 40 CFR Part 761, Subpart G.

The objective for this VCA at PRS 03-056(c) was to remove the remaining PCB contamination to the EPA-mandated cleanup level of <1 ppm based upon UCL_{95} on the mean. Based on the operational history and on the results of previous sampling and analyses, the COPCs included PCBs, tetrachloroethene, and metals. PCBs were the primary COPCs.

The PRS was characterized using field-screening techniques to determine the extent of PCB contamination. After site characterization, the contaminated soil and unconsolidated tuff were excavated and placed into roll-off containers for waste characterization and disposal. During the excavation activities, field screening was used to provide immediate confirmation that all PCB-contaminated soil and unconsolidated tuff in the excavated area had been removed to a cleanup level of <1 ppm. As a result of excavation field-screening activities, it was determined that contamination extended beyond the original PRS boundary.

Following the excavation activities, confirmation sampling was performed, and soil samples were submitted for fixed-laboratory analysis. Confirmatory samples were collected in January 2001 and analyzed for PCBs, VOCs, and metals. Based on January 2001 confirmatory sampling results, four areas of elevated (>1 ppm) PCBs were identified. In March 2001, these areas were excavated and confirmatory samples were collected and analyzed. Confirmatory sample results indicated that the site met the EPA-mandated cleanup criterion for <1 ppm based upon UCL_{95} data. Excavated soils were characterized by fixed-laboratory analysis and then disposed of at either a RCRA Subtitle D landfill (solid/industrial waste) or a RCRA Subtitle C landfill (hazardous waste).

COPCs were assessed for their potential to pose an unacceptable risk to human or ecological receptors. These assessments found that residual concentrations of chemicals at PRS 03-056(c) do not pose a potential unacceptable risk. On this basis, NFA is recommended because the site PCB levels (UCL_{95}) meet the EPA-mandated TSCA Criterion of <1 ppm as well as Criterion 5 (acceptable risk) of NMED's *RCRA Permits Management Program Document Requirement Guide* (NMED 1998, 57897).

2.2 Description and Operational History

2.2.1 Site Description

PRS 03-056(c) is located on Sigma Mesa, on the southern flank of Sandia Canyon, in Los Alamos County, New Mexico. PRS 03-056(c) consists of a storage area located northeast of a JCNNM utilities shop (Building 03-223). The PRS boundary includes the historical storage area and extends to the west and north down to the watercourse of Sandia Canyon (Figure 2.2-1). However, various activities on the mesa top resulted in that area consisting of a mix of soil, fill, and base course. The depth to the regional aquifer is estimated to be 950–1200 ft below ground surface (bgs) (LANL 1996, 55746). As a result of remediation and restoration efforts, the mesa top was recovered with fill and paved. Based on current and future land-use planning, the Laboratory will continue to use the property for industrial purposes (LANL 1995, 57224).

As a result of previous investigations and later site characterization conducted at PRS 03-056(c), the site was divided into five general areas as shown in Figure 2.2-2:

1. the west slope (see Photographs 7 and 8, Appendix I),
2. the north slope (see Photographs 1, 2, and 11, Appendix I),
3. ephemeral drainages (see Photographs 3 and 4, Appendix I),
4. the mesa top (see Photographs 5, 6, 7, and 8, Appendix I), and
5. Sandia Canyon bottom (sediment packages) (see Photographs 13 and 14, Appendix I).

The west slope is located just to the north of Building 03-223 and slopes steeply to the west at a grade of approximately 30–80°. The north slope is northeast of the west slope with an approximate grade of 28°. The mesa top is the area located northeast of Building 03-223 between the west slope and north slope. The fourth area encompasses two small, poorly defined ephemeral drainages that run north from the base of the north slope to the Sandia Canyon watercourse. The small drainages traverse a forested and vegetated area that slopes to the north at a grade of approximately 10°. The fifth area consists of the sediment packages found along the watercourse that runs at the base of the west slope and where the ephemeral drainages empty into Sandia Canyon bottom on the north end of the PRS boundary (see Figure 2.2-2). (See Appendix B for an extended discussion of the site's operational and environmental setting.)

2.2.2 Operational History

PRS 03-056(c) is a storage area located on the north side of Building 03-223, a JCNNM utilities shop. According to interviews with JCNNM electrical maintenance personnel at 03-223, the outdoor storage area was used for storing PCB-containing transformers, vehicles, small electrical equipment, new and used dielectric fluids, and waste solvents from 1967 to 1992. There are no known or documented spills (dielectric fluids or solvents) associated with the former storage area (Rhodes 1995, 70073), although it is evident that there were spills and leaks as a result of operations in the area.

Solvents were used primarily to clean electrical equipment. An unknown cleaning solvent was used to clean electrical equipment from 1967 to approximately 1981, and a cleaning solvent containing trichloroethane was used from 1981 to approximately 1990. A nonhazardous citrus-based solvent was used from 1990 to 1992 (Rhodes 1995, 70093). To clean equipment on-site, a small amount of solvent was poured into a container and a rag was soaked in the solvent and used to wipe down equipment. The remaining solvent was poured into a drum located at the former storage area. Once a few drums (two or three) were full of waste solvent, they were transported off-site for disposal.

Transclene, which contains tetrachloroethene, may have been stored at the site to retrofill transformers in the field. It appears that all of this material was disposed of at an approved waste disposal facility. In 1991, the site's facility managers placed approximately 1–2 ft of clean fill on the area occupying the former storage area, to help correct drainage patterns and reroute run-on away from the site. In 1992, the PRS 03-056(c) storage area was decommissioned (LANL 1995, 52951). Currently, a secondary containment building, located northeast of 03-223, is used for storage of solvents and dielectric fluids.

2.3 Previous Activities

2.3.1 Previous Investigations

The following text summarizes previous investigations at the site. Additional information about previous investigations is provided in the VCA plan (Appendix H). In November 1991, five surface samples were collected along the perimeter fence of the utilities shop storage area by Environmental Management Group (ERM) personnel. This was part of an interim action reconnaissance survey preceding a slope-stabilization project. Of the five samples collected from the storage area, four had concentrations of total PCBs between 1 ppm and 10 ppm. The fifth sample contained 9600 ppm PCBs. Mercury was present at 0.471 ppm (LANL 1993, 20947).

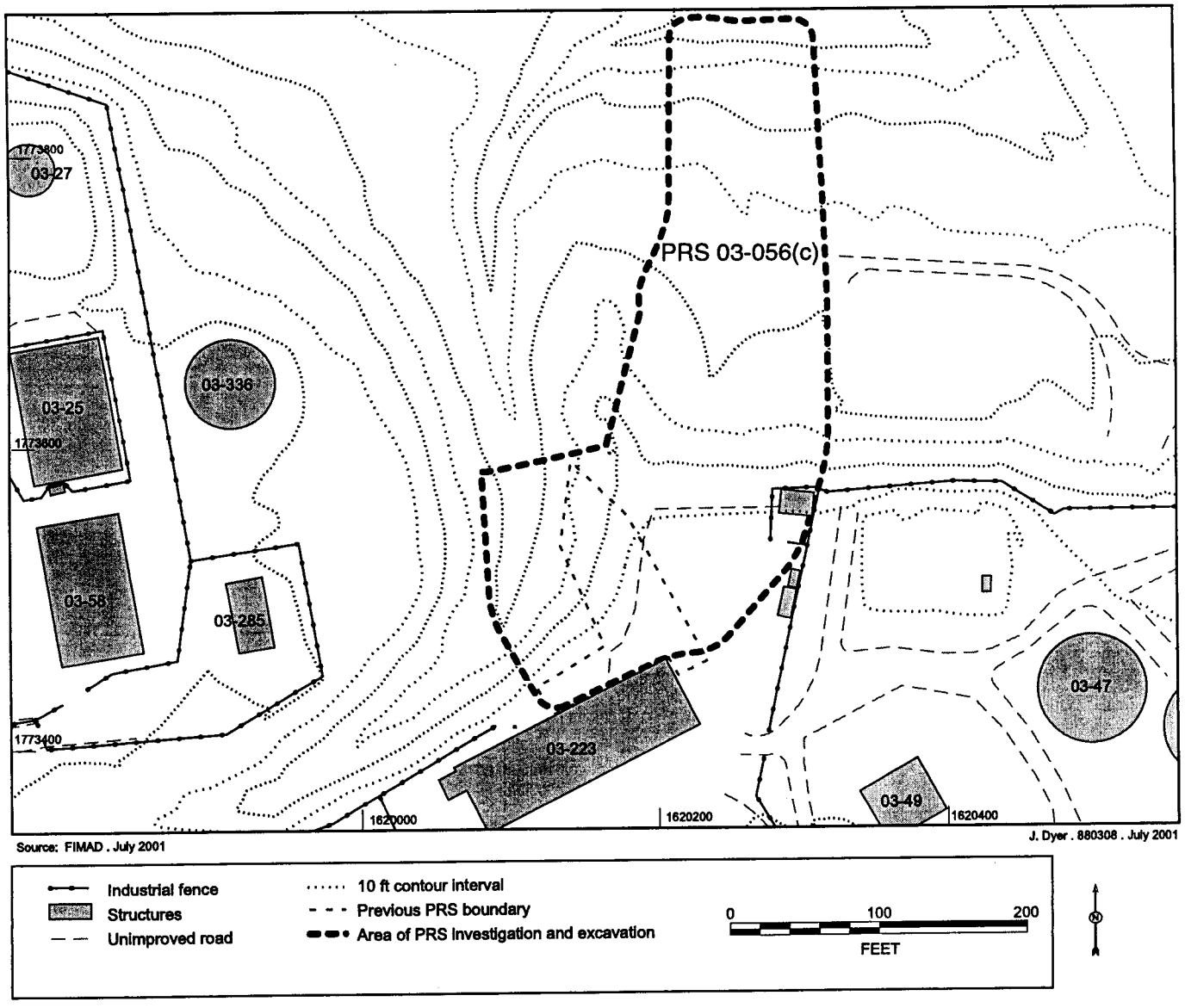

Figure 2.2-1. PRS boundary and area of investigation and excavation activities

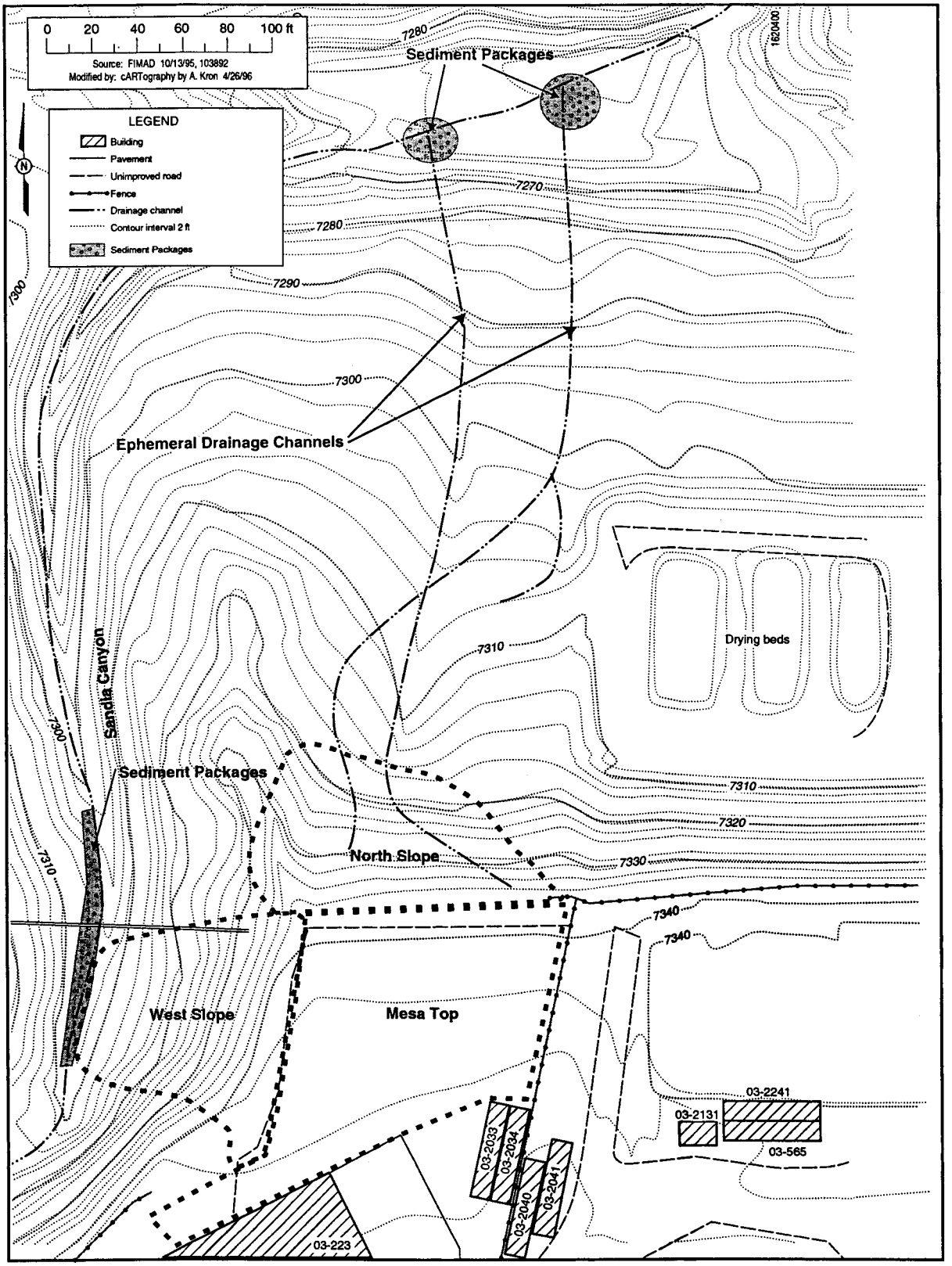

Figure 2.2-2. PRS 03-056(c) areas to be excavated

A 1994 investigation was conducted as part of an RFI. A total of 22 soil samples were collected from 18 locations at depths ranging from 0 to 3 ft below grade. Samples were submitted to a fixed analytical laboratory for one or more of the following analyses by EPA SW-846 methods (EPA 1987, 57589): metals by Methods 6010/6020/7421, PCBs/pesticides by Method 8080, semivolatile organic compounds (SVOCs) by Method 8270, and VOCs by Method 8260. Twenty-two samples were submitted for metals analysis, 13 samples were submitted for PCB/pesticide and SVOC analyses, and 11 samples were submitted for VOC analysis (LANL 1996, 55746). PCBs were detected at concentrations from <1 ppm to 9600 ppm at depths ranging from 0 to 1.5 ft. Concentrations decreased with depth. Mercury was detected in 3 samples, at levels ranging from 0.04 ppm to 1.7 ppm. Tetrachloroethene was detected in 2 samples at concentrations up to 0.044 ppm.

In August 1995, the site was further characterized as part of an EC to identify the lateral extent of soils containing residual PCBs (LANL 1996, 55746). A site pre-excavation radiological survey was performed by ESH-1 personnel in August 1995 for health and safety purposes. No elevated radiation levels were detected; therefore, no radiological screening or sampling was performed during the course of the project. The 1994 pre-excavation sampling had indicated that concentrations of metals, SVOCs, pesticides, and VOCs, including tetrachloroethene, were below SALs outside the boundary of the excavation area (LANL 1996, 55746). Therefore, only PCBs were investigated further. To better define the lateral extent of PCB contamination, 10 samples were initially collected from the west slope area. An area of 45 ft in diameter was initially mapped to represent the area of contamination. A 10-ft by 10-ft grid was placed over the area of suspected contamination. Soil samples were collected at the grid nodes to provide a statistically defensible sampling approach for proceeding with remediation. The grid samples were analyzed for PCBs (as Aroclors) by a fixed laboratory using EPA SW-846 Method 8080 (EPA 1987, 57589). The results of the grid sampling effort were used to target areas for soil excavation.

During excavation activities, the lateral extent of soil contamination was further defined to encompass an area approximately 130 ft long by 70 ft wide. As characterization sample analyses revealed PCBs in the soil, the west slope excavation area was expanded in a northerly direction along the mesa edge.

Additional site-characterization samples were collected in the north slope area (LANL 1996, 55746) and analyzed for PCBs by EPA SW-846 Method 8080. PCB-contaminated soil was excavated from an area approximately 60 ft long by 70 ft wide.

To verify that the 10 ppm cleanup level had been met during this excavation, a confirmatory sampling location grid was laid out on the west and north slopes. Each grid was divided into four composite zones. Composite samples were collected from within the zones in accordance with the methodology described in "Verification of PCB Spill Cleanup by Sampling and Analysis" (EPA 1985, 08026). The samples were then submitted for fixed-laboratory analysis of PCBs using EPA SW-846 Method 8080. Vertical bounding samples were not collected. Three soil samples were collected from the ephemeral slope drainages, and four sediment samples were collected from the drainage downstream of PRS 03-056(c) in Sandia Canyon. The samples were then submitted for fixed-laboratory analysis of PCBs using EPA SW-846 Method 8080.

Analytical results from two of the 1995 composite confirmatory samples collected from the west slope (after the EC) indicated that PCB concentrations exceeded the 10 ppm cleanup criterion. Additional samples were collected. Analytical results indicated that 16 of the 19 samples contained concentrations of PCBs less than 10 ppm and that 7 of these samples contained concentrations of PCBs at <1 ppm (LANL 1996, 55746). The other two 1995 composite confirmation samples were determined to be below the 10 ppm criterion.

The analytical results from the composite confirmatory samples collected on the north slope indicated that PCB concentrations in all four of the composite zones exceeded the 10 ppm cleanup criterion. Individual samples from each location were then analyzed to isolate those areas with the highest PCB concentrations. The analytical results for the individual samples indicated that 37 of the 50 locations contained PCBs at concentrations <10 ppm and that 9 of these samples contained concentrations of PCBs at <1 ppm (LANL 1996, 55746). Analytical results from one of the samples indicated that the PCB concentration exceeded the PCB waste criterion of 50 ppm PCBs.

2.3.2 Preliminary Conceptual Model

The preliminary conceptual model embodies the best scientific expectations/judgement for describing contaminant distribution, migration, fate, and exposure as affected by site physical properties and environmental conditions prior to the VCA. It describes the assumptions used to guide the VCA activities and cleanup design.

2.3.2.1 Distribution of Contaminants

Based on the operational history of PRS 03-056(c) and the results of previous sampling and analyses, PCBs are the major contaminants of concern at this PRS. The results from the 1995 confirmatory sampling indicated that PCB concentrations up to 63 ppm remained at the site.

2.3.2.2 Potential Contaminant Transport Pathways

Transport and partitioning of PCBs in soils is controlled primarily by soil adsorption. The organic carbon and clay content of the medium in which the PCBs are found, the degree of chlorination of the PCB compounds, and the length of PCB contact with the soil—all control the amount of PCB soil adsorption. PCBs tend to be tightly adsorbed to soil particles due to their low water solubility and high octanol-water partition coefficients. Sorption of PCBs in soil increases as organic matter and clay content increase. The longer the PCB constituents remain in contact with particulate matter, the more they are bound to the soil, the less readily they are desorbed, and the less leachable and mobile they become (Alexander 1995, 63536). The soils at PRS 03-056(c) are very low in organic content; however, due to the estimated age of the PCBs present, the PCBs are expected to be strongly bound to soil or tuff.

Based on the sorptive properties of PCBs, the primary mechanism for contaminant transport is contaminants bound to the soil via stormwater runoff and snowmelt. The surface water assessment conducted for PRS 03-056(c) generated an erosion matrix score of 69.7, indicating a potential for erosion and contaminant migration. A secondary potential contaminant transport mechanism is fugitive dust. This mechanism is unlikely, as the site is currently vegetated, and matting has been laid over the slopes to minimize the generation of fugitive dust. Another potential transport mechanism is volatilization from soil to air. The volatilization rate is partly dependent on organic carbon and clay content of the soil, but is dominated by the vapor pressure. The volatilization rate of PCBs from contaminated tuff and soil at PRS 03-056(c) is expected to be minimal due to the low vapor pressure of PCBs.

The bedrock at the site is comprised of Bandelier Tuff. The possibility exists that PCB-contaminated soils have migrated downward into fractures and joints in the tuff. The bedrock is unsaturated and does not provide a viable migration pathway for PCBs to the regional aquifer, which lies 950–1200 ft bgs. In addition, the low solubility and mobility of PCBs further reduces the potential for downward migration of PCBs into the bedrock.

2.3.2.3 Potential Contaminant Exposure Pathways to Receptors

Potential Human Health Exposure Pathways

The most likely receptor for human exposure is a LANL industrial worker. Worker exposure during remediation is addressed in the site-specific health and safety plan. At PRS 03-056(c), the primary exposure pathways would be incidental ingestion of soil, dermal contact, and inhalation of particulates. The contribution of dermal contact to potential exposure would be at least one order of magnitude less than exposure from inhalation or ingestion; this is due to the low levels of PCBs at the site and the fact that PCBs are not easily released from soils.

Potential Ecological Exposure Receptors

Ecological receptors with potential exposure to PCBs at PRS 03-056(c) include, but are not limited to, deer, elk, ground-dwelling and burrowing small mammals, wide-ranging carnivorous mammals, resident and transient avian species, and many species of invertebrates. A number of trophic levels are represented by these receptors, and the potential for complete food web transport pathways exists. Prior to the VCA, receptors may have been potentially exposed to PCBs through the following pathways:

1. incidental ingestion of soil by foraging animals;
2. food web transport via ingestion of contaminated soil, contaminated plants, or prey;
3. inhalation of dust generated by wind or by foraging and burrowing;
4. plant exposure to PCBs from surface splash or root uptake; and
5. transport of contaminated soil to aquatic ecological communities.

The exposure pathways described in 1, 2, and 3 became incomplete upon removal of the contaminated soil from the site and the placement of engineering controls at the site. The surface splash element of pathway 4 will be eliminated with the removal of contaminated soil. Although it is possible that some plant roots may invade cracks or crevices in the tuff, it is not expected that root uptake will present a major exposure pathway either for the plants or as primary elements in food web transport. Pathway 5 was interrupted with the removal of contaminated soil, the installation of erosion control measures, and the rerouting of surface water run-on to inhibit runoff from the site.

After successful implementation and completion of the VCA, most complete exposure pathways for ecological receptors are no longer viable within PRS 03-056(c) because they are now incomplete. Pathways that may be complete include plant uptake and food web transport via plants. Both of these pathways are expected to be minor (see Appendix F).

2.4 Remedial Activities

2.4.1 Investigative Activities During VCA

Investigative activities that took place during the VCA consisted of pre-excavation site characterization sampling and analysis using the PCB EnSys Soil Test (EnSys test kit), field screening of the excavated areas to confirm PCB removal to the mandated level of <1 ppm using EnSys test kits, and post-excavation confirmatory sampling which was evaluated by fixed-laboratory analysis.

2.4.1.1 Pre-excavation Investigative Activities

Prior to collecting pre-excavation samples, sample locations were surveyed (see Figure 4.2-1 of the VCA plan [Appendix H]). Pre-excavation sampling was conducted from August 21, 2000, through August 23, 2000. Locations were sampled at approximately 30-ft intervals. The samples were collected from soil at 0- to 0.5-ft depth following SOP-6.09, Rev. 0, "Spade-and-Scoop Method for the Collection of Soil Samples," and SOP-6.10, Rev. 1, "Hand Auger and Thin-Wall Tube Sampler."

Samples were analyzed on-site by ER Project personnel using the semi-quantitative EnSys test kit (EPA SW-846 Method 4020). The EnSys test kits can identify PCBs to concentrations of <1 ppm. To provide a quality assurance check of the EnSys test kit results, approximately 16 samples were split and sent to an off-site fixed laboratory for analysis. All of the EnSys test kit sample results agreed with or conservatively overestimated the fixed-laboratory Method 8082 analytical results (see Appendix C).

The results from the pre-excavation samples (Figure 2.4-1) were used to guide initial excavation activities and to identify areas needing further investigation to bound the extent of contamination.

2.4.1.2 Investigative Activities During Excavation

During excavation, approximately 400 additional field-screening samples were collected from excavated areas and analyzed using EnSys test kits to ensure that all soil and unconsolidated tuff above the 1 ppm criterion had been removed. If results determined that the EPA-mandated cleanup criterion of <1 ppm had not been met, additional excavation occurred. Figure 2.4-2 illustrates the PCB concentrations at the site mid-way through excavation activities (end of September 2001). The excavation/field-screening process continued until the cleanup criterion of <1 ppm was met.

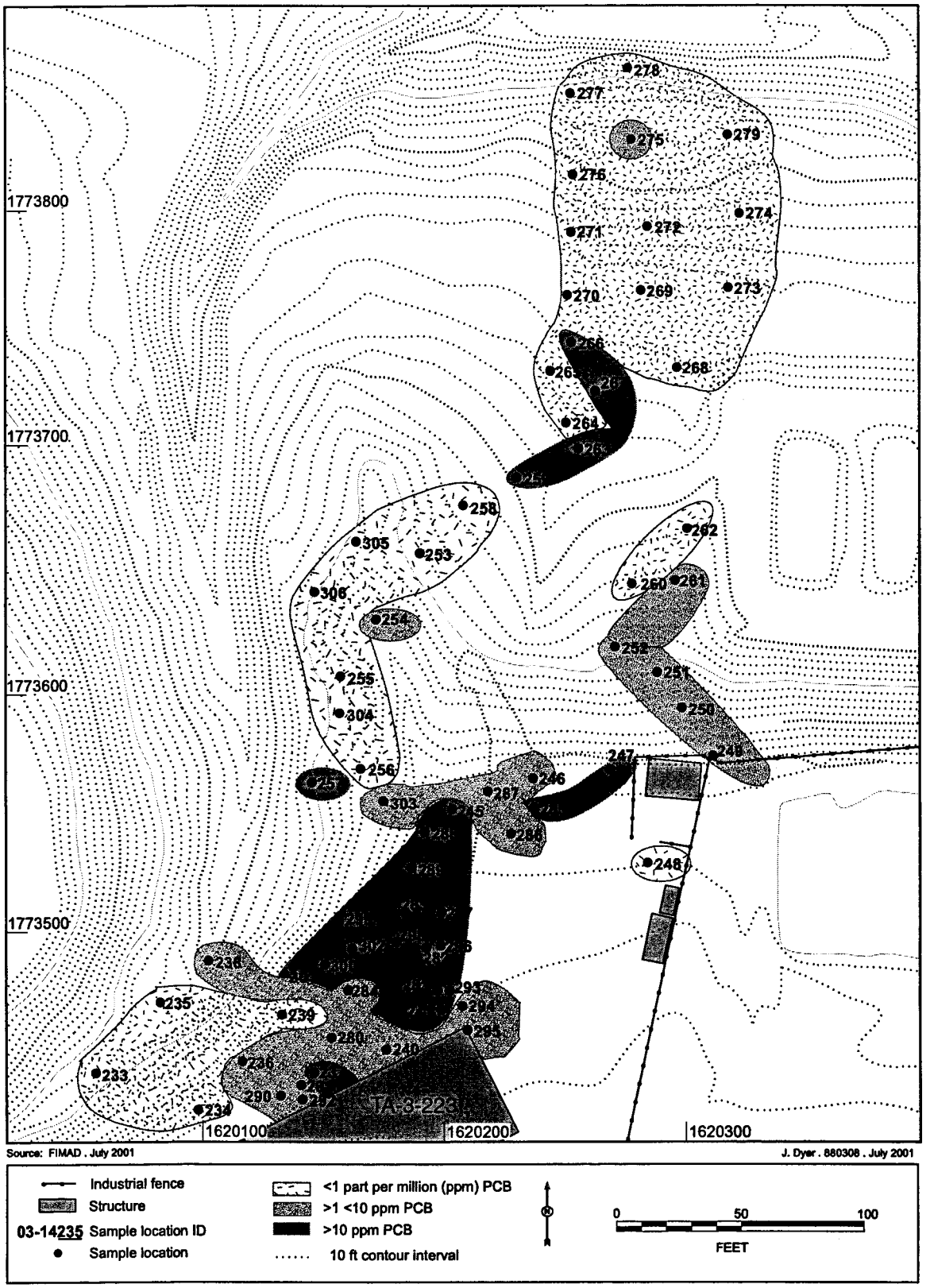

Figure 2.4-1. Pre-excavation sample locations and PCB concentrations determined during EnSys field screening

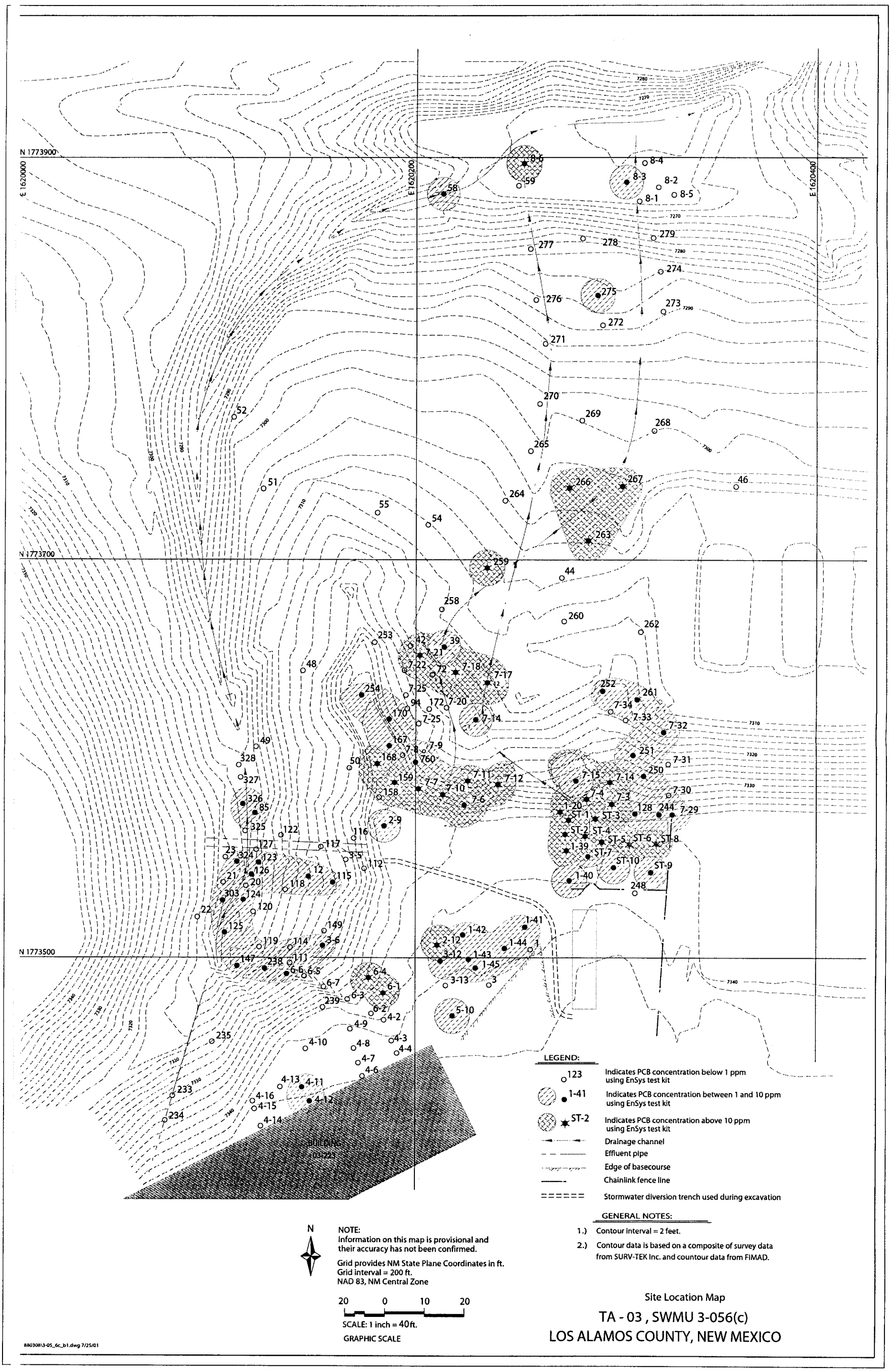

Figure 2.4-2. PCB contamination at PRS 03-056(c), September 2000

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2.4.1.3 Confirmatory Sampling Activities

Prior to confirmatory sampling, sample locations were surveyed using the proposed confirmatory sample location map (see Figure 5.0-1 from the approved VCA Plan [Appendix H]). Additional sample locations were designated and surveyed due to the increased excavation area; this, in turn, increased the size of the PRS boundary. Confirmatory sampling began January 8, 2001, and ended January 11, 2001. Eighty-four samples were collected from 79 predetermined locations (see Figures 2.4-3, 2.4-4, and the VCA plan in Appendix H). All samples were analyzed for PCBs by EPA SW-846 Method 8082, and 21 samples were also analyzed for target analyte list (TAL) metals (Method 6010) and VOCs (Method 8260). Two field blanks were submitted for VOC analysis.

On April 2, 2001, additional confirmatory sampling was conducted at four areas with elevated PCB concentrations where additional excavation had been necessary (based on the results of the initial round of confirmatory sampling). One sample was collected from each location following excavation. All were analyzed for PCBs and three were also analyzed for VOCs and TAL metals.

Samples for VOC analysis were collected using one of two methods, depending upon the media to be sampled. When soil or unconsolidated tuff was present at the sample location, EnCore samplers were used in accordance with VM-1.00, Rev. 0, "Operating Instructions for the EnCore Sampler." When consolidated tuff was present, the samples were taken following SOP-6.28, Rev. 0,"Chip Sampling of Porous Surfaces."

The PCB and metal samples from soil up to 0.5 ft deep were taken following the methods specified in SOP-6.09, "Spade and Scoop Method for Collection of Soil Samples," and in SOP-6.28, Rev. 0, "Chip Sampling of Porous Surfaces." The PCB and metal samples from depths greater than 0.5 ft were taken following the methods specified in SOP-6.10, Rev. 1, "Hand Auger and Thin-Wall Tube Sampler." All of the confirmatory samples collected during this effort were sent off-site for fixed-laboratory analysis.

2.4.2 Remediation Activities

This section presents a discussion of remedial activities, including site mobilization and preparation, excavation activities, and additional removal. PRS 03-056(c) excavation activities were divided into five areas: mesa top, west slope, Sandia Canyon bottom, north slope, and ephemeral drainages.

ER Project personnel began mobilizing equipment and preparing the site at PRS 03-056(c) in August 2000. Site-preparation activities included constructing base course roads on the mesa top near 03-223 and in Sandia Canyon for site access, building a base course pad on the mesa top to locate the site trailer, constructing a decontamination pad for equipment, demarcating exclusion zones, removing vegetation and trees, constructing waste storage areas, installing a surface water run-on diversion channel, and surveying pre-excavation sampling locations.

2.4.2.1 Excavation Activities

Excavation of the contaminated areas began on August 30, 2000, and continued through December 2000. Approximately 2400 yd^3 of contaminated soil was excavated from PRS 03-056(c). The equipment used to accomplish the excavation at PRS 03-056(c) included a John Deere (JD) 690 excavator or equivalent, a Bobcat mini-excavator, a JD 444 front-end loader, a JD 554 track loader, and a Spoil Vac 500 vacuum truck. The soil that was excavated from PRS 03-056(c) was placed into lined 20 yd^3 roll-off containers. The full roll-off containers were transported to the waste storage areas where they were subsequently sampled for waste-characterization purposes.

2.4.2.2 Site Mobilization and Setup

Excavation activities were initially guided by the pre-excavation sampling results. As contaminated areas were excavated, additional samples were collected and analyzed using EnSys test kits to verify that the <1 ppm criterion had been met. If samples revealed contamination above 1 ppm, then excavation continued until consolidated tuff was encountered or until the <1 ppm criterion had been confirmed. Approximately 500 samples were collected from the excavated area to confirm the removal of PCB-contaminated soil and unconsolidated tuff. Excavation activities began on the mesa top near 03-223 and the west slope and progressed in a northeast movement around the site. Once the mesa top and west slope was excavated, the PCB-contaminated soils from the north slope, Sandia Canyon bottom, and the ephemeral drainages were removed. This progression limited the potential for cross-contamination of soil by the heavy equipment.

The EnSys analysis of soil samples collected during the soil excavation indicated that PCB contamination exceeding the <1 ppm cleanup criterion existed outside of the area designated by pre-excavation sampling. The PRS 03-056(c) boundary was expanded to encompass areas of PCB-contaminated sediment along the watercourse at the bottom of the west slope in Sandia Canyon, the sediment packages near the northern boundary of the site where the ephemeral drainages terminate at the Sandia Canyon watercourse, and the area occupied by the JCNNM utilities department storage shed (see Figure 2.4-2).

Mesa Top

The excavation of PCB-contaminated soil on the mesa top began adjacent to, and north of, Building 03-223. Approximately 1 ft of soil was removed from the area adjacent to the building. The rest of the mesa top was excavated down to unconsolidated tuff, which was the stopping criterion for excavation (see Photograph 8, Appendix I). The total amount of soil that was excavated from the mesa top was approximately 1200 yd^3.

Initial EnSys soil screening on the mesa top indicated that only the soil within the fenced area around the JCNNM utilities department storage shed contained PCBs >1 ppm. Upon further investigation, it was determined that the entire storage area contained PCB concentrations >1 ppm. Therefore, it was necessary to disassemble and move the shed (see Photograph 5, Appendix I) to remove all of the contaminated soil. Soil was excavated down to tuff (see Photograph 6, Appendix I). Approximately 200 yd^3 of soil was removed from this location.

West Slope and Sandia Canyon Bottom

Excavation of the upper portion of the west slope was completed from the mesa top using the JD 690 excavator. The soil was loaded from the excavator into a wheeled front-end loader, driven to the roll-off container staging area, and emptied into lined roll-off bins. To access the contaminated soil located on the west slope, a road was constructed from the mesa top to a location midway down the west slope. A pad was then prepared for the excavator which would allow the excavator to safely remove soil from both up-slope and down-slope locations. A JD 555G bulldozer and approximately 60 yd^3 of base course were used to construct the road and pad. The level area provided a safe environment for the excavator operator. The road provided a safe route for the track loader to enter/exit the canyon and proceed to the roll-off staging area. The excavator would then excavate the contaminated soil and dump the contaminated soil directly into the track loader's bucket. The track loader would then travel up the base course road and place the contaminated soil into roll-offs located on the mesa top.

During the field-screening activities, PCBs above the 1 ppm criterion were detected in sediment packages on the opposite side of the watercourse (see Photograph 13, Appendix I). As a deviation from the VCA plan, the Sandia Canyon bottom was included in remedial activities. Based upon an agreement between LANL, the DOE, the NMED HWB, and the NMED Surface Waste Quality Bureau, cleanup of sediment deposits in Sandia Canyon bottom would be included in this VCA. A 401/404 dredge-and-fill permit was obtained by LANL's Surface Water Quality Group (ESH-18) from the United States Army Corps of Engineers and from NMED-SWQB prior to removing the contaminated soil. The conditions in the permit were as follows:

- Allow time to schedule monitoring or inspections of the project.
- Notify NMED SWQB and DOE Oversight Bureau 10 days before removal.
- Prevent material from falling into the watercourse by covering the channel with catchment material (plywood covered with a tarp, etc.), reducing discharge volume of watercourse to low-flow conditions, and diverting flows around the work area.

Effluent from the TA-3 power plant and from the LANL wastewater treatment facility are the primary contributors to water in the channel in Sandia Canyon. During stormwater/snowmelt, run-off from developed mesa-top areas contributes to the flow as well. To meet the conditions outlined in the 401/404 permit, ER Project personnel contacted TA-3 power plant and wastewater treatment facility personnel to identify the lowest flow periods for these two facilities. It was determined that flows during weekends were the lowest, and that weekends would be the best time for excavating the contaminated sediments and soils in the canyon bottom. Once the work was scheduled, the two facilities reduced flow to approximately 5 gal. per minute during the removal activities.

Once the 401/404 permit was obtained, plastic-covered plywood catchments were placed across the watercourse to prevent any contaminated soils from entering the watercourse (see Photograph 15, Appendix I). Initially, the Bobcat mini-excavator and hand excavation were used to minimize the disturbance to the watercourse. After excavating the sediment package down to the high-flow watermark of the watercourse, field screening determined that PCBs above 1 ppm remained in the sediment in the watercourse.

ER Project personnel concluded that diverting the flow and using heavy equipment to excavate the sediment and soil would be the most cost-effective and efficient method of removal. To accomplish this task, ER Project personnel built a small dam of sandbags in a pond area of the watercourse, approximately 20 ft upstream of the sediment package. The ponded water was pumped with a 3-in. trash pump from the dammed area around the excavation area and back into the watercourse, approximately 200 ft downstream. When the water had been diverted around the area of excavation, a 2-in. trash pump was used to pump the remaining water out of the area to be excavated (see Photograph 16, Appendix I). Once the water was removed from the area, approximately 50 yd^3 of soil and sediment were excavated from the watercourse and placed into roll-off containers.

Contaminated sediment packages located to the north of the return lines and along the watercourse were hand-excavated into 5-gal. buckets and transferred to the track excavator bucket, which was extended across the watercourse. The track excavator loaded the track loader for transfer of the contaminated sediment and soil to roll-off bins. Prior to excavation, plastic-covered plywood was placed across the watercourse to prevent any contaminated material from falling into the watercourse.

Approximately 200 yd^3 of sediment, soil, and unconsolidated tuff were removed from the Sandia Canyon bottom; another 300 yd^3 of sediment, soil, and unconsolidated tuff were removed from the west slope.

North Slope

The north slope was accessible from the mesa top and from the bottom of the canyon, allowing for efficient removal of PCB-contaminated soil and unconsolidated tuff with the JD 690 excavator. A number of trees had to be removed from this area prior to and during excavation of the area to ensure that all PCB-contaminated material at levels greater than 1 ppm was removed. Soil removal began at the top of the north slope (see Photograph 11, Appendix I). The soil was loaded directly into roll-off containers on the mesa top. Field-screening activities during the excavation revealed that additional contamination existed to the east of the original north slope excavation area, expanding the area to be excavated as well as the PRS boundary (Figure 2.4-2). The lower portion of the north slope, including the additional area, was excavated from the bottom of the slope. The soil was excavated, placed into the bucket of a front-end loader, and transported to a roll-off bin located at the roll-off staging area. Approximately 500 yd^3 of soil and unconsolidated tuff were excavated from the north slope.

Ephemeral Drainages

The ephemeral drainages contained contaminated sediment that were confined to sediment catches and depressions in the drainage. A SpoilVac 500 vacuum truck was used initially but proved inefficient at removing sediment from the drainages. A Bobcat mini-excavator with rubber tracks was mobilized to the site. The rubber tracks did not disturb the drainage areas in the manner that a large track excavator would. The mini-excavator fit into the bottom of the drainages with minimal disturbance to the surrounding area and still had enough reach to load the front-end loader from the bottom of the drainage. The teeth were removed from the bucket of the excavator so that all contaminated sediment and unconsolidated tuff could be removed (see Photograph 4, Appendix I). The front-end loader transferred the contaminated material to a roll-off bin located at the staging area.

The two contaminated sediment catches located at the northernmost portion of the ephemeral drainages proved to be the most labor-intensive areas of the entire site. The excavation of these areas had to be performed manually. The hand-excavated sediment and soil was loaded into 5-gal. buckets, walked upslope, and manually transferred into the front-end loader. The loader transferred the contaminated material to the roll-off containers at the staging area. The total amount of soil and sediment removed by hand from the northern section of the Sandia Canyon bottom ephemeral drainage was approximately 11 yd^3. The total amount of soil, sediment, and unsolidated tuff excavated from the ephemeral drainages was approximately 150 yd^3.

Removal of Areas with Elevated PCB Concentrations

Upon receipt of the PRS 03-056(c) confirmation sampling results, it was determined that four areas remained substantially above the 1 ppm cleanup criterion and that additional excavation would be necessary at these locations. These four areas were localized pockets of soil that contained PCB concentrations of 8.2, 17, 19, and 76 ppm, respectively. Two of the locations were adjacent to the ephemeral drainages, and the other two were on the mesa top.

On March 27 and 28, 2001, a backhoe was mobilized to the site to remove soil from the four areas. These areas were excavated with a backhoe (where practical) and by hand, using shovels and 5-gal. buckets where necessary. The soil was loaded into the backhoe and transferred to a lined roll-off bin for waste characterization and disposal. After the soil was removed down to tuff, EnSys test kits were used to verify that the <1 ppm PCB cleanup criterion had been met. Two roll-off bins were filled with approximately 30 yd^3 of soil.

2.4.3 Confirmatory Sampling Data Review

Confirmatory sample results are summarized in the following sections and are presented in their entirety in Appendix D.

2.4.3.1 Inorganic Chemical Comparison with Background Levels

The results of the inorganic analyses of the soil and tuff sampled at PRS 03-056(c) are discussed in this section. Soil and sediment were not differentiated during confirmatory sampling. Table 2.4-1 summarizes the frequency of detection and Table 2.4-2 presents any samples with detected inorganic chemicals exceeding background values (BVs) (Ryti et al. 1998, 59730).

Table 2.4-1
PRS 03-056(c)
Frequency of Detected Inorganic Chemicals[a]

Analyte	Media	Number of Analyses	Number of Detects	Sample Value Range (ppm)	BV (ppm)	Frequency of Detects Above BV
Aluminum	Soil	18	18	1400 to 13,000	29200	0/18
	Qbt 3	3	3	2350 to 5280	7340	0/3
Antimony	Qbt 3	3	0	[0.27 to 0.32][b]	0.5	0/3
Arsenic	Soil	18	18	2.6 to 110	8.17	1/18
	Qbt 3	3	3	1.9 to 2.6	2.79	0/3
Barium	Soil	18	18	12 to 120	295	0/18
	Qbt 3	3	3	19.4 to 22.4	46	0/3
Beryllium	Soil	18	18	0.32 to 2.9	1.83	1/18
	Qbt 3	3	3	0.42 to 0.85	1.21	0/3
Cadmium	Soil	18	9	[0.0333] to 3.6	0.4	1/18
	Qbt 3	3	0	[0.028 to 0.033]	1.63	0/3
Calcium	Soil	18	18	390 to 3600	6120	0/18
	Qbt 3	3	3	836 to 925	2200	0/3
Chromium, total	Soil	18	18	0.7 to 37	19.3	1/18
	Qbt 3	3	3	1.1 to 2.3	7.14	0/3
Cobalt	Soil	18	18	0.85 to 29	8.64	1/18
	Qbt 3	3	3	0.75 to 2	3.14	0/3
Copper	Soil	18	18	0.43 to 15	14.7	2/18
	Qbt 3	3	3	2.2 to 4.3	4.66	0/3
Iron	Soil	18	18	7100 to 16,000	21500	0/18
	Qbt 3	3	3	7000 to 10,100	14500	0/3
Lead	Soil	18	18	3.2 to 42	22.3	3/18
	Qbt 3	3	3	3.1 to 22.8	11.2	1/3
Magnesium	Soil	18	18	120 to 1800	4610	0/18
	Qbt 3	3	3	514 to 676	1690	0/3
Manganese	Soil	18	18	140 to 520	671	0/18
	Qbt 3	3	3	136 to 326	482	0/3
Mercury	Soil	18	6	[0.0188] to 0.13	0.1	1/18
	Qbt 3	3	1	0.018 to [0.021]	0.1	0/3

Table 2.4-1 (continued)

Analyte	Media	Number of Analyses	Number of Detects	Sample Value Range (ppm)	BV (ppm)	Frequency of Detects Above BV
Nickel	Soil	18	18	1.4 to 30	15.4	1/18
	Qbt 3	3	3	1.9 to 3.2	6.58	0/3
Potassium	Soil	18	18	170 to 1400	3460	0/18
	Qbt 3	3	3	364 to 463	3500	0/3
Selenium	Soil	18	18	0.287 to 0.962	1.52	0/18
	Qbt 3	3	0	[0.13 to 0.15]	0.3	0/3
Silver	Soil	18	4	[0.107] to 2.2	1	2/18
	Qbt 3	3	0	[0.14 to 0.17]	1	0/3
Sodium	Soil	18	18	70 to 280	915	0/18
	Qbt 3	3	3	116 to 145	2770	0/3
Thallium	Soil	18	14	[0.0532] to 0.154	0.73	0/18
	Qbt 3	3	0	[0.14 to 0.17]	1.1	0/3
Vanadium	Soil	18	18	1.4 to 32	39.6	0/18
	Qbt 3	3	3	3.5 to 6	17	0/3
Zinc	Soil	18	18	14 to 77	48.8	6/18
	Qbt 3	3	3	37 to 42.8	63.5	0/3

[a] Descriptions of the analytical methods used for this PRS can be found in Appendix C. Detection limits can be found in Appendix D.

[b] Values in brackets are the detection limit or range of detection limits.

Table 2.4-2
PRS 03-056(c)
Inorganic Chemicals with Concentrations or Detection Limits at or Exceeding BVs[a]

Analyte	Location ID	Sample ID	Sample Value (ppm)	BV (ppm)	Matrix	Depth (ft)
Arsenic	03-14361	RE03-01-0010	110 (J-)	8.17	Soil	0–0.5
Beryllium	03-14361	RE03-01-0010	2.9 (J-)	1.83	Soil	0–0.5
Cadmium	03-14361	RE03-01-0010	3.6	0.4	Soil	0–0.5
Chromium	03-14319	RE03-01-0008	37 (J-)	19.3	Soil	0–0.5
Cobalt	03-14361	RE03-01-0010	29 (J-)	8.64	Soil	0–0.5
Copper	03-14361	RE03-01-0010	15 (J-)	14.7	Soil	0–0.5
	03-14358	RE03-01-0016	15			0.5–1
Lead	03-14367	RE03-01-0093	23	22.3	Soil	0.5–1
	03-14361	RE03-01-0010	37(J+)			0–0.5
	03-14367	RE03-01-0018	42			0–0.5
	03-14344	RE03-01-0130	22.8	11.2	Qbt 3	0–0.25
Mercury	03-14358	RE03-01-0016	0.13 (J)	0.1	Soil	0.5–1

Table 2.4-2 (continued)

Analyte	Location ID	Sample ID	Sample Value (ppm)	BV (ppm)	Matrix	Depth (ft)
Nickel	03-14361	RE03-01-0010	30 (J-)	15.4	Soil	0–0.5
	03-14358	RE03-01-0016	1.4 (J)			0.5–1
Silver	03-14361	RE03-01-0010	2.2 (J-)	1	Soil	0–0.5
Zinc	03-14393	RE03-01-0003	77 (J-)	48.8	Soil	0–0.5
	03-14361	RE03-01-0010	69 (J-)			0–0.5
	03-14319	RE03-01-0008	55 (J-)			0–0.5
	03-14314	RE03-01-0002	52 (J-)			0–0.5
	03-14334	RE03-01-0009	52 (J-)			0–0.5
	03-14316	RE03-01-0005	49 (J-)			0–0.5

[a] Descriptions of the analytical methods used for this PRS can be found in Appendix C. Detection limits can be found in Appendix D.

A data quality assessment of the inorganic chemical data was conducted. Cadmium was qualified as estimated (J), or estimated and biased high (J+), in eight samples. The J qualifier indicates that the reported value was less than the reporting limit but above the instrument detection limit. The J+ qualifier indicates that matrix-spike recovery was above the upper acceptance limit (125%). Numerous metal detections (arsenic, beryllium, chromium, cobalt, copper, lead, nickel, silver, and zinc) were qualified as estimated and biased low (J-), indicating that recovery in the laboratory control sample was below the lower acceptance limit (80%). The potential low or high bias indicated by these QA/QC results did not affect the usability of the data. Antimony in all soil samples was qualified as unusable (R) because the matrix-spike recoveries were less than the lowest acceptable limit. There were no other data quality issues associated with the inorganic analytical results.

With the exception of the R-qualified data, all the inorganic chemical data are usable. The R-qualified data did not affect the adequacy of the data set for any inorganic chemical when determining whether a release had occurred from the PRS. Data qualified by R are not of sufficient quality to use in a risk assessment and were eliminated from the data set that was used to estimated risk.

The data qualified as J, J+, and J- are considered to be estimated values because the associated QC data did not meet specifications. The qualification of data in this manner indicated uncertainty in the reported concentration, but not in the identity of the analytes. "Risk Assessment Guidance for Superfund," volume 1, part A (EPA 1989, 08021), and "Guidance for Data Usability in Risk Assessment," (part A) (EPA 1992, 54947) state that these data can and should be used in risk assessment just as data with no qualification. The data quality is discussed in more detail in Appendix C.

The data review for inorganic chemicals at PRS 03-056(c) retained the following chemicals as COPCs: arsenic, cadmium, chromium, cobalt, mercury, nickel, silver and, zinc (all in soil only); and lead (in soil and tuff) (Table 2.4-3). Figure 2.4-3 illustrates the inorganic chemicals retained as COPCs as a result of the comparison with BVs.

Table 2.4-3
PRS 03-056(c)
Results of RFI Inorganic Data Review

Analyte	Media	Result	Rationale
Aluminum	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Antimony	Soil	No data	Retained for qualitative evaluation; all antimony results were rejected (R-qualified) due to poor recovery and high potential for false-negative results; data qualified as R are not of sufficient quality to use in a quantitative risk assessment
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Arsenic	Soil	Retained	Retained as a COPC because one sample was detected at a concentration greater than the soil BV and range
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Barium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Beryllium	Soil	Eliminated	Eliminated as a COPC because the one sample concentration greater than the soil BV was within the range of the soil background data
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Cadmium	Soil	Retained	Retained as a COPC because detection limits in two samples were greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3BV
Calcium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Chromium, total	Soil	Eliminated	Eliminated as a COPC because one sample concentration greater than the soil BV was within the range of the soil background data
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 2,3,4 BV
Cobalt	Soil	Retained	Retained as a COPC because one sample concentration was greater than the soil BV and range
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 2,3,4 BV
Copper	Soil	Eliminated	Eliminated as a COPC because the two sample concentrations greater than the soil BV were within the range of the soil background data
	Qbt 3	Eliminated	Eliminated as a COPC because the one sample concentration greater than the Qbt 2,3,4 BV was within the range of the Qbt 2,3,4 background data

Table 2.4-3 (continued)

Analyte	Media	Result	Rationale
Iron	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Lead	Soil	Retained	Retained as a COPC because three sample values greater than the soil BV were also greater than the range of the soil background data
	Qbt 3	Retained	Retained as a COPC because one sample value greater than the Qbt 2,3,4 BV was also greater than the range of the tuff background data
Magnesium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Manganese	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Mercury	Soil	Retained	Retained as a COPC because the detection limit in 1 sample value was greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than Qbt 3 BV
Nickel	Soil	Retained	Retained as a COPC because 1 sample greater than the soil BV was also greater than the soil range
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than Qbt 3 BV
Potassium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Selenium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Silver	Soil	Retained	Retained as a COPC because two values were greater than the soil BV and the range
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Sodium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV

Table 2.4-3 (continued)

Analyte	Media	Result	Rationale
Thallium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Vanadium	Soil	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV
Zinc	Soil	Retained	Retained as a COPC because 6 sample values were greater than the soil BV
	Qbt 3	Eliminated	Eliminated as a COPC because it was not detected at concentrations greater than the Qbt 3 BV

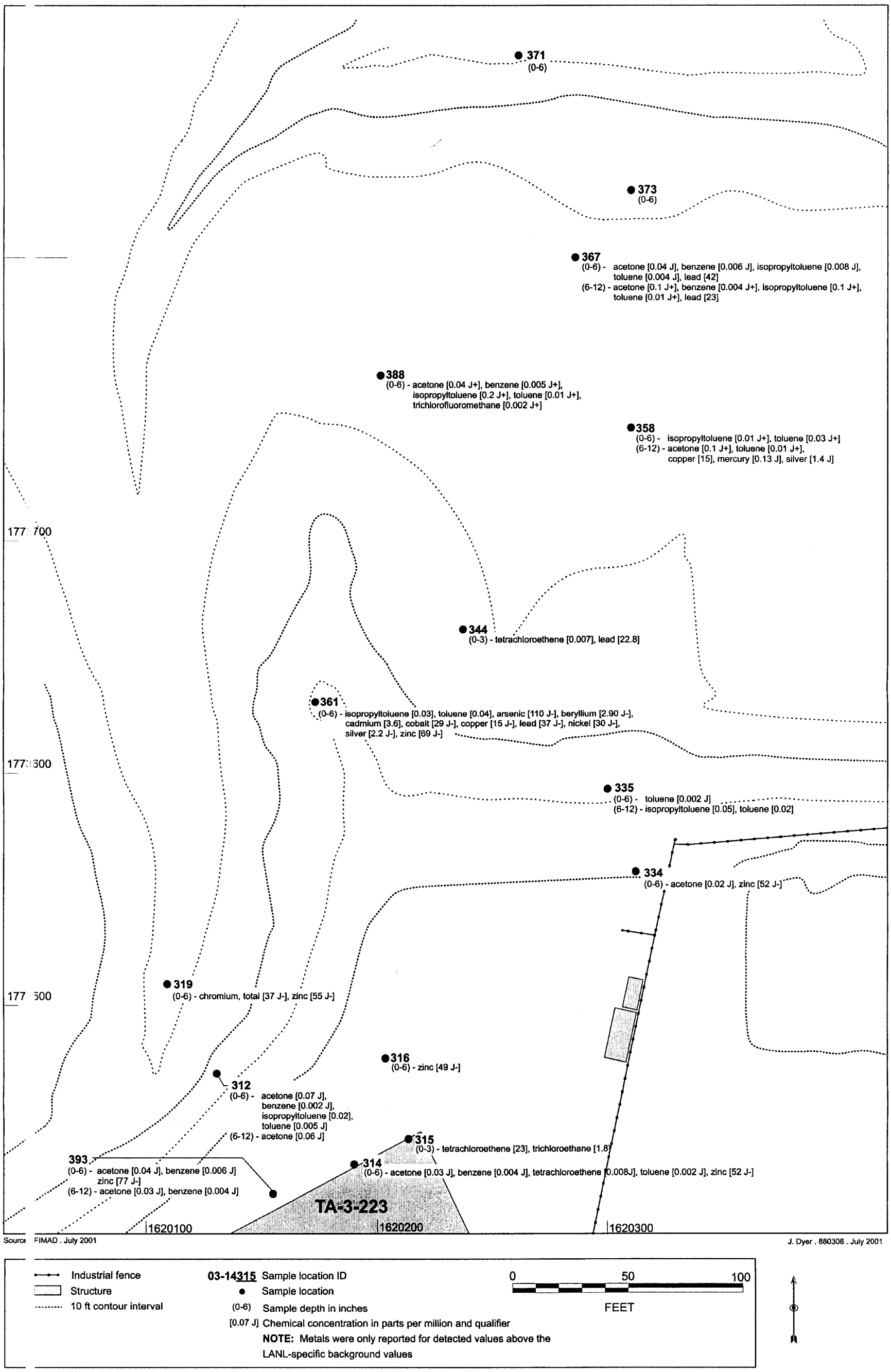

Figure 2.4-3. Confirmatory sampling locations and detected inorganic and organic chemical concentrations at PRS 03-056(c)

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2.4.3.2 Radionuclide Comparison with Background/Fallout Radionuclide Concentration

PRS 03-056(c) has never been used for radiation-related work, nor is there any record of releases or spills of radioactive materials. Radiological surveys performed during the initial RFI did not detect any radiation. Therefore, environmental media samples were not analyzed for radionuclides.

2.4.3.3 Evaluation of Organic Chemicals

The results of the organic chemical analyses of the soil and tuff sampled at PRS 03-056(c) are discussed in this section and presented in their entirety in Appendix D. Table 2.4-4 summarizes the frequency of organic chemical detection. Table 2.4-5 presents the detected organic chemicals. Organic chemical data were qualified as estimated (J) and estimated biased high (J+) because the associated laboratory control sample failed acceptance criteria. Organic chemicals were qualified as estimated (J) because the reported values were less than the reporting limits but above the method detection limits. The affected analytes for all the qualified data can be found in Appendix C.

The data qualified as J and J+ are considered to be estimated values because the associated QC data did not meet specifications. The qualification of data in this manner indicated uncertainty in the reported concentration, but not in the identity of the analytes. "Risk Assessment Guidance for Superfund," volume 1, part A (EPA 1989, 08021), and "Guidance for Data Usability in Risk Assessment" (part A) (EPA 1992, 54947) state that these data can and should be used in risk assessment just as data with no qualification. All the organic chemical data are usable. Environmental and climatic conditions during sampling at this PRS did not affect the analytical results or data quality. The data quality is discussed in more detail in Appendix C.

Table 2.4-4
PRS 03-056(c)
Frequency of Detected Organic Chemicals[a]

Analyte	Media	Number of Analyses	Number of Detects	Concentration Range (ppm)	Estimated Quantitation Limits (mg/kg)	Frequency of Detects
Acetone	Soil	18	10	[0.021 to 0.42][b]	0.02	10/18
Aroclor-1260	Soil	80	54	[0.033] to 4.1	0.033	54/80
	Qbt 3	4	2	[0.034] to 2.6	0.033	2/4
Benzene	Soil	18	7	0.0023 to [0.012]	0.005	7/18
Isopropyltoluene[4-]	Soil	18	7	[0.0053] to 0.15	0.005	7/18
Tetrachloroethene	Soil	18	1	[0.0053 to 0.012]	0.005	1/18
	Qbt 3	3	2	[0.0056] to 23	0.005	2/3
Toluene	Soil	18	10	0.0019 to 0.04	0.005	10/18
Trichloroethane[1,1,1-]	Qbt 3	3	1	[0.0052] to 1.8	0.005	1/3
Trichlorofluoromethane	Soil	18	1	0.0022 to [0.023]	0.005	1/18

[a] Descriptions of the analytical methods used for this PRS can be found in Appendix C. Detection limits can be found in Appendix D.

[b] Values in brackets are the detection limit or range of detection limits.

Table 2.4-5
PRS 03-056(c), Detected Organic Chemicals[a]

Analyte	Location ID	Sample ID	Sample Value (ppm)	Media	Depth (ft)
Acetone	03-14312	RE03-01-0006	0.071 (J)	Soil	0–0.5
	03-14312	RE03-01-0007	0.059 (J)	Soil	0.5–1
	03-14314	RE03-01-0002	0.031 (J)	Soil	0–0.5
	03-14334	RE03-01-0009	0.022 (J)	Soil	0–0.5
	03-14358	RE03-01-0016	0.11 (J+)	Soil	0.5–1
	03-14367	RE03-01-0018	0.043 (J)	Soil	0–0.5
	03-14367	RE03-01-0093	0.13 (J+)	Soil	0.5–1
	03-14388	RE03-01-0017	0.036 (J+)	Soil	0–0.5
	03-14393	RE03-01-0003	0.044 (J)	Soil	0–0.5
	03-14393	RE03-01-0004	0.029 (J)	Soil	0.5–1
Aroclor-1260	03-14309	RE03-01-0071	0.21	Soil	0–0.5
	03-14310	RE03-01-0075	0.91	Soil	0–0.5
	03-14311	RE03-01-0059	2.1	Soil	0–0.5
	03-14312	RE03-01-0006	0.1	Soil	0–0.5
	03-14312	RE03-01-0007	0.056	Soil	0.5–1
	03-14313	RE03-01-0070	4.1	Soil	0–0.5
	03-14314	RE03-01-0002	2.5	Soil	0–0.5
	03-14315	RE03-01-0128	2.6	Qbt 3	0–0.25
	03-14316	RE03-01-0005	0.13	Soil	0–0.5
	03-14317	RE03-01-0072	0.37	Soil	0–0.25
	03-14318	RE03-01-0074	2.8	Soil	0–0.25
	03-14319	RE03-01-0008	1.2	Soil	0–0.5
	03-14320	RE03-01-0077	0.096	Soil	0–0.25
	03-14321	RE03-01-0073	1.5	Soil	0–0.5
	03-14322	RE03-01-0069	0.15	Soil	0–0.25
	03-14325	RE03-01-0061	0.061	Soil	0–0.25
	03-14326	RE03-01-0062	3.4	Soil	0–0.5
	03-14328	RE03-01-0078	0.85	Soil	0–0.5
	03-14329	RE03-01-0066	0.097	Soil	0–0.25
	03-14330	RE03-01-0064	2.8	Soil	0–0.5
	03-14331	RE03-01-0058	0.24	Soil	0–0.25
	03-14332	RE03-01-0057	0.16	Soil	0–0.25
	03-14338	RE03-01-0053	0.43	Soil	0–0.5
	03-14341	RE03-01-0050	0.39	Soil	0–0.25
	03-14342	RE03-01-0049	0.069	Soil	0–0.5
	03-14343	RE03-01-0048	0.41	Soil	0–0.5
	03-14345	RE03-01-0044	1.6	Soil	0–0.5
	03-14346	RE03-01-0055	0.21	Soil	0–0.5
	03-14347	RE03-01-0042	0.3	Soil	0–0.25
	03-14348	RE03-01-0043	0.71	Soil	0–0.5
	03-14349	RE03-01-0045	0.22	Soil	0–0.5

Table 2.4-5 (continued)

Analyte	Location ID	Sample ID	Sample Value (ppm)	Media	Depth (ft)
Aroclor-1260 (continued)	03-14350	RE03-01-0040	0.041	Soil	0–0.25
	03-14352	RE03-01-0039	0.085	Soil	0–0.25
	03-14353	RE03-01-0041	0.22	Soil	0–0.25
	03-14354	RE03-01-0046	0.77	Soil	0–0.5
	03-14357	RE03-01-0037	0.059	Soil	0–0.25
	03-14358	RE03-01-0015	0.14	Soil	0–0.5
	03-14358	RE03-01-0016	0.37	Soil	0.5–1
	03-14359	RE03-01-0079	1.9	Soil	0–0.5
	03-14361	RE03-01-0010	0.043	Soil	0–0.5
	03-14362	RE03-01-0029	0.49	Soil	0–0.5
	03-14364	RE03-01-0032	0.8	Soil	0–0.5
	03-14365	RE03-01-0034	0.057	Soil	0–0.5
	03-14367	RE03-01-0018	0.43	Soil	0–0.5
	03-14367	RE03-01-0093	0.25	Soil	0.5–1
	03-14368	RE03-01-0027	0.21	Soil	0–0.5
	03-14370	RE03-01-0025	0.27	Soil	0–0.5
	03-14375	RE03-01-0022	0.15	Soil	0–0.5
	03-14376	RE03-01-0131	0.23	Qbt 3	0–0.25
	03-14378	RE03-01-0019	0.12	Soil	0–0.5
	03-14379	RE03-01-0028	0.1	Soil	0–0.5
	03-14380	RE03-01-0080	1.2	Soil	0–0.5
	03-14385	RE03-01-0051	0.31	Soil	0–0.5
	03-14386	RE03-01-0047	0.13	Soil	0–0.25
	03-14388	RE03-01-0017	0.06	Soil	0–0.5
	03-14393	RE03-01-0003	0.068	Soil	0–0.5
Benzene	03-14312	RE03-01-0006	0.0023 (J)	Soil	0–0.5
	03-14314	RE03-01-0002	0.0037 (J)	Soil	0–0.5
	03-14367	RE03-01-0018	0.0062 (J)	Soil	0–0.5
	03-14367	RE03-01-0093	0.0044 (J+)	Soil	0.5–1
	03-14388	RE03-01-0017	0.0053 (J+)	Soil	0–0.5
	03-14393	RE03-01-0003	0.0064 (J)	Soil	0–0.5
	03-14393	RE03-01-0004	0.0035 (J)	Soil	0.5–1
Isopropyltoluene[4-]	03-14312	RE03-01-0006	0.02	Soil	0–0.5
	03-14335	RE03-01-0012	0.047	Soil	0.5–1
	03-14358	RE03-01-0015	0.011 (J+)	Soil	0–0.5
	03-14361	RE03-01-0010	0.03	Soil	0–0.5
	03-14367	RE03-01-0018	0.0083 (J)	Soil	0–0.5
	03-14367	RE03-01-0093	0.14 (J+)	Soil	0.5–1
	03-14388	RE03-01-0017	0.15 (J+)	Soil	0–0.5
Tetrachloroethene	03-14314	RE03-01-0002	0.0081 (J)	Soil	0–0.5
	03-14315	RE03-01-0128	23	Qbt 3	0–0.25
	03-14344	RE03-01-0130	0.0074	Qbt 3	0–0.25

Table 2.4-5 (continued)

Analyte	Location ID	Sample ID	Sample Value (ppm)	Media	Depth (ft)
Toluene	03-14312	RE03-01-0006	0.005 (J)	Soil	0–0.5
	03-14314	RE03-01-0002	0.0022 (J)	Soil	0–0.5
	03-14335	RE03-01-0011	0.0019 (J)	Soil	0–0.5
	03-14335	RE03-01-0012	0.021	Soil	0.5–1
	03-14358	RE03-01-0015	0.027 (J+)	Soil	0–0.5
	03-14358	RE03-01-0016	0.0095 (J+)	Soil	0.5–1
	03-14361	RE03-01-0010	0.04	Soil	0–0.5
	03-14367	RE03-01-0018	0.0038 (J)	Soil	0–0.5
	03-14367	RE03-01-0093	0.012 (J+)	Soil	0.5–1
	03-14388	RE03-01-0017	0.012 (J+)	Soil	0–0.5
Trichloroethane[1,1,1-]	03-14315	RE03-01-0128	1.8	Qbt 3	0–0.25
Trichlorofluoromethane	03-14388	RE03-01-0017	0.0022 (J+)	Soil	0–0.5

[a] Descriptions of the analytical methods used for this PRS can be found in Appendix C. Detection limits can be found in Appendix D.

Seven organic chemicals in soil and three organic chemicals in tuff have been retained as COPCs for further evaluation (Table 2.4-6). Confirmatory sample locations of the detected organic chemicals that were retained as COPCs are shown in Figure 2.4-3 (organic and inorganic chemicals) and Figure 2.4.4 (PCBs).

Table 2.4-6
PRS 03-056(c)
Results of Organic Chemical Data Review

Analyte	Media	Result	Rationale
Acetone	Soil	Retained	Retained as a COPC because it was detected in 10 samples in soil
Aroclor-1260	Soil	Retained	Retained as a COPC because it was detected in 54 samples in soil
	Qbt 3	Retained	Retained as a COPC because it was detected in 2 samples in tuff.
Benzene	Qbt 3	Retained	Retained as a COPC because it was detected in 7 samples in tuff
Isopropyltoluene[4-]	Soil	Retained	Retained as a COPC because it was detected in 7 samples in soil
Tetrachloroethene	Soil	Retained	Retained as a COPC because it was detected in 1 sample in soil
	Qbt 3	Retained	Retained as a COPC because it was detected in 2 samples in tuff
Toluene	Soil	Retained	Retained as a COPC because it was detected in 10 samples in soil
Trichloroethane[1,1,1-]	Soil	Retained	Retained as a COPC because it was detected in 1 sample in soil
Trichlorofluoromethane	Soil	Retained	Retained as a COPC because it was detected in 1 sample in soil

2.4.3.4 Other Applicable Data Comparison with Background and/or Cleanup Levels

There are no other applicable data for comparison with background and/or cleanup levels.

2.4.4 Revised Site Conceptual Model

The preliminary conceptual model for contaminant distribution assumed that contamination of the soil and tuff would be limited to the area directly affected by spills from the transformer storage pad area. In that

model, transport of contamination subsequent to the initial release was considered to be limited. During this investigation, characterization work was conducted to supplement a previous investigation of young (Laboratory-aged) sediments composing low terraces along the creek. Results from the previous investigation had indicated that locally high PCB concentrations were located at the toe of the west slope of PRS 03-056(c), and that concentrations found further downcanyon (including within the wetlands area) were significantly lower. All but one of the PCB values detected in the wetland were less than 1 mg/kg, with one value at 2 mg/kg (LANL 2000, 64349). The supplemental data provided by the VCA investigation indicated that some transport of PCB contamination had likely occurred via stormwater runoff from the contaminated hill slope. The likely scenario is that PCB contamination was sorbed to relatively fine-grained sediment particles that were eroded and transported off of the hillslope and deposited on the floodplain terrace in the canyon. Thus, in order to achieve the remediation goal, the sediment contamination in the canyon floor was also remediated.

Human exposure to contaminants, reflected in the preliminary conceptual exposure model (see section 2.3.2.3), could occur through inhalation of suspended particulates, incidental ingestion of soil, or dermal exposure. These same exposure routes are relevant following completion of the VCA. The source term, however, has been greatly reduced by removal of contaminated soil down to tuff. In addition, many areas with residual contamination have been paved or potential exposure has been mitigated by installation of best management practices (BMPs) or placement of clean fill. BMPs, such as placement of gabions or matting, or cover with clean fill decrease the likelihood that a receptor will encounter residual contamination.

The potential exposure pathways for ecological receptors at these locations are limited to root uptake through cracks and crevices in the tuff. For plants, this pathway of exposure is expected to result in limited uptake of contamination since all other contamination above tuff has been removed. All other potential pathways have been eliminated by remediation. The ecological conceptual exposure model for PRS 03-056(c) and the associated rationale are presented in part C of the ecological scoping checklist (Appendix H).

2.4.4.1 Nature and Extent of Contamination

Soil from PRS 03-056(c) was sampled prior to excavation activities, and it was analyzed with a semi-quantitative EnSys test kit. These results (Figure 2.4-1), along with the results from the confirmatory sampling performed during the 1995 RFI EC (see VCA plan, Appendix H), were used to better define the lateral extent of PCB contamination, prior to commencing VCA activities. During excavation activities, EnSys test kits were used to verify that PCB contamination had been successfully removed down to the mandated cleanup criterion of <1 ppm PCB, or down to consolidated tuff. EnSys results were confirmed with analytical results. The results from this sampling effort required expanding the original area to be excavated (see Figure 2.4-2 and Figure 2.4-5). More details about the remediation activities are provided in section 2.4.2. Details of the results of confirmatory sampling are provided in section 2.4.3.

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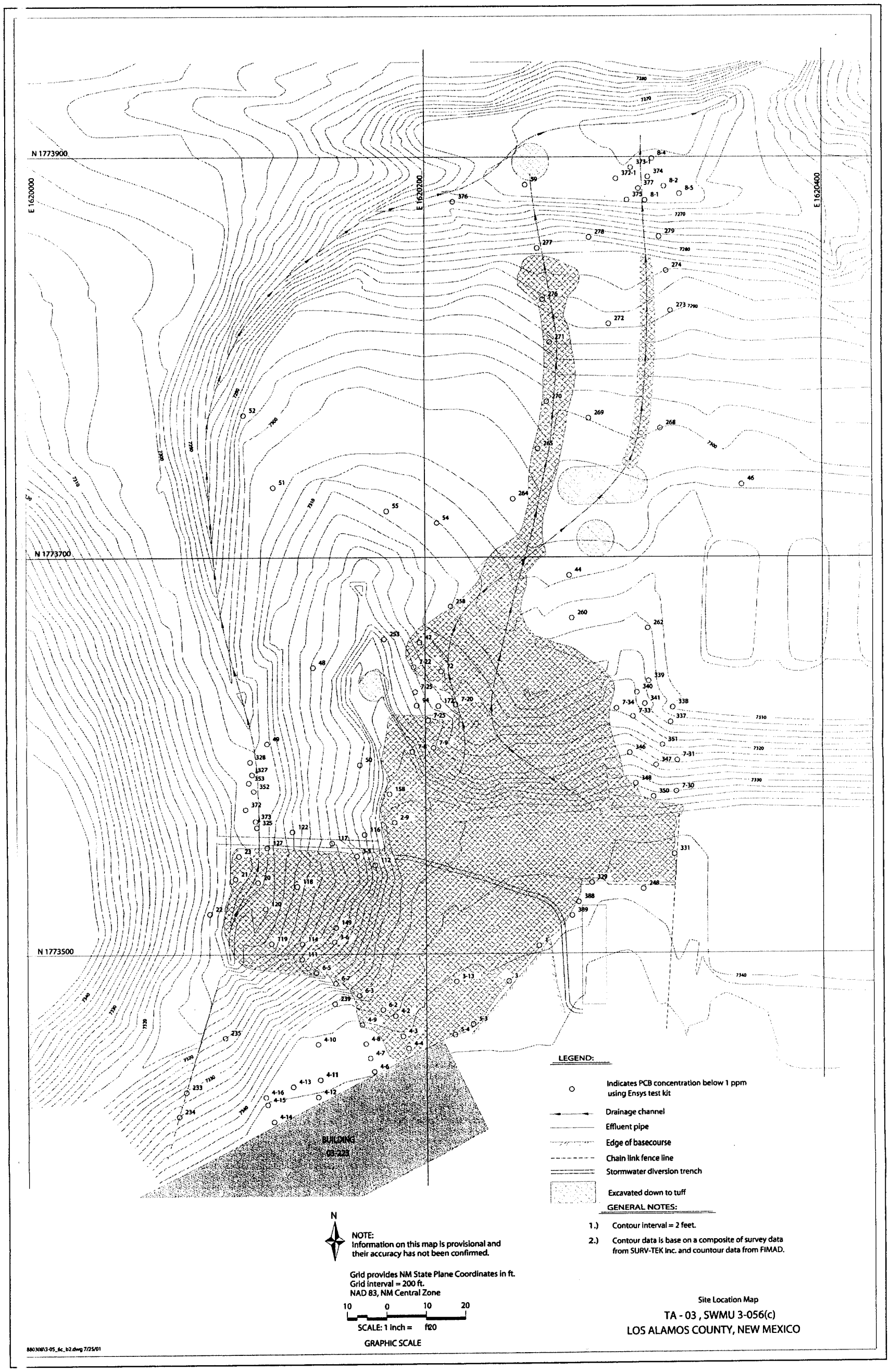

Figure 2.4-5. Areas excavated down to tuff and sample locations with <1 ppm PCB concentrations at PRS 03-056(c), March 2001

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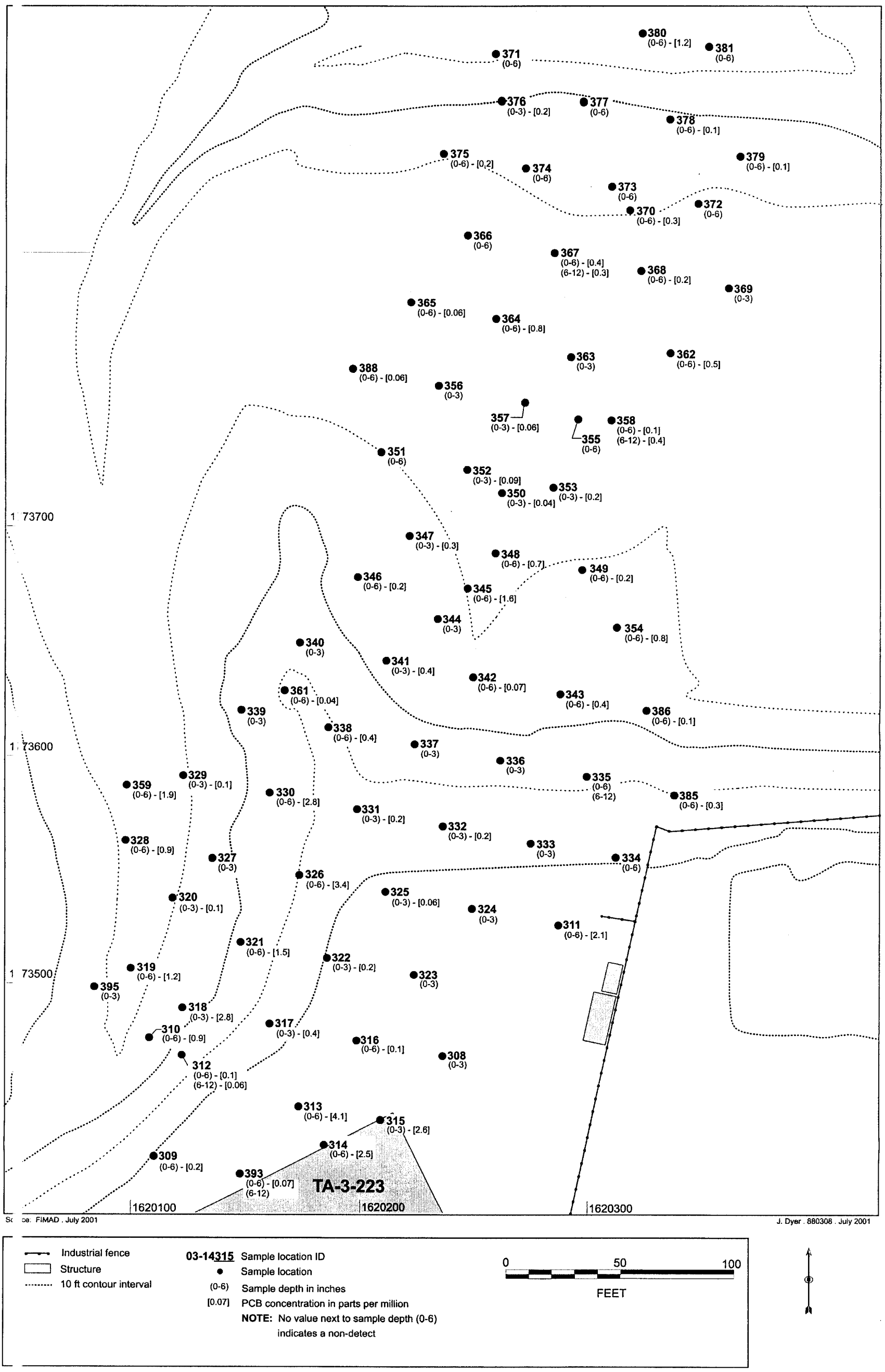

Figure 2.4-4. Confirmatory sample locations and PCB concentrations at PRS 03-056(c)

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2.4.4.2 Environmental Fate

This section evaluates the environmental fate of the detected organic chemical and metal COPCs. The evaluation of environmental fate addresses the chemical processes that affect the persistence of a chemical along a migration pathway, and therefore the potential for exposure to receptors or impacts to other environmental media via transport processes. Published studies have generated empirical data regarding degradation of constituents in the environment. These data are useful for evaluating environmental fate. The data is presented for key constituents identified at PRS 03-056(c) in Table 2.4-7 as the number of days it takes for chemicals to degrade 50% in water and soil (half-life in water and soil). The evaluation of transport addresses the physical processes affecting mobility along a migration pathway. Physicochemical properties such as vapor pressure, solubility in water, and the tendency to be adsorbed by soils (Kd and Koc) are important to evaluating chemical mobility. The transport and mobility of the COPCs are discussed below, and the physicochemical properties are listed in Table 2.4-7.

Water solubility is perhaps the most important chemical characteristic used for assessing chemical mobility. Soil sorption, chemical sorption, or chemical binding in soil may limit the transport of a chemical. These properties may be expressed as ratios of the concentration of a chemical partitioned between solid and liquid phases. The partitioning ratio between organic material and water is known as the carbon-water sorption coefficient (Koc). The partitioning ratio between soils and water is known as the distribution coefficient (Kd). For metals, Kd is assumed to be independent of the organic carbon in the partitioning media and is governed by other factors such as pH, redox potential, iron content, and ion chemistry. Volatilization of an organic chemical will enhance diffusion through the soil pore gas and potential release to the atmosphere. Metals are considered nonvolatile at ambient temperatures.

Table 2.4-7
Physicochemical Properties for COPCs

Name	Vapor Pressure mmHg @ 20°C–25°C	Water Solubility mg/L @ 25°C[a]	Kd (cm^3/g)	Koc (L/kg)	Half-Life in Water[b]	Half-Life in Soil[b]
Organics						
Acetone	161.2[c]	30,200 to 1 x 10^6	.0035[d]	0.58	High: 28 days Low: 4 days	High: 7 days Low: 1 days
Aroclor-1260	4.05 x 10-5[e]	0.027[e]	NA	290,000[a]	resistant to degradation[e]	resistant to degradation[e]
Benzene	94.8[e]	1750	0.37[d]	58.9	High: 24 mos. Low: 16 wks.	High: 10 days Low: 5 days
Isopropyltoluene [4-]	1.72[e]	Insoluble[e]	NA	NA	NA	NA
Tetrachloroethene	14[f]	200	1.6[d]	15.5[a]	High: 4.5 years Low: 98 days	High: 1 year Low: 6 mos.
Toluene	22.2[c]	526	0.84[d]	182[a]	High: 30 wks. Low: 8 wks.	High: 22 days Low: 4 days
Trichloroethane [1,1,1-]	124[e]	1330	0.81[d]	110[a]	High: 156 wks. Low: 80 wks.	High: 39 wks. Low: 20 wks.
Trichlorofluoromethane	803[e]	1100	0.96[d]	158.5[a]	High: 4 yrs. Low: 2 yrs.	High: 1 yr. Low: 6 mos.

Table 2.4-7 (continued)

Name	Vapor Pressure mmHg @ 20°C–25°C	Water Solubility mg/L @ 25°C[a]	Kd (cm^3/g)	Koc (L/kg)	Half-Life in Water[b]	Half-Life in Soil[b]
Inorganics						
Arsenic	NA	30,200	200[a]	NA	NA	NA
Cadmium	NA	29,800	75[a]	NA	NA	NA
Cobalt	NA	25,900	45[a]	NA	NA	NA
Lead	NA	50,000	900[a]	NA	NA	NA
Mercury	NA	0.06	52[a]	NA	NA	NA
Nickel	NA	Insoluble	NA	NA	NA	NA
Silver	NA	55,700	8.3[a]	NA	NA	NA
Zinc	NA	43,200	62[a]	NA	NA	NA

[a] Source = Risk Assessment Information System (DOE 2001, 70089).

[b] Data from "Handbook of Environmental Degradation Rates" (Howard 1991, 57902).

[c] "Vapor Pressures of Volatile Chemicals" (Byers 2001, 70088).

[d] EPA Region 9 PRGs (EPA 2001, 63061).

[e] Hazardous Substances Data Bank (NLM 2001, 63385).

[f] *NIOSH Pocket Guide to Chemical Hazards* (NIOSH 1985, 12554).

NA = not available

The following information, summarized from Ney (1995, 58210), is intended to give an indication of the fate and transport tendencies of organic chemicals. The higher the water solubility of a chemical, the more likely it is to be mobile and the less likely it is to accumulate, bioaccumulate, volatilize, and persist in the environment. However, a highly soluble chemical (greater than 1000 mg per liter [mg/L]) is more prone to biodegradation and metabolism. The lower the water solubility of a chemical (less than 10 mg/L), the more likely it is that it will be immobilized by way of adsorption. Chemicals with a Koc of greater than 10,000 L/kg will tend to remain immobilized on soil particles. Chemicals with a Koc of 1000 L/kg or less will tend to be more mobile in soil-pore water. A chemical with a low vapor pressure (less than 0.000001 millimeters mercury [mmHg]) is less likely to volatilize. A chemical with high vapor pressure (greater than 0.01 mmHg) is more likely to volatilize.

The fate and transport of metals is primarily dependent on Kd. In general, the mobility of metals is limited and they tend to remain in place where deposited. However, metals adsorbed to particles may be transported via runoff.

(a) Organic Chemicals

Acetone is very soluble in water, indicating that the chemical will be highly mobile in percolating water from rainfall infiltration. Acetone also has a high vapor pressure, indicating that the dominant phase of this chemical is gaseous. The relatively low Koc value for acetone indicates that it does not tend to be highly absorbed. Biodegradation of acetone is expected to be relatively rapid, with an estimated half-life of 4.75 days in soil (HSBD 2001, 63385). When solubilized in water, acetone is expected to biodegrade with an estimated half-life of approximately 1 day (HSBD 2001, 63385).

Although acetone is very soluble and not strongly sorbed on soil particles, the mass available for migration and the limited amount of water percolating through the soil at the site will limit translocation. Acetone biodegrades readily and is mainly present in soil gas. Based on this information and on site

conditions, it appears unlikely that acetone would be transported off-site. The other organic COPCs are less soluble than acetone, and have higher Koc and Kd. These properties indicate that the other organic COPCs are less mobile than acetone and are more prone to sorb to soil particles.

(b) PCBs

The greatest factor limiting the transport of PCBs in the environment is the solubility of PCBs in water. The solubility of PCBs is low and decreases with increasing chlorine content. A solubility value given by Monsanto for Aroclor-1260 is about 0.025 ppm or milligram/L. PCBs adsorb relatively quickly onto plastic, silts, and organic material as reflected by its Koc of 290,000 L/kg. Thus, organic matter with adsorbed PCBs would be resistant to migration, except as particles in runoff.

The transport and migration pathways present for PCB contamination within the vadose zone include the leaching pathway and migration via sorption to organic matter, silts, and clays transported by percolating water. Aroclor-1260 is very resistant to biodegradation and will remain in place for an extended period unless moved in the bound phase with soil. Limited migration of Aroclor-1260 is expected in the subsurface due to the low permeability of the tuff bedrock and the limited vertical extent of percolating precipitation. Migration of PCB contamination sorbed to eroded and transported particles is highly unlikely due to the BMPs put in place as part of the VCA remedy. Based on this information and on site conditions, it appears unlikely that remaining low-level PCB contamination will be transported off-site.

(c) Inorganic Chemicals

Metals can be transported as colloidal or dissolved phases. Because of sorption and precipitation, inorganic chemicals can have long residence times. The mobility of inorganic chemicals is governed largely by the redox potential and pH conditions of the water, soil, sediment, and tuff. The redox potential and pH conditions exert a strong influence on the speciation of inorganic chemicals, which affects the solubility and sorption of inorganic phases. Soil sorption, chemical sorption, or chemical binding in soil is expressed as Kd. In general, metallic cations are strongly adsorbed to soil particles, especially if the soil is not highly acidic. Adsorption to particulate matter is the major mechanism by which inorganic chemicals are removed from solution and is dependent, in part, upon the type of soil.

The reaction of arsenic, cadmium, cobalt, lead, mercury, silver, and zinc in soils is affected by the pH, organic matter content, and the redox potential of the soil. Ordinarily, at pH values of 6.5 and above, these inorganic chemicals tend to be so highly adsorbed that their availability for uptake in plants is limited, especially if the chemicals are present in their high-valence or oxidized forms. These chemicals are likely bound to the soil and move primarily due to transport of soil particles by water as opposed to moving as dissolved chemicals in water. Because the mass available for migration is very low, transport of inorganic chemicals adsorbed on soil particles by water will be very limited due to the low permeability of the tuff bedrock and limited vertical extent of percolating precipitation. Based on this information and on site conditions, it appears unlikely that inorganic contamination will be transported off-site.

2.5 Site Assessments

2.5.1 Screening Assessments

2.5.1.1 Human Health

The human-health screening assessment consists of four parts: scoping, screening evaluation, uncertainty analysis, and interpretation.

(a) Scoping

PRS 03-056(c) is an inactive outdoor storage area that was used only for industrial activities. The PRS lies entirely on DOE land and is isolated from public access roads. Based on future and current land-use planning, LANL will continue to use the property for industrial purposes (LANL 1995, 57224). The exposure pathways that are considered for site worker are inhalation of particulates/dust, incidental ingestion of soil, and dermal contact with the soil.

(b) Screening Evaluation

The inorganic and organic COPCs identified by the data review (section 2.4.3) were compared against SALs to determine if the chemicals were detected at concentrations of potential concern to human health. For noncarcinogenic and carcinogenic COPCs, Tables 2.5-1 and 2.5-2 provide this comparison.

Because there were sufficient samples collected and numerous detections of inorganic chemicals in soil, the upper 95% confidence level on the arithmetic mean (UCL_{95}) was calculated for inorganic chemicals in soil to better represent the exposure over the entire PRS (see Appendix E). Therefore, the exposure point concentration for inorganic chemicals in soil is the UCL_{95}.

The use of the UCL_{95} on Aroclor-1260 data for comparison to the 1-ppm cleanup criterion was agreed to in a meeting with EPA Region 6 on October 13, 2000. EPA guidance for performing risk assessments states that

> in most situations, assuming long-term contact with the maximum concentration is not reasonable... Because of the uncertainty associated with an estimate of exposure concentration, the upper confidence limit (i.e., the 95 percent upper confidence limit) on the arithmetic average will be used for this variable. (EPA 1989, 08021)

Table 2.5-1
PRS 03-056(c)
Comparison of Noncarcinogenic COPCs to SALs

Analyte	Location ID	Sample ID	Depth (ft)	Exposure Point Concentration (ppm)	SAL (ppm)	0.1 SAL (ppm)
Acetone	03-14367	RE-03-01-0093	0–0.5	0.13(J+)	1600	160
Cadmium	n/a[a]	NA	NA	0.65[b]	70	7.0
Cobalt	NA	NA	NA	6.59[b]	45000	4500
Isopropyltoluene[4-]	03-14388	RE-03-01-0017	0–0.5	0.15 (J+)	160	16
Lead	NA	NA	NA	17[b]	400	40
Mercury	NA	NA	NA	0.04[b]	23	2.3
Nickel	NA	NA	NA	7.9[b]	1500	150
Silver	NA	NA	NA	0.56[b]	380	38
Toluene	03-14361	RE-03-01-0010	0–0.5	0.04	180	18
Trichloroethane[1,1,1-]	03-14315	RE-03-01-0128	0–0.25	1.8	590	59
Trichlorofluoromethane	03-14388	RE-03-01-0017	0.5–1	0.0022(J+) (U,J)	390	39
Zinc	NA	NA	NA	51.5[b]	23,000	2300

[a] NA = Not applicable because the UCL_{95} is a statistic derived from numerous locations.

[b] UCL_{95} based on the bootstrap method (see Appendix E).

Table 2.5-2
PRS 03-056(c)
Comparison of Carcinogenic COPCs to SALs

Analyte	Location ID	Sample ID	Depth (ft)	Exposure Point Concentration (ppm)	SAL
Aroclor-1260	NA[a]	NA	NA	0.62[b]	0.22
Arsenic	NA	NA	NA	21.1	0.39
Benzene	03-14393	RE-03-01-0003	0.5–1	0.012 (U[c],J[d])	0.64
Tetrachloroethene	03-14314 03-14315	RE-03-01-0002 RE-03-01-0128	0-0.5 0–0.25	0.0081 (soil) 23 (tuff)	4.9

[a] NA = Not applicable because the UCL_{95} is a statistic derived from numerous locations.

[b] UCL_{95} based on the bootstrap method (see Appendix E).

With the exception of Aroclor-1260, there were not enough detections of most organic chemicals to allow calculation of a representative UCL_{95}. Because the purpose of the VCA was to remove PCBs from the affected area and to provide sufficient data to demonstrate effective removal, a UCL_{95} was calculated for the exposure point concentration for Aroclor-1260. The exposure point concentration for other organic COPCs, however, is the maximum concentration detected.

The SALs used in these comparisons are based on the approach outlined in the installation work plan (IWP) (LANL 2000, 66802) and guidance in the technical background document of soil screening levels (NMED 2000, 68554) and "Human Health Medium-Specific Screening Levels" (EPA 2000, 68410). These

SALs reflect a residential exposure scenario in which exposure is based on 24 hours per day and 350 days per year. The comparison to SALs was conducted separately for carcinogens and noncarcinogens. The exposure point concentration of each COPC was compared with the SALs for carcinogens and one-tenth of SAL for noncarcinogens because there were more than two noncarcinogenic COPCs.

The noncarcinogenic COPCs identified by the data review (section 2.4.3.3) were acetone, cadmium, cobalt, isopropyltoluene[4-], lead, mercury, nickel, silver, toluene, trichloroethane[1,1,1-], trichlorofluoromethane, and zinc (Table 2.5-1). All noncarcinogenic COPCs had maximum concentrations or $UCLs_{95}$ less than one-tenth their respective SALs. Additionally, the sum of the ratios of each of the exposure point concentrations divided by their respective SALs is less than 1, indicating that a health hazard is not expected, even if a receptor were exposed to all the COPCs at one location.

Carcinogenic COPCs identified by the data review (section 2.4.3.3) were Aroclor-1260, arsenic, benzene, and tetrachloroethene (Table 2.5-2). Of these, Aroclor-1260, arsenic, and tetrachloroethene had exposure point concentrations greater than SALs. The total cancer risk is approximately 6 in 100,000, or 6×10^{-5}, if the anomalous detection of arsenic is included in the calculation, but only 2 in 100,000 (2×10^{-5}) if the anomalous data are excluded. In their technical background document of soil screening levels (NMED 2000, 68554), NMED has indicated that carcinogenic risk of less than 1 in 100,000 (1×10^{-5}) is acceptable.

(c) Uncertainty Analysis

The human-health screening evaluation is a conservative comparison of exposure point concentrations at the site with SALs. Use of the maximum concentration for organic COPCs would result in an overestimation of the risk due to industrial land use. As indicated in the scoping section of this document (section 2.5.1.1[a]), this land is expected to remain under control of the DOE and to be used for industrial purposes. Because the SALs are based on residential land use, it is unlikely that the assessment resulted in an underestimate of potential risks.

The risk estimates calculated in this human-health screening assessment are subject to varying degrees and kinds of uncertainty from a variety of sources. The uncertainties associated with the data evaluation—exposure assessment, toxicity assessment, and the additive approach—directly affect the risk characterization.

Data Evaluation and COPC Identification Process

A primary uncertainty associated with the COPC identification process is the possibility that a chemical may be inappropriately identified as a COPC for evaluation in the risk screening assessment (i.e., a detected chemical may be inappropriately excluded or included as a COPC). It is unlikely that chemicals were inappropriately excluded as COPCs since the only detected chemicals excluded as COPCs were inorganic chemicals detected at concentrations within the background range. Nine metals were detected in surface soil at concentrations exceeding the BVs and the background ranges. Six of these metals were detected at elevated concentrations in only 1 surface soil sample out of 18 collected (see statement concerning frequency of detection below) at a single location (03-14361) at the point of the peninsula between the north and west slopes. Other sample results indicate that these metals are present only at low concentrations across the site. Therefore, inclusion of the high result for the metals in the assessment may cause an overestimation of the potential risk.

Frequency of detection should be considered as an uncertainty of the data. All detected chemicals in all samples are included in the screening assessment regardless of the number of detects. Inclusion of all

chemicals potentially overestimates the risk by including chemicals that are isolated in occurrence and may not be representative of overall site exposure conditions.

Some uncertainty is present in the chemical concentrations detected and reported by the analytical laboratory. The quality of the analytical data used in the risk assessment depends upon the adequacy of the set of procedures that specified how samples were selected and handled and how well these procedures were followed. Uncertainties associated with the data can include sampling errors, laboratory analysis errors, and data analysis errors. QA/QC procedures are used to minimize these uncertainties, and this issue is expected to have a low effect on either underestimating or overestimating the risk.

Exposure Assessment

Uncertainties were identified in three areas of the exposure assessment process: (1) identification of receptors, (2) the exposure pathway assumptions, and (3) the derivation of exposure point concentrations.

Identification of receptors. The human-health screening evaluation is a conservative comparison of the maximum detected concentrations, or the $UCLs_{95}$, with SALs based on a residential exposure scenario. To the degree that land use and activity patterns are not represented by those assumed in the residential scenario, uncertainties are introduced. As indicated in the scoping section (section 2.5.1.1[a]), this land is expected to remain in use as an industrial area. If future land use becomes residential, then the screening assessment would adequately reflect the exposure of residents. However, if the potentially exposed individual is site worker, as expected, the screening assessment would overestimate the exposure and subsequently overestimate the hazard and risk to receptors.

Exposure pathway assumptions. For each exposure pathway, assumptions are made concerning the parameters, the routes of exposure, the amount of contaminated media an individual can be exposed to, and intake rates for different routes of exposure. In the absence of site-specific data, the assumptions used are consistent with EPA parameters and default values (EPA 1989, 08021). When several of these upper-bound values are combined to estimate exposure for any one pathway, the resulting risks can be in excess of the 99th percentile and, therefore, outside the range that may be reasonably expected.

The values for intake rates and exposure parameters are assumed to be representative of the potentially exposed populations. All chemical exposures and intakes are assumed to come from the site-related exposure media (i.e., no other sources contribute to the receptor's health risk). Even if these assumptions are true, other areas of uncertainty may apply. Selected intake rates and population characteristics (i.e., weight, life span, activities) are assumed to be representative of the exposed population. The consistent conservatism employed in the estimation of these parameters generally leads to an overestimation of the potential risk.

Derivation of exposure point concentrations. Moderate uncertainty can be introduced in the data aggregation process of estimating a representative exposure point concentration in the analyzed media. The exposure concentration recommended by EPA for calculating the reasonable maximum exposure is the maximum detected concentration, or the UCL_{95}. The $UCLs_{95}$ represent the overall exposure of the receptor populations to the contaminants across the entire area rather than the exposure at one location (maximum concentration).

The maximum detected concentration was used as the exposure point concentration for organic chemicals (except for Aroclor-1260) because there were too few detections to calculate a representative UCL_{95}. Exposure point concentrations based on maximum concentrations are likely to overestimate the concentrations exposed to and associated potential risks from the exposure.

Toxicity Values

A primary uncertainty associated with the SALs is related to the derivation of toxicity values used in the calculations. EPA toxicity values (reference doses [RfD] and slope factors [SF]) were used to derive the SALs used in this risk screening assessment (EPA 2001, 70109). Uncertainties were identified in five areas with respect to the toxicity values: (1) the extrapolation from animal to human, (2) the extrapolation from one route of exposure to another route of exposure, (3) the interindividual variability across the human population, (4) the derivation of RfDs and SFs, and (5) the chemical form of the COPC.

Extrapolation from animal to human. Derivation of SFs and RfDs often requires extrapolations from animal data to humans, which also induces uncertainties in toxicity values because differences exist in chemical absorption, metabolism, excretion, and toxic response between animals and humans. The EPA takes into account differences in body weight, surface area, and pharmacokinetic relationships between animals and humans to minimize the potential to underestimate the dose-response relationship.

Extrapolation from one route of exposure to another route of exposure. The SFs and RfDs often require extrapolations from one route of exposure to another. For example, extrapolation from the inhalation route to the oral route is used and is based on methodology from the EPA's IRIS database. A number of differences between the two exposure pathways (e.g., chemical absorption) may lead to an overestimation of the risk. Additionally, there are no dermal RfDs for most of the COPCs. An extrapolation from the oral route of exposure to the dermal route of exposure is used and is also based on IRIS. A number of differences between the two exposure pathways (e.g., chemical absorption) likely leads to an over- or underestimation of the risk for the COPCs.

Interindividual variability across the human population. For noncarcinogenic effects, the amount of human variability in physical characteristics is important when determining the risks that can be expected at low exposures and when determining the no observed adverse effect level (NOAEL). The NOAEL/uncertainty factor approach incorporates a ten-fold factor to reflect the possible interindividual variability in the human population and is generally considered to be a conservative estimate.

Derivation of RfDs and SFs. The RfDs and SFs for different chemicals are derived from experiments conducted by different laboratories which may have different accuracy and precision. This could lead to an over- or underestimate of the risk.

Chemical form of the COPC. Although COPCs can be bound to the environment matrix and not available for absorption into the human body, it is assumed that the COPCs are bioavailable. This assumption can lead to an overestimation of total exposure to risk.

Additive Approach

The assumption of additive effects for multiple COPCs may result in an overestimation of the potential risk to receptors. When the resulting individual chemical risks are summed, the compounding conservatism results in an overestimate of the risk.

(d) Interpretation

The noncarcinogenic chemicals retained as COPCs in the data review did not have exposure point concentrations above their respective SALs or above 0.1 of their respective SALs, indicating that these chemicals individually and collectively do not pose an unacceptable hazard to human health (Table 2.5-1).

The carcinogenic COPCs Aroclor-1260, arsenic, and tetrachloroethene had exposure point concentrations greater than their respective SALs. A ratio of the maximum sample value or UCL_{95} for the COPC to the SAL represents an incremental risk of 1 in 1 million, indicates the risk posed by the exposure point concentration of a COPC. Among the carcinogens in Table 2.5-2, arsenic has the highest ratio of exposure point concentration divided by SAL (21.2 ppm/0.39 ppm = 54.3). Therefore, this carcinogenic risk estimate for arsenic is approximately 5 in 100,000. The addition of the ratios of the other carcinogens in Table 2.5-2 yields a risk of approximately 6 in 100,000. This level of risk is within range of that deemed acceptable under 40 CFR Part 300, National Oil and Hazardous Substances Pollution Contingency Plan, where risks at or below 10^{-6} are considered negligible and risks greater than 10^{-4} are deemed unacceptable. A risk of 6 in 100,000 exceeds the NMED acceptable level of 10^{-5}.

There are several factors that mitigate the results for carcinogens. First, the exposure point concentration for arsenic of 21.2 (UCL_{95}) was calculated including an uncharacteristic result of 110 ppm for arsenic. As shown in Figure E-1.0-1 of Appendix E, this result is clearly statistical outlier and is almost 30 times greater than the arithmetic mean (3.25 ppm) of the other samples. Another reason the 110 ppm result for arsenic seems uncharacteristic is that arsenic had never been found at the site at elevated levels in this or previous sampling events. Also, the location where the uncharacteristic result was found is away from the typical area of operations for the facility, in a narrow peninsula extending from the mesa top (see Photograph 17, Appendix I). In addition, releases from this PRS are represented by elevated PCB concentrations; because arsenic is not a contaminant commonly related to PCBs, as evidenced by the PCB concentration detected in this sample (0.043 ppm), it is concluded that the arsenic is not related to a site release. Figure E-1.0-1 of Appendix E demonstrates the distribution of arsenic data if the result of 110 ppm is censored. These plots indicate that the remaining data are normally distributed and are more representative of arsenic concentrations across this site. If this outlier is censored in the data set, the arsenic values are similar to background and the resulting UCL_{95} of 3.78 ppm is below the soil BV of 8.17 ppm. Therefore, arsenic is eliminated from the assessment of carcinogens.

The highest concentration of tetrachloroethene detected was 23 ppm in tuff, adjacent to Building 03-223. Of the other sample results, 19 were undetected (U-qualified, with detection limits of approximately 0.008 ppm) and 1 was detected at a concentration of 0.007 ppm. In addition, concentrations of tetrachloroethane decreased away from this point. Therefore, the single result of 23 ppm is three orders of magnitude higher than the single other detection, and its use overestimates potential risk. Comparison of 0.007 ppm to the SAL for tetrachloroethene (5.3 ppm) results in a negligible estimated risk of 1×10^{-9}. Therefore, when more restrictive data are used, the potential additive risk is approximately 2 in 1 million, which is below NMED's acceptable level.

It should also be noted that the 1 ppm criterion for Aroclor equates to a cancer risk of approximately 5×10^{-6}.

The human health screening of COPCs at PRS 03-056(c) indicates that

- noncarcinogenic chemicals do not pose an unacceptable human health hazard , and
- carcinogenic chemicals do not pose an unacceptable human health risk.

2.5.1.2 Ecological

An ecological screening assessment of PRS 03-056(c) is presented below. The approach for conducting ecological assessments is described in "Screening Level Ecological Risk Assessment Methods" (Ryti et al. 1999, 64783). The assessment consists of four parts: scoping, screening evaluation, uncertainty analysis, and an interpretation of the results.

(a) Scoping

The scoping evaluation comprises (1) the data assessment and (2) the problem formulation for the PRS under investigation. Details of the data assessment can be found in section 2.4.3, Confirmatory Sampling Data Review, and in Appendix C to this report. All results for antimony were rejected (R-qualified) and not usable for risk screening purposes.

The problem formulation establishes the breadth and focus of the screening assessment. The basis of the problem formulation for PRS 03-056(c) was the post-remediation ecological scoping checklist, which is provided in Appendix F. The scoping checklist is completed early in the assessment process and was a useful tool for organizing existing ecological information. This information is used to confirm whether ecological receptors might be affected, identify the type of receptors that might be present (i.e., terrestrial and/or aquatic), determine whether the PRS should be aggregated with other PRSs, determine the adequacy of data related to nature and extent of contamination, and develop the ecological conceptual site model for the PRS.

The result of this process is an ecological conceptual site model (ECSM)for the PRS under investigation. The ECSM and the rationale are presented in the ecological scoping checklist (Appendix F). The ECSM is summarized in section 2.4.4, Revised Site Conceptual Model. PRS 03-056(c) is located on Sigma Mesa on the southern flank of Sandia Canyon (Figure 2.2-1). The area that was remediated is disturbed and is characterized by excavated slopes and unvegetated to slightly vegetated ground. Undisturbed areas contain ponderosa pine. Several terrestrial wildlife receptors are present in this area, including small and large mammals and birds. Burrowing activity has also been observed in the area.

It is unlikely that other PRSs affect PRS 03-056(c). PRS 03-012(b), the outfall from the power plant, provides much of the flow in the drainage that forms the western and northern boundaries of PRS 03-056(c), and PCBs have been detected at PRS 03-012(b) at low concentrations. Surface water and sediment in the canyon could be affected by runoff from PRS 03-012(b), but this should have little impact on PRS 03-056(c) soils because transport to soils should be minimal.

The Laboratory's Ecology Group (ESH-20) intersected the PRS location information from the Facility for Information Management, Analysis, and Display with threatened and endangered (T&E) species habitat information using geographic information system (GIS) databases to determine the likelihood of the presence of T&E species in this area. The PRS is approximately 1100 ft away from potential Mexican spotted owl nesting habitat and within an area in which the spotted owl can be conservatively assumed to forage at a relatively medium frequency. The PRS is also in the vicinity of potential peregrine falcon (a recently delisted species) nesting habitat and within an area in which the falcon can conservatively be assumed to forage at a relatively high frequency. The PRS is within an area in which the bald eagle is conservatively assumed to forage at a relatively low frequency (LANL 1999, 70119).

(b) Screening Evaluation

The purpose of the ecological screening evaluation is to identify COPECs. The evaluation involves the calculation of hazard quotients (HQs) for all COPCs and all appropriate screening receptors by comparing the maximum detected concentrations, or $UCLs_{95}$, of the arithmetic mean to the final (minimum) ecological screening levels (ESLs), as described in "Screening Level Ecological Risk Assessment Methods" (Ryti et al. 1999, 64783). The HQ is the ratio of the contaminant level in the exposure medium to a dose that has been determined to be acceptable (ESL) and it indicates any potential for adverse effects.

The ecological screening is based on the exposure of ecological receptors to surficial contamination (i.e., to a depth of 5 ft). All detected organic COPCs (acetone, Aroclor-1260, benzene, isopropyltoluene[4-], tetrachloroethene, toluene, trichloroethane [1,1,1-], and trichlorofluoromethane) and all inorganic COPCs retained from section 2.4.3 were detected at depths of 1 ft or less. Therefore, all of these chemicals were included in the ecological screening assessment. The screening evaluation is intended to provide an indication of potential risk to receptors and is designed to be conservative (i.e., some assumptions may not represent actual conditions) in order to minimize the possibility of eliminating an analyte that may pose a potential ecological risk. The scoping portion of the assessment indicated that terrestrial receptors were appropriate for evaluating the concentrations of contaminants in soil and tuff. Aquatic receptors were not evaluated because there were no aquatic communities present at the PRS. This process evaluated eight terrestrial receptors representing several trophic levels:

- a generic plant,
- soil dwelling invertebrates (represented by the earthworm),
- the deer mouse (mammalian omnivore),
- the vagrant shrew (mammalian insectivore),
- the desert cottontail (mammalian herbivore),
- the red fox (mammalian carnivore),
- the American robin (avian insectivore, avian omnivore, and avian herbivore), and
- the American kestrel (avian invertebrate and flesh eater [surrogate for T&E avian species]).

The rationale for these receptors is presented in "Screening Level Ecological Risk Assessment Methods" (Ryti et al. 1999, 64783). Soil ESLs were derived for each of these receptors for which information was available. The ESLs were based on similar species and derived from experimentally determined no observed adverse effect levels (NOAELs), lowest observed adverse effect levels (LOAELs), or lethal doses to 50% of the population (LD50s). The derivation of ESLs is based on the approach presented in "Screening Level Ecological Risk Assessment Methods" (Ryti et al. 1999, 64783) and LANL's ECORISK database (LANL 2000, 59787). All the relevant information needed to calculate HQs and hazard indices (HIs), including concentration equations, dose equations, bioconcentration factors, transfer factors, and toxicity reference values, are presented in "Screening Level Ecological Risk Assessment Methods" (Ryti et al. 1999, 64783) and the ECORISK database (LANL 2000, 59787).

The exposure point concentrations used in the ecological screening evaluation were the maximum detected concentration for organic COPCs (excepting Aroclor-1260) and the $UCLs_{95}$ on the arithmetic mean for Aroclor-1260 and the inorganic COPCs identified in section 2.4.3 (see Appendix E for details). The use of the $UCLs_{95}$ is appropriate for this assessment because the data provide spatial coverage of the contaminated area. The $UCLs_{95}$ represent the overall exposure of the receptor populations to the contaminants across the entire area rather than the exposure at one location (maximum concentration).

The ESLs for each of the receptors and COPC are presented in Table 2.5-3. The minimum soil ESL, also called the final ESL (LANL 2000, 59787), are then included in Table 2.5-4. The final ESL is compared to the exposure point concentration in Table 2.5-4. An HQ was calculated for each chemical/receptor combination by dividing the exposure point concentration by the final ESL. An HQ equal to, or greater than, 0.3 was used as a threshold to identify COPECs and determine which chemicals needed to be evaluated further (Ryti et al. 1999, 64783).

Arsenic, cadmium, cobalt, mercury, nickel, silver, zinc, Aroclor-1260, and tetrachloroethane were identified as COPECs because their HQs were greater than 0.3. Isopropyltoluene and

trichlorofluoromethane which do not have ESLs are also retained as COPCs and are discussed in the uncertainty analysis. Lead, acetone, benzene, toluene and trichloroethane [1,1,1-] all had HQs of less than 0.3 and are not evaluated further.

The COPECs identified in Table 2.5-4 were further evaluated by calculating the HQs for each COPEC/receptor combination as well as the HIs for each receptor. The HI is the sum of HQs for each receptor and provides a clearer picture of potential adverse effects by determining how many receptors may be affected and provides information on T&E species. Table 2.5-5 presents a summary of the HI analysis for PRS 03-056(c). HIs for the receptors range from 2 for the red fox to 144 for the insectivore robin. Cobalt contributes the most to the HI of the insectivore robin and kestrel; and arsenic contributes the most to the HIs of invertebrate, deer mouse, and vagrant shrew. Silver contributes the most to the HI of the plant.

Table 2.5-3
PRS 03-056(c)
ESL for Each Receptor

Analyte	Plant	Invertebrate	Deer Mouse	Vagrant Shrew	Desert Cottontail	Robin (Insectivore)	Robin (Omnivore)	Robin (Herbivore)	Kestrel (Intermediate Carnivore)	Kestrel (100% Carnivore)	Red Fox
Arsenic	1.00E+01	6.80E+00	1.20E+00	5.90E-01	2.10E+01	1.30E+01	2.30E+01	1.00E+02	2.30E+03	9.80E+01	9.00E+01
Cadmium	1.00E+00	1.00E+01	8.40E+00	7.20E+00	1.80E+01	5.90E+00	6.10E+00	6.30E+00	7.20E+02	4.50E+01	7.30E+02
Cobalt	2.50E+00	na[a]	1.30E+00	9.10E-01	5.00E+00	5.10E-02	7.10E-02	1.10E-01	4.00E+00	3.70E-01	7.40E+01
Lead	4.50E+02	2.00+03	3.40E+02	2.00E+02	5.40E+02	1.00E+02	8.80E+01	7.60E+01	2.50E+03	1.20E+03	4.20E+03
Mercury	3.40E+01	5.00E-02	6.30E+01	5.90E+01	1.30E+02	1.10E+00	1.10E+00	1.10E+00	1.60E+01	7.00E+00	1.00E+03
Nickel	2.00E+01	1.00E+02	6.40E+02	4.20E+02	1.90E+03	4.60E+02	5.60E+02	7.30E+02	3.50E+04	3.70E+03	2.70E+04
Silver	5.00E-02	na	1.50E+03	2.80E+01	2.10E+03	4.40E+01	2.10E+01	1.40E+01	2.10E+03	3.70E+02	1.20E+03
Zinc	1.00E+01	3.50E+02	8.60E+02	2.00E+03	1.10E+03	9.20E+02	3.60E+02	2.30E+02	7.60E+03	5.30E+03	1.90E+04
Acetone	na	na	1.80E+00	3.70E+01	2.00E+00	4.20E+04	2.00E+03	1.00E+03	1.00E+07	3.10E+05	7.40E+03
Aroclor-1260	na	na	1.50E-01	7.50E-02	1.20E+01	5.00E-02	9.60E-02	1.20E+00	2.00E-01	1.90E-01	3.70E-01
Benzene	na	na	6.50E+01	7.60E+01	1.20E+02	na	na	na	na	na	1.90E+04
Tetrachloroethene	na	na	4.80E+00	3.80E+00	1.30E+01	na	na	na	na	na	1.00E+03
Toluene	2.00E+02	na	9.30E+01	7.10E+01	2.70E+02	na	na	na	na	na	1.80E+04
Trichloroethane[1,1,1-]	na	na	3.10E+03	2.80E+03	7.40E+03	na	na	na	na	1.00E+03	4.20E+02

[a] na = Information is not available.

Table 2.5-4
PRS 03-056(c)
Comparison of Exposure Point Concentrations with Final ESLs

Analyte	Exposure Point Concentration[a] (ppm)	Final ESL (ppm)	HQ (unitless)	Receptor	COPEC
Arsenic	21.2	0.59	35.9	Shrew	Yes
Cadmium	0.65	1.00	0.65	Plant	Yes
Cobalt	6.6	0.051	129.2	American robin (insectivore)	Yes
Lead	17	76	0.2	American robin (herbivore)	No
Mercury	0.04	0.05	0.8	Invertebrate	Yes
Nickel	7.87	0.20	0.39	Plant	Yes
Silver	0.56	0.05	11.2	Plant	Yes
Zinc	51.5	10	5.14	Plant	Yes
Acetone	0.13	1.8	0.023	Deer mouse (omnivore)	No
Aroclor-1260	0.62	0.05	12.4	American robin (insectivore)	Yes
Benzene	0.006	65.0	0.0002	Deer mouse	No
4-Isopropyltoluene	0.15	No value	—	—	Yes
Tetrachloroethene	23	3.8	6.05	Vagrant shrew	Yes
Toluene	0.04	71	0.0006	Vagrant shrew (insectivore)	No
Trichloroethane[1,1,1-]	1.8	2800	0.0006	Vagrant shrew	No
Trichlorofluoromethane	0.002	No value	—	—	Yes

[a] The exposure point concentration is the maximum concentration detected for organic COPCs and the UCL_{95} for inorganic COPCs.

Table 2.5-5
HQ/HI Analysis

Analyte	Exposure Point Conc. (ppm)	HQ Plant	HQ Invertebrate	HQ Deer Mouse	HQ Vagrant Shrew	HQ Desert Cottontail	HQ Robin (Insectivore)	HQ Robin (Omnivore)	HQ Robin (Herbivore)	HQ Kestrel (Intermediate Carnivore)	HQ Kestrel (100% Carnivore)	HQ Red Fox
Aroclor-1260	0.62	NA	NA	4.13E+00	8.27E+00	5.17E-02	1.24E+01	6.46E+00	5.17E-01	3.10E+00	3.26E+00	1.68E+00
Arsenic	21.16	2.12E+00	3.11E+00	1.76E+01	3.59E+01	1.01E+00	1.63E+00	9.20E-01	2.12E-01	9.20E-03	2.16E-01	2.35E-01
Cadmium	0.65	6.50E-01	6.50E-02	7.74E-02	9.03E-02	3.61E-02	1.10E-01	1.07E-01	1.03E-01	9.03E-04	1.44E-02	8.90E-04
Cobalt	6.59	2.64E+00	NA	5.07E+00	7.24E+00	1.32E+00	1.29E+02	9.28E+01	5.99E+01	1.65E+00	1.78E+01	8.91E-02
Mercury	0.04	1.18E-03	8.00E-01	6.35E-04	6.78E-04	3.08E-04	3.64E-02	3.64E-02	3.64E-02	2.50E-03	5.71E-03	4.00E-05
Nickel	7.87	3.94E-01	7.87E-02	1.23E-02	1.87E-02	4.14E-03	1.71E-02	1.41E-02	1.08E-02	2.25E-04	2.13E-03	2.91E-04
Silver	0.56	1.12E+01	NA	3.73E-04	2.00E-02	2.67E-04	1.27E-02	2.67E-02	4.00E-02	2.67E-04	1.51E-03	4.67E-04
Tetrachloroethene	23	NA	NA	4.79E+00	6.05E+00	1.77E+00	NA	NA	NA	NA	NA	2.30E-02
Zinc	51.45	5.15E+00	1.47E-01	5.98E-02	2.57E-02	4.68E-02	5.59E-02	1.43E-01	2.24E-01	6.77E-03	9.71E-03	2.71E-03
HI		2.22E+01	4.21E+00	3.21E+01	5.77E+01	4.48E+00	1.44E+02	1.01E+02	6.13E+01	4.77E+00	2.13E+01	2.03E+00

T&E species. The problem formulation for this assessment indicated that T&E species, the Mexican spotted owl, the bald eagle, and the peregrine falcon were potentially at risk. This area is reported to be within 1100 ft of potential Mexican spotted owl nesting habitat, and the spotted owl can be conservatively assumed to forage at a relatively moderate frequency here. It is also in the vicinity of potential peregrine falcon nesting habitat, approximately 5300 ft away, and within an area in which the falcon can conservatively be assumed to forage at a relatively high frequency. The US Fish and Wildlife Service delisted the peregrine falcon as a federal T&E species in August 1999. The PRS is within an area in which the bald eagle is conservatively assumed to forage at a relatively low frequency. The kestrel with an all-meat diet is used as a surrogate receptor for avian T&E species in the ecological assessment. The highest HQs for this receptor were 17.8 for cobalt and 3.3 for Aroclor-1260, and the HI for this receptor was 21.3 (Table 2.5-5).

(c) Uncertainty Analysis

Toxicity information is available for several receptors for most of the COPECs. The available ESLs were considered to be adequate for determining if there was a potential for an ecological effect because several trophic levels were represented by the toxicity data.

The ESLs for the vertebrate terrestrial receptors were based on similar species and derived from an experimentally determined no observed effect level or concentration (NOEL and NOEC), lowest observed effect level or concentration (LOEL or LOEC), or lethal dose 50% (LDs 50). Receptor-specific data for estimating potential ecological risk are often lacking, requiring that species-specific toxicological data from laboratory animals be extrapolated to wild receptors. These laboratory studies are often limited because they evaluate single chemical exposures in isolated and controlled conditions using a single exposure pathway. Additionally, laboratory-controlled toxicological studies are often performed on individuals obtained from artificial and maintained populations. Wild organisms are concomitantly exposed to a variety of stressors and risk drivers, thereby increasing the potential for synergistic and antagonistic physiological effects. Also, wild populations are considered to be more genetically diverse than laboratory animals, making wild populations, as a whole, potentially less sensitive to chemical exposure. The uncertainties associated with these differences may result in an under- or overestimate of risk.

The assumptions used in the ESL derivations were conservative and not necessarily representative of actual conditions. These assumptions included maximum chemical bioavailability (100%), maximum receptor ingestion rates, maximum chemical concentration, minimum body weight, 100% home range exposure, and additive effects of multiple COPECs. These factors tend to result in conservative estimates of the ESLs, which may lead to an overestimate of the potential risk.

The chemical form of the COPECs identified by the screening evaluation was not determined as part of this investigation. This is largely due to limitations on analytical quantitation of individual chemical species. Toxicological data are typically based on the most toxic and bioavailable chemical species, which are not likely to be found in the environment. The inorganic and organic COPECs are generally not 100% bioavailable to receptors in the natural environment due to the adsorption of chemical constituents to matrix surfaces The organic COPECs have relatively low water solubility and high adsorption coefficients (Kocs) indicating that they are likely immobilized via adsorption to soil organic carbon and thereby much less bioavailable to receptors. As a result of these conditions, exposure and subsequent toxicity of the COPECs to receptors may be overestimated by the screening assessment.

In addition to the issue of bioavailability of contaminants is the distribution of receptor populations relative to the detected contaminants. For example, in the screening assessment it was assumed that the organisms spend 100% of the time in the area rather than the fraction of 100% which would normally be

the case. With the exception of plants and earthworms, it is unlikely that a single organism or population resides indefinitely within a single location of its range. Prior to any field activities at PRS 03-056(c), there was no evidence of distressed vegetation. The plant populations within and adjacent to PRS 03-056(c) appear to be healthy and are not adversely affected by the contamination introduced to the area. Because of the wide distribution of receptor populations relative to the area of contamination, it is likely that contact between receptors and contaminants is infrequent and short-lived. The result is that receptor populations are not affected by the presence of low-level concentrations of contaminants and that the ESLs overestimate the potential for ecological effects.

The screening evaluation was performed using the maximum detected concentration for the organic COPECs, except Aroclor-1260. This results in an overestimate of the potential risk to a population from exposure to COPECs across the entire area. The dynamic nature of biotic populations emphasizes the need to evaluate contaminant concentrations over the entire area, as represented by using the $UCLs_{95}$; however, the data were not adequate to support this level of statistics for many of the organic COPECs. The screening evaluation based on the maximum concentration overestimates the potential risk to receptors because of the assumptions mentioned above as well as the fact that the contamination is restricted to a relatively small area.

This qualitative uncertainty analysis evaluates 11 COPECs (7 inorganic chemicals and 4 organic chemicals) identified by the screening evaluation, including the 2 organic COPCs that do not have any ecological toxicity information (Table 2.5-3). This analysis discusses the relative contributions of each COPEC and provides a context for whether additional evaluation of this PRS is warranted.

Arsenic. The final ESL for arsenic (0.59 ppm) is 14 times less than the soil BV of 8.17 ppm. Arsenic was only detected 1 time above background at a concentration of 110 ppm. This sample location (03-04361) is at the tip of the peninsula overhanging the Sandia Canyon watercourse (see Photograph 17, Appendix I). Given the small size and remote location, there is little likelihood for receptors to contact arsenic in this single, isolated location. Considering that all other environmental samples had arsenic detected within background levels, further evaluation of this 1 sample location is not warranted and arsenic is not retained as a COPEC.

Cadmium. The final ESL for cadmium (1 ppm) is 2.5 times greater than the soil BV of 0.4 ppm. Cadmium was detected only 1 time above background levels at a concentration of 3.6 ppm. This sample's location was the same location discussed for arsenic and is subject to the same caveats. Cadmium is a minor contributor to HIs, with HQs ranging from 0.0009 to 0.6. Given the minor contribution to HIs of cadmium and the unlikely that receptors will frequently encounter the single location, cadmium presents no potential risk to receptors and is not retained as a COPEC.

Cobalt. The final ESL for cobalt (0.051 ppm) is 170 times less than the soil BV of 8.64 ppm and all other ESLs, with the exception of fox, are also less than BV. Cobalt was detected only 1 time above the BV at a concentration of 29 ppm and at the same sample location that was discussed for arsenic. The same caveats for the location are applicable to this discussion of cobalt. Cobalt is not retained as a COPEC.

Mercury. The final ESL for mercury is 0.05 ppm which is lower than the soil BV of 0.1 ppm. Mercury was detected above the ESL in only 3 samples at 2 locations. Mercury is not retained as a COPEC.

Nickel. The final ESL for nickel is 20 ppm, which is slightly higher than the soil BV of 15.4 ppm. Nickel was detected only once above the BV at a concentration of 30 ppm, and it was at the same location that was discussed for arsenic. Nickel is not retained as a COPEC.

Silver. The final ESL for silver is 0.05 ppm, which is 20 times less than the soil BV for silver of 1 ppm . Silver was detected above 1 ppm in 2 samples, 1 of which was taken from location 03-04361 (see above discussion of arsenic). Except for plant receptors (HQ = 11), silver contributes little to HIs, with the next highest HQ of 0.04 for the herbivore robin. Silver is not retained as a COPEC.

Zinc. The final ESL for zinc is 10 ppm, which is 5 times less than the soil BV of 48.8 ppm. Zinc was detected in 5 soil samples at less than BV but contributed little to receptor HIs, with the exception of the generic plant. Zinc contributed approximately 25% to the overall plant HI; however, there was no evidence of any distressed vegetation at PRS 03-056(c). Zinc at these low levels is not likely to pose a hazard to ecological receptors given the apparent health of plants at the site and the low overall contribution to HQs. Zinc is not retained as a COPEC.

Aroclor-1260. The final ESL for Aroclor-1260 is 0.05 ppm. This chemical was the focus of this VCA and it was sampled for in many locations across the site. Approximately one-half of these samples had concentrations above the ESL. However, for this VCA the EPA-mandated cleanup level for PCBs was <1 ppm (20 times higher than the ESL), and the cleanup level has been met. Therefore, Aroclor-1260 is not retained as a COPEC.

Tetrachloroethene. The final ESL for tetrachloroethene is 3.8 ppm. Tetrachloroethene was detected in only 1 tuff sample at a concentration greater than ESLs for deermouse, shrew, and rabbit. The sample was taken adjacent to Building 03-223, a small, inaccessible area which is not expected to be available to ecological receptors. All other tetrachloroethane results in soil were nondetects. Because the maximum detection is used for comparison to ESLs for organic chemicals, the comparison yields a very conservative result that is not indicative of the site as a whole. Tetrachloroethene is not retained as a COPEC.

4-Isopropyltoluene. 4-Isopropyltoluene was detected in 7 samples out of 18 in surface soil at low concentrations (0.0083 to 0.15 ppm). The ECORISK database does not provide any toxicity information for any receptors for 4-isopropyltoluene (LANL 2000, 59787). The infrequent detections and the very low concentrations detected indicate that 4-isopropyltoluene is not a major contributor to contamination and it is not retained as a COPEC.

Trichlorotrifluoromethane. Trichlorotrifluoromethane was detected in one soil sample at a concentration of 0.0022 ppm. The ECORISK database does not provide any toxicity information for any receptors for trichlorotrifluoromethane (LANL 2000, 59787). A single detection at low concentration indicates that trichlorotrifluoromethane is not a major contributor to contamination. Therefore, trichlorotrifluoromethane is not retained as a COPEC.

(d) Interpretation

Because of the previously mentioned uncertainties related to the toxicity values used to derive the ESLs, as well as the conservative assumptions used in the calculations, the ESLs probably overestimate the potential risk of a COPEC to a given receptor. As a result, the HQs and HIs whose calculations were based on the ESLs also overestimate the potential risk. The HI analysis presented in Table 2.5-5 further assumes that each receptor is exposed to all COPECs at a particular concentration all of the time; however, this is not true, as indicated by the frequencies of detected concentrations for organic COPECs. The area of land within the PRS is approximately 5 acres, while the canyon is many times larger. Therefore, the exposure of receptor populations to contaminants in the PRS is infrequent and probably not prolonged.

As illustrated in Table 2.5-4, the HQ values calculated for each COPEC and receptor combination ranged from 2 to 144. However, these HQs are biased high due to 1 anomalous detection of metals (at the end of the peninsula) and 1 of tetrachloroethene at the perimeter of Building 03-223. The inorganic and organic COPECs remaining at PRS 03-056(c) were eliminated because they do not pose potential adverse effects on ecological receptors.

2.5.2 Other Applicable Assessments

2.5.2.1 Surface Water Assessment

An assessment of the erosion/sediment transport potential at PRS 03-056(c) was conducted according to SOP-2.01 (see Appendix H). The erosion potential is numerically rated from 1 to 100 using a matrix system. PRSs that score below 40 have low erosion potential; those that score from 40 to 60 have medium erosion potential; and those that score above 60 have high erosion potential. The erosion potential at PRS 03-056(c) prior to the VCA was 69.7, indicative of high erosion potential. On the mesa top, the site was filled in, recontoured, and covered with asphalt. Run-on to the site was diverted by asphalt and berms, and it was dissipated using gavion baskets, to the west slope, which is all exposed tuff. A new surface water assessment checklist, SOP-2.01 (Appendix B), was completed for the site after the site restoration. The new erosion matrix score is now 45, which represents medium erosion potential.

During excavation activities in the drainage channel, water samples were collected to verify compliance with the 404 Dredge and Fill permit and with the 401 Water Quality Certification permit which had been received from the US Army Corps of Engineers, permitting the project. Automated samplers were set up upstream and downstream of the site by the DOE Oversight Bureau (DOE-OB), and composite samples were collected on December 8, 2000, over the period that the excavation activities were ongoing. LANL split samples with the DOE-OB and submitted them for PCB analysis using EPA Method 608 by GC/ECD with a detection limit of 1 µg/L. There were no detected concentrations of any Aroclors in the samples collected. This indicates that the measures taken to protect the drainage during the excavation activities effectively protected the water quality in the drainage. Photographs 15 and 16 in Appendix I show the drainage channel excavation and some of the measures that were used to protect water quality in the watercourse.

2.5.2.2 Groundwater Assessment

A groundwater assessment was not performed for this area. Due to unsaturated conditions and the great depth to groundwater, the site does not present a potential pathway for contaminant release to groundwater. No groundwater samples were collected from PRS 03-056(c) during the investigation; therefore, no groundwater assessment was conducted.

2.5.2.3 Underground Storage Tanks Assessments

Such an assessment is not applicable; there are no underground storage tanks present on site.

2.5.2.4 Other Assessments

No other assessments took place.

2.5.3 Conclusions and Recommendations

In response to a known chemical release at PRS 03-056(c), the ER Project conducted an RFI. As a result, project personnel removed approximately 1000 yd^3 of PCB- and tetrachloroethene-contaminated soils and tuff from the area during a 4-month period from August to November 1995. An additional 2400 yd^3 of material were removed during a 6-month period from September 2000 to March 2001, as more stringent cleanup levels were imposed.

Human health and ecological screening assessments showed that noncarcinogenic COPCs were less than the risk-based SALs. Three carcinogenic COPCs—arsenic, Aroclor-1260, and tetrachloroethene—were detected at concentrations greater than their respective SALs. For arsenic and tetrachloroethene, however, the concentrations were generally low, except for a single high detection that has little effect on the overall risk associated with the site. Assessments of the residual risk at the site after the VCA, therefore, indicate that there are no unacceptable risks to human receptors.

The ecological screening assessment identified several COPECs. These COPECs were eliminated because they were identified in a single isolated location or, as in the case of Aroclor-1260, the levels remaining have a very low potential for adverse effects on ecological receptors. The majority of exposure pathways are now incomplete following installation of erosion controls and paved parking areas.

For these reasons, additional investigatory or remediation activities are unwarranted and this site is recommended for NFA. NFA is recommended because the site PCB levels (UCL_{95}) meet the TSCA criterion of <1 ppm and because NMED Criterion 5 has been met: "The PRS has been characterized or remediated in accordance with current and applicable state or federal regulations, and the available data indicate that contaminants pose an acceptable level of risk under current and projected land use" (NMED 1998, 57897).

3.0 SITE RESTORATION

This section addresses the site-restoration work performed as part of the VCA activities at PRS 03-056(c).

3.1 Site Activities

Site-restoration activities associated with this VCA included

- backfilling the excavated area,
- stabilizing exposed backfill material,
- stabilizing the north slope,
- installing an asphalt pad,
- backfilling and reseeding disturbed areas,
- stabilizing soil around trees within the disturbed area,
- installing a Gabion apron,
- removing base course/reseeding of waste storage areas, and
- installing a chainlink fence.

3.1.1 Backfill of Excavated Area

On May 14, 2001, a field team and heavy equipment were mobilized to the PRS 03-056(c) project site to begin site-restoration activities. The areas located northeast of Building 03-223 at the top of the north and west slopes were backfilled. In addition, fill material was placed on the north slope to cover a sanitary sewer line that had been exposed during the site cleanup (see Photograph 12, Appendix I). A total of approximately 1730 yd^3 of backfill was used. Backfill material consisted of clean fill provided by LANL's Facility Waste Operations-Utilities and Infrastructure (FWO-UI) Group and base course removed from the waste storage areas that were constructed for this VCA (see section 3.1.6).

The backfill material was placed and compacted in lifts approximately 6 in. thick. The depth of the backfill ranged from approximately 6 in. to approximately 4 ft in thickness. Fill material placed at depths less than 6 in. below the finished surface grade was compacted to 90% of maximum density. The top 6 in. of backfill was compacted to 95% of maximum density. Compaction was conducted per the requirements of "LANL Facility Engineering Manual; Chapter III–Civil; Section 200, Engineering Requirements/Guides; Subsection 202, Grading and Drainage; 202.6 Compaction."

Geo-Test, Inc., a geo-technical testing service, verified compliance with the required compaction specification. Geo-Test, Inc. performed a modified proctor test (ASTM D-1557) on the fill material to determine the maximum dry density and optimum moisture content of the fill material and then performed in-field nuclear density/moisture content tests on the compacted backfill. Geo-Test, Inc., conducted the field tests on May 15, 16, 17, and 25, 2001. A total of 26 in-field nuclear density/moisture content tests were performed. The tests were conducted at intervals of 1 ft (i.e., 3 ft below finished surface grade, 2 ft below finished surface grade, etc.). All tests performed either met or exceeded the compaction specification required for that interval of compacted grade. The finished surface was sloped to allow for sheet flow drainage to the southwest corner of the prepared pad (see Figure 3.1-1; Photographs 9 and 10, Appendix I).

3.1.2 Stabilization of Exposed Backfill Material

To stabilize the north and west exposed faces of the parking area sub-grade, the exposed faces were graded to a slope of approximately 2 horizontal to 1 vertical (2:1). Once all of the parking area sub-grade was placed, compacted, and graded, the exposed north and west slopes of the sub-grade were stabilized using rock riprap. Over 150 yd^3 of rock riprap was placed on the exposed backfill to prevent erosion of the fill material. Backfill placed on the north slope was seeded with a native seed mix and covered with jute matting (see Photograph 12, Appendix I). To secure the jute mat to the top of the north slope, rock riprap was placed over the jute mat. In addition, rock riprap was placed over the jute mat along the toe of the north slope to secure the lower end of the jute mat.

3.1.3 Backfill and Reseed of Disturbed Areas

Excavated areas not slated for backfill, compaction, and paving were backfilled with clean top soil, graded to match the local terrain, and reseeded with a native seed mix provided by the FWO-UI Group (see Figure 3.1-1).

3.1.4 Soil Stabilization Around Trees Within the Disturbed Area

PCB-contaminated soil was removed from numerous locations on the mesa top and adjacent slopes. To remove all the identified PCB-contaminated soil, it became necessary to remove trees growing within the contaminated soil. When possible, cleanup crews tried to remove contaminated soil from around the tree

without removing the tree. In some cases, the removal of contaminated soil from around the trees resulted in the exposure of some of the tree root structure. Exposed roots were covered, and the soil around the trees that had been affected by the cleanup activities was stabilized. Clean top soil was placed around the affected trees and compacted in an attempt to stabilize them.

3.1.5 Installation of Gabion Apron

As stated in section 3.1.1, the backfilled area was sloped to promote stormwater drainage to the southwest corner of the asphalt pad. An asphalt drainage channel was installed and extended approximately 2 to 3 ft down the southwest corner. At the end of this asphalt drainage channel, 7 Gabion baskets were installed to create a Gabion apron. The apron is approximately 10 ft wide and 20 ft long. The apron will help to dissipate the energy of stormwater draining off the asphalt pad and help to reduce the erosion of the slope leading down to the Sandia watercourse. See Figure 3.1-1 for the approximate location of the asphalt drainage channel and the Gabion apron.

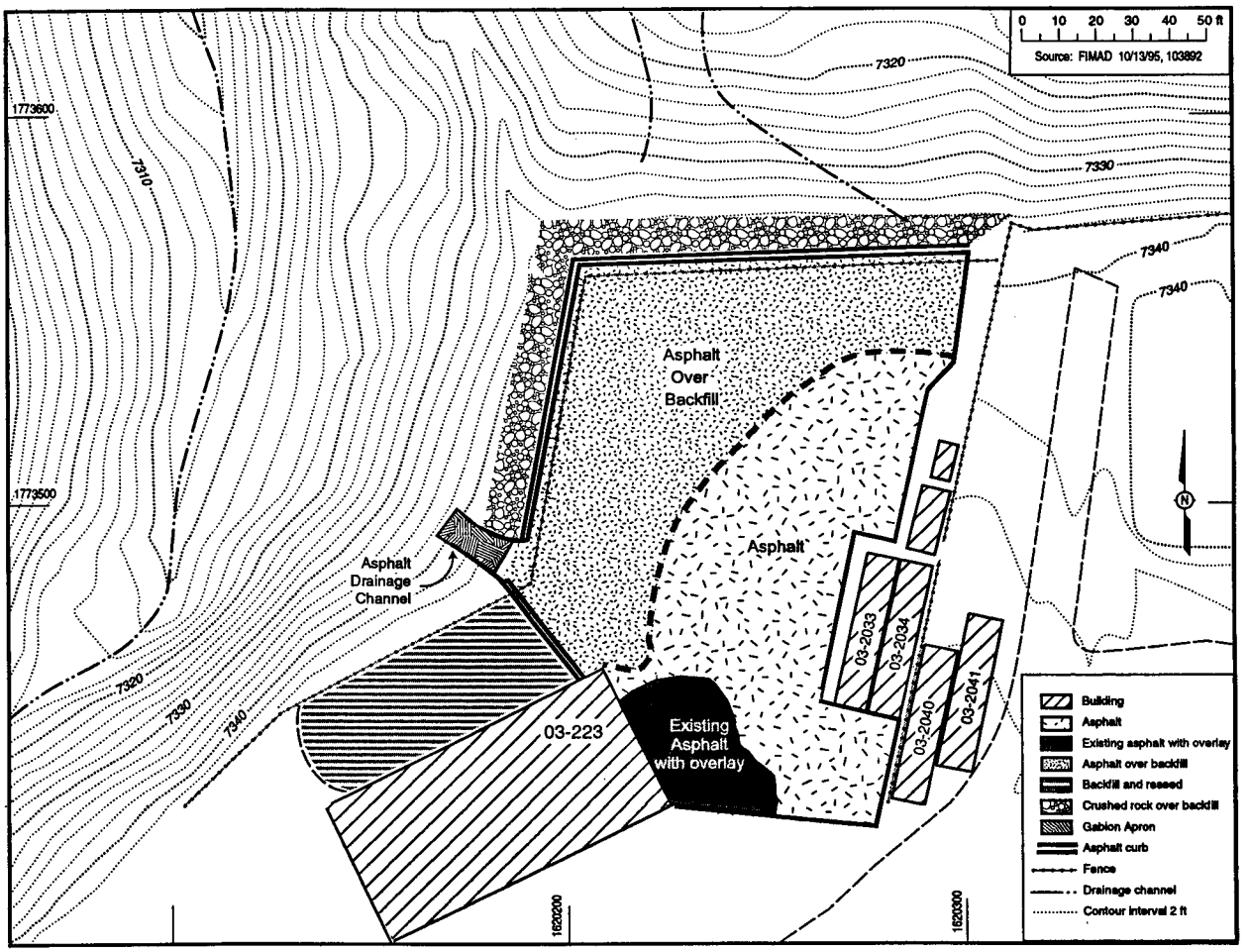


Figure 3.1-1. Site-restoration plan map for PRS 03-056(c)

3.1.6 Base Course Removal and Reseeding of Waste Storage Areas

To accommodate the numerous roll-off bins of waste material generated during the VCA project, waste storage areas were prepared by laying down base course (from Lafarge North America, Inc., which meets New Mexico state highway and transportation department specifications) and compacting them. The purpose of the base course was to provide a stable, well-drained surface. During the site-restoration activities, the base course was removed down to the original grade and used as backfill for the excavated area. Once the base course was removed, the areas were reseeded with a native seed mix.

3.1.7 Installation of Asphalt Paving

The backfilled area (see section 3.1.1) covered approximately 1000 yd^2 and was covered with 4 in. of plant mix bituminous pavement (PMBP). The asphalt paving was installed on July 25, 2001. Asphalt paving was placed on a prepared sub-grade consisting of two 2-in. lifts of PMBP to create a 4-in. compacted layer of PMBP.

FWO-UI requested that the paved area be expanded to cover approximately 177 yd^2 of existing asphalt pavement and an additional 189 yd^2 of unprepared sub-grade. The existing pavement was swept, a tack coat was applied, and a 2-in. PMBP overlay was installed. In addition to the asphalt pad, approximately 200 ft of machine-laid asphalt curbing was installed along the northern and western edges of the asphalt pad (see Figure 3.1-1).

3.1.8 Installation of Chainlink Fence

Chainlink fencing was installed and secured to the existing chainlink fence located north of Building 03-223. Fencing was extended approximately 244 ft to another section of chainlink fence located on the northeast corner of the site. The fence height and style was comparable to the existing fence and complied with the requirements listed in the LANL Master Construction Specification, Section 02821, titled "Chain Link Fences and Gates." See Figure 3.1-1 for the approximate location of the chainlink fence.

4.0 WASTE MANAGEMENT

During the VCA planning stages, ER Project personnel evaluated alternative disposal paths for the PCB remediation waste (soil) removed during the cleanup. Team members proactively negotiated with Region 6 of EPA, requesting use of their discretionary authority to determine that the PCB remediation waste generated be characterized and disposed of based on the PCB concentrations actually remaining in the material. Without this determination, PCB-containing waste generated at the site would be characterized and disposed of based on the PCB concentration of the original release/spill, which was known to be greater than 500 ppm PCBs and would require disposal in a TSCA landfill.

ER Project personnel prepared an application to EPA Region 6 under 40 CFR §761.61(c) (LANL 2000, 68684), proposing cleanup and disposal of the PCB remediation waste. In particular, the application proposed to dispose of the PCB remediation waste with less than 50 ppm PCBs at an industrial landfill regardless of origination. EPA Region 6 approved the cleanup and disposal application (EPA 2000, 68772). As part of the approval from EPA, ER Project personnel were to determine the representative PCB concentrations for each waste container by directly sampling each one. PCB remediation waste containing less than 50 ppm PCBs would then be disposed of at an industrial landfill; waste containing greater than 50 ppm PCBs would be disposed of at a TSCA landfill.

As a result of sampling each container, it was found that several VOCs listed as hazardous wastes were present in some of the containers, thus characterizing this subset of containers as containing RCRA hazardous waste. When this waste determination was made, ER Project personnel then proactively negotiated with NMED HWB to use its discretionary authority to determine that this waste no longer contained hazardous waste and thus did not have to be characterized and disposed of as such. ER Project personnel submitted a "no-longer-contained-in" determination request (LANL 2000, 64630) which compared the extremely low concentrations of VOCs present in the waste to risk-based concentrations and land disposal restrictions. NMED HWB approved the request and determined that the waste no longer contained hazardous waste. As a result, the waste containing low concentrations of VOCs did not have to be disposed of at a RCRA Subtitle C landfill.

By negotiating with EPA Region 6 and NMED HWB, approximately 2150 yd^3 of waste were disposed at a New Mexico industrial (RCRA Subtitle D) landfill. Approximately 230 yd^3 from the cleanup required disposal at a TSCA/RCRA Subtitle C landfill facility in Texas (Waste Control Specialists [WCS]). Table 4.0-1 contains details about the estimated and actual waste volumes generated during the VCA at PRS 03-056(c).

Table 4.0-1
Waste Descriptions and Estimated and Actual Volumes

Item	Waste Type	Estimated Volume	Actual Volume
Soil and tuff	>50 ppm PCB	4 yd^3	193 yd^3
Soil and tuff	<50 ppm PCB	900 yd^3	2150 yd^3
Soil and tuff	RCRA waste	0	34 yd^3
personal protective equipment (PPE)/sampling waste	Solid waste (<50 ppm PCB)	<1 yd^3	0
Decontamination fluids	PCB water <50 ppm PCB	200 gal.	0

4.1 Waste Storage

A less-than-90-day RCRA waste storage area was constructed and used for storage of the wastes generated during VCA activities at PRS 03-056(c). The storage area was constructed because of the potential for the soil to be characterized as RCRA hazardous waste pending the outcome of the waste analytical results. All wastes were transported to the less-than-90-day storage area, sampled, and disposed of prior to expiration of the 90-day time limit.

4.2 Waste-Characterization Requirements

All wastes were characterized based on the requirements in the waste characterization strategy form (WCSF). A WCSF was submitted to LANL's Environmental Management/Environmental Restoration Group and ESH-19 on August 22, 2000, and the requirements and actions taken are summarized in Table 4.2-1. More details regarding waste-characterization data are included in Appendix J.

Table 4.2-1
WCSF Requirements and VCA Actions

WCSF Requirements	VCA Activities
Soil waste will be characterized based on samples taken directly from waste containers. Samples will be collected in accordance with SW-846 protocols and specifically in conformance to the sampling method delineated in 40 CFR §761.265(b)(1), from each lot (roll-off bin) of excavated soil and analyzed for toxicity characteristic leaching procedure (TCLP) metals, VOCs, and PCBs. Based upon these results, soils will be characterized and managed as RCRA hazardous waste under 20 NMAC 4.1, TSCA PCB, or PCB <50ppm remediation waste, whatever is appropriate.	Roll-off bins were cored using a hand auger in accordance with 40 CFR §761.265(b)(1). The cuttings were placed in a sample bowl. Prior to mixing, a VOC sample was collected. The sample was then mixed and PCB and TCLP metals samples were collected.
Subject waste (PPE, sampling equipment, plastic, silt fences) will be profiled per soil analysis and disposed of at a permitted facility. Per 40 CFR §761.79(g), decontamination waste and residues are to be disposed of at their existing PCB concentrations; thus, it will not be necessary to decontaminate disposable Tyvek coveralls, nitrile gloves, plastic, or other objects that are not reusable. Reusable boots and sampling equipment will be initially cleaned by dry decontaminating to remove all visible soil, then further decontaminated with liquid and detergent, if necessary.	All PPE and unusable equipment was placed into roll-off containers with contaminated soil.
Decontamination liquids will be stored in 55-gal. drums or equivalent within secondary containment in the staging area until characterized and then be disposed of at a permitted LANL-approved facility. If it is determined that the decontamination fluids contain 50 ppm or greater PCBs, the liquids will require incineration at a permitted, LANL-approved facility. However, ultimate management of this waste will be based on characterization using results of the soils and direct samples of the fluids.	No decontamination fluids were generated. Dry decontamination was adequate for release of waste containers. Soil was brushed off and then Fantastik was used to remove remaining soil from equipment.
EnSys test kit liquid waste, unused solvents, solvents with potentially PCB-containing soil, and sampling vials will be managed as RCRA/as-found PCB waste in a satellite accumulation area.	No deviations
Existing BMP materials from previous EC will be stored in containers or with the soil and will be managed and disposed of at a permitted, LANL-approved disposal facility, along with the soil.	No deviations

There were 12 roll-off bins that were disposed of as > 50 ppm PCB TSCA-regulated waste and 2 roll-off bins that were disposed of as RCRA-regulated lead (D008) waste. Table 4.2-2 lists the zones from which each TSCA and RCRA waste roll-off bin was excavated. Figure 4.2-1 shows the excavation zones that were delineated during VCA activities at PRS 03-056(c).

Table 4.2-2
TSCA and RCRA Waste Roll-off Bins and Zones of Excavation

Roll-Off Bin #	Type of Waste	Zone(s) of Excavation
20-72	TSCA	1
20-32	TSCA	2
20-24	TSCA	3,4
20004	TSCA	3,4
20-39	TSCA	3,4
20-45a	TSCA	4,5,6
20-100	TSCA	4,5,6
20-101	TSCA	1,2
30550	TSCA	4,5,6
20-13	TSCA	4,5,6
20010	TSCA	4,5
20-43	RCRA	ST
20-105	RCRA	7 (east side near ST)
20-17	TSCA	6 (bottom of west slope)

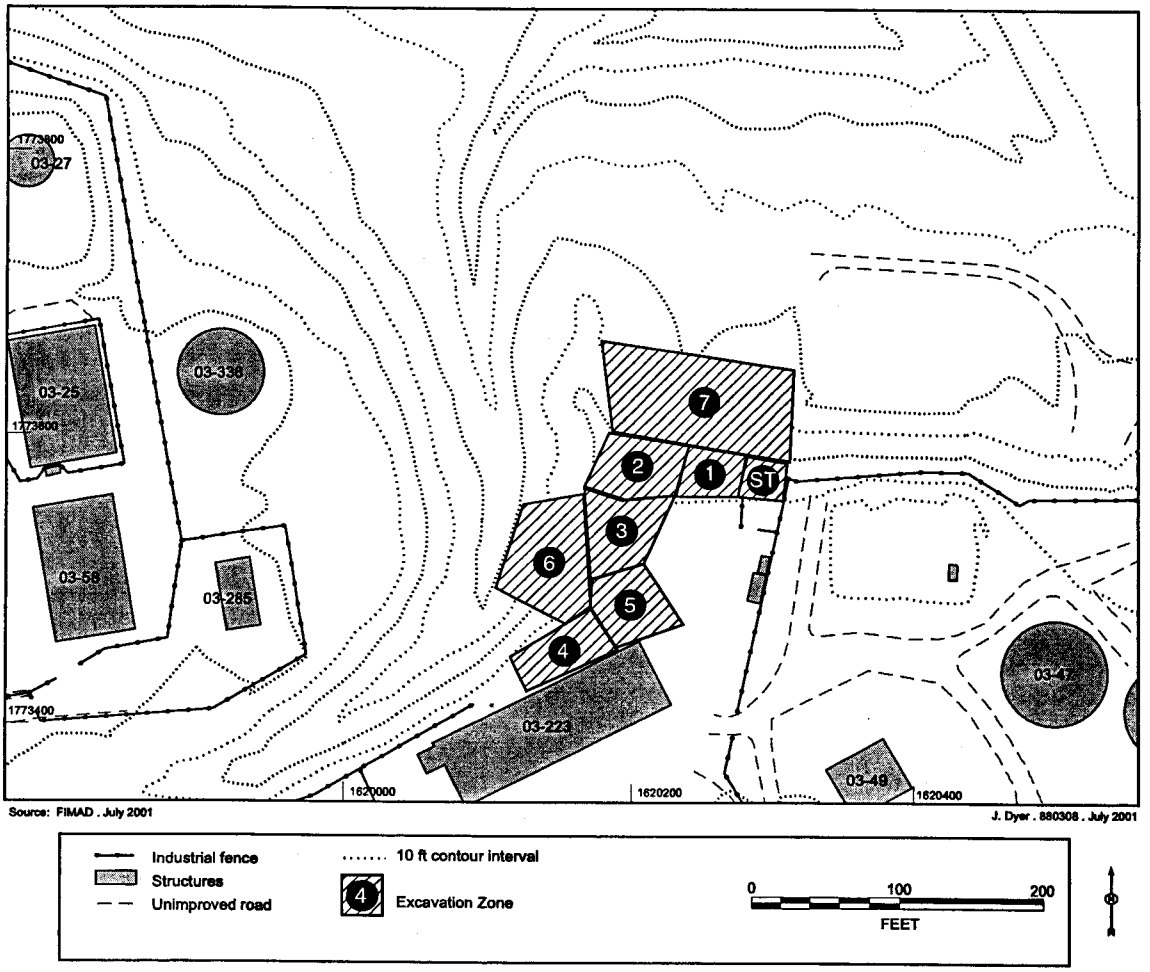


Figure 4.2-1. Excavation zones at PRS 03-056(c)

4.3 Waste Disposal

All wastes generated during the VCA activities at PRS 03-056(c) were disposed of in LANL-approved waste disposal facilities. Appendix J provides detailed information about the analytical results of each roll-off bin and the disposal destination. Twelve roll-off bins (193 yd^3) of >50 ppm PCB-contaminated waste were disposed of at WCS in Texas. Two roll-off bins (34 yd^3) were disposed of as RCRA hazardous waste for exceeding the TCLP concentrations for lead at WCS. The remaining 130 roll-off bins (2150 yd^3) were disposed of as <50 ppm non-regulated PCB-contaminated waste at the Rio Rancho Industrial Waste Landfill in Rio Rancho, New Mexico.

5.0 REFERENCES

Alexander, M., 1995. "How Toxic Are Toxic Chemicals in Soil?" critical review in *Environmental Science Tech.,* Vol. 29, No. 11, pp. 2713–2716. (Alexander 1995, 63536)

ATSDR (Agency for Toxic Substances and Disease Registry), 1995. "Toxicological Profile for Polychlorinated Biphenyls Draft for Public Comment," ATSDR and Research Triangle Institute profile at

http://www.atsdr.cdc.gov, Division of Toxicology/Toxicology Information Branch, Atlanta, Georgia. (ATSDR 1995, 63537)

Bowen, B.M., May 1990. "Los Alamos Climatology," Los Alamos National Laboratory report LA-11735-MS, Los Alamos, New Mexico. (Bowen 1990, 06899)

Byers, J.A., 2001. Printout of online data search for Aroclor-1260 and toluene on "Vapor Pressures of Volatile Chemicals," http://www.vsv.slu.se/johnb/java/jav-vp.htm, Swedish University of Agricultural Sciences. (Byers 2001, 70088)

Cooper, J.B., W.D. Purtymun, and E.C. John, July 1965. "Records of Water-Supply Wells, Guaje Canyon 6, Pajarito Mesa 1, and Pajarito Mesa 2, Los Alamos, New Mexico, Basic Data Report," US Geological Survey, Albuquerque, New Mexico. (Cooper et al. 1965, 8582)

Cross, S., January 1994. "Biological Evaluation for Environmental Restoration Program; Operable Unit 1114; Technical Areas 3, 30, 59, 60, 61, and 64," Rev. 1, Los Alamos National Laboratory report LA-UR-94-21, Los Alamos, New Mexico. (Cross 1994, 26071)

DOE (Department of Energy), Office of Environmental Management, Oak Ridge Operations Office, August 2001. Risk Assessment Information System (RAIS) (internet database), printout from online data search for Aroclor-1260, benzene, tetrachloroethene, toluene, 1,1,1-trichloroethane, trichlorofluoromethane, arsenic, cadmium, colbalt, lead, mercury, nickel, silver, zinc, see http://risk.lsd.ornl.gov/rap_hp.shtml. (DOE 2001, 70089)

Environmental Surveillance and Compliance Programs, September 1998. "Environmental Surveillance and Compliance at Los Alamos During 1997," Los Alamos National Laboratory report LA-13487-ENV, Los Alamos, New Mexico. (Environmental Surveillance and Compliance Programs 1998, 59904)

EPA (Environmental Protection Agency), August 1985. "Verification of PCB Spill Cleanup by Sampling and Analysis," Environmental Protection Agency report EPA-560/5-85-026, Washington, D.C. (EPA 1985, 08026)

EPA (Environmental Protection Agency), 1987. "Methods for Evaluating Solid Waste, Laboratory Manual Physical/Chemical Methods," SW-846, 3rd Ed., Update III, Rev. 4, Washington, D.C. (EPA 1985, 08026)

EPA (Environmental Protection Agency), December 1989. "Risk Assessment Guidance for Superfund Volume 1, Human Health Evaluation Manual (Part A)," Environmental Protection Agency report EPA/540/1-89-002, Washington, D.C. (EPA 1989, 08021)

EPA (Environmental Protection Agency), April 1990. "Los Alamos National Laboratory Hazardous Waste Facility Permit NM0890010515." (EPA 1990, 01585)

EPA (Environmental Protection Agency), 1992. "Guidance for Data Usability in Risk Assessment," 57 FR 22888, Environmental Protection Agency, Washington, D.C. (EPA 1992, 54947)

EPA (Environmental Protection Agency), February 1994. "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA 540/R-94/013, Office of Emergency and Remedial Response, US Environmental Protection Agency, Washington, D.C. (EPA 1994, 48639)

EPA (Environmental Protection Agency), August 1995. "Class 3 Permit Modification, Six Expedited Cleanups Los Alamos National Laboratory, NM0890010515," US Environmental Protection Agency letter

from David Neleigh, Chief, NM/FF Section, to Theodore Taylor, Program Manager, Department of Energy, Los Alamos Area Office. (EPA 1995, 55740)

EPA (Environmental Protection Agency), April 1998. "Test Methods for Evaluating Solid Waste, Laboratory Manual Physical/Chemical Methods," SW-846, Rev. 5, http://www.epa.gov/epaoswer/hazwaste/test/main.htm, Washington, D.C. (EPA 1998)

EPA (Environmental Protection Agency), November 2000. "Comments on the Risk-Based Cleanup Disposal Application under 40 CFR 761.61(c) for PCB Site 03-056(c) at Los Alamos National Laboratory (LANL)," US Environmental Protection Agency letter from Stephen A Gilrein, Associate Director, RCRA, to Theodore Taylor, Program Manager, Department of Energy, Los Alamos Area Office. (EPA 2000, 68772)

EPA (Environmental Protection Agency), 2001. Printout from Integrated Risk Information System (IRIS) database, http://www.epa.gov/iris. (EPA 2001, 70109)

EPA (Environmental Protection Agency), Region 9 PRGs, 2001. Printout from online data research for Kd, http://www.epa.gov/region09. (EPA 2001, 63061)

Haarmann, T., 1994. "Biological and Floodplain/Wetland Assessment for Environmental Restoration Program, Operable Unit 1100," Los Alamos National Laboratory report LA-UR-95-11, Los Alamos, New Mexico. (Haarmann 1994, 52023)

Howard, P.H., 1991. "Handbook of Environmental Degradation Rates," Lewis Publishers, Inc., Chelsea, Michigan. (Howard 1991, 57902)

LANL (Los Alamos National Laboratory), July 1993. "RFI Work Plan for Operable Unit 1114," Los Alamos National Laboratory report LA-UR-93-1000, Los Alamos, New Mexico. (LANL 1993, 20947)

LANL (Los Alamos National Laboratory), May 1995. "Environmental Restoration Program Operable Unit (OU) 1114 Cultural Resource Survey Report, LANL Cultural Resource Management Team Report No. 89, Survey No. 543," Los Alamos National Laboratory survey report LA-CP-95-390, Los Alamos New Mexico. (LANL 1995, 63080)

LANL (Los Alamos National Laboratory), July 1, 1995. "Statement of Work (formerly called requirements document) Analytical Support (RFP Number 9-XS1-Q4257)," Rev. 2, Los Alamos, New Mexico. (LANL 1995, 49738)

LANL (Los Alamos National Laboratory), 1995. "Site Development Plan, Annual Update 1995," Los Alamos National Laboratory report LALP-95-113, Los Alamos, New Mexico. (LANL 1995, 57224)

LANL (Los Alamos National Laboratory), 1995. "Los Alamos National Laboratory Environmental Restoration Project Expedited Cleanup Plan for Solid Waste Management Unit 03-056(c)," Los Alamos National Laboratory report, Los Alamos, New Mexico. (LANL 1995, 52951)

LANL (Los Alamos National Laboratory), March 1996. "Quality Assurance Project Plan Requirements for Sampling and Analysis," Los Alamos National Laboratory report LA-UR-96-441, Los Alamos, New Mexico. (LANL 1996, 54609)

LANL (Los Alamos National Laboratory), April 1996. "Draft FSR for SWMU 03-056(c) Expedited Cleanup," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1996, 55746)

LANL (Los Alamos National Laboratory), May 2, 1996. "Response to the Notice of Deficiency (NOD) for Solid Waste Management Unit (SWMU) 3-056(c) Technical Area (TA) 3, Expedited Cleanup Status Report," letter EM/ER:96-253 from Jorg Jansen, Program Manager, Environmental Restoration, and Theodore Taylor, Program Manager, Department of Energy, Los Alamos Area Office, to Benito Garcia, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau. (LANL 1996, 54398)

LANL (Los Alamos National Laboratory), June 1998. "RFI Work Plan and SAP for Potential Release Sites 53-002(a) 53-002(b) and Associated Piping and Drainages at TA-53," Los Alamos National Laboratory report LA-UR-98-2547, Los Alamos, New Mexico. (LANL 1998, 58841)

LANL (Los Alamos National Laboratory), May 22, 1998. "Hydrogeologic Workplan, Los Alamos National Laboratory," Los Alamos, New Mexico. (LANL 1998, 59599)

LANL (Los Alamos National Laboratory), July 8, 1999. "Review of PRS 03-056(c) for Threatened and Endangered Species Habitat," Los Alamos National Laboratory letter from Gil Gonzales, ESH-20, Ecology Group, to Don Kellett, IT Corporation, JESH-20/Ecol-99-0258. (LANL 1999, 70119)

Los Alamos National Laboratory (LANL), September 1999. "Work Plan for Sandia Canyon and Canada del Buey," Los Alamos National Laboratory report LA-UR-99-3610, Los Alamos New Mexico. (LANL 1999, 64617)

LANL (Los Alamos National Laboratory), 1999. "Draft Watershed Management Plan," Los Alamos, New Mexico. (LANL 1999, 62920)

LANL (Los Alamos National Laboratory), 1999. "Voluntary Correction Action Plan for Potential Release Site 03-056(c)," Los Alamos National Laboratory report LA-UR-99-3928, Los Alamos, New Mexico. (LANL 1999, 64711)

LANL (Los Alamos NationalLaboratory), March 2000. "Installation Work Plan for EnvironmentalRestoration Project," Rev. 8, Draft (pending approval of administrative authority), Los Alamos National Laboratory report LA-UR-00-1336, Los Alamos, New Mexico. (LANL 2000, 66802)

LANL (Los Alamos National Laboratory), August 2000. "Application for Risk-Based Disposal Approval at Potential Release Site (PRS) 03-056(c) at Los Alamos National Laboratory," Los Alamos National Laboratory and Department of Energy letter ER2000-0468 from Julie Canepa, Project Manager, ER Project, Los Alamos National Laboratory, and Theodore Taylor, Project Manager, Department of Energy, Los Alamos Area Office, to Lou Roberts, PCB Program, Environmental Protection Agency, Region 6. (LANL 2000, 68684)

LANL (Los Alamos National Laboratory), August 2000. "Request for No-Longer-Contained-In Determination for Potential Release Site (PRS) 03-056(c)," Los Alamos National Laboratory and Department of Energy letter ER2000-0687 from Julie Canepa, Project Manager, ER Project, Los Alamos National Laboratory, and Theodore Taylor, Project Manager, Department of Energy, Los Alamos Area Office, to John Young, Permits Management Program, New Mexico Environment Department, Hazardous Waste Bureau. (LANL 2000, 64630)

LANL (Los Alamos National Laboratory), August 2000. "Documentation of July 27, 2000 Conference Call Between Los Alamos National Laboratory and the Environmental Protection Agency Regarding Cleanup Activities at Potential Release Site 03-056(c)", Los Alamos National Laboratory and Department of Energy Letter ER2000-0387 to Rich Mayer, New Mexico Federal Facilities Section, US Environmental Protection Agency. (LANL 2000, 68665)

LANL (Los Alamos National Laboratory), September 2000. ECORISK database, Records Processing Facility record package #186, Version 1.2. (LANL 2000, 59787)

LANL (Los Alamos National Laboratory) 2000. "Summary Status of Environmental Restoration Project Investigations in Upper Sandia Canyon," Los Alamos National Laboratory report LA-UR-00-777, Los Alamos, New Mexico. (LANL 2000, 64349)

Ney, R.E., 1995. *Fate and Transport of Organic Chemicals in the Environment, A Practical Guide,* 2nd ed., Government Institutes, Inc., Rockville Maryland. (Ney 1995, 58210)

NIOSH (National Institute for Occupational Safety and Health), 1985. *NIOSH Pocket Guide to Chemical Hazards,* produced by US Department of Health and Human Services, National Institute for Occupational Safety and Health, Washington, D.C. (NIOSH 1985, 12554)

NLM (National Library of Medicine), 2001. Printout of results from online search of Hazardous Substances Data Bank (HSDB) for acetone, Aroclor-1260, benzene, 4-isopropyltoluene, tetrochloroethene, 1,1,1-trichloroethane, trichlorofluoromethane, toluene, `http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB`. (NLM 2001, 63385)

NMED (New Mexico Environment Department), March 13, 1996. "Notice of Deficiency Status Report for SWMU 3-056(c), NM0890010515," New Mexico Environment Department letter to Joseph Vozela, Department of Energy, Los Alamos Area Office, from Benito Garcia, Chief, New Mexico Environment Department, Hazardous and Radioactive Materials Bureau. (NMED 1996, 54179)

NMED (New Mexico Environment Department), March 1998. "Risk-Based Decision Tree," *RPMP Document Requirement Guide,* New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, RCRA Permits Management Program, Santa Fe, New Mexico. (NMED 1998, 57761)

NMED (New Mexico Environment Department), March 3, 1998. *RPMP Document Requirement Guide,* New Mexico Environment Department, Hazardous and Radioactive Materials Bureau, RCRA Permits Management Program, Santa Fe, New Mexico. (NMED 1998, 57897)

NMED (New Mexico Environment Department), December 18, 2000. "Technical Background Document of Soil Screening Levels," Vol. I, New Mexico Environment Department Hazardous Waste Bureau and Ground Water Quality Bureau Voluntary Remediation Program, Santa Fe, New Mexico. (NMED 2000, 68554)

NMED (New Mexico Environment Department), August 31, 2000. "Approval VCA Plan for Potential Release Site 03-056(c) Los Alamos National Laboratory, NM0890010515 HRMB-LANL-99-006," New Mexico Environment Department letter to John Browne, Director, Los Alamos National Laboratory and Theodore Taylor, Project Manager, Department of Energy, Los Alamos Area Office, from John R. Young, LANL Corrective Action Project Leader, Permits Management Program, New Mexico Environment Department, Hazardous Waste Bureau. (NMED 2000, 68683)

Nyhan J.W., L.W. Hacker, T.E. Calhoun, and D.L. Young, June 1, 1978. "Soil Survey of Los Alamos County, New Mexico," Los Alamos National Laboratory report LA-6779-MS, Los Alamos, New Mexico. (Nyhan et al. 1978, 05702)

Rhodes, V., May 29, 1995. "Operating History of Storage Area SWMU 3-056(c)," Los Alamos National Laboratory memorandum to EC Project File – SWMU 3-056(c) from Valerie Rhodes (ER Project), Los Alamos, New Mexico. (Rhodes 1995, 70073)

Risberg, D., February 3, 1994. "Biological Assessment for Sanitary Waste Disposal Areas in TAs 60 and 65, Los Alamos National Laboratory," Los Alamos National Laboratory report LA-UR-94-583, Los Alamos, New Mexico. (Risberg 1994, 62353)

Ryti, R.T., P.A. Longmire, D.E. Broxton, S.L. Reneau, and E.V. McDonald, September, 1998. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory," Draft, Los Alamos National Laboratory report LA-UR-98-4847, Los Alamos, New Mexico. (Ryti et al. 1998, 59730)

Ryti, R.T., E.J. Kelly, G.J. Gonzales, and L.F. Soholt, April 1999. "Screening Level Ecological Risk Assessment Methods," Los Alamos National Laboratory report LA-UR-99-1405, Los Alamos, New Mexico. (Ryti et al. 1999, 64783)

Smith, R.L. and R.A. Bailey, 1966. "The Bandelier Tuff: A Study of Ash-Flow Eruption Cycles from Zoned Magma Chambers," *Bulletin Volcanologique,* 29:83-103. (Smith and Bailey 1966, 21584)

Stoker, A.K.; S.G. McLin, W.D. Purtymun, M.N. Maes, and B.G. Hammock, May 1992, "Water Supply at Los Alamos During 1989," Los Alamos National Laboratory progress report LA-12276-PR, Los Alamos, New Mexico. (Stoker et al. 1992, 12017)

Appendix A

Acronyms and Glossary

A-1.0 ACRONYMS

bgs	below ground surface
BMP	best management practice
BV	background value
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CRDL	contract-required detection limit
CVAA	cold vapor atomic absorption
DOE	US Department of Energy
DOE-OB	DOE Oversight Bureau
EC	expedited cleanup
EDA	exploratory data analysis
EDL	estimated detection limit
EPA	US Environmental Protection Agency
ER	environmental restoration
ECSM	ecological conceptual site model
EQL	estimated quantitation limit
ESL	ecological screening level
FIMAD	Facility for Information Management, Analysis, and Display
FWO-UI	Facility Waste Operations-Utilities and Infrastructure (Laboratory Group)
HI	hazard index
HQ	hazard quotient
IA	interim action
ICPES	inductively coupled plasma emission spectroscopy
ICPMS	inductively coupled plasma mass spectroscopy
IDL	instrument detection limit
IQR	inter-quartile range
JCNNM	Johnson Controls Northern New Mexico
JD	John Deere
Kd	distribution coefficient
Koc	carbon-water sorption coefficient
LANL	Los Alamos National Laboratory
LCS	laboratory control sample
LD50	lethal dose to 50% of the population
LOAEL	lowest observed adverse effect level
MDL	method detection limit
NFA	no further action
NMED	New Mexico Environment Department
NMED-HWB	New Mexico Environment Department Hazardous Waste Bureau
NMED-SWQB	New Mexico Environment Department Surface Waste Quality Bureau
NOAEL	no observed adverse effect level
%D	percent difference
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PMBP	plant mix bituminous pavement
PRS	potential release site
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act

RfD	reference dose
RFI	RCRA facility investigation
RSD	relative standard deviation
RSI	request for supplemental information
SAL	screening action level
SF	slope factor
SMDP	strategic management decision point
SOW	statement of work
SVOC	semivolatile organic compound
T&E	threatened and endangered
TA	technical area
TAL	target analyte list
TCLP	toxicity characteristic leaching procedure
TSCA	Toxic Substances Control Act
UCL	upper confidence limit
UCL_{95}	95 percent upper confidence limit
UMV	unbiased minimum variance
VCA	voluntary corrective action
VOC	volatile organic compound
WCS	Waste Control Specialists
WCSF	waste characterization strategy form

A-2.0 GLOSSARY

absorption — The penetration of substances into the bulk of a solid or liquid.

accuracy — A measure of the closeness of measurements to the true value of the parameter being measured.

action level — Health- and environmental-based concentrations derived using chemical-specific toxicity information and standardized exposure assumptions. Action levels can be developed on a facility-specific basis or can be taken from standardized lists (61 Federal Register 19446). Contamination found in a particular *medium* below an appropriate action level would not generally be subject to *remediation* or further study.

administrative authority (AA) — The New Mexico Environment Department, the US Environmental Protection Agency, or the US Department of Energy, as appropriate.

adsorption — The surface retention of solid, liquid, or gas molecules, atoms, or ions by a solid or a liquid.

alluvial — Relating to geologic deposits or features formed by running water.

alluvial fan — A fan-shaped piedmont accumulation of *alluvium.*

alluvium — Clay, silt, sand, and gravel *transported* by water and deposited on streambeds, flood plains, and *alluvial fans.*

analysis — Includes physical analysis, *chemical analysis*, and knowledge-of-process determinations. (Laboratory Hazardous Waste Facility Permit)

analyte — The element, nuclide, or ion a *chemical analysis* seeks to identify and/or quantify; the *chemical* constituent of interest.

analytical method — A body of procedures and techniques for systematically performing an activity.

andesite — Fine-grained intermediate volcanic rock, comprised chiefly of plagioclase and pyroxene.

anomaly — A deviation that is beyond normal variations.

aquifer — Body of permeable geologic material whose saturated portion is capable of readily yielding *groundwater* to wells.

ash-flow tuff — A *tuff* deposited by a hot, dense volcanic current. Ash-flow tuff can be either *welded* or nonwelded.

background level — Naturally occurring concentrations (levels) of an inorganic *chemical* and naturally occurring radionuclides in soil, *sediment*, and *tuff*.

background screening value (BSV) — A threshold used to identify site *sample* results that may be greater than *background levels*.

basalt — A fine-grained, dark volcanic rock comprised chiefly of plagioclase, augite, olivine, and magnetite.

baseline risk assessment (also known as *risk assessment*) — A site-specific *analysis* of the potential adverse effects of *hazardous constituents* that are *released* from a site in the absence of any control or *mitigation* actions. A baseline risk assessment consists of four steps: data collection and *analysis*, exposure assessment, toxicity assessment, and *risk characterization*.

bentonite — A clay composed of the mineral montmorillonite and variable amounts of magnesium and iron, formed over time by the alteration of volcanic ash. As bentonite can *adsorb* large quantities of water and expand to several times its normal volume, it is a common additive to drilling mud.

best management practices (BMPs) — For facilities that manufacture, use, store, or *discharge* toxic or hazardous pollutants as defined by the 1977 Clean Water Act, a required program to control the potential spill or *release* of those materials to surface waters. (*The Facts on File Dictionary of Environmental Science*, edited by L. Harold Stevenson and Bruce Wyman)

bias — Systematic deviation from the true value that remains constant over replicated measurements within the statistical *precision* of the measurement process.

blind sample — See *single blind sample* and *double blind sample*.

calibration — Process used to identify the relationship between the true (reference) *analyte* concentration or other variable and the response of a measurement instrument, *chemical analysis method*, or other measurement system.

calibration blank — A *calibration standard* prepared to contain negligible or unmeasurable amounts of *analytes*. It is used to establish the zero concentration point for analytical-measurement *calibration*.

calibration standard — *Sample* prepared to contain known amounts of the *analytes* of interest and of other constituents required for an *analysis*.

chemical — Any naturally occurring or man-made substance characterized by a definite molecular composition, including molecules that contain *radionuclides*.

chemical analysis — Process used to measure one or more attributes of a *sample* in a clearly defined, controlled, systematic manner. Often requires treating a *sample* chemically or physically before measurement.

chemical interference — A *chemical* or physical entity whose influence results in a decrease or increase in the response of an *analytical method* or other measurement system relative to the response obtained in the absence of the entity.

chemical of concern — *Chemical* identified as a potential *risk* during a site-specific human-health or ecological *risk assessment*.

chemical of potential concern (COPC) — A *chemical*, detected at a site, that has the potential to adversely affect human *receptors* due to its concentration, distribution, and mechanism of toxicity. A COPC remains a concern until *exposure pathways* and *receptors* are evaluated in a site-specific human health *risk assessment*.

chemical of potential ecological concern (COPEC) — A *chemical*, detected at a site, that has the potential to adversely affect ecological *receptors* due to its concentration, distribution, and mechanism of toxicity.

cleanup levels — *Media*-specific *contaminant* concentration levels that must be met by a selected *corrective action*. Cleanup levels are established by using criteria such as protection of human health and the environment; compliance with regulatory requirements; reduction of toxicity, mobility, or volume through *treatment*; long- and short-term effectiveness; implementability; cost; and public acceptance.

Code of Federal Regulation (CFR) — A codification of all regulations developed by federal government agencies and finalized by publication in the *Federal Register*.

cold vapor atomic absorption (CVAA) — An analytical technique used for measuring mercury; it is described in *EPA* Methods 7470A (Mercury in Liquid Waste) and 7471A (Mercury in Solid or Semisolid Waste). The technique is based on the *absorption* of *radiation* at 253.7-nm by mercury vapor. The mercury is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor passes through a cell positioned in the light path of an atomic *absorption* spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

collocated sample — One of two or more *samples* collected within close proximity of each other meant to represent the same immediate area.

comparability — Qualitative measure of the degree to which one item or data set can be compared with another.

composite sample — A sample collected over a temporal or spatial range that typically consists of a series of discrete, equal samples which are combined or composited.

conceptual model — See *site conceptual model*.

conceptual hydrogeologic model — Mathematical approximation of the occurrence, movement, and quality of *groundwater* in a given area and the relationship of that *groundwater* to the surface water, *soil water*, and geologic framework in that area.

confined — Said of *groundwater* in an artesian *aquifer*.

contaminant — Any *chemical* (including *radionuclides*) present in environmental *media* or on structural debris.

contract-required detection limit (CRDL) — The minimum *reporting limits* required under a contract between Los Alamos National Laboratory and a contract laboratory. The CRDLs are not necessarily intrinsically tied to instrument *sensitivity* but rather are *reporting limits*.

controlled area — Laboratory area to which access is controlled to protect individuals from exposure to *radiation* and/or hazardous materials.

corrective action — Action to rectify conditions adverse to human health or the environment.

cumulative risk — The evaluation of simultaneous exposure to a receptor across multiple media, pathways, and contaminants to estimate the resulting health and environmental effects.

data quality assessment — Statistical and scientific evaluation of a data set that establishes whether it is adequate for its intended use.

data validation — Systematic process that applies a defined set of performance-based criteria to a body of data; may result in qualification of the data. The data validation process is performed independently of the analytical laboratory that generates the data set and occurs before conclusions are drawn from the data. The process may comprise a standardized data review (*routine data validation*) and/or a problem-specific data review (*focused data validation*).

data validator — The person who performs *data validation* in accordance with ER Project procedures.

data verification — Process of evaluating the completeness, correctness, consistency, and compliance of a laboratory data package against a specified standard or contract.

- Completeness means all required information is present—both hard copy and electronic.
- Correctness means the reported results are based on properly documented and correctly applied algorithms.
- Consistency means values are the same when they appear in different reports or are transcribed from one report to another.
- Compliance means the data pass numerical *quality control* (QC) tests based on parameters or limits specified in a contract or in an auxiliary document.

decommissioning — Permanent removal from service of facilities and their components, after the discontinued use of structures or buildings deemed no longer useful, in accordance with regulatory requirements and environmental policies.

decontamination — Removal of unwanted material from the surface of or from within another material.

detection limit — Minimum concentration that can be determined by a single measurement by an instrument; implies a specified statistical confidence that the analytical concentration is greater than zero.

discharge — Accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of *hazardous waste* into or on any land or water. (*RCRA*, 40 CFR 260.10)

disposal — The discharge, deposit, injection, dumping, spilling, leaking, or placing of any *solid waste* or *hazardous waste* into or on any land or water so that such *solid waste* or *hazardous waste* or any constituent thereof may enter the environment or be emitted into the air or *discharged* into any waters, including *groundwaters.* (40 CFR Part 260.10)

DOE — See *US Department of Energy*

duplicate analysis — *Analysis* performed on one of a pair of identically prepared *subsamples* taken from the same *sample.*

duplicate measurement — An additional measurement performed on a *prepared sample* under identical conditions to evaluate the variance in the measurement.

ecological screening level (ESL) — An organism's exposure-response threshold for a given *chemical* constituent. The concentration of a substance in a particular *medium* corresponds to a *hazard quotient* (HQ) of 1.0 for a given organism below which no *risk* is indicated.

effluent — Liquid *discharged* as a waste, such as contaminated water from a factory or the outflow from a sewage works; water *discharged* from a storm sewer or from land after irrigation.

environmental surveillance — Collection and *analysis* of *samples* of air, water, soil, foodstuffs, biota, and other media to determine the environmental quality of an industry or community. Environmental surveillance commonly is performed at sites that contain nuclear facilities.

EPA — See *US Environmental Protection Agency*

ephemeral — Said of a stream or *spring* that flows only during and immediately after periods of rainfall or snowmelt.

equipment blank (or *rinsate blank*) — A *blank sample* that is used to rinse the *sample* collection equipment and is then transferred to a sampling container. The equipment blank is collected after equipment *decontamination* is completed but before collection of another *field sample.*

ER data — Data derived as a result of *samples* that are collected and paid for by ER Project funding.

error — The quantifiable difference between an observed value and the true value of the parameter being measured.

estimated quantitation limit (EQL) — The lowest concentration that can be reliably achieved within specified limits of *precision* and *accuracy* during routine analytical laboratory operating conditions. The low point on a *calibration* curve should reflect this quantitation limit. The EQL is not used to establish detection status. *Sample* estimated quantitation limits are highly *matrix*-dependent, and the specified estimated quantitation limits might not always be achievable. See the statement of work (SOW) for analytical services (RFP No. 9-XS1-Q4257) for a more complete definition.

evapotranspiration — The combined *discharge* of water from the earth's surface to the atmosphere by evaporation from lakes, streams, and soil surfaces, and by transpiration from plants.

exposure pathway — Mode by which a *receptor* may be exposed to *contaminants* in environmental media (e.g., drinking water, ingesting food, or inhaling dust).

exposure unit — The bounded area or volume within which a person or other *receptor* may be exposed to *contaminants* that have been *released* to the environment.

external standard — External standard *calibration* involves comparison of instrument responses from the *sample* to the responses from the target compounds in the *calibration standards. Sample* peak areas (or peak heights) are compared to peak areas (or heights) of the standards.

Federal Register — The official daily publication for Rules, Proposed Rules, and Notices of federal agencies and organizations, as well as Executive Orders and other Presidential Documents.

field blank (also known as *field reagent blank*) — A *blank sample* either prepared in the field or carried to the sampling site, exposed to sampling conditions (e.g., bottle caps removed, preservatives added), and returned to a laboratory for *analysis* in the same manner in which environmental *samples* are analyzed. Used to identify the presence of contamination potentially added during the sampling and *analysis* process.

field duplicate (replicate) **samples** — Two separate, independent *samples* taken from the same source that are collected in such a manner that they are *collocated samples*, equally representative of the *sample matrix* at a given location and time.

field matrix spike — A known amount of a *field sample* to which a known amount of the *target analyte* has been added. Used to compute the proportion of added *analyte* that is recovered upon *analysis.*

focused data validation — A technically based *analyte-*, *sample-*, and potentially data use-specific process that extends the qualification of data beyond method or contractual compliance and provides a level of confidence that an *analyte* is present or absent. If the *analyte* is present, the quality of the quantitation may be obtained through focused validation.

geohydrology — The science that applies hydrologic methods to the understanding of geologic phenomena.

grab sample — A specimen collected by a single application of a field sampling procedure to a target *population* (e.g., the surface soil from a single hole collected following the spade and scoop sampling procedure or a single air filter left in the field for three months).

gravimetric moisture content — See *water content.*

groundwater — Water in a subsurface saturated zone; water beneath the regional *water table.*

half-life — The time required for one-half of the radioactive atoms initially present in a *sample* to decay. Each *radionuclide* has a characteristic half-life ranging from a fraction of a second to thousands of years.

hazard index (HI) — The sum of *hazard quotients* for multiple *contaminants* to which a *receptor* (j) is determined to be exposed, i.e., $HI_j = \sum_i HQ_{ij}$.

hazard quotient (HQ) — The ratio of a calculated exposure (E) to or *dose* (D) from a given *contaminant* (I) to a given *receptor* (j) over a reference value (TRV) for *contaminant* (I) determined to be protective of *receptor* (j), i.e., $HQ_{ij} = E_{ij}$ [or D_{ij}]TRV_{ij}.

Hazardous and Solid Waste Amendments (HSWA) — The Hazardous and Solid Waste Amendments of 1984 (Public Law No. 98-616, 98 Stat. 3221), which amended the *Resource Conservation and Recovery Act* of 1976, 42 U.S.C. § 6901 et seq.

hazardous constituent — Those constituents listed in Appendix VIII to 40 CFR Part 261.

hazardous waste — Any *solid waste* is generally a hazardous waste if it

- is not excluded from regulation as a hazardous waste,
- is listed in the regulations as a hazardous waste,
- exhibits any of the defined characteristics of hazardous waste (ignitability, corrosivity, reactivity, or toxicity), or
- is a mixture of *solid waste* and hazardous waste.

See 40 CFR 261.3 for a complete definition of hazardous waste.

HSWA module — Module VIII of the Laboratory's Hazardous Waste Facility Permit. This permit allows the Laboratory to operate as a *treatment, storage, and disposal facility.*

hydraulic conductivity — The rate at which water moves through a *medium* in a unit of time under a unit *hydraulic gradient* through a unit area measured perpendicular to the direction of flow.

hydraulic gradient — The rate of change of *hydraulic head* per unit of distance in the direction of *groundwater* flow.

hydraulic head — Elevation of the *water table* or *potentiometric surface* as measured in a well.

hydrogeology — The science that applies geologic methods to the understanding of hydrologic phenomena.

hypothesis — A proposition stated as a basis for further investigation.

inductively coupled plasma emission spectroscopy (ICPES) — ICPES determines trace elements, including metals, in solutions. The instrument measures characteristic emission spectra by optical spectrometry. Samples are nebulized, and the resulting aerosol is *transported* to the plasma torch. Element-specific emission spectra are produced by a radio-frequency inductively coupled plasma. The spectra are dispersed by a grating spectrometer, and photosensitive devices are used to monitor the intensities of the emission lines.

inductively coupled plasma mass spectroscopy (ICPMS) — ICPMS is applicable to the determination of sub-µg/l concentrations of a large number of elements in water *samples* and in waste extracts or digests. When dissolved constituents are required, *samples* must be filtered and acid preserved before *analysis.* No digestion is required before *analysis* for dissolved elements in water *samples.* The method measures ions produced by a radio-frequency inductively coupled plasma. *Analyte* species originating in a liquid are nebulized, and the resulting aerosol *transported* by argon gas into the plasma torch. The ions produced are entrained in the plasma gas and introduced, by means of an interface, into a mass spectrometer. The ions produced in the plasma are sorted according to their mass-to-change ratios and quantified with a channel electron multiplier.

industrial-use scenario — Industrial use is the scenario in which current Laboratory operations continue. Any necessary *remediation* involves cleanup to standards designed to ensure a safe and healthy work environment for Laboratory workers.

infiltration — Entry of water into the ground.

initial calibration — The process used to establish the relationship between instrument response and *analyte* concentration at several *analyte* concentration values to demonstrate that an instrument is capable of acceptable analytical performance.

institutional controls — Controls that prohibit or limit access to contaminated media: use restrictions, permitting requirements, *standard operating procedures*, Laboratory Implementation Requirements, Laboratory Implementation Guidance, Laboratory Performance Requirements, etc.

instrument detection limit (IDL) — The IDL is defined to be three times the average of the standard deviations obtained on three nonconsecutive days from the *analysis* of a standard solution, with seven consecutive measurements of that solution per day. The standard solution must be prepared at a concentration of three to five times the instrument manufacturer's estimated IDL. This is a measure of instrument *sensitivity* without any consideration for contributions to signal from reagents.

interflow — A runoff process that involves lateral subsurface flow in the soil zone.

intermittent stream — A stream that flows only in certain reaches due to losing and gaining characteristics of the channel bed.

internal standards — Compounds added to the *sample* after sample preparation for qualitative and quantitative instrument *analysis*—the compounds serve as a standard of retention time and response, which is invariant from run to run with the instruments. (*Handbook of Environmental Analysis,* by Roy-Keith Smith, 3rd ed.)

laboratory control sample (LCS) — A known *matrix* that has been spiked with compound(s) representative of the *target analytes*. The LCS is used to document laboratory performance. The acceptance criteria for LCSs are method specific.

laboratory duplicate sample — The portions of a *sample* taken from the same sample container, prepared for *analysis* and analyzed independently but under identical conditions; used to assess or demonstrate acceptable laboratory method precision at the time of analysis. Each duplicate *sample* is expected to be equally representative of the original material. Duplicate analyses also are performed to generate data, to determine the long-term precision of an analytical method on various matrices.

laboratory qualifier (or laboratory flag) — Codes applied to the data by the contract analytical laboratory to indicate, on a gross scale, a verifiable or potential data deficiency. These flags are applied using the *Environmental protection Agency (EPA)* contract laboratory program (CLP) guidelines.

land disposal restrictions (LDR) — Requirements in 40 CFR 268 that specify *treatment* standards that are protective of human health and the environment when *hazardous waste* is land disposed.

LANL data validation qualifiers — The data qualifiers defined by the Laboratory (LANL) and used in the ER Project baseline-validation process. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate ER Project *standard operating procedure* (ER-SOPs 15.01–15.06).

LANL data validation reason codes — The codes applied to the sample data by *data validators* who are independent of the contract laboratory which performed the *sample analysis*. Reason codes provide an in-depth and *analysis*-specific explanation for applying the qualifier with some description of the potential impact on the data use. For a complete list of data qualifiers applicable to any particular analytical suite, consult the appropriate ER Project *standard operating procedure* (ER-SOPs 15.01–15.06).

leachate — Any liquid, including any suspended components in the liquid, that has percolated through or drained from *hazardous waste* (40 CFR 260.10).

leaching — The separation or dissolving out of soluble constituents of a solid material by the natural action of percolating water or by *chemicals*.

matrix (see also *sample matrix*) — Relatively fine material in which coarser fragments or crystals are embedded; also called "ground mass" in the case of igneous rocks.

matrix spike — An *aliquot* of *sample* spiked with a known concentration of *target analyte(s)*. Matrix spike samples are used to measure the ability to recover prescribed analytes from a native sample matrix. The spiking typically occurs before *sample* preparation and *analysis*.

matrix spike duplicate — An intralaboratory duplicate *sample* spiked with a known amount of *target analyte(s)*. Spiking occurs before *sample* preparation and *analysis*.

maximum contaminant level (MCL) — Under the Safe Drinking Water Act, the maximum permissible level of a *contaminant* in water that is delivered to any user of a public water system that serves 15 or more connections and 25 or more people. The standards set take into account the feasibility and cost of attaining the standard.

medium (environmental) — Any media capable of *absorbing* or *transporting* constituents. Examples of media include *tuffs*, soils and *sediments* derived from these *tuffs*, surface water, *soil water*, *groundwater*, air, structural surfaces, and debris.

medium (geological) — The solid part of the hydrogeological system; may be unsaturated or saturated.

method blank — An *analyte*-free *matrix* to which all reagents are added in the same volumes or proportions as those used in the environmental *sample* processing and which is prepared and analyzed in the same manner as the corresponding environmental *samples*. The method blank is used to assess the potential for contamination to the *sample* during preparation and *analysis*.

method detection limit (MDL) — The minimum concentration of a substance that can be measured and reported with a known statistical confidence that the *analyte* concentration is greater than zero. The MDL is determined from *analysis* of *samples* of a given *matrix* type that contain the *analyte* after subjecting the *sample* to the usual preparation and analyses. The MDL is used to establish detection status.

migration — The movement of inorganic and organic species through unsaturated or saturated materials.

migration pathway — A route (e.g., a stream or subsurface flow path) that controls the potential movement of *contaminants* to environmental *receptors* (plants, animals, humans).

minimum detectable activity — For the *analysis* of *radionuclides*, the minimum detectable activity is the lowest detectable radioactivity for a given analytical technique. The following equation shall be used to calculate the MDA unless otherwise noted or approved by the Laboratory:

$$MDA = \frac{4.65(BKG)^{0.5} + 2.71}{2.22 \times EFF \times V \times T_S \times Y}$$

where BKG = the total background counts,
EFF = the fraction detector efficiency,
V = the volume or unit weight,
T_s = the *sample* count duration, and
Y = the fractional *chemical* recovery obtained from the *tracer* recovery.

Depending on the type of *analysis*, other terms may also be required in the denominator (e.g., gamma abundance).

mitigation — (1) Avoiding an impact altogether by not taking a certain action or parts of an action. (2) Minimizing impacts by limiting the degree or magnitude of the action and its implementation. (3) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (4) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (5) Compensating for the impact by replacing or providing substitute resources or environments.

mixed waste — Waste that contains both *hazardous waste* (as defined by *RCRA*) and *radioactive waste* (as defined by the Atomic Energy Act [AEA] and its amendments).

model — A mathematical approximation of a physical, biological, or social system.

no further action (NFA) — A recommendation that not further investigation or *remediation* is warranted based on specific criteria.

non-ER data — Data derived as a result of *samples* collected and paid for by sources other than the ER Project.

operable unit (OU) — At the Laboratory, one of 24 areas originally established for administering the ER Project. Set up as groups of *potential release sites*, the OUs were aggregated based on geographic proximity for the purpose of planning and conducting *RCRA facility assessments* and *RCRA facility investigations*. As the project matured, it became apparent that 24 were too many to allow efficient communication and to ensure consistency in approach. Therefore, in 1994, the 24 OUs were reduced to six administrative "field units."

outfall — The vent or end of a drain, pipe, sewer, ditch, or other conduit that carries wastewater, sewage, storm runoff or other *effluent* into a stream.

perched groundwater — *Groundwater* that lies above the regional *water table* and is separated from it by one or more *unsaturated zones*.

perennial stream — A stream or reach that flows continuously throughout the year.

performance-evaluation sample — A *sample* of known composition with respect to selected *analytes* which, upon *analysis*, is expected to yield results that fall within a prescribed range. Performance-

evaluation samples are selected to mimic as closely as possible those matrices representative of environmental *samples* from a particular location.

permit modification — A request by either the permittee or the administrative authority to change to change a condition of the Laboratory's Hazardous Waste Facility Permit.

polychlorinated biphenyls (PCBs) — Any *chemical* substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substances. PCBs are colorless, odorless compounds that are chemically, electrically, and thermally stable and have proven to be toxic to both humans and animals.

porosity — The ratio of the volume of interstices in a soil or rock *sample* to its total volume expressed as a percentage or as a fraction.

potential release site (PRS) — Refers to potentially contaminated sites at the Laboratory that are identified either as *solid waste management units (SWMUs)* or *areas of concern* (AOCs). PRS refers to *SWMUs* and AOCs collectively.

precision — A concept used to describe dispersion of measurements with respect to a measure of location or central tendency. Precision may be represented by the inverse of the standard deviation of a set of measurements.

preliminary assessment — The process of collecting and reviewing available information about a *potential release site.*

preliminary remediation goal (PRG) — Acceptable exposure levels, protective of human health and the environment, that are used as a *risk*-based tool for evaluating remedial alternatives.

preliminary risk assessment — A *risk assessment* conducted using conservative assumptions and scenarios and assuming no mitigating or corrective measures beyond those already in place.

prepared sample — A *sample* treated in such a manner as to render it amenable to *analysis.* May include digestate, distillate, electroplate, extract, filter retentate, filtrate, homogenate, precipitate, pulverized/sieved portion of *sample*, residue, etc.

quality assessment sample — A *sample* submitted for *analysis*, the data from which are used to assess the quality of performance of a sampling or *analysis* process. May include *performance-evaluation samples, field duplicates, field blanks*, etc.

quality assurance — All those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, or component will perform satisfactorily in service.

quality control (QC) — (1) All those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements. QC is the process through which actual quality performance is measured and compared with standards. (2) All methods and procedures used to obtain accurate and reliable results from environmental sampling and *analysis.* Includes rules for when, where, and how *samples* are taken; *sample* storage, preservation and *transport*; and the use of *blanks, duplicates*, and *split samples* during the *analysis.*

quality control sample — A *sample* which, upon *analysis*, is intended to provide information useful for adjusting, controlling, or verifying continuing acceptability of sampling and/or *analysis* activities that are in progress.

RCRA facility investigation (RFI) — The investigation that determines if a *release* has occurred and the nature and extent of the contamination at a *hazardous waste* facility. The RFI is generally equivalent to the remedial investigation portion of the Comprehensive Environment Response, Compensation, and Liability Act (CERCLA) process.

receptor — A person, plant, animal, or geographical location that is exposed to a *chemical* or physical agent *released* to the environment by human activities.

recreational-use scenario — A land use condition under which individuals may be exposed for a limited amount of time as a result of outdoor activities such as hiking, camping, hunting, and fishing.

regional aquifer — Geologic material(s) or unit(s) of regional extent whose saturated portion yields significant quantities of water to wells, contains the regional zone of saturation, and is characterized by the regional *water table* or *potentiometric surface.*

regulatory standard — Media-specific *contaminant* concentration levels of potential concern that are mandated by federal or state legislation or regulation (e.g., the Safe Drinking Water Act, New Mexico Water Quality Control Commission regulations).

release — Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, *leaching*, dumping, or disposing of *hazardous waste* or *hazardous constituents* into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles that contain any *hazardous wastes* or *hazardous constituents*).

remediation — The process of reducing the concentration of a *contaminant* (or *contaminants*) in air, water, or soil media to a level that poses an acceptable *risk* to human health and the environment; the act of restoring a contaminated area to a usable condition based on specified standards.

replicate measurement — A re-*analysis* (remeasurement) of a *prepared sample.*

reporting limit (RL) — The numerical value that an analytical laboratory (in conjunction with its client) selects to determine if a *target analyte* is detected. Results below the RL are considered not detected, while results greater than the RL are considered detected. The RLs are not necessarily based on instrument *sensitivity*. RLs can be established at the *instrument detection limit, method detection limit, estimated quantitation limit*, and *contract-required detection limit.*

request for supplemental information (RSI) — A request issued to *DOE* and the Laboratory by the administrative authority which states that some aspect(s) of a plan or report does not meet their requirements. The ER Project must respond by providing additional information to address the identified issue or concern.

request number — An identifying number assigned by the ER Project to a group of *samples* that are submitted for *analysis.*

residential-use scenario — The standards for residential use are the most stringent of the three current- and future-use scenarios being considered by the ER Project and is the level of cleanup the *EPA* is currently specifying for *SWMUs* located off the Laboratory site and for those released for non-Laboratory use.

Resource Conservation and Recovery Act (RCRA) — The Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976. (40 CFR 270.2)

restricted area — Any area to which access is controlled by the licensee for purposes of protection of individuals from exposure to *radiation* and radioactive materials. "Restricted area" shall not include areas used as residential quarters, although a separate room or rooms in a residential building may be set apart as a restricted area (10 CFR 60.2).

risk — A measure of a negative or undesirable impact associated with an event.

risk assessment — See *baseline risk assessment.*

risk assessment, preliminary — See *preliminary risk assessment.*

risk characterization — The summarization and integration of the results of toxicity and exposure assessments into quantitative and qualitative expressions of *risk.* The major assumptions, scientific judgments, and sources of uncertainty related to the assessment are also presented.

risk management — The integration of *risk characterization* with other nonscientific considerations specified in applicable statutes to make and justify regulatory decisions *(RCRA/CERCLA* Update, June 1992).

rinsate blank — See *equipment blank.*

routine analysis — The *analysis* categories of inorganics, metals, organics, radiochemistry, and high explosives as defined in the current contract laboratory statement of work.

routine data validation — Process of reviewing analytical data relative to quantitative routine acceptance criteria. The objective of routine data validation is two-fold:

- to estimate the technical quality of the data relative to minimum national standards adopted by the ER Project and
- to indicate to data users the technical data quality at a gross level by assigning *LANL qualifiers* to environmental data whose quality indicators do not meet acceptance criteria.

sample — A portion of a material (e.g., rock, soil, water, air), which, alone or in combination with other samples, is expected to be representative of the material or area from which it is taken. Samples are typically sent to a laboratory for *analysis* or inspection or are analyzed in the field. When referring to samples of environmental media, the term *field sample* may be used.

sample matrix — In *chemical analysis*, that portion of a *sample* which is exclusive of the *analytes* of interest. Together, the *matrix* and *analytes* of interest form the *sample.*

screening action level (SAL) — *Medium*-specific concentration level for a *chemical* derived using conservative criteria below for which it is generally assumed that there is no potential for unacceptable *risk* to human health. The derivation of a SAL is based on conservative exposure and land-use assumptions. However, if an applicable *regulatory standard* exists that is less than the value derived by *risk*-based computations, it will be used for the SAL.

screening assessment — A process designed to determine whether contamination detected in a particular *medium* at a site may present a potentially unacceptable human-health and /or ecological *risk.* The assessment utilizes screening levels that are either human-health or ecologically based concentrations derived by using *chemical*-specific toxicity information and standardized exposure assumptions below which no additional actions are generally warranted.

sediment — (1) A mass of fragmented inorganic solid that comes from the weathering of rock and is carried or dropped by air, water, gravity, or ice; or a mass that is accumulated by any other natural agent and that forms in layers on the earth's surface such as sand, gravel, silt, mud, fill, or loess. (2) A solid material that is not in solution and either is distributed through the liquid or has settled out of the liquid.

site characterization — Defining the pathways and methods of *migration* of the *hazardous waste* or *constituents*, including the *media* affected, the extent, direction and speed of the *contaminants*, complicating factors influencing movement, concentration profiles, etc. (US Environmental Protection Agency, May 1994. "RCRA Corrective Action Plan, Final," Publication EPA-520/R-94/004, Office of Solid Waste and Emergency Response, Washington, DC)

site conceptual model — A qualitative or quantitative description of sources of contamination, environmental *transport* pathways for contamination, and biota that may be impacted by contamination (called *receptors*) and whose relationships describe qualitatively or quantitatively the *release* of contamination from the sources, the movement of contamination along the pathways to the exposure points, and the uptake of *contaminant* by the *receptors*.

soil gas — Those gaseous elements and compounds that occur in the void spaces in unsaturated rock or soil. Such gases can move through or leave the rock or soil, depending on changes in pressure.

soil water — Water in the *unsaturated zone*, regardless of whether it occurs in soil or rock.

solid waste — Any garbage; refuse; sludge from a waste *treatment* plant, water-supply *treatment* plant, or air-pollution-control facility; and other discarded material including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations and from community activities.

solid waste management unit (SWMU) — Any discernible unit at which *solid wastes* have been placed at any time, irrespective of whether the unit was intended for the management of *solid or hazardous waste*. Such units include any area at a facility at which *solid wastes* have been routinely and systematically *released*. This definition includes regulated units (i.e., landfills, surface impoundments, waste piles, and land *treatment* units) but does not include passive leakage or one-time spills from production areas and units in which wastes have not been managed (e.g., product storage areas).

split sample — A *sample* that has been subdivided into two or more portions which are expected to be of the same composition. Used to characterize within-sample heterogeneity, *sample* handling, and measurement variability.

standard operating procedure (SOP) — A document that details the method for an operation, *analysis*, or action with thoroughly prescribed techniques and steps, and is officially approved as the method for performing certain routine or repetitive tasks.

subsample — See *aliquot*.

surrogate compound or surrogate — An organic compound used in the analyses of organic *target analytes* that is similar in composition and behavior to *target analytes* but is not normally found in *field samples*. *Surrogates* are added to every blank and spike sample to evaluate the efficiency with which *analytes* are recovered during extraction and *analysis*.

target analyte — An element, *chemical*, or parameter, the concentration, mass, or magnitude of which is designed to be quantified by use of a particular test method.

technical area (TA) — The Laboratory established technical areas as administrative units for all its operations. There are currently 49 active TAs spread over 43 square miles.

topography — The physical configuration of the land surface in an area.

toxic pollutants — The 126 individual priority toxic pollutants contained in 65 toxic compounds or classes of compounds (including organic pollutants and metals) adopted by the *EPA* pursuant to Section 307 (a) (1) of the Clean Water Act (DOE 1991).

transport or transportation — The movement of a *hazardous waste* by air, rail, highway, or water. (40 CFR 260.10)

treatment — Any method, technique, or process, including elementary neutralization, designed to change the physical, *chemical*, or biological character or composition of any *hazardous waste* so as to neutralize such waste; recover energy or material resources from the waste; or so as to render such waste nonhazardous or less hazardous; safer to *transport*, store, or dispose of; or amenable for recovery or storage; or reduced in volume.

treatment, storage, and disposal (TSD) facility — An interim status or permitted facility in which *hazardous waste* is treated, stored, or disposed.

trip blank — A *sample* of *analyte*-free media taken to the sampling site and returned to the analytical laboratory unopened along with *samples* taken in the field. Used to monitor cross contamination of *samples* during handling and storage both in the field and in the analytical laboratory.

tuff — A compacted deposit of volcanic ash and dust that contains rock and mineral fragments accumulated during an eruption.

unconfined — Said of water in a saturated zone that is open to the atmosphere (that is, not beneath a confining bed or under artesian pressure).

underflow — *Groundwater* flow beneath the bed of a non-flowing stream; such water is often perched in the channel *alluvium* atop the bedrock surface.

unsaturated zone — The zone between the land surface and the regional *water table* and between perched zones of saturation. Generally, fluid pressure in this zone is less than atmospheric pressure, and some of the voids may contain air or other gases at atmospheric pressure.

US Department of Energy (DOE) — Federal agency that sponsors energy research and regulates nuclear materials for weapons production.

US Environmental Protection Agency (EPA) — Federal agency responsible for enforcing environmental laws. While state regulatory agencies may be authorized to administer some of this responsibility, the EPA retains oversight authority to ensure protection of human health and the environment.

vadose zone — The unsaturated zone. Portion of the subsurface above the regional *water table* in which pores are not fully saturated.

water content — (Also *gravimetric moisture content*) The amount of water in an unsaturated *medium*, expressed as the ratio of the weight of water in a *sample* to the weight of the oven-dried *sample*; often expressed as a percent.

watershed — The region drained by, or contributing waters to, a stream, lake or other body of water and separated from adjacent drainage areas by a divides such as a ridge or summit of high ground.

water table — The top of the regional saturated zone; the *piezometric surface* associated with an *unconfined aquifer.*

welded tuff — A volcanic deposit hardened by the action of heat, pressures from overlying material, and hot gases.

Appendix B

Operational and Environmental Setting

B-1.0 OPERATIONAL HISTORY AND LAND USE

PRS 03-056(c) was a storage area used by the Laboratory's electrical power-line maintenance contractor from 1967 to 1992 for storing cables, dielectric fluids, PCB-containing transformers, capacitors, and oil-filled drums. Drums containing waste and product solvents were also stored at the site. Transformers with less than 500 ppm of PCBs were drained into drums at this location, then transported to salvage. Solvents were used to clean electrical equipment. Solvent-soaked rags were used to wipe down equipment; the residual solvent was placed in a drum. Once a few drums were full, they were removed from the site for disposal. A nonhazardous citrus-based solvent has been used at the site from 1990 to present. The waste-solvent storage area was decommissioned in 1992. An EC was conducted in 1995 to remove PCB contamination present in the soils to a TSCA cleanup level of <10 ppm.

The storage area is located northeast of the JCNNM Utilities Shop, Building 223 (03-223). The PRS boundary includes the historical storage area and extends to the west and north down to the watercourse of Sandia Canyon. The prevalent soil type on the mesa top is Carjo loam, which consists of moderately deep, well-drained soils formed from weathered Bandelier Tuff. The Carjo loam exists as a thin veneer ranging in thickness from a few in. to 3.5 ft at the site. Pleistocene ash flows of the Bandelier Tuff directly underlie the Carjo loam (Nyhan et al. 1978, 05702). The depth to the regional aquifer is estimated to be 950–1200 ft bgs (LANL 1996, 55746). Based on current and future land-use planning, the Laboratory will continue to use the property for industrial purposes (LANL 1995, 57224).

B-2.0 CLIMATE

Los Alamos County has a semiarid, temperate, mountain climate. Summer afternoon temperatures in Los Alamos County are typically in the 70s and 80s (°F), infrequently reaching 90°F, and nighttime temperatures are typically in the 50s. Typical winter temperatures are 30–50°F in the daytime and 15–25°F at night, occasionally dropping to 0°F or below (Bowen 1990, 06899).

Annual precipitation (including both rain and snow) averages about 18 in. Recorded extremes in annual precipitation range from 6.8 to 30.3 in. An average of 40% of the annual precipitation falls during thunderstorms in July and August, often in brief, high-intensity rains. Daily rainfall extremes of 1 in. or greater occur in most years, and the estimated 100-yr daily rainfall extreme is about 2.5 in. Snowfall is greatest from December through March, and heavy snowfall is infrequent in other months (Bowen 1990, 06899).

B-3.0 GEOLOGY

A detailed discussion of the geology of the entire TA-3 area can be found in section 3.4 of the RFI work plan for OU 1114 (LANL 1993, 20947).

B-3.1 Geologic Setting

The mesa surfaces surrounding PRS 03-056(c) are immediately underlain by the Bandelier Tuff of Pleistocene age, which outcrops in a few places on the mesa surfaces and is exposed along the canyon walls. The Bandelier Tuff is comprised of two units: the Tshirege and Otowi members (Smith 1966, 21584). The Tshirege Member is the uppermost unit and consists of multiple-flow units of crystal-rich ash-flow tuff and displays significant variations in welding and vapor phase alteration, both within a single stratigraphic section and at varying distances from the caldera. The Otowi Member of the Bandelier Tuff

underlies the Tshirege Member and outcrops along canyon walls. The Otowi Member is a nonwelded, vitric ash-flow tuff composed of multiple-flow units.

Beneath the Bandelier Tuff, a sequence of interstratified sedimentary and volcanic rocks of Miocene to Pleistocene age occur and outcrop on the margins of the Pajarito Plateau. Along the walls of the canyons below the Bandelier Tuff, Pliocene-Pleistocene andesite and latite volcanic rocks of the Tschicoma Formation crop out. The Tschicoma Formation consists of voluminous domes and flows of dacite and andesite that interfinger with sediments of the Puye Formation and are exposed in the upper canyons.

B-3.2 Soils

A large variety of soils have developed on the Pajarito Plateau as the result of climatic interactions with the underlying bedrock. Soils formed on the tops of mesas typically have loam or sandy loam surface horizons and clay or clay loam subsurface horizons. The mineral components of the soils are in large part derived from the Bandelier Tuff. Soils on the mesas can vary widely in thickness and are typically thinnest near the edges of the mesas where bedrock is often exposed. The slopes between the mesa tops and canyon bottoms often consist of steep rock outcrops and patches of shallow, undeveloped colluvial soils. South-facing canyon walls are typically steep and usually have little or no soil material or vegetation. The north-facing walls generally have areas of very shallow, dark-colored soils and are more heavily vegetated (Nyhan et al. 1978, 05702). Alluvium derived from the Pajarito Plateau and from the east side of the Jemez Mountains contributes to soils in the canyons. The alluvium varies in thickness and is underlain by either the Tshirege Member or the Otowi Member of the Bandelier Tuff, or the Tschicoma Formation (Nyhan et al. 1978, 05702). The prevalent soil type in the area of PRS 03-056(c) is Carjo loam, which consists of moderately deep, well-drained soils formed from weathered Bandelier Tuff (Nyhan et al. 1978, 05702). At the site, the Carjo loam exists as a thin veneer ranging in thickness from a few inches to 3.5 ft.

B-4.0 HYDROLOGY

PRS 03-056(c) is located in the Upper Sandia Canyon watershed aggregate of the Sandia watershed. Most of the site is located on the mesa top, with contaminant areas extending to the mesa slopes to the north and the west down to the watercourse of Sandia Canyon. In the following sections, the hydrologic setting of the PRS will be discussed, where appropriate, within the context of the entire Sandia Canyon watershed.

B-4.1 Hydrological Conceptual Model

The mesa-top vadose zone (which is formed in the Bandelier Tuff) does not bear water, except in very shallow and localized areas. The low moisture content and extensive thickness of the unsaturated zone (up to 1200 ft of unsaturated volcanic tuff and sediments of the Bandelier and Puye Formations and Cerros del Rio Basalts) minimize the potential for downward movement of water through the Bandelier Tuff and to the main aquifer.

B-4.2 Surface Water

Surface water flow provides the primary mechanism for redistributing and transporting materials, including contaminants from early Laboratory operations and discharges from operating facilities. Surface water flow in the drainage at the boundary of the site, below PRS 03-056(c), occurs as a result of discharges from the steam plant at TA-3 and from runoff from precipitation and snowmelt. Surface water flow in

Sandia Canyon occurs primarily as ephemeral runoff, but the discharge from the steam plant to Sandia Canyon provides a source of intermittent flow.

B-4.2.1 SOP-2.01 Assessment

At the Laboratory, surface water runoff and sediment transport are among the potential migration pathways by which contaminants might be transported to off-site receptors. Surface water may also access subsurface contaminants exposed by soil erosion. Soil erosion is dependent on several factors, including soil properties, the amount of vegetative cover, the slope of the contaminated area, exposure, the intensity and frequency of precipitation, and seismic activity.

The Laboratory's ER Project has developed SOP-2.01 to assess sediment transport and erosion concerns at specific PRSs. SOP-2.01 provides a basis for prioritizing and scheduling actions to control erosion of potentially contaminated soils at specific PRSs. The procedure is a two-part evaluation. Part A is a compilation of existing PRS analytical data, site maps, and knowledge-of-process information. This part is initiated and completed by the Laboratory's ER Project. Part B is an assessment of the erosion/sediment transport potential at the PRS. Part B is completed by the Laboratory's Water Quality and Hydrology Group (ESH-18), a Surface Water Assessment Team comprised of representatives from the ER Project, ESH-18, the Laboratory's Facility Management Group (FSS-7), and the DOE.

Erosion potential is numerically rated from 1 to 100 using a matrix system. PRSs that score below 40 have low erosion potentials; those that score from 40 to 60 have medium erosion potentials; and those that score above 60 have high erosion potentials. The erosion matrix score for PRS 03-056(c) was 69.7 before the VCA (see the VCA plan in Appendix H to this report). At PRS 03-056(c), soils contaminated with PCBs were removed from the site. After removal of approximately 2400 yd^3 of material, site-restoration activities were completed to ensure that transport of any residual contamination at the site is prevented.

Following the VCA activities, best management practices (BMPs) in the form of run-on and runoff controls, asphalt, lake rock, rip rap, straw wattles, and jute matting were put in place as part of the site restoration. Runoff has been diverted from the north slope to the west slope onto exposed tuff. On the mesa-top portion of the PRS, fill was brought in, and the site was recontoured, compacted, and repaved. There is currently no visible erosion observed at the site. A new SOP-2.01 checklist was completed. The new erosion matrix score is 45. This score indicates that PRS 03-056(c) has moderate erosion potential. The final SOP-2.01 assessment for PRS 03-056(c) is included at the end of this appendix.

B-4.3 Groundwater

Sections B-4.3.1 through B-4.3.4 discuss the alluvial waters, perched waters, regional aquifer, and vadose zone in the vicinity of PRS 03-056(c) and in the Sandia Canyon watershed.

B-4.3.1 Alluvial Waters

There are no alluvial waters within PRS 03-056(c); however the Sandia Canyon drainage is at the boundary of the site. The Sandia Canyon watershed has a relatively small drainage area that heads at TA-3 on Laboratory property. Ephemeral flow in Sandia Canyon exists primarily in response to snowmelt and rainfall runoff. A portion of the surface water infiltrates to create saturated zones in the alluvium within certain stretches of Sandia Canyon. Partial depletion by evapotranspiration and movement into the underlying geologic formations controls the size and depth of these alluvial saturated zones. Intermittent flow also exists in the upper part of Sandia Canyon as a result of discharges from the TA-3 power plant

and treated effluent from the TA-3 and TA-46 sanitary treatment plants. It can be continuous for a distance downstream from TA-3 to approximately the middle section of the canyon. The canyon also receives stormwater runoff from parking lots and streets in TA-3. The discharged effluents support a continuous flow in a short reach of the upper canyon. During summer thundershowers, streamflow reaches the Laboratory boundary at State Highway 4, and only during periods of heavy thunderstorms or snowmelt does streamflow from Sandia Canyon extend beyond the Laboratory boundary or reach the Rio Grande (Environmental Surveillance and Compliance Programs 1998, 59904, p. 127).

A total of five stream gages have been installed by the Laboratory in Sandia Canyon to measure streamflow and runoff. The first stream gage (E125) was installed near the eastern Laboratory boundary in 1993. The other four stream gages were installed in 1999 in upper and middle Sandia Canyon. Gaging station E121 was installed on an upstream tributary to Sandia Canyon (South Fork) at TA-3, below the Laboratory power plant. Gaging station E122 was installed in upper Sandia Canyon at TA-3 near the roads and grounds maintenance building and upstream from the tributary where gaging station E121 was installed. Gaging station E123 was installed in upper Sandia Canyon near TA-3 and below the wetlands area. Gaging station E124 was installed in central Sandia Canyon at the truck route (East Jemez Road) and south of TA-53 (LANL 1999, 62920, p. 8–9). This station is located downstream from the normal eastern extent of the continuous flow from Laboratory discharges in upper Sandia Canyon. No records of streamflow are yet available from these four new gaging stations in upper and middle Sandia Canyon. For a discussion of volumes of water discharged to Sandia Canyon from Laboratory operations, refer to Chapter 3 of the Sandia Canyon and Canada del Buey work plan (LANL 1999, 64617).

B-4.3.2 Perched Waters

There is evidence that intermediate perched zones of saturation are present beneath lower Sandia Canyon. Intermediate perched zones have not been identified beneath upper and middle Sandia Canyon; however, the presence of an intermediate perched zone beneath TA-53 has been inferred (LANL 1998, 58841, p. 2–10). Perched groundwater was encountered at a depth of about 450 ft (137 m) in water supply well PM-1 when the well was drilled in 1964 and 1965 (Cooper et al. 1965, 8582, p. 40). This perched zone was located in the Cerros del Rio basalts and is separated from the top of the regional water table by approximately 298 ft (91 m) of basalt and conglomerate. Supply well Otowi-4, located in middle Los Alamos Canyon, north of TA-53, also encountered perched intermediate groundwater when the well was drilled in 1990. Intermediate perched groundwater was encountered at a depth of approximately 253 ft (77 m) where water cascaded into the hole from a layer of coarse gravel in the upper fanglomerate section of the Puye Formation above the Cerros del Rio basalts (Stoker et al. 1992, 12017). This intermediate saturated zone is separated from the top of the regional water table by about 527 ft (161 m) of conglomerate and basalt. The lateral extent of these perched groundwater bodies is not known, nor is it known if the perched groundwater at PM-1 is connected to the perched groundwater at Otowi-4. It is also not known if these intermediate-depth groundwater bodies are hydraulically interconnected with the regional water table (e.g., LANL 1998, 58841, p. 2-10). For further discussion on this subject, refer to Chapter 3 of the Sandia Canyon and Canada del Buey work plan (LANL 1999, 64617).

B-4.3.3 Regional Aquifer

The depth to the regional aquifer is estimated to be 950–1200 ft bgs (LANL 1998, 59599). It is located in the lower Puye Formation and Santa Fe Group sediments. The hydraulic gradient indicates that groundwater moves eastward. Beneath lower Sandia Canyon, the regional water table in well R-12 was encountered at a depth of 805 ft (245 m) (elevation 5696 ft [1737 m]) in fractured basalt of the Santa Fe Group. Groundwater at the top of the regional aquifer in this area appears to be unconfined, and the static

water level occurs at the same elevation at R-12 as that encountered in well R-9 (elevation 5696 ft [1737 m]). However, the elevation at the top of the regional water table in R-12 is about 62 ft (19 m) lower than the nonpumping water level in adjacent well PM-1, which is at an elevation of 5758 ft (1755 m). For further discussion on this subject, refer to Chapter 3 of the Sandia Canyon and Canada del Buey work pzlan (LANL 1999, 64617).

B-4.3.4 Vadose Zone

The mesa-top vadose zone that is formed in the Bandelier Tuff and portions of the Puye Formation does not bear water except in relatively shallow and localized areas. The low moisture content and extensive thickness of the unsaturated zone (up to 1100 ft) may serve as either a barrier or a conduit to the vertical and horizontal movement of alluvial groundwater or to potentially transient perched intermediate groundwater zones below the canyons. For further discussion of this topic, refer to Chapter 3 of the Sandia Canyon and Canada del Buey work plan (LANL 1999, 64617).

B-5.0 ECOLOGICAL RESOURCES

A site-specific ecological scoping checklist was completed for PRS 03-056(c), which is included in Appendix F of this report. Also, ESH-20 personnel have completed three biological assessments which address many of the TAs within the Sandia Canyon watershed area (Cross 1994, 26071; Haarmann 1994, 52023; Risberg 1994, 62353). The purpose of the assessments was to evaluate the impact of ER Project site-characterization activities and proposed Laboratory activities on potentially present threatened, endangered, and sensitive species and on floodplains and wetlands. The assessments were based on reconnaissance surveys, habitat evaluations, and species-specific surveys that were conducted for compliance with the Federal Endangered Species Act; the New Mexico Wildlife Conservation Act; the New Mexico Endangered Plant Species Act; Federal Executive Order 11990, "Protection of Wetlands"; Federal Executive Order 11988, "Floodplain Management"; 10 CFR Part 1022, "Compliance with Floodplain/Wetlands Environmental Review Requirements"; the National Environmental Policy Act; and DOE Order 5400.1, "General Environmental Protection Program." The assessments identified the presence of habitats that are capable of supporting threatened, endangered, and sensitive species; however, the assessments do not conclude that these species are present. A summary of the threatened, endangered, and sensitive species that are potentially present based on the habitats identified by these assessments is discussed in section 3.4.6.2 of the Sandia Canyon and Canada del Buey work plan (LANL 1999, 64617).

B-6.0 CULTURAL RESOURCES

During 1995, cultural resource surveys were conducted for the ER Project at OU 1114 (LANL 1995, 63080) by archaeologists from the Ecology Group (ESH-20). The methods and techniques used for this survey conform to those specified in the Secretary of the Interior's standards and guidelines for archaeology and historic preservations. There are no archeological sites in the area of PRS 03-056(c) that are eligible for inclusion in the National Register of Historic Places.

Los Alamos National Laboratory

Environment, Safety & Health Division
ESH-18 Water Quality & Hydrology Group

Surface Water Assessment
Erosion Matrix for PRS 03-056(c)

CRITERIA EVALUATED	Value	Erosion/Sediment Transport Potential Low 0.1	Medium 0.5	High 1.0	Calculated Score
Site Setting (43)					
On mesa top	1	Defined based on topographic setting			1.0
Within bench of canyon	4				
Within the canyon floodplain but not watercourse	13				
Within bottom of canyon channel in watercourse	17				
Estimated % ground and canopy cover	13	>75%	25-75%	<25%	6.5
Slope	13	0-10%	10-30%	>30%	6.5
Surface Water Factors-Run-off (46)					
Visible evidence of runoff discharging? (Yes/No)	5	If no, score of 0 for runoff section. If yes, score 5 and proceed with section.			5.0
Where does runoff terminate?	19	Other	Bench Setting	Drainage/Wetland	19.0
Has runoff caused visible erosion? (Yes/No)	22	Sheet	Rill	Gully	0.0
		If no, score as 0. If yes, calculate as appropriate.			
Surface Water Factors-Run-on (11)					
Structures adversely affecting run-on (Yes/No)	7*	If yes, score as 7. If no, score as 0.			7.0
Current operations adversely impacting (Yes/No)	4	If yes, score as 4. If no, score as 0.			0.0
Natural drainages onto site (Yes/No)	7*	If yes, score as 7. If no, score as 0.			0.0
**Select either structures or natural drainages.*					
MAX. POSSIBLE EROSION MATRIX SCORE:	**100**			**Total Score**	45**

REVISED PART B

** Indicates BMPs in place. Erosion potential without BMPs may be greater.

Report Printed 8/15/01 9:53:31 AM.

Los Alamos National Laboratory
SURFACE WATER
SITE ASSESSMENT

Revised Part B. Please discard previous.

SITE INFORMATION

1a) PRS Number 03-056(c) **1b) Structure Number** 3-223 **1c) FMU Number** ER

2. Date/Time (M/D/Y H:M am/pm) 9/16/97 11:00:00 AM

SITE SETTING (check all that apply)

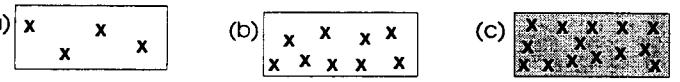
3. ◉ **On mesa top (a).** ○ **In the canyon floor, but not in an established channel (c)**

○ **Within a bench of a canyon (b).** ○ **Within established channel in the canyon floor (d).**

Explanation: Former transformer clean-out/storage area. PRS extends to the north and west from edge of canyon to just above watercourse in tributary of Sandia canyon. A VCA was recently completed at the site.

4. Estimated ground and/or canopy cover at site: (deciduous leaves, pine needles, rocks, vegetation, trees,

(illustration) (a) (b) (c)

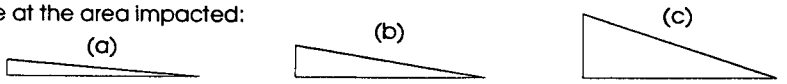


Estimated % of ground/canopy cov ○ 0% to 25% ◉ 25% to 75% ○ 75% to 100%

Explanation: Site was excavated down to volcanic tuff on the slopes. The upper portion has been paved with asphalt and the upper slopes are covered with riprap.

5. Steepest slope at the area impacted:

(a) (b) (c)



○ Less than 10% ◉ 10% to 30% ○ 30% and greater

Explanation: Located on exposed northwest and north facing slope.

RUNOFF FACTORS

Y / N

☑ ☐ **6. Is there visible evidence of runoff discharging from site? If yes, answer a) - c) below:**

☐ ☑ 6a) Is runoff channelized? If yes, describ ○ Man-made channel. ○ Natural channel.

Explanation: Sheet flow runoff from slope directly into tributary of Sandia Canyon. Northern site has natural channels created from runoff of adjacent parking area. The site drainage has been rerouted to the western slope.

RUNOFF FACTORS, CONT'D

6b) Where does evidence of runoff terminate?

- (●) **Drainage or wetland (name)** Sandia Canyon
- ( ) **Within bench of canyon setting (name)**
- ( ) **Other (i.e., retention pond, meadow, mesa top)**

Explanation: Runoff terminates directly into tributary below site. There are additional sources of potential contaminants immediately upstream from the site (TA-3 Power Plant 3-22).

Y / N

☐ ☑ 6c) Has runoff caused visible erosion at the site? If yes, explain below: ( ) Sheet ( ) Rill ( ) Gully

Explanation: No visible erosion observed. The site has been excavated to the volcanic tuff interface or covered with asphalt.

RUN-ON FACTORS

Please rate the potential for storm water to run on to this site: (Check EITHER #7 or #9)

☑ ☐ **7.** Are structures (i.e., buildings, roof drains, parking lots, storm drains) creating run-on to the site?

Explanation: Parking lot above PRS.

☐ ☑ **8.** Are current operations (i.e., fire hydrants, NPDES outfalls) adversely impacting run-on to the site?

Explanation: No operational impact

☐ ☑ **9.** Are natural drainage patterns directing stormwater onto site?

Explanation: Run-on is diverted by asphalt berm and channel.

ASSESSMENT FINDING:

☐ ☑ **10. Based on the above criteria and the assessment of this site, does soil erosion potential exist? (REFER TO EROSION POTENTIAL MATRIX.)**

Veenis, Steve

11. Signature of Water Quality/Hydrology Representative

_____ Initials of independent reviewer.

Check here when information is entered in database: ☑

This page is for ESH-18 notes, recommendations, and photos.

	Y	N	
12. a)	○	◉	Is there visible trash/debris on the site?
b)	○	◉	Is there visible trash/debris in a watercourse?

Description of existing BMPs:

Site is covered with asphalt on top of mesa which has been designed to drain to one common discharge point. Riprap/gabions have been placed around the edge of the asphalt to dissipate run-on. Check dams and wattles are located on the northern slopes and all areas with exposed soil have been reseeded.

◉ ○ Are BMPs being properly maintained? If no, describe in "Other Internal Notes."

◉ ○ Are BMPs effectively keeping sediment in place and reducing erosion potential?

OTHER INTERNAL NOTES:

The score had previously been recorded as (52.6 on 9/97) but was modified because the runoff termination point (question 6b) was not properly noted on the form (69.7 on 7/99). The assessment was recently redone to reflect the site status after the completion of the VCA in July 2001.

Appendix C

Results of Quality Assurance/Quality Control Activities

This appendix consists of two sections: (1) a comparison of results from EnSys PCB soil test kits with results from fixed-laboratory analysis, and (2) an assessment of the quality of analytical results obtained at PRS 3-056(c) during 2001.

C-1.0 COMPARISON OF RESULTS OBTAINED BY ENSYS PCB SOIL TEST KITS WITH THOSE OBTAINED BY FIXED-LABORATORY ANALYSES

Over 500 soil samples were screened for PCBs using EnSys PCB soil test kits, based on EPA SW-846 Method 4020 (Strategic Diagnostics, Inc., No. 7020301, instructions). The EnSys PCB soil test kit is a qualitative or semi-quantitative enzyme immunoassay that determines if PCB levels are above or below specified levels. The screening levels used in this VCA were 1 and 10 ppm. Paragon Analytics, Inc., of Ft. Collins, Colorado, analyzed 16 soil samples, using EPA SW-846 Method 8082, that were also screened by the EnSys PCB soil test kit. The fixed-laboratory results (Method 8082) and the test kit results are compared in Table C-1.0-1.

Table C-1.0-1
Comparison of EnSys PCB Soil Test Kit Results with Analytical Results Obtained by EPA Method 8082

Sample ID	Method 8082 Analytical Results (ppm)	EnSys Test Kit Results (ppm)	Matrix	Date Collected
RE03-00-0065	0.069	< 1	Soil	8/22/00
RE03-00-0011	0.288	< 1	Soil	8/22/00
Area 6 191	0.300	> 1	Soil	9/21/00
RE03-00-0012	0.306	< 1	Soil	8/22/00
RE03-00-0010	0.315	< 1	Soil	8/22/00
RE03-00-0064	0.390	> 1	Soil	8/22/00
Area 7 211	0.490	<1	Soil	9/21/00
RE03-00-0013	0.510	> 1	Soil	8/22/00
RE03-00-0144	1.40	> 1	Soil	9/14/00
RE03-00-0139	2.50	> 1	Soil	9/14/00
RE03-00-0140	2.50	> 1	Soil	9/14/00
RE03-00-0141	4.30	> 1	Soil	9/14/00
Area 1 215	4.70	> 1	Soil	9/22/00
RE03-0062	7.40	> 10	Soil	8/22/00
RE03-0063	11.00	> 10	Soil	8/22/00
Area 6 186	25.00	> 10	Soil	9/21/00

C-1.1 Principal of EnSys PCB Soil Test Kit

The EnSys PCB soil test kit uses antibodies, immobilized on the walls of test tubes, that bind either the PCBs in a sample or the PCB-enzyme conjugate supplied with the kit. The PCBs in a sample extract compete with the PCB-enzyme conjugate for a limited number of antibody binding sites. A chromogenic substrate, which specifically binds to bound PCB-enzyme conjugate, produces a blue color that is measured either visually or in a photometer. The amount of color produced is inversely proportional to the

PCB concentration in the sample. Specifically, a sample with a low PCB concentration allows more PCB-enzyme conjugate molecules to bind to the antibodies, so the attached chromogenic substrate then produces a darker blue color. Conversely, a sample with a high PCB concentration has fewer available sites for the PCB-enzyme conjugate molecules, so a lighter blue is produced. By manipulating the dilutions of the samples, the amount of color development can be compared with that found in test tubes containing known PCB standards. The levels of 1 ppm and 10 ppm were the screening levels against which all soil samples were screened. The minimum detection limit for the EnSys PCB test kit was 0.5 ppm for Aroclor-1254 and Aroclor-1260, and it was 1.0 and 2.0 ppm for Aroclor-1248 and Aroclor-1242, respectively (Strategic Diagnostics, Inc., instructions).

C-1.2 Comparison of Test Kit Results with Those Obtained by EPA Method 8082

Eight of the sixteen soil samples contained less than 1 ppm of PCBs, as determined by Method 8082. These samples contained 0.069 ppm to 0.510 ppm PCBs (see Table C-1.0-1). The EnSys test kit results identified 5 of these samples as having less than 1 ppm PCBs. The other 3 samples had test kit results greater than 1 ppm PCBs, which made the results more conservative than Method 8082 analyses. Six of the soil samples contained between 1 and 10 ppm of PCBs according to Method 8082. Individual sample results varied from 1.4 ppm to 7.4 ppm. The EnSys test kit results reported that 5 of these samples contained between 1 and 10 ppm PCBs. Sample RE03-00-0062, which contained 7.4 ppm by Method 8082 analysis, had greater than 10 ppm PCBs according to its test kit result. Two samples contained greater than 10 ppm of PCBs, according to Method 8082 analysis. The EnSys test kit results agreed with the Method 8082 results.

C-1.3 Conclusions

The EnSys test kit results agreed with Method 8082 results in 12 out of 16 samples. In the 4 samples whose test kit and EPA Method 8082 results differed, all had a higher PCB content according to the test kit results. Thus the test kit results were biased toward an overestimation of the actual PCB content. The test kit result for each sample was based on an extraction of 1 g of soil, while EPA Method 8080 used 2 to 30 g. These different size aliquots of soil were taken from a sample of 100 to 200 g that may have had varying PCB concentrations within the aliquot. The different results generated by each test might have accurately represented PCB content of the extracted soil aliquot. In conclusion, those samples identified by the EnSys test kits as containing less than 1 ppm (the screening level used in this VCA) could be reasonably assumed to be below that level. The EnSys test kits were a suitable means for estimating the PCB content in soils excavated during the VCA.

C-2.0 SUMMARY OF QA/QC ACTIVITIES

Table C-2.0-1 presents the analytical suites used during this investigation.

Table C-2.0-1
Analytical Suites

Chemical Category	Analyte List	Analytical Method
Inorganic chemicals	TAL metals	EPA Method 6010B/6020A
Organic chemicals	PCBs	EPA Method 8082
	VOCs	EPA Method 8260

QA, QC, and data validation procedures were implemented in accordance with the requirements of the "Quality Assurance Project Plan Requirements for Sampling and Analysis" (LANL 1996, 54609) and the Laboratory's ER Project analytical services statement of work (SOW) for contract laboratories (LANL 1995, 49738). The results of the QA/QC activities were used to estimate accuracy, bias, and precision of the analytical measurements. QC samples, including method blanks, blank spikes, matrix spikes, and laboratory control samples were used to assess accuracy and bias. Internal standards, external standards, surrogates, and tracers were also used to assess accuracy. The type and frequency of QC analyses are described in the ER Project analytical services SOW (LANL 1995, 49738). Other QC factors such as sample preservation and holding times were also assessed. The requirements for sample preservation and holding times are given in the ER Project standard operating procedure, "Sample Containers and Preservation" (ER-SOP-1.02, Rev. 0). Evaluating these QC indicators allows estimates to be made of the accuracy, bias, and precision of the analytical suites. A focused data validation was also performed for all the data packages (also referred to as request numbers). The focused validation followed the same procedure discussed above and included a more detailed review of the raw data results generated by the analytical laboratory.

Data validation results, including request numbers, sample identification numbers, and their associated qualifiers, are given in section C-5.0. The non-rejected data, including the qualified data, are usable for evaluation and interpretive purposes. The entire data set meets the standards set for use in this report, with the exception of select antimony results which were rejected due to extremely low spike-recovery results in request numbers where antimony was not detected. This significantly increases the risk of false negative results and thus makes certain antimony data unusable.

C-2.1 Samples Collected

A summary of the samples collected for analyses is presented in Table C-2.1-1.

Table C-2.1-1
Summary of Soil Samples Analyzed at PRS 03-056(c)

Request Number	ER Sample ID	Analytical Suite
Inorganic Chemicals		
8264	RE03-01-0002 through -0009	TAL metals
8266	RE03-01-0010, -0011, -0012, and -0015	TAL metals, except where noted
8273	RE03-01-0016 through -0018 and RE03-01-0093 through -0095	TAL metals
8581	RE03-01-0128 through -0130	TAL metals
Organic Chemicals		
8263	RE03-RE03-01-0002 through -0009, RE03-01-0019, RE03-01-0020, RE03-01-0022 through -0081	PCBs
8263	RE03-RE03-01-0002 through -0009,	VOCs
8265	RE03-01-0010, -0011, -0012, and -0015	PCBs, VOCs
8272	RE03-01-0016 through -0018 and RE03-01-0093 through -0095	PCBs
8272	RE03-01-0016 through -0018, RE03-01-0090, and RE03-01-0093 through -0095	VOCs
8580	RE03-01-0128 through -0131	PCBs
8580	RE03-01-0128 through -0130	VOCs

Summaries of the analytical methods for metals and organic analytes are provided in the following sections. The contract-required detection limit (CRDL) for each analyte listed is provided in Appendix D. These limits are also detailed in the ER Project analytical services SOW (LANL 1995, 49738).

C-2.2 Inorganic Chemical Methods and QA/QC Samples

Twenty-one samples were analyzed for the TAL metals. Mercury was analyzed by EPA Method 7471 cold vapor atomic absorption (CVAA) (EPA 1987, 57589). The other TAL metals were analyzed by either EPA Method 6010B, inductively coupled plasma emission spectroscopy (ICPES), or EPA Method 6020A, inductively coupled plasma mass spectroscopy (ICPMS). The CRDLs defined by the ER Project analytical services SOW (LANL 1995, 49738) for inorganic chemicals are provided in Appendix D. The qualifiers are provided in section C-2.4.

Laboratory control samples (LCS), method blanks, matrix spike samples, field duplicate samples, interference check samples, and serial dilution samples were analyzed to assess accuracy and precision for inorganic chemical analyses. Each of these QA/QC sample types is defined in the ER Project analytical services SOW (LANL 1995, 49738).

The LCS serves as a monitor of the overall performance of each step during the analysis, including sample digestion. The analytical results for the samples were qualified according to National Functional Guidelines (EPA 1994, 48639) if the individual LCS recovery indicated an unacceptable bias in the measurement of individual analytes. The LCS recoveries should fall into the control limits of 75–125%.

Method blanks are used as a measurement of bias and potential cross-contamination. The blank results for inorganic chemical analyses were within acceptable limits for all the analyses. All target analytes should be below the CRDL in the preparation blank.

Accuracy for inorganic chemical analyses are also assessed using matrix spike samples. A matrix spike sample is designed to provide information about the effect of each sample matrix on the sample preparation procedures and analytical technique. The spike sample recoveries should be within the acceptance range of 75–125%.

Analyzing field duplicate samples assessed the precision of inorganic chemical analyses. All relative percent differences between the sample and field duplicate should ±35%.

C-2.3 Organic Chemical Analyses

Twenty-one samples and one field blank (RE03-01-0090) were analyzed for VOCs using EPA Method 5035 for extraction and EPA Method 8260 for analysis. Eighty-four samples were analyzed for PCBs using EPA Method 3540 for extraction and EPA Method 8082 for analysis. The summaries for these analyses are presented in the sections below. All QC procedures were followed as required in the ER Project analytical services SOW (LANL 1995, 49738). The analyte list, with CRDLs, can be found in Appendix D. The qualifiers are provided in Table C-2.4-1.

C-2.4 Data Validation

Table C-2.4-1 presents the data qualifiers applied to each analyte for a given sample.

Table C-2.4-1
Explanation of Data Qualifiers Used in the Data Validation Procedure

Qualifier	Explanation
U	The analyte was analyzed for but not detected. Reported value is the sample-specific estimated quantitation limit or detection limit.
J	The reported value should be regarded as estimated.
J+	The reported value should be regarded as estimated and biased high.
J-	The reported value should be regarded as estimated and biased low.
UJ	The analyte was analyzed for but not detected. Reported value is an estimate of the sample-specific quantitation limit or detection limit.
R	The sample results were rejected because of serious deficiencies in the ability to analyze the sample and meet quality control criteria; presence or absence cannot be verified.

C-2.5 Inorganic Data Review

For Request 8264, eight samples were analyzed for TAL metals. Antimony was not detected in any sample. All antimony results in all samples were rejected because of very poor spike recovery. The spike recovery indicates how well a known quantity of analyte can be extracted and measured. When spike recovery is poor, it implies an inability to quantitatively extract and measure an analyte concentration. For undetected compounds, this increases the risk of false negatives and the data must be rejected. Several other analytes in these samples were qualified as detected with a low bias (J-) due to low spike recovery results. Some silver results were UJ-qualified due to low spike recovery. Thallium was J-qualified by the analytical laboratory in all but one sample, and mercury and selenium were J-qualified by the analytical laboratory in two different samples because these analytes were detected at low levels between the instrument detection limit (IDL) and the estimated detection limit (EDL). When levels are low and near the detection limit, there is inherently more uncertainty associated with the value.

For Request 8266, 4 samples were analyzed for TAL metals, and 2 samples were analyzed for antimony only. Antimony was not detected in any sample. All antimony results in all samples were rejected because of very poor spike recovery, as in Request 8264 above. Several other analytes in these samples were qualified as detected with a low bias (J-) due to low spike-recovery results. Some silver results were UJ-qualified due to low spike recovery. In a few samples, thallium, mercury, and cadmium were qualified as estimated by the analytical laboratory because these analytes were detected at low levels between the IDL and the EDL.

For Request 8273, 6 samples were analyzed for TAL metals. Antimony was not detected in any sample. All antimony results in all samples were rejected because of very poor spike recovery, as in Request 8264 above. Calcium results in all samples were qualified as estimated because the results in the duplicate sample were outside the acceptable limit. Cadmium results in all samples were qualified as estimated with a high bias (J+) because of elevated spike-recovery results. In a few samples, several other analytes were qualified as estimated by the analytical laboratory because these analytes were detected at low levels between the IDL and the EDL.

For Request 8581, 3 samples were analyzed for TAL metals. In these samples, antimony and copper were qualified as either detected with a low bias (J-) or undetected and estimated (UJ) due to low spike-

recovery results. Barium was qualified as estimated in sample RE03-01-0130 because the results in the duplicate sample were outside the acceptable limit. Several other analytes were qualified as estimated by the analytical laboratory because these analytes were detected at low levels between the IDL and the EDL.

Table C-2.5-1 summarizes information regarding the inorganic data quality.

Table C-2.5-1
PRS 03-056(c) Inorganic Data Quality Evaluation

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8264R	RE03-01-0001 RE03-01-0002 RE03-01-0003 RE03-01-0005 RE03-01-0006 RE03-01-0008 RE03-01-0009	03-14344 03-14314 03-14393 03-14316 03-14312 03-14319 03-14334	0–0.5	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8264R	RE03-01-0004 RE03-01-0007	03-14393 03-14312	0.5–1	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8264R	RE03-01-0002 RE03-01-0003 RE03-01-0005 RE03-01-0006 RE03-01-0008 RE03-01-0009	03-14314 03-14393 03-14316 03-14312 03-14319 03-14334	0–0.5	Arsenic, barium, beryllium, chromium, total, cobalt, copper, lead, nickel, silver, vanadium, zinc	The spike percent recovery value is between 30 and 75%. Detected results have a potential low bias (J-). Nondetected results may potentially be false negatives (UJ).
8264R	RE03-01-0004 RE03-01-0007	03-14393 03-14312	0.5–1	Arsenic, barium, beryllium, chromium, total, cobalt, copper, lead, nickel, silver, vanadium, zinc	The spike percent recovery value is between 30 and 75%. Detected results have a potential low bias (J-). Nondetected results may potentially be false negatives (UJ).
8264R	RE03-01-0002 RE03-01-0003 RE03-01-0005 RE03-01-0006 RE03-01-0008 RE03-01-0009	03-14393 03-14393 03-14316 03-14312 03-14319 03-14334	0–0.5	Manganese	The spike percent recovery is less than 30%, and the analyte was detected. The analytical result has a potential low bias (J-).
8264R	RE03-01-0004 RE03-01-0007	03-14393 03-14312	0.5–1	Manganese	The spike percent recovery is less than 30%, and the analyte was detected. The analytical result has a potential low bias (J-).

Table C-2.5-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8264R	RE03-01-0002 RE03-01-0003 RE03-01-0005 RE03-01-0006 RE03-01-0009	03-14314 03-14393 03-14316 03-14312 03-14334	0–0.5	Thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8264R	RE03-01-0004 RE03-01-0007	03-14393 03-14312	0.5–1	Thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8264R	RE03-01-0003	03-14393	0–0.5	Selenium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8264R	RE03-01-0008	03-14319	0–0.5	Mercury	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8266R	RE03-01-0010 RE03-01-0011 RE03-01-0013 RE03-01-0014 RE03-01-0015	03-14361 03-14335 03-14337 03-14337 03-14358	0–0.5	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8266R	RE03-01-0012	03-14335	0.5–1	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8266R	RE03-01-0010 RE03-01-0011 RE03-01-0015	03-14361	0–0.5	Arsenic, barium, beryllium, chromium, total, cobalt, copper, lead, nickel, silver, vanadium, zinc	The spike percent recovery value is between 30 and 75%. Detected results have a potential low bias (J-). Nondetected results may potentially be false negatives (UJ).
8266R	RE03-01-0012	03-14335	0.5–1	Arsenic, barium, beryllium, chromium, total, cobalt, copper, lead, nickel, silver, vanadium, zinc	The spike percent recovery value is between 30 and 75%. Detected results have a potential low bias (J-). Nondetected results may potentially be false negatives (UJ).
8266R	RE03-01-0010 RE03-01-0011 RE03-01-0015	03-14361 03-14335 03-14358	0–0.5	Manganese	The spike percent recovery is less than 30%, and the analyte was detected. The analytical result has a potential low bias (J-).

Table C-2.5-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8266R	RE03-01-0012	03-14335	0.5–1	Manganese	The spike percent recovery is less than 30%, and the analyte was detected. The analytical result has a potential low bias (J-).
8266R	RE03-01-0010	03-14361	0–0.5	Mercury	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8266R	RE03-01-0010	03-14361	0–0.5	Thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8266R	RE03-01-0012	03-14335	0.5–1	Thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8266R	RE03-01-0015	03-14358	0–0.5	Cadmium, mercury	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8273R	RE03-01-0017 RE03-01-0018 RE03-01-0094 RE03-01-0095	03-14388 03-14367 03-14373 03-14371	0–0.5	Antimony	The spike percent recovery value is less than 30%, and the analyte was not detected. The significant potential for false negatives requires that the data be rejected (R).
8273R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	Beryllium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	Cadmium	The spike percent recovery value is between 125 and 150%, inclusive, and the analyte was detected. Sample results have a potential high bias (J+).
8273R	RE03-01-0017 RE03-01-0018 RE03-01-0094 RE03-01-0095	03-14388 03-14367 03-14373 03-14371	0–0.5	Cadmium	The spike percent recovery value is between 125 and 150%, inclusive, and the analyte was detected. Sample results have a potential high bias (J+).

Table C-2.5-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8273R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	Calcium	The duplicate sample's relative percent difference is greater than the advisory limits. The sample result should be considered estimated (J).
8273R	RE03-01-0017 RE03-01-0018 RE03-01-0094 RE03-01-0095	03-14388 03-14367 03-14373 03-14371	0–0.5	Calcium	The duplicate sample's relative percent difference is greater than the advisory limits. The sample result should be considered estimated (J).
8273R	RE03-01-0016	03-14358	0.5–1	Mercury, silver	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0093	03-14367	0.5–1	Cobalt, nickel, thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0017 RE03-01-0018	03-14388 03-14367	0–0.5	Mercury	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported as being above the EDL (J).
8273R	RE03-01-0018 RE03-01-0094	03-14367 03-14373	0–0.5	Beryllium, thallium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0018 RE03-01-0094 RE03-01-0095	03-14367 03-14373 03-14371	0–0.5	Nickel	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8273R	RE03-01-0095	03-14371	0–0.5	Chromium, total	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8581R	RE03-01-0128 RE03-01-0129 RE03-01-0130	03-14315 03-14337 03-14344	0–0.25	Antimony, copper	The spike percent recovery value is between 30 and 75%. Detected results have a potential low bias (J-). Nondetected results may potentially be false negatives (UJ).
8581R	RE03-01-0128 RE03-01-0129	03-14315 03-14337	0–0.25	Barium, beryllium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).

Table C-2.5-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8581R	RE03-01-0128 RE03-01-0129 RE03-01-0130	03-14315 03-14337 03-14344	0–0.25	Cobalt, magnesium, nickel, potassium, sodium, vanadium	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).
8581R	RE03-01-0130	03-14344	0–0.25	Barium	The duplicate sample's relative percent difference is greater than the advisory limits. The sample result should be considered estimated (J).
8581R	RE03-01-0130	03-14344	0–0.25	Mercury	The sample result was reported as detected between the IDL and the EDL. Reported result may be less precise than a result reported above the EDL (J).

C-2.6 Organic Data Review

There were no data quality issues associated with the PCB analysis. Therefore, all of the following discussion and tables apply only to VOC data.

One field blank, sample RE03-01-0090 in Request 8272, was collected and analyzed for VOCs only. The only compound detected in the field blank was 2-methyl-4-pentanone. This compound was not detected in any other samples. Therefore, field contamination is not expected to have an influence on the VOC results presented in this report.

For Request 8263, 8 samples were analyzed for VOCs. In all samples, acetone and bromomethane were qualified as UJ, and, in all samples but one, chloroethane was qualified as UJ because calibration results for these analytes were outside the acceptable limit. In several samples, benzene, tetrachloroethene, and toluene were qualified as estimated (J) by the analytical laboratory because these analytes were detected at low levels between the IDL and the EDL. When levels are low and near the detection limit there is inherently more uncertainty associated with the value. In samples RE03-01-0005 and -0009, carbon disulfide was qualified as nondetected (U) because its presence in the sample may be attributed to laboratory contamination.

For Request 8265, 4 samples were analyzed for VOCs. In all samples, acetone was qualified as undetected (U) because it was present in the sample at concentrations which may be attributable to laboratory contamination. Bromomethane was qualified as UJ in all samples because calibration results for this compound were outside of the acceptable limit. 2-Butanone in sample RE03-01-0010, and 2-butanone and trichlorofluoromethane in sample RE03-01-0015, were qualified as undetected (U) because the mass spectrum provided was not sufficient to identify these compounds. 4-isopropyltoluene and toluene were qualified as detected with a high bias (J+) due to a high surrogate recovery. Toluene in sample RE03-01-0011 was qualified as estimated (J) by the analytical laboratory because it was detected at low levels between the IDL and the EDL.

For Request 8272, 6 samples were analyzed for VOCs. All nondetected results in all samples were qualified as UJ because of a low internal standard. In sample RE03-01-0018, acetone, benzene, 4-isopropyltoluene, and toluene were qualified as estimated (J) because another internal standard was outside of the acceptable range. In sample RE03-01-0094, carbon disulfide was qualified as nondetected

(U) because its presence in the sample may be attributed to laboratory contamination. Acetone and bromomethane in samples RE03-01-0094 and -0095, and chloroethane in sample RE03-01-0095, were qualified as UJ due to calibration results for these compounds which were outside of the acceptable range. A few compounds in these samples were qualified as detected with a high bias (J+) because a surrogate had a high recovery.

For Request 8580, 3 samples were analyzed for VOCs. In all samples, iodomethane and trichlorofluoromethane were qualified as UJ, and, in sample RE03-01-0128, acetone was qualified as UJ due to calibration results for these compounds which were outside of the acceptable range. Acetone and methylene chloride were detected in the other two samples. These results were qualified as undetected (U) because they may be present due to laboratory contamination.

Table C-2.6-1 summarizes information regarding the organic data quality.

Table C-2.6-1
PRS 03-056(c) Organic Data Quality Evaluation

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8263R	RE03-01-0002 RE03-01-0003 RE03-01-0005 RE03-01-0006 RE03-01-0008 RE03-01-0009	03-14314 03-14393 03-14316 03-14312 03-14319 03-14334	0–0.5	Acetone, bromomethane	The results/reporting limits for the listed analytes should be regarded as estimated (J)/estimated (UJ) because the associated percent relative standard deviation (%RSD) or percent difference (%D) exceeded the acceptable criteria in the initial or continuing calibration standards.
8263R	RE03-01-0002 RE03-01-0003 RE03-01-0006 RE03-01-0008	03-14314 03-14393 03-14312 03-14319	0–0.5	Chloroethane	The reporting limits for the listed analyte should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8263R	RE03-01-0002 RE03-01-0003 RE03-01-0006	03-14314 03-14393 03-14312	0–0.5	Benzene	The laboratory reported this analyte as detected but estimated (J) because it was detected at a level between the EQL and the method detection limit (MDL).
8263R	RE03-01-0002	03-14314	0–0.5	Tetrachloroethene	The laboratory reported this analyte as detected but estimated (J) because it was detected at a level between the EQL and the MDL.
8263R	RE03-01-0002 RE03-01-0006	03-14314 03-14312	0–0.5	Toluene	The laboratory reported this analyte as detected but estimated (J) because it was detected at a level between the EQL and the MDL.
8263R	RE03-01-0004 RE03-01-0007	03-14393 03-14312	0.5–1	Acetone, bromomethane, chloroethane	The results/reporting limits for the listed analytes should be regarded as estimated (J)/estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.

Table C-2.6-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8263R	RE03-01-0004	03-14393	0.5–1	Benzene	The laboratory reported this analyte as detected but estimated (J) because it was detected at a level between the EQL and the MDL.
8263R	RE03-01-0005 RE03-01-0009	03-14316 03-14334	0–0.5	Carbon disulfide	The result for the listed analyte should be regarded as not detected (U) because the associated sample concentration was less than 5 times the amount in the preparation blank which indicates that the reported detection is considered indistinguishable from contamination in the blank.
8265R	RE03-01-0010 RE03-01-0011 RE03-01-0015	03-14361 03-14335 03-14358	0–0.5	Acetone	The result for the listed analyte should be regarded as not detected (U) because the associated sample concentration was less than 10 times the amount in the preparation blank which indicates that the reported detection is considered indistinguishable from contamination in the blank.
8265R	RE03-01-0010 RE03-01-0011 RE03-01-0015	03-14361 03-14335 03-14358	0–0.5	Bromomethane	The reporting limits for the listed analyte should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8265R	RE03-01-0010	03-14361	0–0.5	Butanone[2-]	This analyte is qualified as undetected (U) because the mass intensities used in the quantitation of this analyte do not meet method specifications. This indicates potential false positive results.
8265R	RE03-01-0011	03-14335	0–0.5	Toluene	The laboratory reported this analyte as detected but estimated (J) because it was detected at a level between the EQL and the MDL.
8265R	RE03-01-0015	03-14358	0–0.5	Butanone[2-], trichlorofluoromethane	These analytes are qualified as undetected (U) because the mass intensities used in the quantitation of this analyte do not meet method specifications. This indicates potential false positive results.
8265R	RE03-01-0015	03-14358	0–0.5	Isopropyltoluene[4-], toluene	These analytes are qualified as J+ because the surrogate recovery is greater than the upper acceptable limit, which indicates the potential for a high bias in the results and for false positive results.

Table C-2.6-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8265R	RE03-01-0012	03-14335	0.5–1	Acetone	The result for the listed analyte should be regarded as not detected (U) because the associated sample concentration was less than 10× the amount in the preparation blank which indicates that the reported detection is considered indistinguishable from contamination in the blank.
8265R	RE03-01-0012	03-14335	0.5–1	Bromomethane	The reporting limits for the listed analyte should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8272R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	Acetone, toluene	These analytes are qualified as J+ because the surrogate recovery is greater than the upper acceptable limit, which indicates the potential for a high bias in the results and for false positive results.
8272R	RE03-01-0016 RE03-01-0093	03-14358 03-14367	0.5–1	All nondetected analytes	All nondetected analytes in these samples are qualified as estimated (UJ) because an internal standard area count is less than 50% of the area count for the previous continuing calibration, greatly increasing the potential for false negative results.
8272R	RE03-01-0017 RE03-01-0018	03-14388 03-14367	0–0.5	All nondetected analytes	All nondetected analytes in these samples are qualified as estimated (UJ) because an internal standard area count is less than 50% of the area count for the previous continuing calibration, greatly increasing the potential for false negative results.
8272R	RE03-01-0017	03-14388	0–0.5	Acetone, benzene, toluene, trichlorofluoromethane	These analytes are qualified as J+ because the surrogate recovery is greater than the upper acceptable limit, which indicates the potential for a high bias in the results and for false positive results.
8272R	RE03-01-0018	03-14367	0–0.5	Acetone, benzene, isopropyltoluene[4-], toluene	These analytes are qualified as estimated (J) because an internal standard area count is outside the -50% to +100% window relative to the previous continuing calibration. This condition could affect the quantitative accuracy of the result.

Table C-2.6-1 (continued)

Request	Sample ID	Location ID	Depth (ft)	Analyte	Explanation
8272R	RE03-01-0093	03-14367	0.5–1	Benzene, isopropyltoluene[4-]	These analytes are qualified as J+ because the surrogate recovery is greater than the upper acceptable limit, which indicates the potential for a high bias in the results and for false positive results.
8272R	RE03-01-0094 RE03-01-0095	03-14373 03-14371	0–0.5	Acetone, bromomethane	The reporting limits for the listed analytes should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8272R	RE03-01-0094	03-14373	0–0.5	Carbon disulfide	The result for the listed analyte should be regarded as not detected (U) because the associated sample concentration was less than 5× the amount in the preparation blank which indicates that the reported detection is considered indistinguishable from contamination in the blank.
8272R	RE03-01-0095	03-14371	0–0.5	Chloroethane	The reporting limits for the listed analyte should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8580R	RE03-01-0128	03-14315	0–0.25	Acetone	The reporting limits for the listed analytes should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8580R	RE03-01-0128 RE03-01-0129 RE03-01-0130	03-14315 03-14337 03-14344	0–0.25	Iodomethane, trichlorofluoromethane	The reporting limits for the listed analytes should be regarded as estimated (UJ) because the associated %RSD or %D exceeded the acceptable criteria in the initial or continuing calibration standards.
8580R	RE03-01-0129 RE03-01-0130	03-14337 03-14344	0–0.25	Acetone, methylene chloride	The results for the listed analytes should be regarded as not detected (U) because the associated sample concentration was less than 10× the amount in the preparation blank which indicates that the reported detection is considered indistinguishable from contamination in the blank.

Appendix D

Analytical Suites and Results

D-1.0 TARGET ANALYTES AND DETECTION LIMITS

Tables D-1.0-1 through D-1.0-3 include the maximum required reporting limits or quantitation limits in accordance with the ER Project analytical services SOW for contract laboratories (LANL 1995, 49738) and the "Quality Assurance Project Plan Requirements for Sampling and Analysis" (LANL 1996, 54609). In most cases, the reporting limits for the analytes were significantly lower than the detection or quantitation limits reported in these tables. The sample-specific detection or quantitation limits for each analyte are accessible in the Facility for Information Management, Analysis, and Display (FIMAD) database. In addition, summary tables presented throughout this report also include these limits as appropriate.

Efforts were made to ensure that detection limits for inorganic analytes were below Laboratory background values (BVs). Instances in which the detection limits were greater than BVs are noted and discussed in section 2.4.4.1 of this report.

Table D-1.0-1
Target Analytes for Contract-Required Detection Limits for Inorganic Chemical Analyses

Analyte	EPA Sample Preparation Method	Analytical Technique	EDL[a] (mg/kg)
Aluminum	3050A	ICPES[b]	40
Antimony	3050A	ICPES	12
Arsenic	7060/3050A	ICPES/GFAA[c]	2
Barium	3050A	ICPES	40
Beryllium	3050A	ICPES	1
Cadmium	3050A	ICPES	1
Calcium	3050A	ICPES	1000
Chromium	3050A	ICPES	2
Cobalt	3050A	ICPES	10
Copper	3050A	ICPES	5
Cyanide	9012	Colorimetric	0.05
Iron	3050A	ICPES	20
Lead	7421/3050A	ICPES/ICPMS[d]	0.6
Magnesium	3050A	ICPES	1000
Manganese	3050A	ICPES	3
Mercury	7471	CVAA[e]	0.1
Nickel	3050A	ICPES	8
Potassium	3050A	ICPES	1000
Selenium	7740/3050A	ICPES/GFAA	1
Silver	3050A	ICPES	2
Sodium	3050A	ICPES	1000

Table D-1.0-1 (continued)

Analyte	EPA Sample Preparation Method	Analytical Technique	EDL[a] (mg/kg)
Thallium	7841/3050A	ICPES/GFAA/ICPMS	2
Vanadium	3050A	ICPES	10
Zinc	3050A	ICPES	4

[a] EDL = Estimated detection limit.

[b] ICPES -= Inductively coupled plasma emission spectroscopy (by EPA SW-846 Method 6010).

[c] GFAA = Graphite furnace atomic absorption.

[d] ICPMS = Inductively coupled plasma mass spectrometry (by EPA SW-846 Method 6020).

[e] CVAA = cold vapor atomic absorption (spectroscopy).

Table D-1.0-2
Target Analytes and
Practical Quantitation Limits for VOC Analyses[a]

Target Analyte	Soil/Solids[b] (µg/kg)
Chloromethane	10
Vinyl Chloride	10
Bromomethane	10
Chloroethane	10
Acetone	20
Dichlorodifluoromethane	10
Iodomethane	5
Trichlorotrifluoroethane	5
Trichlorotrifluoromethane	5
Methyl chloride	5
1,1-Dichloroethane	5
Carbon disulfide	5
1,1-Dichloroethane	5
1,2-Dichloroethene (total)	10
Bromochloromethane	5
Chloroform	5
1,2-Dichloroethane	5
1,1-Dichloropropene	5
2-Butanone	20
2,2-Dichloropropane	5
1,1,1-Trichloroethane	5
Carbon Tetrachloride	5
Benzene	5
1,2-Dichloropropane	5

Table D-1.0-2 (continued)

Target Analyte	Soil/Solids (µg/kg)
Trichloroethene	5
Dibromomethane	5
Bromodichloromethane	5
t-1,3-Dichloropropene	5
c-1,3-Dichloroprepene	5
1,1,2-Trichloroethane	5
1,3-Dichloropropane	5
Chlorodibromomethane	5
4-Methyl-2-Pentanone	20
Toluene	5
2-Hexanone	20
1,2-Dibromenthane	5
Tetrachloroethene	5
Chlorobenzene	5
1,1,1,2-Tetrachloroethane	5
Ethylbenzene	5
o,m,p-Xylene (mixed)	5
Styrene	5
Bromoform	5
1,1,2,2-Tetrachloroethane	5
1,2,3-Trichloropropane	5
Isopropylbenzene	5
Bromobenzene	5
n-Propylbenzene	5
2-Chlorotolulene	5
4-Chlorotolulene	5
1,3,5-Trimethylbenzene	5
tert-Butylbenzene	5
1,2,4-Trimethylbenzene	5
Sec.-Butylbenzene	5
1,3-Dichlorobenzene	5
1,4-Dichlorobenzene	5
p-Isopropyltoluene	5
1,2-Dichlorobenzene	5

Table D-1.0-2 (continued)

Target Analyte	Soil/Solids (µg/kg)
n-Butylbenzene	5
1,2-Dimbromo-3-Chloropropane	10

[a] All analyses were done by EPA contract laboratory program Method OLM2.0 or the equivalent EPA Method 8260. These methods are based on purge-and-trap sample extraction/concentration followed by gas chromatography/mass spectrometry.

[b] EQLs for the samples are based on no GPC cleanup being performed. The laboratories' GPC equipment determines the sample-specific EQL based on the volume of extract the GPC equipment uses. However, the laboratories are requested, if possible, to report sample-specific Ells of no more than twice the value listed in the table.

Table D-1.0-3
Target Analytes and
Practical Quantitation Limits for PCB Analyses[a]

Analyte	Soil/Solids[b] (µg/kg)
Aroclor-1016	33
Aroclor-1221	66
Aroclor-1232	33
Aroclor-1242	33
Aroclor-1248	33
Aroclor-1254	33
Aroclor-1260	33

[a] All analyses were done by EPA contract laboratory program Method OLM1.8 or the equivalent EPA Method 8081. These methods are based on solvent extraction, concentration, and gas chromatography/electron capture detection and quantitation.

[b] EQLs for the samples are based on no GPC cleanup being performed. The laboratories' GPC equipment determines the sample-specific EQL based on the volume of extract the GPC equipment uses. However, the laboratories are requested, if possible, to report sample-specific Ells of no more than twice the value listed in the table.

D-2.0 ANALYTE SUITES AND DATA SUMMARY

Table D-2.0-1 presents the analyte suites and request numbers for each sample collected during this investigation. Each request number includes a batch of samples sent to a specific off-site analytical laboratory for a specific suite of analyses, and the request numbers can be used to track the original data packages from the off-site analytical laboratories. Analytical results are provided, in hard copy, in the following pages.

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1016	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1221	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1232	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1242	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1248	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1254	0.48	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Aroclor-1260	2.5	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Tetrachloroethane(1,1,1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichloroethane(1,1,1-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Tetrachloroethane(1,1,2,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichloroethane(1,1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloroethane(1,1-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloroethene(1,1-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropene(1,1-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichloropropane(1,2,3-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trimethylbenzene(1,2,4-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dibromo-3-chloropropane(1,2-)	0.02	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dibromoethane(1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichlorobenzene(1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloroethane(1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloroethene(cis/trans-1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropane(1,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trimethylbenzene(1,3,5-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichlorobenzene(1,3-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropane(1,3-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichlorobenzene(1,4-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropane(2,2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Butanone(2-)	0.039	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chlorotoluene(2-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Hexanone(2-)	0.039	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chlorotoluene(4-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Isopropyltoluene(4-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Methyl-2-pentanone(4-)	0.039	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Acetone	0.031	MG/KG	J
03-056(c)	03-14314	RE03-01-0002	ALLH	Benzene	0.0037	MG/KG	J
03-056(c)	03-14314	RE03-01-0002	ALLH	Bromobenzene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Bromochloromethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Bromodichloromethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Bromoform	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Bromomethane	0.02	MG/KG	UJ
03-056(c)	03-14314	RE03-01-0002	ALLH	Carbon Disulfide	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Carbon Tetrachloride	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chlorobenzene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chlorodibromomethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chloroethane	0.02	MG/KG	UJ
03-056(c)	03-14314	RE03-01-0002	ALLH	Chloroform	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Chloromethane	0.02	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropene(cis-1,3-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dibromomethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichlorodifluoromethane	0.02	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Ethylbenzene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Iodomethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Isopropylbenzene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Methylene Chloride	0.0098	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14314	RE03-01-0002	ALLH	Butylbenzene(n-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Propylbenzene(1-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Butylbenzene(sec-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Styrene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Butylbenzene(tert-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Tetrachloroethene	0.0081	MG/KG	J
03-056(c)	03-14314	RE03-01-0002	ALLH	Toluene	0.0022	MG/KG	J
03-056(c)	03-14314	RE03-01-0002	ALLH	Dichloropropene(trans-1,3-)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichloroethene	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichlorofluoromethane	0.02	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Trichlorotrifluoroethane	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Vinyl Chloride	0.02	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Xylene (Total)	0.0098	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Silver	0.156	MG/KG	UJ
03-056(c)	03-14314	RE03-01-0002	ALLH	Aluminum	8200	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Arsenic	3.2	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Barium	41	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Beryllium	0.58	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Calcium	1400	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Cadmium	0.0485	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Cobalt	3	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Chromium, Total	5.3000002	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Copper	2.5	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Iron	13000	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Mercury	0.0273	MG/KG	U
03-056(c)	03-14314	RE03-01-0002	ALLH	Potassium	960	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Magnesium	1300	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Manganese	210	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Sodium	110	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Nickel	3.7	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Lead	5.5999999	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Selenium	0.406	MG/KG	None
03-056(c)	03-14314	RE03-01-0002	ALLH	Thallium	0.0838	MG/KG	J
03-056(c)	03-14314	RE03-01-0002	ALLH	Vanadium	11	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Zinc	52	MG/KG	J-
03-056(c)	03-14314	RE03-01-0002	ALLH	Antimony	0.152	MG/KG	R
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1016	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1221	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1232	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1242	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1248	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1254	0.046	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Aroclor-1260	0.068	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Hexanone(2-)	0.038	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chlorotoluene(4-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Isopropyltoluene(4-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Methyl-2-pentanone(4-)	0.038	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Acetone	0.044	MG/KG	J
03-056(c)	03-14393	RE03-01-0003	ALLH	Benzene	0.0064	MG/KG	J
03-056(c)	03-14393	RE03-01-0003	ALLH	Bromobenzene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Bromochloromethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Bromodichloromethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Bromoform	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Bromomethane	0.019	MG/KG	UJ

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14393	RE03-01-0003	ALLH	Carbon Disulfide	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Carbon Tetrachloride	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chlorobenzene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chlorodibromomethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chloroethane	0.019	MG/KG	UJ
03-056(c)	03-14393	RE03-01-0003	ALLH	Chloroform	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chloromethane	0.019	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropene(cis-1,3-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dibromomethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichlorodifluoromethane	0.019	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Ethylbenzene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Iodomethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Isopropylbenzene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Methylene Chloride	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Butylbenzene(n-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Propylbenzene(1-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Butylbenzene(sec-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Styrene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Butylbenzene(tert-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Tetrachloroethene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Toluene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropene(trans-1,3-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichloroethene	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichlorofluoromethane	0.019	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichlorotrifluoroethane	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Vinyl Chloride	0.019	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Xylene (Total)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichlorobenzene(1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloroethane(1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloroethene(cis/trans-1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropane(1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trimethylbenzene(1,3,5-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichlorobenzene(1,3-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropane(1,3-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichlorobenzene(1,4-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropane(2,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Butanone(2-)	0.038	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Chlorotoluene(2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Tetrachloroethane(1,1,1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichloroethane(1,1,1-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Tetrachloroethane(1,1,2,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichloroethane(1,1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloroethane(1,1-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloroethene(1,1-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dichloropropene(1,1-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trichloropropane(1,2,3-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Trimethylbenzene(1,2,4-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dibromo-3-chloropropane(1,2-)	0.019	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Dibromoethane(1,2-)	0.0096	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Silver	0.184	MG/KG	UJ
03-056(c)	03-14393	RE03-01-0003	ALLH	Aluminum	4200	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Arsenic	3.5999999	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Barium	45	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Beryllium	0.52	MG/KG	J-

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14393	RE03-01-0003	ALLH	Calcium	1200	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Cadmium	0.0571	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Cobalt	2.5	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Chromium, Total	5	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Copper	2.4000001	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Iron	12000	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Mercury	0.0321	MG/KG	U
03-056(c)	03-14393	RE03-01-0003	ALLH	Potassium	770	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Magnesium	1100	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Manganese	380	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Sodium	130	MG/KG	None
03-056(c)	03-14393	RE03-01-0003	ALLH	Nickel	3.4000001	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Lead	4.8000002	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Selenium	0.329	MG/KG	J
03-056(c)	03-14393	RE03-01-0003	ALLH	Thallium	0.105	MG/KG	J
03-056(c)	03-14393	RE03-01-0003	ALLH	Vanadium	7.0999999	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Zinc	77	MG/KG	J-
03-056(c)	03-14393	RE03-01-0003	ALLH	Antimony	0.179	MG/KG	R
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1016	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1221	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1232	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1242	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1248	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1254	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Aroclor-1260	0.044	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichlorobenzene(1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloroethane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloroethene(cis/trans-1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trimethylbenzene(1,3,5-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichlorobenzene(1,3-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropane(1,3-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichlorobenzene(1,4-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropane(2,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Butanone(2-)	0.028	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chlorotoluene(2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Hexanone(2-)	0.028	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chlorotoluene(4-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Isopropyltoluene(4-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Methyl-2-pentanone(4-)	0.028	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Acetone	0.029	MG/KG	J
03-056(c)	03-14393	RE03-01-0004	ALLH	Benzene	0.0035	MG/KG	J
03-056(c)	03-14393	RE03-01-0004	ALLH	Bromobenzene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Bromochloromethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Bromodichloromethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Bromoform	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Bromomethane	0.014	MG/KG	UJ
03-056(c)	03-14393	RE03-01-0004	ALLH	Carbon Disulfide	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Carbon Tetrachloride	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chlorobenzene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chlorodibromomethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chloroethane	0.014	MG/KG	UJ
03-056(c)	03-14393	RE03-01-0004	ALLH	Chloroform	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Chloromethane	0.014	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropene(cis-1,3-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dibromomethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichlorodifluoromethane	0.014	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Ethylbenzene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Iodomethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Isopropylbenzene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Methylene Chloride	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Butylbenzene(n-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Propylbenzene(1-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Butylbenzene(sec-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Styrene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Butylbenzene(tert-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Tetrachloroethene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Toluene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropene(trans-1,3-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichloroethene	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichlorofluoromethane	0.014	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichlorotrifluoroethane	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Vinyl Chloride	0.014	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Xylene (Total)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Tetrachloroethane(1,1,1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichloroethane(1,1,1-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Tetrachloroethane(1,1,2,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichloroethane(1,1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloroethane(1,1-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloroethene(1,1-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dichloropropene(1,1-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trichloropropane(1,2,3-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Trimethylbenzene(1,2,4-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dibromo-3-chloropropane(1,2-)	0.014	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Dibromoethane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Silver	0.137	MG/KG	UJ
03-056(c)	03-14393	RE03-01-0004	ALLH	Aluminum	13000	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Arsenic	4.4000001	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Barium	70	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Beryllium	0.88	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Calcium	1700	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Cadmium	0.0427	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Cobalt	3.2	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Chromium, Total	16	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Copper	4.4000001	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Iron	16000	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Mercury	0.024	MG/KG	U
03-056(c)	03-14393	RE03-01-0004	ALLH	Potassium	1400	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Magnesium	1800	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Manganese	200	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Sodium	120	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Nickel	5.0999999	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Lead	6	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Selenium	0.627	MG/KG	None
03-056(c)	03-14393	RE03-01-0004	ALLH	Thallium	0.103	MG/KG	J
03-056(c)	03-14393	RE03-01-0004	ALLH	Vanadium	13	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Zinc	45	MG/KG	J-
03-056(c)	03-14393	RE03-01-0004	ALLH	Antimony	0.133	MG/KG	R

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1016	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1221	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1232	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1242	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1248	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1254	0.041	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Aroclor-1260	0.13	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Tetrachloroethane(1,1,1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichloroethane(1,1,1-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Tetrachloroethane(1,1,2,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichloroethane(1,1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloroethane(1,1-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloroethene(1,1-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropene(1,1-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichloropropane(1,2,3-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trimethylbenzene(1,2,4-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dibromo-3-chloropropane(1,2-)	0.012	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dibromoethane(1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichlorobenzene(1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloroethane(1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloroethene(cis/trans-1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropane(1,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trimethylbenzene(1,3,5-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichlorobenzene(1,3-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropane(1,3-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichlorobenzene(1,4-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropane(2,2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Butanone(2-)	0.025	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chlorotoluene(2-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Hexanone(2-)	0.025	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chlorotoluene(4-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Methyl-2-pentanone(4-)	0.025	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Acetone	0.025	MG/KG	UJ
03-056(c)	03-14316	RE03-01-0005	ALLH	Benzene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Bromobenzene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Bromochloromethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Bromodichloromethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Bromoform	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Bromomethane	0.012	MG/KG	UJ
03-056(c)	03-14316	RE03-01-0005	ALLH	Carbon Disulfide	0.0024	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Carbon Tetrachloride	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chlorobenzene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chlorodibromomethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chloroethane	0.012	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chloroform	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Chloromethane	0.012	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropene(cis-1,3-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dibromomethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichlorodifluoromethane	0.012	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Ethylbenzene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Iodomethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Isopropylbenzene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Methylene Chloride	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Butylbenzene(n-)	0.0062	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14316	RE03-01-0005	ALLH	Propylbenzene(1-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Isopropyltoluene(4-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Butylbenzene(sec-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Styrene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Silver	0.127	MG/KG	UJ
03-056(c)	03-14316	RE03-01-0005	ALLH	Aluminum	2000	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Arsenic	2.9000001	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Barium	19	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Beryllium	0.32	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Calcium	570	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Cadmium	0.0395	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Cobalt	1.9	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Chromium, Total	2.4000001	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Copper	0.43	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Iron	11000	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Mercury	0.0222	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Potassium	590	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Magnesium	550	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Manganese	140	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Sodium	170	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Nickel	1.8	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Lead	3.2	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Selenium	0.422	MG/KG	None
03-056(c)	03-14316	RE03-01-0005	ALLH	Thallium	0.0677	MG/KG	J
03-056(c)	03-14316	RE03-01-0005	ALLH	Vanadium	5.3000002	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Zinc	49	MG/KG	J-
03-056(c)	03-14316	RE03-01-0005	ALLH	Butylbenzene(tert-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Tetrachloroethene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Toluene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichloroethene	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Dichloropropene(trans-1,3-)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichlorofluoromethane	0.012	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Trichlorotrifluoroethane	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Vinyl Chloride	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Xylene (Total)	0.0062	MG/KG	U
03-056(c)	03-14316	RE03-01-0005	ALLH	Antimony	0.123	MG/KG	R
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1016	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1221	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1232	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1242	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1248	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1254	0.043	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Aroclor-1260	0.1	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Bromoform	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Bromomethane	0.015	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0006	ALLH	Carbon Disulfide	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Carbon Tetrachloride	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chlorobenzene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chlorodibromomethane	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chloroethane	0.015	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0006	ALLH	Chloroform	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chloromethane	0.015	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropene(cis-1,3-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dibromomethane	0.0075	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichlorodifluoromethane	0.015	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Ethylbenzene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Iodomethane	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Isopropylbenzene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Methylene Chloride	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Butylbenzene(n-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Propylbenzene(1-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Butylbenzene(sec-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Styrene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Butylbenzene(tert-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Tetrachloroethene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Toluene	0.005	MG/KG	J
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropene(trans-1,3-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichloroethene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichlorofluoromethane	0.015	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichlorotrifluoroethane	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Vinyl Chloride	0.015	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Xylene (Total)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichlorobenzene(1,4-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropane(2,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Butanone(2-)	0.03	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chlorotoluene(2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Hexanone(2-)	0.03	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Chlorotoluene(4-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Isopropyltoluene(4-)	0.02	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Methyl-2-pentanone(4-)	0.03	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Acetone	0.071	MG/KG	J
03-056(c)	03-14312	RE03-01-0006	ALLH	Benzene	0.0023	MG/KG	J
03-056(c)	03-14312	RE03-01-0006	ALLH	Bromobenzene	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Bromochloromethane	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Bromodichloromethane	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Tetrachloroethane(1,1,1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichloroethane(1,1,1-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Tetrachloroethane(1,1,2,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichloroethane(1,1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloroethane(1,1-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloroethene(1,1-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropene(1,1-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trichloropropane(1,2,3-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trimethylbenzene(1,2,4-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dibromo-3-chloropropane(1,2-)	0.015	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dibromoethane(1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichlorobenzene(1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloroethane(1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloroethene(cis/trans-1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropane(1,2-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Trimethylbenzene(1,3,5-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichlorobenzene(1,3-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Dichloropropane(1,3-)	0.0075	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Silver	0.139	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0006	ALLH	Aluminum	6700	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Arsenic	3.5	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Barium	43	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Beryllium	0.62	MG/KG	J-

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14312	RE03-01-0006	ALLH	Calcium	1400	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Cadmium	0.0432	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Cobalt	2.7	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Chromium, Total	11	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Copper	3.2	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Iron	12000	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Mercury	0.0243	MG/KG	U
03-056(c)	03-14312	RE03-01-0006	ALLH	Potassium	1000	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Magnesium	1100	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Manganese	210	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Sodium	94	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Nickel	5.3000002	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Lead	10	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Selenium	0.419	MG/KG	None
03-056(c)	03-14312	RE03-01-0006	ALLH	Thallium	0.103	MG/KG	J
03-056(c)	03-14312	RE03-01-0006	ALLH	Vanadium	9.5	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Zinc	42	MG/KG	J-
03-056(c)	03-14312	RE03-01-0006	ALLH	Antimony	0.135	MG/KG	R
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1016	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1221	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1232	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1242	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1248	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1254	0.042	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Aroclor-1260	0.056	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Tetrachloroethane(1,1,1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichloroethane(1,1,1-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Tetrachloroethane(1,1,2,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichloroethane(1,1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloroethane(1,1-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloroethene(1,1-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropene(1,1-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichloropropane(1,2,3-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trimethylbenzene(1,2,4-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dibromo-3-chloropropane(1,2-)	0.016	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dibromoethane(1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichlorobenzene(1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloroethane(1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloroethene(cis/trans-1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropane(1,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trimethylbenzene(1,3,5-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichlorobenzene(1,3-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropane(1,3-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichlorobenzene(1,4-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropane(2,2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Butanone(2-)	0.033	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chlorotoluene(2-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Hexanone(2-)	0.033	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chlorotoluene(4-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Isopropyltoluene(4-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Methyl-2-pentanone(4-)	0.033	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Acetone	0.059	MG/KG	J
03-056(c)	03-14312	RE03-01-0007	ALLH	Benzene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Bromobenzene	0.0082	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14312	RE03-01-0007	ALLH	Bromochloromethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Bromodichloromethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Bromoform	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Bromomethane	0.016	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0007	ALLH	Carbon Disulfide	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Carbon Tetrachloride	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chlorobenzene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chlorodibromomethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chloroethane	0.016	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0007	ALLH	Chloroform	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Chloromethane	0.016	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropene(cis-1,3-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dibromomethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichlorodifluoromethane	0.016	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Ethylbenzene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Iodomethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Isopropylbenzene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Methylene Chloride	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Butylbenzene(n-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Propylbenzene(1-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Butylbenzene(sec-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Styrene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Butylbenzene(tert-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Tetrachloroethene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Toluene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Dichloropropene(trans-1,3-)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichloroethene	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichlorofluoromethane	0.016	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Trichlorotrifluoroethane	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Vinyl Chloride	0.016	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Xylene (Total)	0.0082	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Silver	0.129	MG/KG	UJ
03-056(c)	03-14312	RE03-01-0007	ALLH	Aluminum	7100	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Arsenic	3.5	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Barium	44	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Beryllium	0.66	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Calcium	1300	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Cadmium	0.04	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Cobalt	2.7	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Chromium, Total	14	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Copper	2.7	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Iron	13000	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Mercury	0.0225	MG/KG	U
03-056(c)	03-14312	RE03-01-0007	ALLH	Potassium	970	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Magnesium	1200	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Manganese	190	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Sodium	110	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Nickel	6.9000001	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Lead	6.1999998	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Selenium	0.489	MG/KG	None
03-056(c)	03-14312	RE03-01-0007	ALLH	Thallium	0.0831	MG/KG	J
03-056(c)	03-14312	RE03-01-0007	ALLH	Vanadium	9.3999996	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Zinc	42	MG/KG	J-
03-056(c)	03-14312	RE03-01-0007	ALLH	Antimony	0.125	MG/KG	R

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1016	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1221	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1232	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1242	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1248	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1254	0.19	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Aroclor-1260	1.2	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Carbon Tetrachloride	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chlorobenzene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chlorodibromomethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chloroethane	0.011	MG/KG	UJ
03-056(c)	03-14319	RE03-01-0008	ALLH	Chloroform	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chloromethane	0.011	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropene(cis-1,3-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dibromomethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichlorodifluoromethane	0.011	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Ethylbenzene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Iodomethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Isopropylbenzene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Methylene Chloride	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Butylbenzene(n-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Propylbenzene(1-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Isopropyltoluene(4-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Butylbenzene(sec-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Styrene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Butylbenzene(tert-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Tetrachloroethene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Toluene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropene(trans-1,3-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichloroethene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichlorofluoromethane	0.011	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichlorotrifluoroethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Vinyl Chloride	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Xylene (Total)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Silver	0.37	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Aluminum	4100	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Arsenic	2.7	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Barium	38	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Beryllium	0.42	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Calcium	870	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Cadmium	0.052	MG/KG	J
03-056(c)	03-14319	RE03-01-0008	ALLH	Cobalt	1.6	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Chromium, Total	37	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Copper	5.5	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Iron	7100	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Mercury	0.039	MG/KG	J
03-056(c)	03-14319	RE03-01-0008	ALLH	Potassium	510	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Magnesium	470	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Manganese	520	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Sodium	120	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Nickel	2.8	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Lead	16	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Selenium	0.584	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Thallium	0.118	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14319	RE03-01-0008	ALLH	Vanadium	4.3000002	MG/KG	None
03-056(c)	03-14319	RE03-01-0008	ALLH	Zinc	55	MG/KG	J-
03-056(c)	03-14319	RE03-01-0008	ALLH	Tetrachloroethane(1,1,1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichloroethane(1,1,1-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Tetrachloroethane(1,1,2,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichloroethane(1,1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloroethane(1,1-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloroethene(1,1-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropene(1,1-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trichloropropane(1,2,3-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trimethylbenzene(1,2,4-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dibromo-3-chloropropane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dibromoethane(1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichlorobenzene(1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloroethane(1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloroethene(cis/trans-1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropane(1,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Trimethylbenzene(1,3,5-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichlorobenzene(1,3-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropane(1,3-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichlorobenzene(1,4-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Dichloropropane(2,2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Butanone(2-)	0.023	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chlorotoluene(2-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Hexanone(2-)	0.023	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Chlorotoluene(4-)	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Methyl-2-pentanone(4-)	0.023	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Acetone	0.023	MG/KG	UJ
03-056(c)	03-14319	RE03-01-0008	ALLH	Benzene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Bromobenzene	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Bromochloromethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Bromodichloromethane	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Bromoform	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Bromomethane	0.011	MG/KG	UJ
03-056(c)	03-14319	RE03-01-0008	ALLH	Carbon Disulfide	0.0057	MG/KG	U
03-056(c)	03-14319	RE03-01-0008	ALLH	Antimony	0.112	MG/KG	R
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1016	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1221	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1232	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1242	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1248	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1254	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Aroclor-1260	0.035	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Tetrachloroethane(1,1,1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichloroethane(1,1,1-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Tetrachloroethane(1,1,2,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichloroethane(1,1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloroethane(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloroethene(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropene(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichloropropane(1,2,3-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trimethylbenzene(1,2,4-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dibromo-3-chloropropane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dibromoethane(1,2-)	0.0053	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichlorobenzene(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloroethane(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloroethene(cis/trans-1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropane(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trimethylbenzene(1,3,5-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichlorobenzene(1,3-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropane(1,3-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichlorobenzene(1,4-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropane(2,2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Butanone(2-)	0.021	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chlorotoluene(2-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Hexanone(2-)	0.021	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chlorotoluene(4-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Methyl-2-pentanone(4-)	0.021	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Acetone	0.022	MG/KG	J
03-056(c)	03-14334	RE03-01-0009	ALLH	Benzene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Bromobenzene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Bromochloromethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Bromodichloromethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Bromoform	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Bromomethane	0.011	MG/KG	UJ
03-056(c)	03-14334	RE03-01-0009	ALLH	Carbon Disulfide	0.0022	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Carbon Tetrachloride	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chlorobenzene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chlorodibromomethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chloroethane	0.011	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chloroform	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Chloromethane	0.011	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropene(cis-1,3-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dibromomethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichlorodifluoromethane	0.011	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Ethylbenzene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Iodomethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Isopropylbenzene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Methylene Chloride	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Butylbenzene(n-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Propylbenzene(1-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Isopropyltoluene(4-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Butylbenzene(sec-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Styrene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Butylbenzene(tert-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Tetrachloroethene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Toluene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Dichloropropene(trans-1,3-)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichloroethene	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichlorofluoromethane	0.011	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Trichlorotrifluoroethane	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Vinyl Chloride	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Xylene (Total)	0.0053	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Silver	0.111	MG/KG	UJ
03-056(c)	03-14334	RE03-01-0009	ALLH	Aluminum	3700	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Arsenic	4	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Barium	21	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Beryllium	0.47	MG/KG	J-

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14334	RE03-01-0009	ALLH	Calcium	860	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Cadmium	0.0344	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Cobalt	2	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Chromium, Total	2.8	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Copper	1.3	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Iron	13000	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Mercury	0.0194	MG/KG	U
03-056(c)	03-14334	RE03-01-0009	ALLH	Potassium	570	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Magnesium	760	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Manganese	190	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Sodium	160	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Nickel	2.8	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Lead	5	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Selenium	0.371	MG/KG	None
03-056(c)	03-14334	RE03-01-0009	ALLH	Thallium	0.0984	MG/KG	J
03-056(c)	03-14334	RE03-01-0009	ALLH	Vanadium	6	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Zinc	52	MG/KG	J-
03-056(c)	03-14334	RE03-01-0009	ALLH	Antimony	0.108	MG/KG	R
03-056(c)	03-14361	RE03-01-0010	ALLH	Silver	2.2	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Aluminum	4300	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Arsenic	110	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Barium	120	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Beryllium	2.9000001	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Calcium	1000	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Cadmium	3.5999999	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Cobalt	29	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Chromium, Total	14	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Copper	15	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Iron	9000	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Mercury	0.027	MG/KG	J
03-056(c)	03-14361	RE03-01-0010	ALLH	Potassium	770	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Magnesium	850	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Manganese	230	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Sodium	190	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Nickel	30	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Lead	37	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Selenium	0.449	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Thallium	0.065	MG/KG	J
03-056(c)	03-14361	RE03-01-0010	ALLH	Vanadium	32	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Zinc	69	MG/KG	J-
03-056(c)	03-14361	RE03-01-0010	ALLH	Chloroethane	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chloroform	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chloromethane	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropene(cis-1,3-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dibromomethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichlorodifluoromethane	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Ethylbenzene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Iodomethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Isopropylbenzene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Methylene Chloride	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Butylbenzene(n-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Propylbenzene(1-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Butylbenzene(sec-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Styrene	0.0078	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14361	RE03-01-0010	ALLH	Butylbenzene(tert-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Tetrachloroethene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Toluene	0.04	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropene(trans-1,3-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichloroethene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichlorofluoromethane	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichlorotrifluoroethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Vinyl Chloride	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Xylene (Total)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Aroclor-1260	0.043	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Tetrachloroethane(1,1,1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichloroethane(1,1,1-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Tetrachloroethane(1,1,2,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichloroethane(1,1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloroethane(1,1-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloroethene(1,1-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropene(1,1-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trichloropropane(1,2,3-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trimethylbenzene(1,2,4-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dibromo-3-chloropropane(1,2-)	0.016	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dibromoethane(1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichlorobenzene(1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloroethane(1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloroethene(cis/trans-1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropane(1,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Trimethylbenzene(1,3,5-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichlorobenzene(1,3-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropane(1,3-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichlorobenzene(1,4-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Dichloropropane(2,2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Butanone(2-)	0.023	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chlorotoluene(2-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Hexanone(2-)	0.031	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chlorotoluene(4-)	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Isopropyltoluene(4-)	0.03	MG/KG	None
03-056(c)	03-14361	RE03-01-0010	ALLH	Methyl-2-pentanone(4-)	0.031	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Acetone	0.23	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Benzene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Bromobenzene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Bromochloromethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Bromodichloromethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Bromoform	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Bromomethane	0.016	MG/KG	UJ
03-056(c)	03-14361	RE03-01-0010	ALLH	Carbon Disulfide	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Carbon Tetrachloride	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chlorobenzene	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Chlorodibromomethane	0.0078	MG/KG	U
03-056(c)	03-14361	RE03-01-0010	ALLH	Antimony	0.111	MG/KG	R

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14335	RE03-01-0011	ALLH	Silver	0.112	MG/KG	UJ
03-056(c)	03-14335	RE03-01-0011	ALLH	Aluminum	5200	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Arsenic	3.0999999	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Barium	33	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Beryllium	0.65	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Calcium	1400	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Cadmium	0.0348	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Cobalt	2.2	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Chromium, Total	3.9000001	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Copper	2.7	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Iron	10000	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Mercury	0.0196	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Potassium	810	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Magnesium	1100	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Manganese	220	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Sodium	280	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Nickel	2.9000001	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Lead	7.3000002	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Selenium	0.387	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Thallium	0.112	MG/KG	None
03-056(c)	03-14335	RE03-01-0011	ALLH	Vanadium	7.3000002	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Zinc	45	MG/KG	J-
03-056(c)	03-14335	RE03-01-0011	ALLH	Tetrachloroethane(1,1,1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichloroethane(1,1,1-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Tetrachloroethane(1,1,2,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichloroethane(1,1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloroethane(1,1-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloroethene(1,1-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropene(1,1-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichloropropane(1,2,3-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trimethylbenzene(1,2,4-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dibromo-3-chloropropane(1,2-)	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dibromoethane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichlorobenzene(1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloroethane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloroethene(cis/trans-1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropane(1,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trimethylbenzene(1,3,5-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichlorobenzene(1,3-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropane(1,3-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichlorobenzene(1,4-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropane(2,2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Butanone(2-)	0.028	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chlorotoluene(2-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Hexanone(2-)	0.028	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chlorotoluene(4-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Isopropyltoluene(4-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Methyl-2-pentanone(4-)	0.028	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Acetone	0.051	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Benzene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Bromobenzene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Bromochloromethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Bromodichloromethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Bromoform	0.007	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14335	RE03-01-0011	ALLH	Bromomethane	0.014	MG/KG	UJ
03-056(c)	03-14335	RE03-01-0011	ALLH	Carbon Disulfide	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Carbon Tetrachloride	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chlorobenzene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chlorodibromomethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chloroethane	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chloroform	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Chloromethane	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropene(cis-1,3-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dibromomethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichlorodifluoromethane	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Ethylbenzene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Iodomethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Isopropylbenzene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Methylene Chloride	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Butylbenzene(n-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Propylbenzene(1-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Butylbenzene(sec-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Styrene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Butylbenzene(tert-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Tetrachloroethene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Toluene	0.0019	MG/KG	J
03-056(c)	03-14335	RE03-01-0011	ALLH	Dichloropropene(trans-1,3-)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichloroethene	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichlorofluoromethane	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Trichlorotrifluoroethane	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Vinyl Chloride	0.014	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Xylene (Total)	0.007	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1016	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1221	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1232	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1242	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1248	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1254	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Aroclor-1260	0.036	MG/KG	U
03-056(c)	03-14335	RE03-01-0011	ALLH	Antimony	0.109	MG/KG	R
03-056(c)	03-14335	RE03-01-0012	ALLH	Aluminum	5600	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Arsenic	2.7	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Barium	44	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Beryllium	0.63	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Calcium	1500	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Cadmium	0.0333	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Cobalt	3.8	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Chromium, Total	4.0999999	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Copper	3	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Iron	9800	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Mercury	0.0188	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Potassium	800	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Magnesium	1200	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Manganese	300	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Sodium	260	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Nickel	3.5	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Lead	7.8000002	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Selenium	0.377	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14335	RE03-01-0012	ALLH	Thallium	0.0897	MG/KG	J
03-056(c)	03-14335	RE03-01-0012	ALLH	Vanadium	8.3000002	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Zinc	46	MG/KG	J-
03-056(c)	03-14335	RE03-01-0012	ALLH	Silver	0.107	MG/KG	UJ
03-056(c)	03-14335	RE03-01-0012	ALLH	Tetrachloroethane(1,1,1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichloroethane(1,1,1-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Tetrachloroethane(1,1,2,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichloroethane(1,1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloroethane(1,1-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloroethene(1,1-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropene(1,1-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichloropropane(1,2,3-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trimethylbenzene(1,2,4-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dibromo-3-chloropropane(1,2-)	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dibromoethane(1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichlorobenzene(1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloroethane(1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloroethene(cis/trans-1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropane(1,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trimethylbenzene(1,3,5-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichlorobenzene(1,3-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropane(1,3-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichlorobenzene(1,4-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropane(2,2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Butanone(2-)	0.026	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chlorotoluene(2-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Hexanone(2-)	0.026	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chlorotoluene(4-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Isopropyltoluene(4-)	0.047	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Methyl-2-pentanone(4-)	0.026	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Acetone	0.069	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Benzene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Bromobenzene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Bromochloromethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Bromodichloromethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Bromoform	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Bromomethane	0.013	MG/KG	UJ
03-056(c)	03-14335	RE03-01-0012	ALLH	Carbon Disulfide	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Carbon Tetrachloride	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chlorobenzene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chlorodibromomethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chloroethane	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chloroform	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Chloromethane	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropene(cis-1,3-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dibromomethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichlorodifluoromethane	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Ethylbenzene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Iodomethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Isopropylbenzene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Methylene Chloride	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Butylbenzene(n-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Propylbenzene(1-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Butylbenzene(sec-)	0.0066	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14335	RE03-01-0012	ALLH	Styrene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Butylbenzene(tert-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Tetrachloroethene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Toluene	0.021	MG/KG	None
03-056(c)	03-14335	RE03-01-0012	ALLH	Dichloropropene(trans-1,3-)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichloroethene	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichlorofluoromethane	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Trichlorotrifluoroethane	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Vinyl Chloride	0.013	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Xylene (Total)	0.0066	MG/KG	U
03-056(c)	03-14335	RE03-01-0012	ALLH	Antimony	0.104	MG/KG	R
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1016	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1221	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1232	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1242	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1248	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1254	0.047	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Aroclor-1260	0.14	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Tetrachloroethane(1,1,1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichloroethane(1,1,1-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Tetrachloroethane(1,1,2,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichloroethane(1,1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloroethane(1,1-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloroethene(1,1-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropene(1,1-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichloropropane(1,2,3-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trimethylbenzene(1,2,4-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dibromo-3-chloropropane(1,2-)	0.022	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dibromoethane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichlorobenzene(1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloroethane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloroethene(cis/trans-1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trimethylbenzene(1,3,5-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichlorobenzene(1,3-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropane(1,3-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichlorobenzene(1,4-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropane(2,2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Butanone(2-)	0.051	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chlorotoluene(2-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Hexanone(2-)	0.045	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chlorotoluene(4-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Isopropyltoluene(4-)	0.011	MG/KG	J+
03-056(c)	03-14358	RE03-01-0015	ALLH	Methyl-2-pentanone(4-)	0.045	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Acetone	0.42	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Benzene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Bromobenzene	0.011	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14358	RE03-01-0015	ALLH	Bromochloromethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Bromodichloromethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Bromoform	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Bromomethane	0.022	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0015	ALLH	Carbon Disulfide	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Carbon Tetrachloride	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chlorobenzene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chlorodibromomethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chloroethane	0.022	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chloroform	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Chloromethane	0.022	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropene(cis-1,3-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dibromomethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichlorodifluoromethane	0.022	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Ethylbenzene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Iodomethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Isopropylbenzene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Methylene Chloride	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Butylbenzene(n-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Propylbenzene(1-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Butylbenzene(sec-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Styrene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Butylbenzene(tert-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Tetrachloroethene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Toluene	0.027	MG/KG	J+
03-056(c)	03-14358	RE03-01-0015	ALLH	Dichloropropene(trans-1,3-)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichloroethene	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichlorofluoromethane	0.0027	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Trichlorotrifluoroethane	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Vinyl Chloride	0.022	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Xylene (Total)	0.011	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Silver	0.8	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Aluminum	4200	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Arsenic	2.5999999	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Barium	44	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Beryllium	0.62	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Calcium	1600	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Cadmium	0.098	MG/KG	J
03-056(c)	03-14358	RE03-01-0015	ALLH	Cobalt	1.7	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Chromium, Total	6.3000002	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Copper	7.4000001	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Iron	8000	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Mercury	0.09	MG/KG	J
03-056(c)	03-14358	RE03-01-0015	ALLH	Potassium	530	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Magnesium	640	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Manganese	390	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Sodium	81	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Nickel	3.5999999	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Lead	7.0999999	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Selenium	0.647	MG/KG	None
03-056(c)	03-14358	RE03-01-0015	ALLH	Thallium	0.0649	MG/KG	U
03-056(c)	03-14358	RE03-01-0015	ALLH	Vanadium	6.5999999	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Zinc	42	MG/KG	J-
03-056(c)	03-14358	RE03-01-0015	ALLH	Antimony	0.13	MG/KG	R

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1016	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1221	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1232	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1242	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1248	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1254	0.053	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Aroclor-1260	0.37	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Tetrachloroethane(1,1,1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichloroethane(1,1,1-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Tetrachloroethane(1,1,2,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichloroethane(1,1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloroethane(1,1-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloroethene(1,1-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropene(1,1-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichloropropane(1,2,3-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trimethylbenzene(1,2,4-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dibromo-3-chloropropane(1,2-)	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dibromoethane(1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichlorobenzene(1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloroethane(1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloroethene(cis/trans-1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropane(1,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trimethylbenzene(1,3,5-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichlorobenzene(1,3-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropane(1,3-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichlorobenzene(1,4-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropane(2,2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Butanone(2-)	0.046	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chlorotoluene(2-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Hexanone(2-)	0.046	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chlorotoluene(4-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Isopropyltoluene(4-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Methyl-2-pentanone(4-)	0.046	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Benzene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Bromobenzene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Bromochloromethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Bromodichloromethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Bromoform	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Bromomethane	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Carbon Disulfide	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Carbon Tetrachloride	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chlorobenzene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chlorodibromomethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chloroethane	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chloroform	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Chloromethane	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropene(cis-1,3-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dibromomethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichlorodifluoromethane	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Ethylbenzene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Iodomethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Isopropylbenzene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Styrene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Butylbenzene(tert-)	0.012	MG/KG	UJ

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14358	RE03-01-0016	ALLH	Tetrachloroethene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Dichloropropene(trans-1,3-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichloroethene	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichlorofluoromethane	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Trichlorotrifluoroethane	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Vinyl Chloride	0.023	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Xylene (Total)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Acetone	0.11	MG/KG	J+
03-056(c)	03-14358	RE03-01-0016	ALLH	Methylene Chloride	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Butylbenzene(n-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Propylbenzene(1-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Butylbenzene(sec-)	0.012	MG/KG	UJ
03-056(c)	03-14358	RE03-01-0016	ALLH	Toluene	0.0095	MG/KG	J+
03-056(c)	03-14358	RE03-01-0016	ALLH	Silver	1.4	MG/KG	J
03-056(c)	03-14358	RE03-01-0016	ALLH	Aluminum	6000	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Arsenic	3.7	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Barium	61	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Beryllium	0.63	MG/KG	J
03-056(c)	03-14358	RE03-01-0016	ALLH	Calcium	3600	MG/KG	J
03-056(c)	03-14358	RE03-01-0016	ALLH	Cadmium	0.36	MG/KG	J+
03-056(c)	03-14358	RE03-01-0016	ALLH	Cobalt	1.9	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Chromium, Total	11	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Copper	15	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Iron	9000	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Mercury	0.13	MG/KG	J
03-056(c)	03-14358	RE03-01-0016	ALLH	Potassium	990	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Magnesium	1200	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Manganese	390	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Sodium	120	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Nickel	5.3000002	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Lead	18	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Selenium	0.503	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Thallium	0.0806	MG/KG	U
03-056(c)	03-14358	RE03-01-0016	ALLH	Vanadium	7.9000001	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Zinc	48	MG/KG	None
03-056(c)	03-14358	RE03-01-0016	ALLH	Antimony	0.161	MG/KG	R
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichlorofluoromethane	0.0022	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aroclor-1260	0.06	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Acetone	0.036	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Tetrachloroethane(1,1,1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichloroethane(1,1,1-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Tetrachloroethane(1,1,2,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloroethane(1,1-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloroethene(1,1-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropene(1,1-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichloropropane(1,2,3-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trimethylbenzene(1,2,4-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dibromo-3-chloropropane(1,2-)	0.012	MG/KG	UJ

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14388	RE03-01-0017	ALLH	Dibromoethane(1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichlorobenzene(1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloroethane(1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloroethene(cis/trans-1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Bromomethane	0.012	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Carbon Disulfide	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Carbon Tetrachloride	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chlorobenzene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chlorodibromomethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chloroethane	0.012	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chloroform	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chloromethane	0.012	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropene(cis-1,3-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dibromomethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichlorodifluoromethane	0.012	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Ethylbenzene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Iodomethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Isopropylbenzene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Methylene Chloride	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Butylbenzene(n-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Propylbenzene(1-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Butylbenzene(sec-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Styrene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Butylbenzene(tert-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Tetrachloroethene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Toluene	0.012	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropene(trans-1,3-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichloroethene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichlorotrifluoroethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Vinyl Chloride	0.012	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Xylene (Total)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trichloroethane(1,1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropane(1,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Trimethylbenzene(1,3,5-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichlorobenzene(1,3-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Butanone(2-)	0.025	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropane(1,3-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichlorobenzene(1,4-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Dichloropropane(2,2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chlorotoluene(2-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Hexanone(2-)	0.025	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Chlorotoluene(4-)	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Isopropyltoluene(4-)	0.15	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Methyl-2-pentanone(4-)	0.025	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Benzene	0.0053	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Bromobenzene	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Bromochloromethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Bromodichloromethane	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Bromoform	0.0061	MG/KG	UJ
03-056(c)	03-14388	RE03-01-0017	ALLH	Silver	0.12	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Aluminum	3800	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Arsenic	3.4000001	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Barium	27	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Beryllium	0.67	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14388	RE03-01-0017	ALLH	Calcium	1000	MG/KG	J
03-056(c)	03-14388	RE03-01-0017	ALLH	Cadmium	0.098	MG/KG	J+
03-056(c)	03-14388	RE03-01-0017	ALLH	Cobalt	1.5	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Chromium, Total	3.9000001	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Copper	3.3	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Iron	7300	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Mercury	0.035	MG/KG	J
03-056(c)	03-14388	RE03-01-0017	ALLH	Potassium	540	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Magnesium	540	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Manganese	320	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Sodium	70	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Nickel	2.7	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Lead	18	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Selenium	0.366	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Thallium	0.0581	MG/KG	U
03-056(c)	03-14388	RE03-01-0017	ALLH	Vanadium	5	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Zinc	37	MG/KG	None
03-056(c)	03-14388	RE03-01-0017	ALLH	Antimony	0.116	MG/KG	R
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1016	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1221	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1232	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1242	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1248	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1254	0.057	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aroclor-1260	0.43	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Tetrachloroethane(1,1,1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichloroethane(1,1,1-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Tetrachloroethane(1,1,2,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichloroethane(1,1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloroethane(1,1-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloroethene(1,1-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropene(1,1-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichloropropane(1,2,3-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trimethylbenzene(1,2,4-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dibromo-3-chloropropane(1,2-)	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dibromoethane(1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichlorobenzene(1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloroethane(1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloroethene(cis/trans-1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropane(1,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trimethylbenzene(1,3,5-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichlorobenzene(1,3-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropane(1,3-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichlorobenzene(1,4-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropane(2,2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Butanone(2-)	0.045	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chlorotoluene(2-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Hexanone(2-)	0.045	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chlorotoluene(4-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Isopropyltoluene(4-)	0.0083	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Methyl-2-pentanone(4-)	0.045	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Acetone	0.043	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Vinyl Chloride	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Xylene (Total)	0.011	MG/KG	UJ

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14367	RE03-01-0018	ALLH	Benzene	0.0062	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Bromobenzene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Bromochloromethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Bromodichloromethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Bromoform	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Bromomethane	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Carbon Disulfide	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Carbon Tetrachloride	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chlorobenzene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chlorodibromomethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chloroethane	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chloroform	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Chloromethane	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropene(cis-1,3-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dibromomethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichlorodifluoromethane	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Ethylbenzene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Iodomethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Isopropylbenzene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Methylene Chloride	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Butylbenzene(n-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Propylbenzene(1-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Butylbenzene(sec-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Styrene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Butylbenzene(tert-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Tetrachloroethene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Toluene	0.0038	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Dichloropropene(trans-1,3-)	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichloroethene	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichlorofluoromethane	0.022	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Trichlorotrifluoroethane	0.011	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0018	ALLH	Silver	0.245	MG/KG	U
03-056(c)	03-14367	RE03-01-0018	ALLH	Aluminum	8800	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Arsenic	5.9000001	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Barium	48	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Beryllium	0.83	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Calcium	2600	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Cadmium	0.15	MG/KG	J+
03-056(c)	03-14367	RE03-01-0018	ALLH	Cobalt	2.5	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Chromium, Total	6.5999999	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Copper	5.4000001	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Iron	14000	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Mercury	0.059	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Potassium	1100	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Magnesium	1100	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Manganese	250	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Sodium	140	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Nickel	4.0999999	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Lead	42	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Selenium	0.962	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Thallium	0.154	MG/KG	J
03-056(c)	03-14367	RE03-01-0018	ALLH	Vanadium	10	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Zinc	48	MG/KG	None
03-056(c)	03-14367	RE03-01-0018	ALLH	Antimony	0.238	MG/KG	R

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1016	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1221	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1232	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1242	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1248	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1254	0.051	MG/KG	U
03-056(c)	03-14378	RE03-01-0019	ALLH	Aroclor-1260	0.12	MG/KG	None
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1016	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1221	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1232	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1242	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1248	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1254	0.052	MG/KG	U
03-056(c)	03-14377	RE03-01-0020	ALLH	Aroclor-1260	0.052	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1016	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1221	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1232	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1242	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1248	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1254	0.085	MG/KG	U
03-056(c)	03-14375	RE03-01-0022	ALLH	Aroclor-1260	0.15	MG/KG	None
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1016	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1221	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1232	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1242	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1248	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1254	0.041	MG/KG	U
03-056(c)	03-14374	RE03-01-0023	ALLH	Aroclor-1260	0.041	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1221	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1232	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1242	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1248	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1254	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1260	0.049	MG/KG	U
03-056(c)	03-14372	RE03-01-0024	ALLH	Aroclor-1016	0.049	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1016	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1221	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1232	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1242	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1248	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1254	0.054	MG/KG	U
03-056(c)	03-14370	RE03-01-0025	ALLH	Aroclor-1260	0.27	MG/KG	None
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14369	RE03-01-0026	ALLH	Aroclor-1260	0.039	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1016	0.04	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1221	0.04	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1232	0.04	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1242	0.04	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1248	0.04	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1254	0.04	MG/KG	U
03-056(c)	03-14368	RE03-01-0027	ALLH	Aroclor-1260	0.21	MG/KG	None
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1016	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1221	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1232	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1242	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1248	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1254	0.052	MG/KG	U
03-056(c)	03-14379	RE03-01-0028	ALLH	Aroclor-1260	0.1	MG/KG	None
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1016	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1221	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1232	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1242	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1248	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1254	0.058	MG/KG	U
03-056(c)	03-14362	RE03-01-0029	ALLH	Aroclor-1260	0.49	MG/KG	None
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14362	RE03-01-0030	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14363	RE03-01-0031	ALLH	Aroclor-1260	0.039	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1016	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1221	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1232	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1242	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1248	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1254	0.1	MG/KG	U
03-056(c)	03-14364	RE03-01-0032	ALLH	Aroclor-1260	0.8	MG/KG	None
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1016	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1221	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1232	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1242	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1248	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1254	0.052	MG/KG	U
03-056(c)	03-14366	RE03-01-0033	ALLH	Aroclor-1260	0.052	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1016	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1221	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1232	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1242	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1248	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1254	0.051	MG/KG	U
03-056(c)	03-14365	RE03-01-0034	ALLH	Aroclor-1260	0.057	MG/KG	None
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1232	0.038	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14356	RE03-01-0035	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1016	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1221	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1232	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1242	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1248	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1254	0.04	MG/KG	U
03-056(c)	03-14351	RE03-01-0036	ALLH	Aroclor-1260	0.04	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14357	RE03-01-0037	ALLH	Aroclor-1260	0.059	MG/KG	None
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14355	RE03-01-0038	ALLH	Aroclor-1260	0.039	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1016	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1221	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1232	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1242	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1248	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1254	0.048	MG/KG	U
03-056(c)	03-14352	RE03-01-0039	ALLH	Aroclor-1260	0.085	MG/KG	None
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1016	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1221	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1232	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1242	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1248	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1254	0.036	MG/KG	U
03-056(c)	03-14350	RE03-01-0040	ALLH	Aroclor-1260	0.041	MG/KG	None
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1016	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1221	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1232	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1242	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1248	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1254	0.044	MG/KG	U
03-056(c)	03-14353	RE03-01-0041	ALLH	Aroclor-1260	0.22	MG/KG	None
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1016	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1221	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1232	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1242	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1248	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1254	0.041	MG/KG	U
03-056(c)	03-14347	RE03-01-0042	ALLH	Aroclor-1260	0.3	MG/KG	None
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1016	0.22	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1221	0.22	MG/KG	U
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1232	0.22	MG/KG	U
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1242	0.22	MG/KG	U
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1248	0.22	MG/KG	U
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1254	0.22	MG/KG	U
03-056(c)	03-14348	RE03-01-0043	ALLH	Aroclor-1260	0.71	MG/KG	None
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1016	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1221	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1232	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1242	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1248	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1254	1	MG/KG	U
03-056(c)	03-14345	RE03-01-0044	ALLH	Aroclor-1260	1.6	MG/KG	None
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1016	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1221	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1232	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1242	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1248	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1254	0.046	MG/KG	U
03-056(c)	03-14349	RE03-01-0045	ALLH	Aroclor-1260	0.22	MG/KG	None
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1260	0.77	MG/KG	None
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1016	0.13	MG/KG	U
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1221	0.13	MG/KG	U
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1232	0.13	MG/KG	U
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1242	0.13	MG/KG	U
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1248	0.13	MG/KG	U
03-056(c)	03-14354	RE03-01-0046	ALLH	Aroclor-1254	0.13	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1016	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1221	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1232	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1242	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1248	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1254	0.036	MG/KG	U
03-056(c)	03-14386	RE03-01-0047	ALLH	Aroclor-1260	0.13	MG/KG	None
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1016	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1221	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1232	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1242	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1248	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1254	0.042	MG/KG	U
03-056(c)	03-14343	RE03-01-0048	ALLH	Aroclor-1260	0.41	MG/KG	None
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1016	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1221	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1232	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1242	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1248	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1254	0.037	MG/KG	U
03-056(c)	03-14342	RE03-01-0049	ALLH	Aroclor-1260	0.069	MG/KG	None
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1016	0.2	MG/KG	U
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1221	0.2	MG/KG	U
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1232	0.2	MG/KG	U
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1242	0.2	MG/KG	U
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1248	0.2	MG/KG	U
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1254	0.2	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14341	RE03-01-0050	ALLH	Aroclor-1260	0.39	MG/KG	None
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1016	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1221	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1232	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1242	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1248	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1254	0.049	MG/KG	U
03-056(c)	03-14385	RE03-01-0051	ALLH	Aroclor-1260	0.31	MG/KG	None
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1016	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1221	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1232	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1242	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1248	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1254	0.034	MG/KG	U
03-056(c)	03-14336	RE03-01-0052	ALLH	Aroclor-1260	0.034	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1242	0.042	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1248	0.042	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1254	0.042	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1260	0.43	MG/KG	None
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1016	0.042	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1221	0.042	MG/KG	U
03-056(c)	03-14338	RE03-01-0053	ALLH	Aroclor-1232	0.042	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1016	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1221	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1232	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1242	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1248	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1254	0.035	MG/KG	U
03-056(c)	03-14340	RE03-01-0054	ALLH	Aroclor-1260	0.035	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1016	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1221	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1232	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1242	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1248	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1254	0.052	MG/KG	U
03-056(c)	03-14346	RE03-01-0055	ALLH	Aroclor-1260	0.21	MG/KG	None
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1016	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1221	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1232	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1242	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1248	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1254	0.034	MG/KG	U
03-056(c)	03-14333	RE03-01-0056	ALLH	Aroclor-1260	0.034	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14332	RE03-01-0057	ALLH	Aroclor-1260	0.16	MG/KG	None
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1016	0.034	MG/KG	U
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1221	0.034	MG/KG	U
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1232	0.034	MG/KG	U
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1242	0.034	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1248	0.034	MG/KG	U
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1254	0.034	MG/KG	U
03-056(c)	03-14331	RE03-01-0058	ALLH	Aroclor-1260	0.24	MG/KG	None
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1016	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1221	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1232	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1242	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1248	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1254	2.0999999	MG/KG	U
03-056(c)	03-14311	RE03-01-0059	ALLH	Aroclor-1260	2.0999999	MG/KG	None
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14324	RE03-01-0060	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14325	RE03-01-0061	ALLH	Aroclor-1260	0.061	MG/KG	None
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1016	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1221	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1232	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1242	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1248	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1254	1.9	MG/KG	U
03-056(c)	03-14326	RE03-01-0062	ALLH	Aroclor-1260	3.4000001	MG/KG	None
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1016	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1221	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1232	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1242	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1248	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1254	0.046	MG/KG	U
03-056(c)	03-14339	RE03-01-0063	ALLH	Aroclor-1260	0.046	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1016	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1221	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1232	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1242	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1248	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1254	2.2	MG/KG	U
03-056(c)	03-14330	RE03-01-0064	ALLH	Aroclor-1260	2.8	MG/KG	None
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1016	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1221	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1232	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1242	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1248	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1254	0.033	MG/KG	U
03-056(c)	03-14327	RE03-01-0065	ALLH	Aroclor-1260	0.033	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1221	0.038	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14329	RE03-01-0066	ALLH	Aroclor-1260	0.097	MG/KG	None
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1016	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1221	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1232	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1242	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1248	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1254	0.036	MG/KG	U
03-056(c)	03-14323	RE03-01-0067	ALLH	Aroclor-1260	0.036	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1016	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1221	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1232	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1242	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1248	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1254	0.039	MG/KG	U
03-056(c)	03-14308	RE03-01-0068	ALLH	Aroclor-1260	0.039	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1242	0.082	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1248	0.082	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1254	0.082	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1260	0.15	MG/KG	None
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1016	0.082	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1221	0.082	MG/KG	U
03-056(c)	03-14322	RE03-01-0069	ALLH	Aroclor-1232	0.082	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1016	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1221	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1232	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1242	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1248	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1254	0.85	MG/KG	U
03-056(c)	03-14313	RE03-01-0070	ALLH	Aroclor-1260	4.0999999	MG/KG	None
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1016	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1221	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1232	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1242	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1248	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1254	0.044	MG/KG	U
03-056(c)	03-14309	RE03-01-0071	ALLH	Aroclor-1260	0.21	MG/KG	None
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1016	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1221	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1232	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1242	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1248	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1254	0.041	MG/KG	U
03-056(c)	03-14317	RE03-01-0072	ALLH	Aroclor-1260	0.37	MG/KG	None
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1016	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1221	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1232	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1242	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1248	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1254	0.16	MG/KG	U
03-056(c)	03-14321	RE03-01-0073	ALLH	Aroclor-1260	1.5	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1016	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1221	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1232	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1242	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1248	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1254	0.41	MG/KG	U
03-056(c)	03-14318	RE03-01-0074	ALLH	Aroclor-1260	2.8	MG/KG	None
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1016	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1221	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1232	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1242	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1248	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1254	0.17	MG/KG	U
03-056(c)	03-14310	RE03-01-0075	ALLH	Aroclor-1260	0.91	MG/KG	None
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14395	RE03-01-0076	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14320	RE03-01-0077	ALLH	Aroclor-1260	0.096	MG/KG	None
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1016	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1221	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1232	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1242	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1248	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1254	0.17	MG/KG	U
03-056(c)	03-14328	RE03-01-0078	ALLH	Aroclor-1260	0.85	MG/KG	None
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1016	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1221	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1232	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1242	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1248	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1254	0.4	MG/KG	U
03-056(c)	03-14359	RE03-01-0079	ALLH	Aroclor-1260	1.9	MG/KG	None
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1016	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1221	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1232	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1242	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1248	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1254	0.23	MG/KG	U
03-056(c)	03-14380	RE03-01-0080	ALLH	Aroclor-1260	1.2	MG/KG	None
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1221	0.047	MG/KG	U
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1232	0.047	MG/KG	U
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1242	0.047	MG/KG	U
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1248	0.047	MG/KG	U
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1254	0.047	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1260	0.047	MG/KG	U
03-056(c)	03-14381	RE03-01-0081	ALLH	Aroclor-1016	0.047	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Isopropyltoluene(4-)	0.14	MG/KG	J+
03-056(c)	03-14367	RE03-01-0093	ALLH	Acetone	0.13	MG/KG	J+
03-056(c)	03-14367	RE03-01-0093	ALLH	Benzene	0.0044	MG/KG	J+
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1016	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1221	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1232	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1242	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1248	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1254	0.048	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aroclor-1260	0.25	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Tetrachloroethane(1,1,1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichloroethane(1,1,1-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Tetrachloroethane(1,1,2,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichloroethane(1,1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloroethane(1,1-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloroethene(1,1-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropene(1,1-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichloropropane(1,2,3-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trimethylbenzene(1,2,4-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dibromo-3-chloropropane(1,2-)	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dibromoethane(1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichlorobenzene(1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloroethane(1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloroethene(cis/trans-1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropane(1,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trimethylbenzene(1,3,5-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichlorobenzene(1,3-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropane(1,3-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichlorobenzene(1,4-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropane(2,2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Butanone(2-)	0.033	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chlorotoluene(2-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Hexanone(2-)	0.033	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chlorotoluene(4-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Methyl-2-pentanone(4-)	0.033	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Bromobenzene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Bromochloromethane	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Bromodichloromethane	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Bromoform	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Bromomethane	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Carbon Disulfide	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Carbon Tetrachloride	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chlorobenzene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chlorodibromomethane	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chloroethane	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chloroform	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Chloromethane	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropene(cis-1,3-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dibromomethane	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichlorodifluoromethane	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Ethylbenzene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Iodomethane	0.0084	MG/KG	UJ

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14367	RE03-01-0093	ALLH	Isopropylbenzene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Methylene Chloride	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Butylbenzene(n-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Propylbenzene(1-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Butylbenzene(sec-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Styrene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Butylbenzene(tert-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Tetrachloroethene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Dichloropropene(trans-1,3-)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichloroethene	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichlorofluoromethane	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Trichlorotrifluoroethane	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Vinyl Chloride	0.017	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Xylene (Total)	0.0084	MG/KG	UJ
03-056(c)	03-14367	RE03-01-0093	ALLH	Toluene	0.012	MG/KG	J+
03-056(c)	03-14367	RE03-01-0093	ALLH	Silver	0.158	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Aluminum	4900	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Arsenic	3.3	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Barium	37	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Beryllium	0.45	MG/KG	J
03-056(c)	03-14367	RE03-01-0093	ALLH	Calcium	2400	MG/KG	J
03-056(c)	03-14367	RE03-01-0093	ALLH	Cadmium	0.075	MG/KG	J+
03-056(c)	03-14367	RE03-01-0093	ALLH	Cobalt	1.4	MG/KG	J
03-056(c)	03-14367	RE03-01-0093	ALLH	Chromium, Total	4.5999999	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Copper	3.2	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Iron	7500	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Mercury	0.0277	MG/KG	U
03-056(c)	03-14367	RE03-01-0093	ALLH	Potassium	710	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Magnesium	700	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Manganese	140	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Sodium	87	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Nickel	2.5	MG/KG	J
03-056(c)	03-14367	RE03-01-0093	ALLH	Lead	23	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Selenium	0.485	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Thallium	0.0817	MG/KG	J
03-056(c)	03-14367	RE03-01-0093	ALLH	Vanadium	5.9000001	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Zinc	24	MG/KG	None
03-056(c)	03-14367	RE03-01-0093	ALLH	Antimony	0.154	MG/KG	R
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1221	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1232	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1242	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1248	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1254	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1260	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aroclor-1016	0.038	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Isopropyltoluene(4-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Butylbenzene(sec-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Styrene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Butylbenzene(tert-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Tetrachloroethene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Toluene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropene(trans-1,3-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichloroethene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichlorofluoromethane	0.012	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichlorotrifluoroethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Vinyl Chloride	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Xylene (Total)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Acetone	0.023	MG/KG	UJ
03-056(c)	03-14373	RE03-01-0094	ALLH	Benzene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Bromobenzene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Bromochloromethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Bromodichloromethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Methylene Chloride	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Isopropylbenzene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Iodomethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Ethylbenzene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Tetrachloroethane(1,1,1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichloroethane(1,1,1-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Tetrachloroethane(1,1,2,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichloroethane(1,1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloroethane(1,1-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloroethene(1,1-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropene(1,1-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trichloropropane(1,2,3-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trimethylbenzene(1,2,4-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dibromo-3-chloropropane(1,2-)	0.012	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dibromoethane(1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichlorobenzene(1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloroethane(1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloroethene(cis/trans-1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropane(1,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Trimethylbenzene(1,3,5-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichlorobenzene(1,3-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropane(1,3-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichlorobenzene(1,4-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropane(2,2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Butanone(2-)	0.023	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chlorotoluene(2-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Hexanone(2-)	0.023	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chlorotoluene(4-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Methyl-2-pentanone(4-)	0.023	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Bromoform	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Bromomethane	0.012	MG/KG	UJ
03-056(c)	03-14373	RE03-01-0094	ALLH	Carbon Disulfide	0.0021	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Carbon Tetrachloride	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chlorobenzene	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chlorodibromomethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chloroethane	0.012	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chloroform	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Chloromethane	0.012	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichloropropene(cis-1,3-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dibromomethane	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Dichlorodifluoromethane	0.012	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Butylbenzene(n-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Propylbenzene(1-)	0.0058	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Silver	0.118	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Aluminum	2300	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Arsenic	3	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14373	RE03-01-0094	ALLH	Barium	25	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Beryllium	0.33	MG/KG	J
03-056(c)	03-14373	RE03-01-0094	ALLH	Calcium	680	MG/KG	J
03-056(c)	03-14373	RE03-01-0094	ALLH	Cadmium	0.064	MG/KG	J+
03-056(c)	03-14373	RE03-01-0094	ALLH	Cobalt	1.4	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Chromium, Total	1.8	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Copper	2.5	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Iron	9100	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Mercury	0.0207	MG/KG	U
03-056(c)	03-14373	RE03-01-0094	ALLH	Potassium	280	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Magnesium	150	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Manganese	200	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Sodium	83	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Nickel	2	MG/KG	J
03-056(c)	03-14373	RE03-01-0094	ALLH	Lead	7	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Selenium	0.434	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Thallium	0.0957	MG/KG	J
03-056(c)	03-14373	RE03-01-0094	ALLH	Vanadium	2.5	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Zinc	14	MG/KG	None
03-056(c)	03-14373	RE03-01-0094	ALLH	Antimony	0.115	MG/KG	R
03-056(c)	03-14371	RE03-01-0095	ALLH	Cobalt	0.85	MG/KG	J
03-056(c)	03-14371	RE03-01-0095	ALLH	Chromium, Total	0.7	MG/KG	J
03-056(c)	03-14371	RE03-01-0095	ALLH	Copper	1.3	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Iron	7600	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Mercury	0.0191	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Potassium	170	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Magnesium	120	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Manganese	360	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Sodium	80	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Nickel	1.4	MG/KG	J
03-056(c)	03-14371	RE03-01-0095	ALLH	Lead	11	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Selenium	0.287	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Thallium	0.0532	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Vanadium	1.4	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Zinc	40	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1016	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1221	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1232	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1242	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1248	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1254	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aroclor-1260	0.035	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Tetrachloroethane(1,1,1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichloroethane(1,1,1-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Tetrachloroethane(1,1,2,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichloroethane(1,1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloroethane(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloroethene(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropene(1,1-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichloropropane(1,2,3-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trimethylbenzene(1,2,4-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dibromo-3-chloropropane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dibromoethane(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichlorobenzene(1,2-)	0.0053	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloroethane(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloroethene(cis/trans-1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropane(1,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trimethylbenzene(1,3,5-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichlorobenzene(1,3-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropane(1,3-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichlorobenzene(1,4-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropane(2,2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Butanone(2-)	0.021	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chlorotoluene(2-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Styrene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Butylbenzene(tert-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Tetrachloroethene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Toluene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropene(trans-1,3-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichloroethene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichlorofluoromethane	0.011	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Trichlorotrifluoroethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Vinyl Chloride	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Xylene (Total)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Hexanone(2-)	0.021	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chlorotoluene(4-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Methyl-2-pentanone(4-)	0.021	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Acetone	0.021	MG/KG	UJ
03-056(c)	03-14371	RE03-01-0095	ALLH	Benzene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Bromobenzene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Bromochloromethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Bromodichloromethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Bromoform	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Bromomethane	0.011	MG/KG	UJ
03-056(c)	03-14371	RE03-01-0095	ALLH	Carbon Disulfide	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Carbon Tetrachloride	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chlorobenzene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chlorodibromomethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chloroethane	0.011	MG/KG	UJ
03-056(c)	03-14371	RE03-01-0095	ALLH	Chloroform	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Chloromethane	0.011	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichloropropene(cis-1,3-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dibromomethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Dichlorodifluoromethane	0.011	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Ethylbenzene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Iodomethane	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Isopropylbenzene	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Methylene Chloride	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Butylbenzene(n-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Propylbenzene(1-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Isopropyltoluene(4-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Butylbenzene(sec-)	0.0053	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Silver	0.219	MG/KG	U
03-056(c)	03-14371	RE03-01-0095	ALLH	Aluminum	1400	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Arsenic	3	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Barium	12	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Beryllium	0.61	MG/KG	None
03-056(c)	03-14371	RE03-01-0095	ALLH	Calcium	390	MG/KG	J

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14371	RE03-01-0095	ALLH	Cadmium	0.058	MG/KG	J+
03-056(c)	03-14371	RE03-01-0095	ALLH	Antimony	0.106	MG/KG	R
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropane(2,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Butanone(2-)	2.5	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chlorotoluene(2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Hexanone(2-)	2.5	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chlorotoluene(4-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Methyl-2-pentanone(4-)	2.5	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Acetone	2.5	MG/KG	UJ
03-056(c)	03-14315	RE03-01-0128	QBT3	Benzene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Bromobenzene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Bromochloromethane	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Bromodichloromethane	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Bromoform	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Bromomethane	1.3	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Carbon Disulfide	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Carbon Tetrachloride	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chlorobenzene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chlorodibromomethane	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chloroethane	1.3	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Tetrachloroethane(1,1,1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichloroethane(1,1,1-)	1.8	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Tetrachloroethane(1,1,2,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichloroethane(1,1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloroethane(1,1-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloroethene(1,1-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropene(1,1-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichloropropane(1,2,3-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trimethylbenzene(1,2,4-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dibromo-3-chloropropane(1,2-)	1.3	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dibromoethane(1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichlorobenzene(1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloroethane(1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloroethene(cis/trans-1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropane(1,2-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trimethylbenzene(1,3,5-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichlorobenzene(1,3-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropane(1,3-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichlorobenzene(1,4-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1260	2.5999999	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1016	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1221	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1232	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1242	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1248	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Aroclor-1254	0.84	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Isopropylbenzene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Methylene Chloride	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Butylbenzene(n-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Propylbenzene(1-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Isopropyltoluene(4-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Butylbenzene(sec-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Styrene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Butylbenzene(tert-)	0.64	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14315	RE03-01-0128	QBT3	Tetrachloroethene	23	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Toluene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropene(trans-1,3-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichloroethene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichlorofluoromethane	1.3	MG/KG	UJ
03-056(c)	03-14315	RE03-01-0128	QBT3	Trichlorotrifluoroethane	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Vinyl Chloride	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Xylene (Total)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Iodomethane	0.64	MG/KG	UJ
03-056(c)	03-14315	RE03-01-0128	QBT3	Chloroform	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Chloromethane	1.3	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichloropropene(cis-1,3-)	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dibromomethane	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Dichlorodifluoromethane	1.3	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Ethylbenzene	0.64	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Barium	19.4	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Beryllium	0.42	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Cadmium	0.033	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Calcium	908	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Chromium, Total	1.9	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Cobalt	2	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Copper	2.2	MG/KG	J-
03-056(c)	03-14315	RE03-01-0128	QBT3	Aluminum	2350	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Arsenic	1.9	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Lead	3.0999999	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Potassium	364	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Selenium	0.15	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Sodium	145	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Thallium	0.17	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Mercury	0.021	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Iron	10100	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Magnesium	514	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Manganese	136	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Nickel	2.5	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Silver	0.17	MG/KG	U
03-056(c)	03-14315	RE03-01-0128	QBT3	Vanadium	6	MG/KG	J
03-056(c)	03-14315	RE03-01-0128	QBT3	Zinc	42.799999	MG/KG	None
03-056(c)	03-14315	RE03-01-0128	QBT3	Antimony	0.32	MG/KG	UJ
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1254	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1260	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1016	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1221	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1232	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1242	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Aroclor-1248	0.037	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Bromoform	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Bromomethane	0.011	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Carbon Disulfide	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Carbon Tetrachloride	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chlorobenzene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chlorodibromomethane	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chloroethane	0.011	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chloroform	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chloromethane	0.011	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropene(cis-1,3-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dibromomethane	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichlorodifluoromethane	0.011	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Ethylbenzene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Iodomethane	0.0056	MG/KG	UJ
03-056(c)	03-14337	RE03-01-0129	QBT3	Isopropylbenzene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Methylene Chloride	0.0065	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Butylbenzene(n-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Propylbenzene(1-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Isopropyltoluene(4-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Butylbenzene(sec-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Styrene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Butylbenzene(tert-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Tetrachloroethene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Toluene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropene(trans-1,3-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichloroethene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichlorofluoromethane	0.011	MG/KG	UJ
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichlorotrifluoroethane	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Vinyl Chloride	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Xylene (Total)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Tetrachloroethane(1,1,1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichloroethane(1,1,1-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Tetrachloroethane(1,1,2,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichloroethane(1,1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloroethane(1,1-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropene(1,1-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloroethene(1,1-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trichloropropane(1,2,3-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trimethylbenzene(1,2,4-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dibromo-3-chloropropane(1,2-)	0.011	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dibromoethane(1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichlorobenzene(1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloroethane(1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloroethene(cis/trans-1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropane(1,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Trimethylbenzene(1,3,5-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichlorobenzene(1,3-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropane(1,3-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichlorobenzene(1,4-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Dichloropropane(2,2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Butanone(2-)	0.023	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chlorotoluene(2-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Hexanone(2-)	0.023	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Chlorotoluene(4-)	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Methyl-2-pentanone(4-)	0.023	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Acetone	0.017	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Benzene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Bromobenzene	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Bromochloromethane	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Bromodichloromethane	0.0056	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Arsenic	2.5999999	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Lead	7.9000001	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Potassium	463	MG/KG	J

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14337	RE03-01-0129	QBT3	Selenium	0.13	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Sodium	119	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Thallium	0.14	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Mercury	0.019	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Antimony	0.28	MG/KG	UJ
03-056(c)	03-14337	RE03-01-0129	QBT3	Aluminum	5280	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Barium	21.1	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Beryllium	0.85	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Cadmium	0.029	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Calcium	925	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Chromium, Total	2.3	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Cobalt	0.98	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Copper	4.3000002	MG/KG	J-
03-056(c)	03-14337	RE03-01-0129	QBT3	Iron	8290	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Magnesium	676	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Manganese	279	MG/KG	None
03-056(c)	03-14337	RE03-01-0129	QBT3	Nickel	3.2	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Silver	0.14	MG/KG	U
03-056(c)	03-14337	RE03-01-0129	QBT3	Vanadium	5.8000002	MG/KG	J
03-056(c)	03-14337	RE03-01-0129	QBT3	Zinc	37	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Carbon Tetrachloride	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chlorobenzene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chlorodibromomethane	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chloroethane	0.01	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chloroform	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chloromethane	0.01	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropene(cis-1,3-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dibromomethane	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichlorodifluoromethane	0.01	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Ethylbenzene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Iodomethane	0.0052	MG/KG	UJ
03-056(c)	03-14344	RE03-01-0130	QBT3	Isopropylbenzene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Methylene Chloride	0.0056	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Butylbenzene(n-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Propylbenzene(1-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Isopropyltoluene(4-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Butylbenzene(sec-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Styrene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Butylbenzene(tert-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Tetrachloroethene	0.0074	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Toluene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropene(trans-1,3-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichloroethene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichlorofluoromethane	0.01	MG/KG	UJ
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichlorotrifluoroethane	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Vinyl Chloride	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Tetrachloroethane(1,1,1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichloroethane(1,1,1-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Tetrachloroethane(1,1,2,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichloroethane(1,1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Xylene (Total)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Bromobenzene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Bromochloromethane	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Bromodichloromethane	0.0052	MG/KG	U

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14344	RE03-01-0130	QBT3	Bromoform	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Bromomethane	0.01	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Carbon Disulfide	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1232	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1242	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1248	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1254	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1260	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1016	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Aroclor-1221	0.034	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloroethane(1,1-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloroethene(1,1-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropene(1,1-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trichloropropane(1,2,3-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trimethylbenzene(1,2,4-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dibromo-3-chloropropane(1,2-)	0.01	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dibromoethane(1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichlorobenzene(1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloroethane(1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloroethene(cis/trans-1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropane(1,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Trimethylbenzene(1,3,5-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichlorobenzene(1,3-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropane(1,3-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichlorobenzene(1,4-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Dichloropropane(2,2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Butanone(2-)	0.021	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chlorotoluene(2-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Hexanone(2-)	0.021	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Chlorotoluene(4-)	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Methyl-2-pentanone(4-)	0.021	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Acetone	0.014	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Benzene	0.0052	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Arsenic	2	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Lead	22.799999	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Potassium	451	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Selenium	0.13	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Sodium	116	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Thallium	0.14	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Mercury	0.018	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Copper	3.2	MG/KG	J-
03-056(c)	03-14344	RE03-01-0130	QBT3	Iron	7000	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Magnesium	537	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Manganese	326	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Nickel	1.9	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Silver	0.14	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Vanadium	3.5	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Zinc	39.5	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Antimony	0.27	MG/KG	UJ
03-056(c)	03-14344	RE03-01-0130	QBT3	Aluminum	3940	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Barium	22.4	MG/KG	J
03-056(c)	03-14344	RE03-01-0130	QBT3	Beryllium	0.77	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Cadmium	0.028	MG/KG	U
03-056(c)	03-14344	RE03-01-0130	QBT3	Calcium	836	MG/KG	None

Table D-2.0-1, PRS 3-056(c)

PRS Number	Location ID	Sample ID	Media Code	Analyte	Result	Units	Report Qual.
03-056(c)	03-14344	RE03-01-0130	QBT3	Chromium, Total	1.1	MG/KG	None
03-056(c)	03-14344	RE03-01-0130	QBT3	Cobalt	0.75	MG/KG	J
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1016	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1221	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1232	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1242	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1248	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1254	0.037	MG/KG	U
03-056(c)	03-14376	RE03-01-0131	QBT3	Aroclor-1260	0.23	MG/KG	None

Appendix E

Statistical Analyses

E-1.0 CALCULATION OF UCLs FOR AROCLOR-1260 AND SELECTED METALS

UCLs of the arithmetic mean were calculated for arsenic, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, silver, zinc, and Aroclor-1260. All samples for these analytes in the the data set were collected at a depth of less than 1 ft (UCLs for tuff samples were not calculated because of insufficient samples: there were only three tuff samples). To accurately represent the first ft of soil, UCLs were calculated using all the individual sample concentrations. All non-detects were represented by one-half of the detection limit in the data set. First, exploratory data analysis (EDA) plots were used to look at the distribution of data for each analyte. Second, the Shapiro-Wilk distributional test was run to determine which model (normal, lognormal, or neither) was appropriate to use for calculating the UCLs. Third, the UCLs were calculated and the most appropriate UCL was chosen.

E-1.1 EDA Plots

EDA plots are presented below for each analyte analyzed in the soil matrix. For each analyte, the EDA plots consist of a histogram, a box plot, a density estimate plot, and a normal-normal quantile plot.

Histograms plot the frequency of observations within consecutive, equally sized intervals of concentrations/activities. They provide a discrete estimate of the shape of the distribution of the data from the composite sampling.

Box plots are another way to represent the distribution. The top and bottom of the box in the box plot represent the inter-quartile range (IQR), identified by the 75th and 25th percentiles of the data, respectively. The horizontal line in the middle of the box represents the 50th percentile (the median). Vertical lines (called whiskers) extend to the most extreme data point which is no more than $1.5 \times$ IQR from the box. Outliers are represented by dots beyond the whiskers.

The density estimate plot provides a continuous approximation of the probability distribution for the analytes from the samples. It is a complementary plot to the histogram.

The normal-normal quantile plot pairs the sorted data with the corresponding quantiles of the standard normal distribution. If the data are normally distributed, then the plotted pairs will follow a straight line.

These EDA plots combine to provide a qualitative assessment of the form of the distribution. All of these plots are used together to assess possibilities for constructing a statistical model of the distribution of each analyte. EDA plots are useful for identifying properties of the distribution that may guide the assessment of the distributional form.

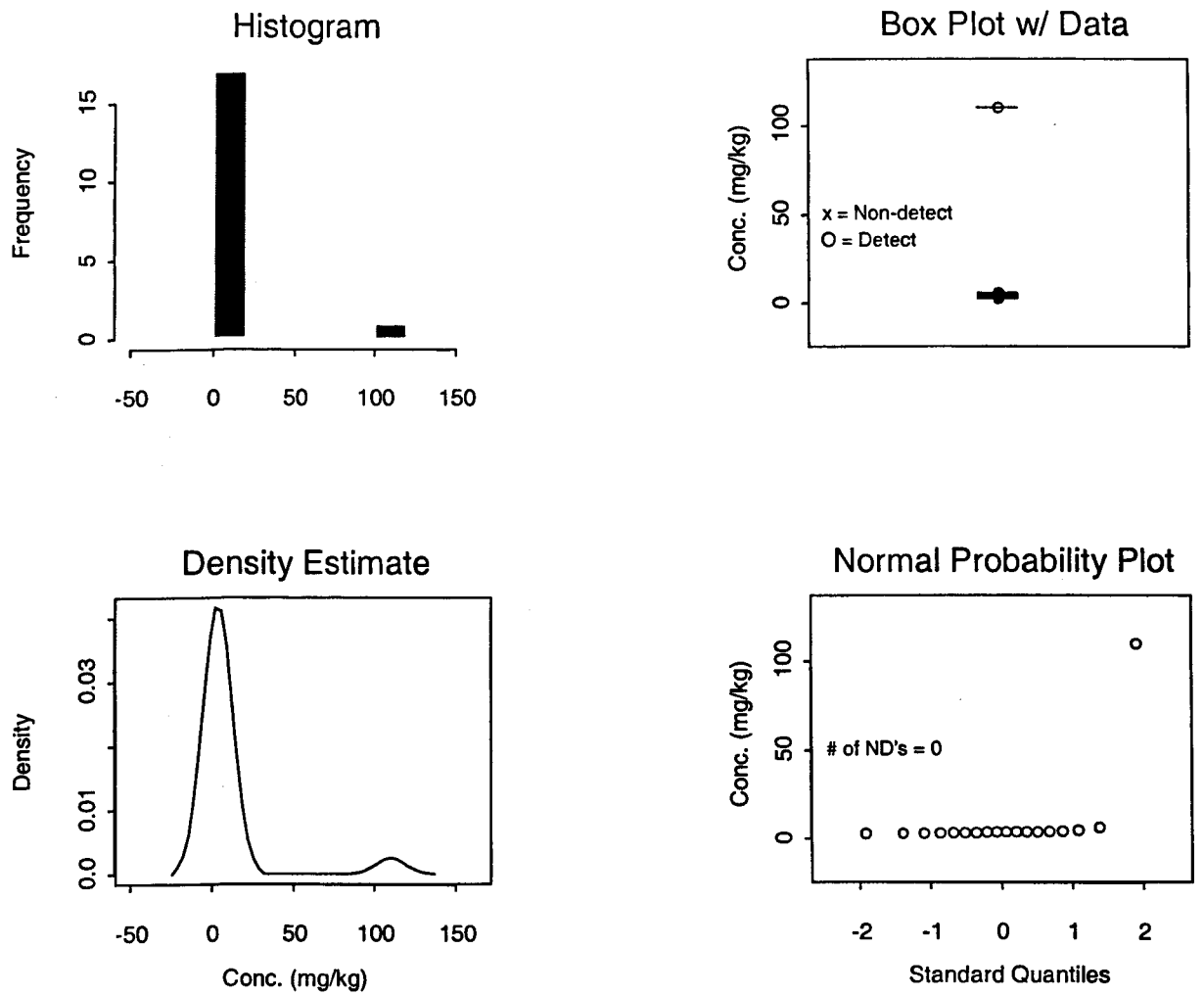


Figure E-1.0-1. EDA plots for arsenic

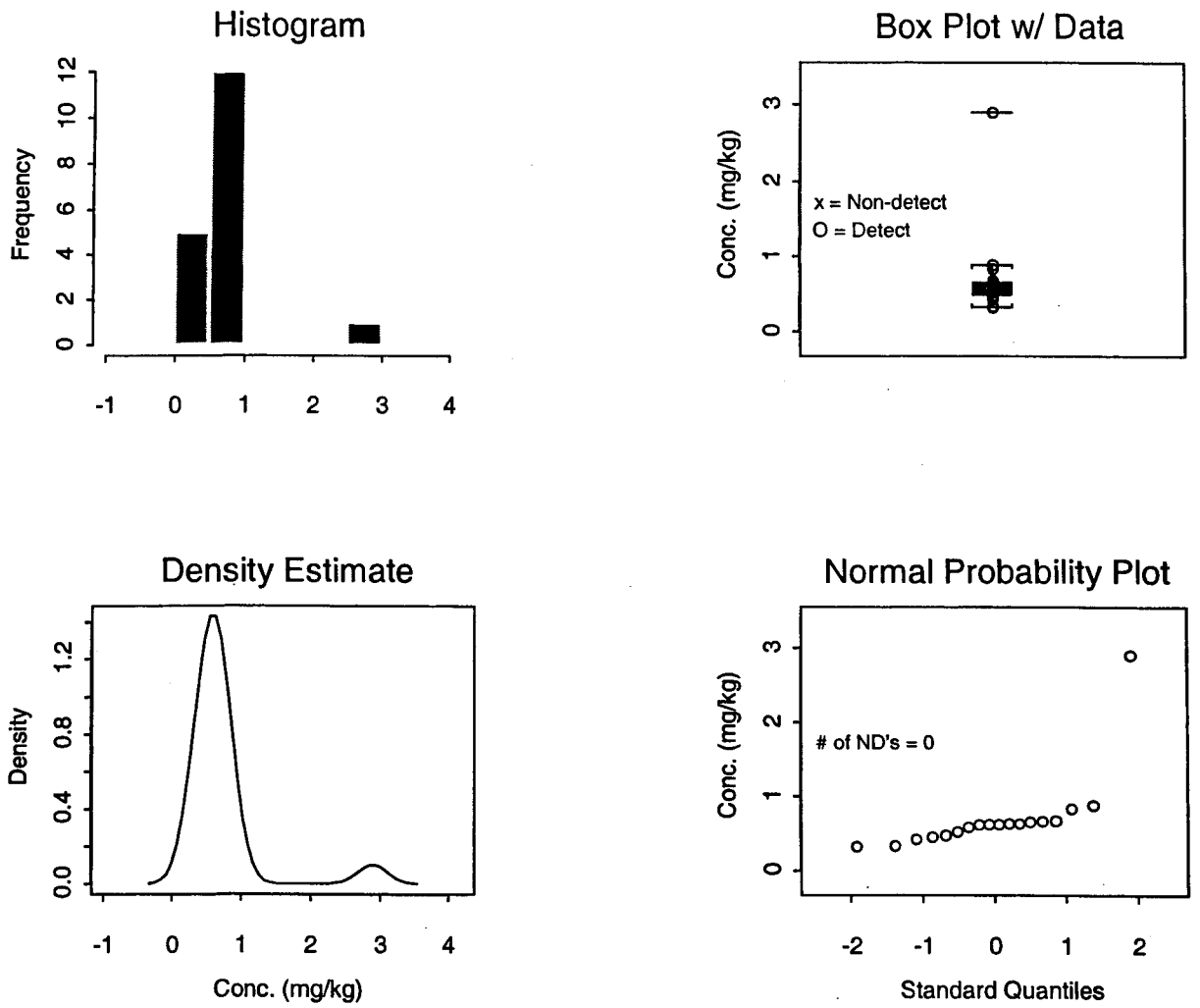


Figure E-1.0-2. EDA plots for beryllium

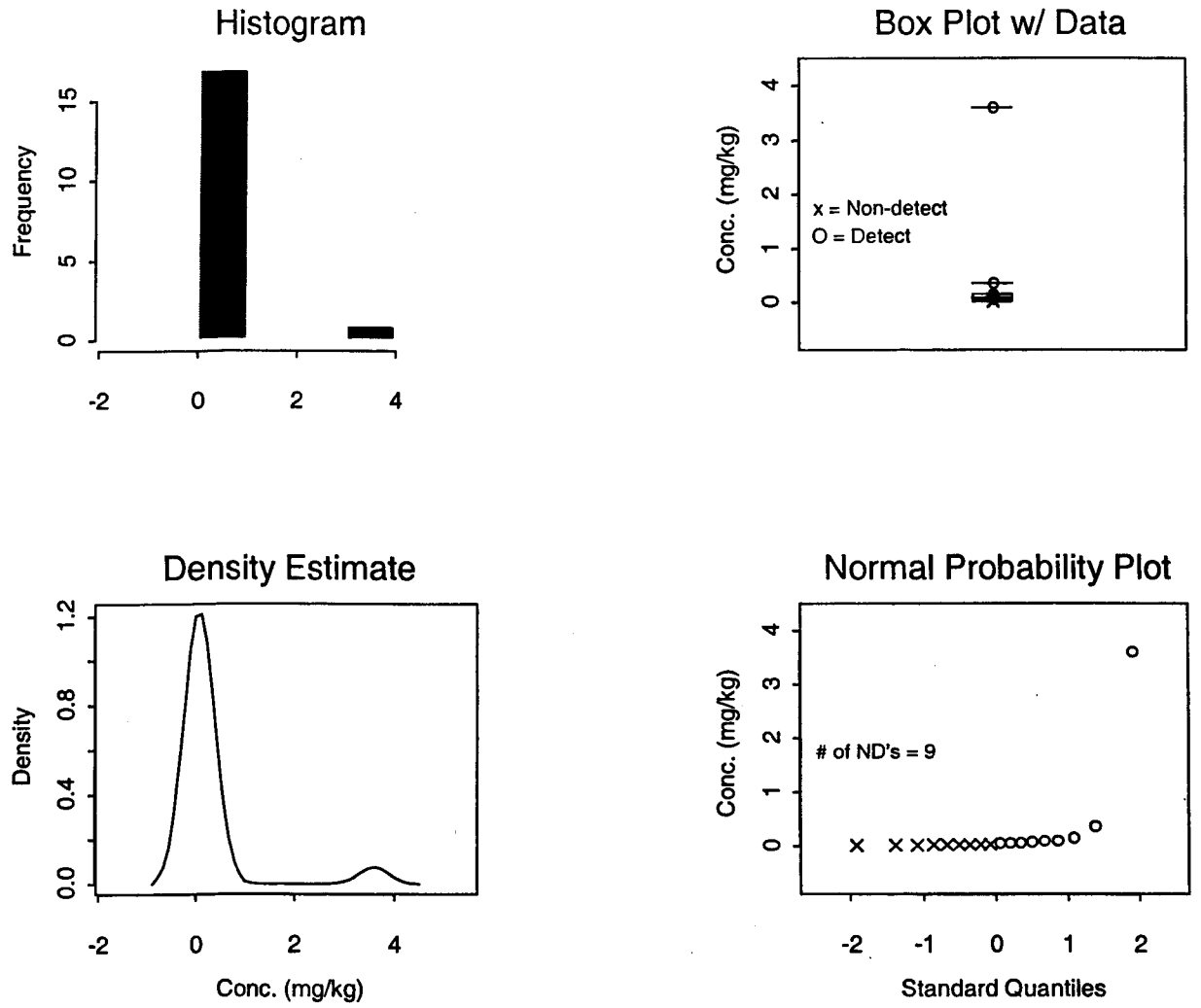


Figure E-1.0-3. EDA plots for cadmium

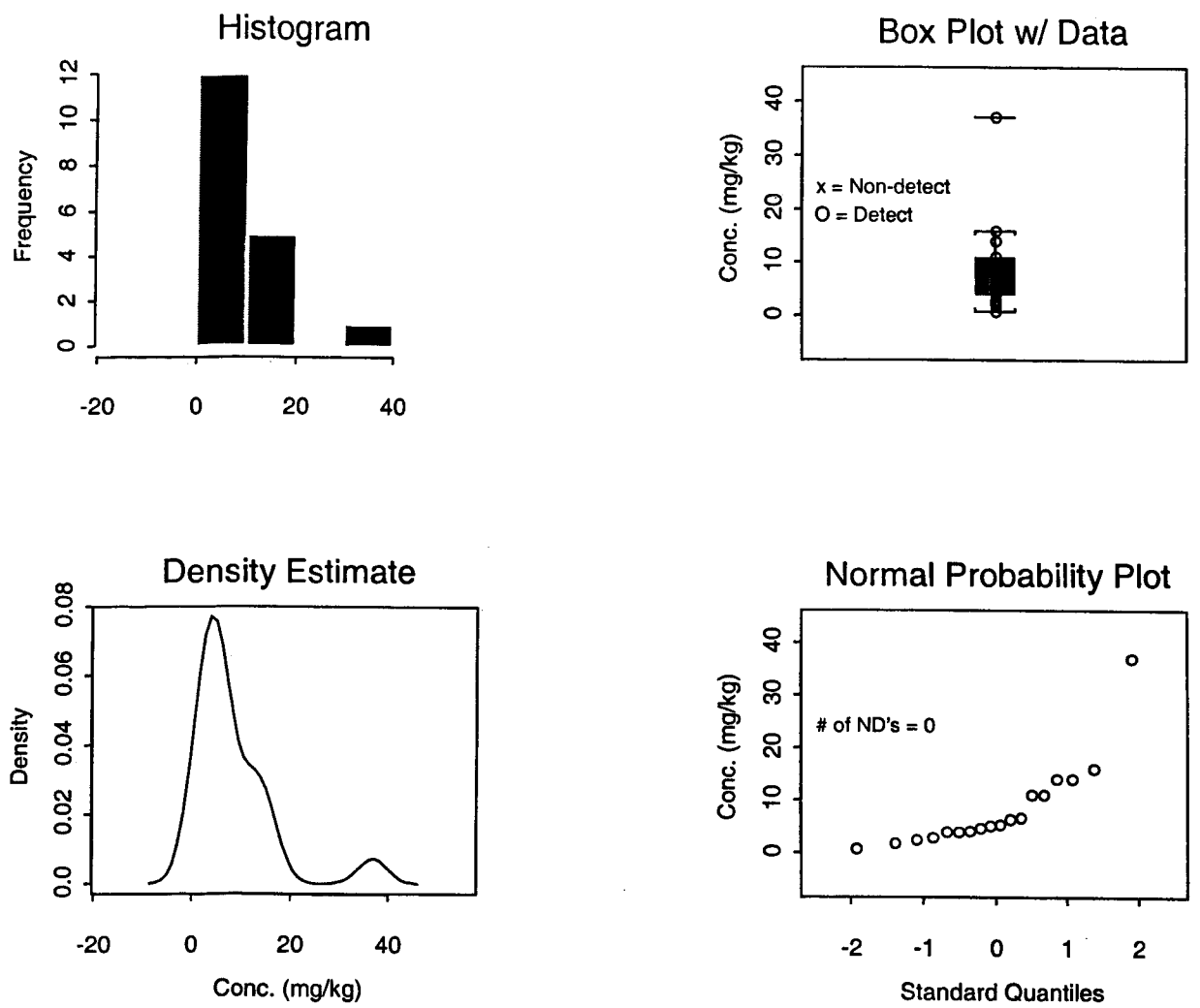


Figure E-1.0-4. EDA plots for total chromium

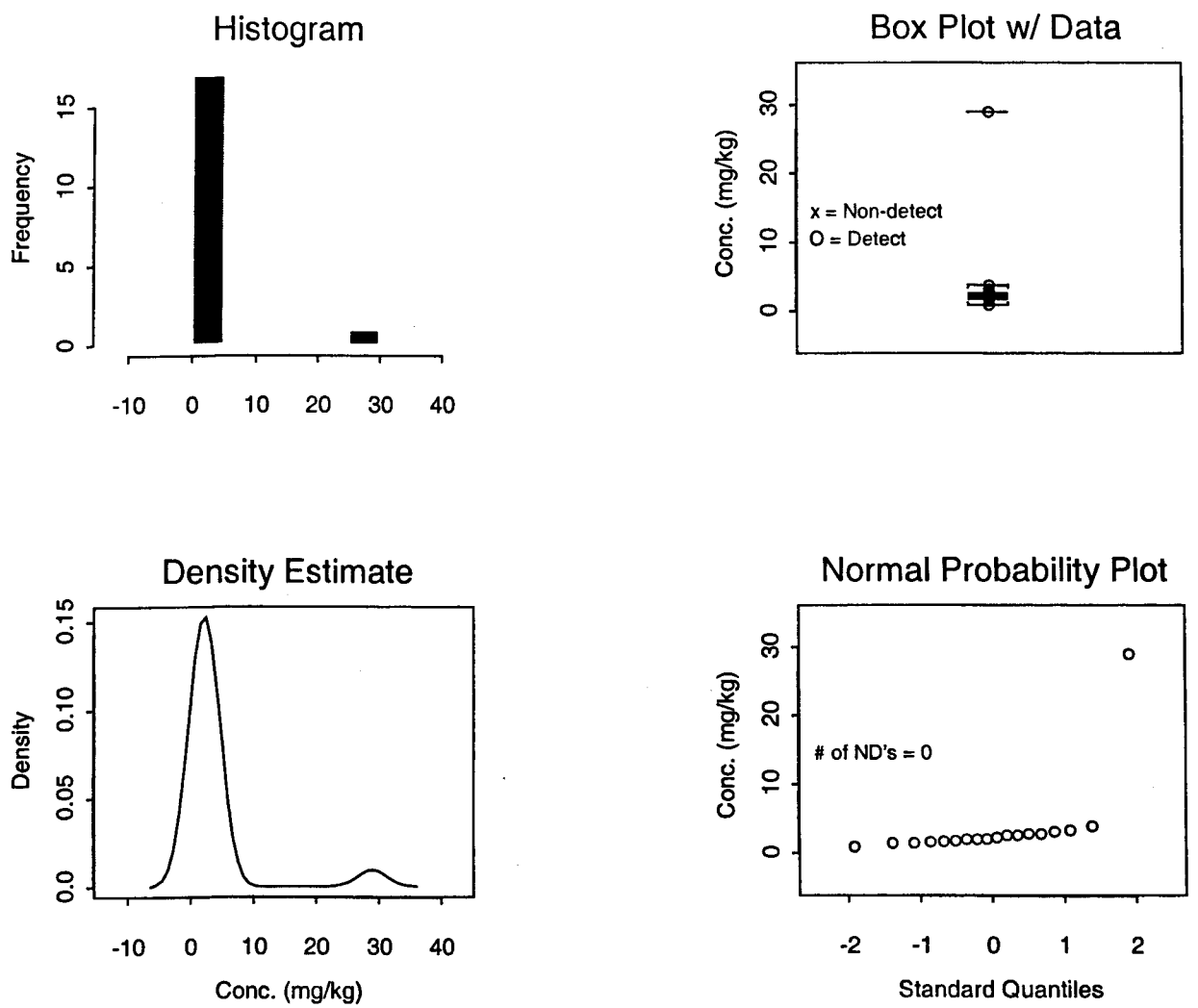


Figure E-1.0-5. EDA plots for cobalt

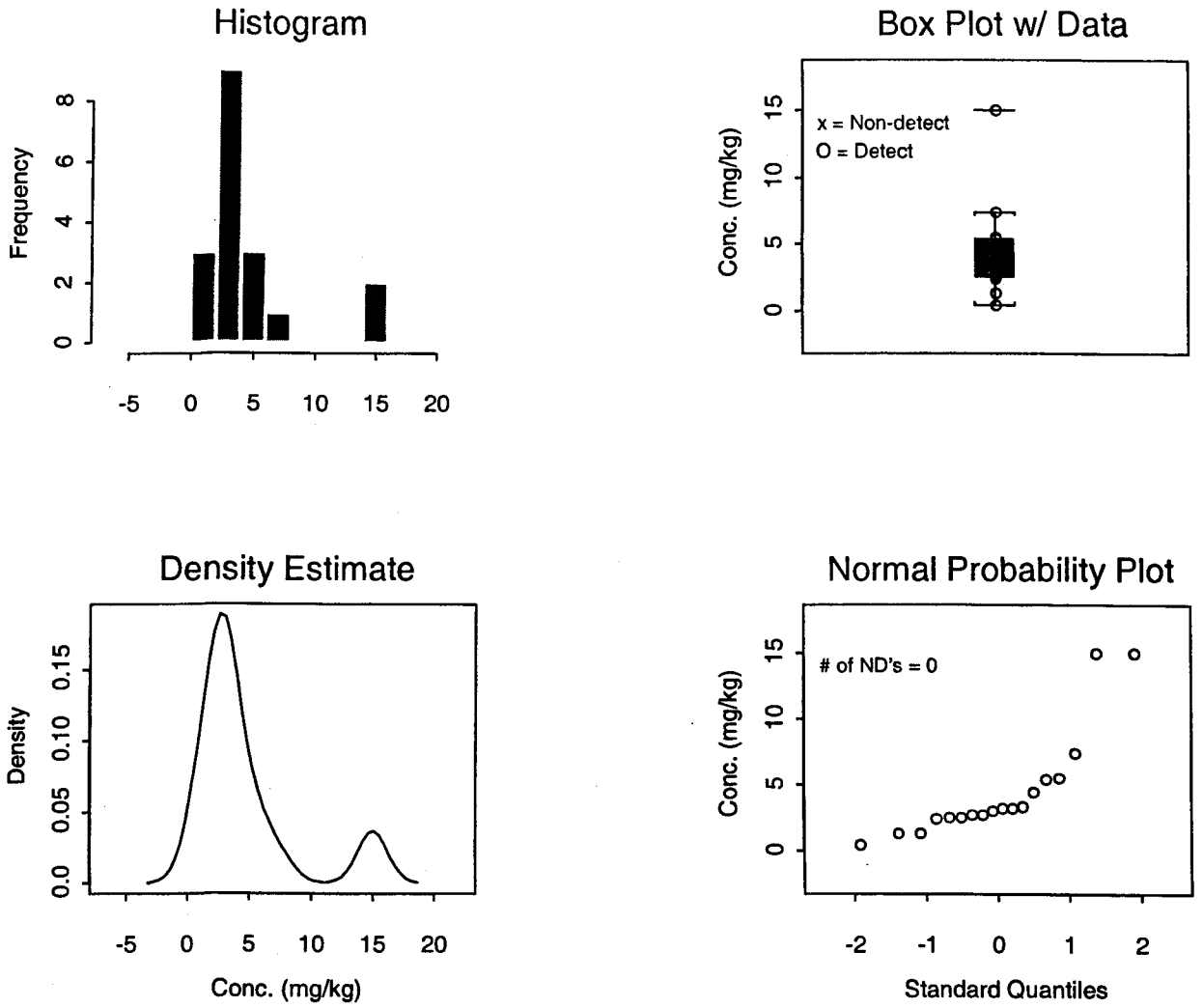


Figure E-1.0-6. EDA plots for copper

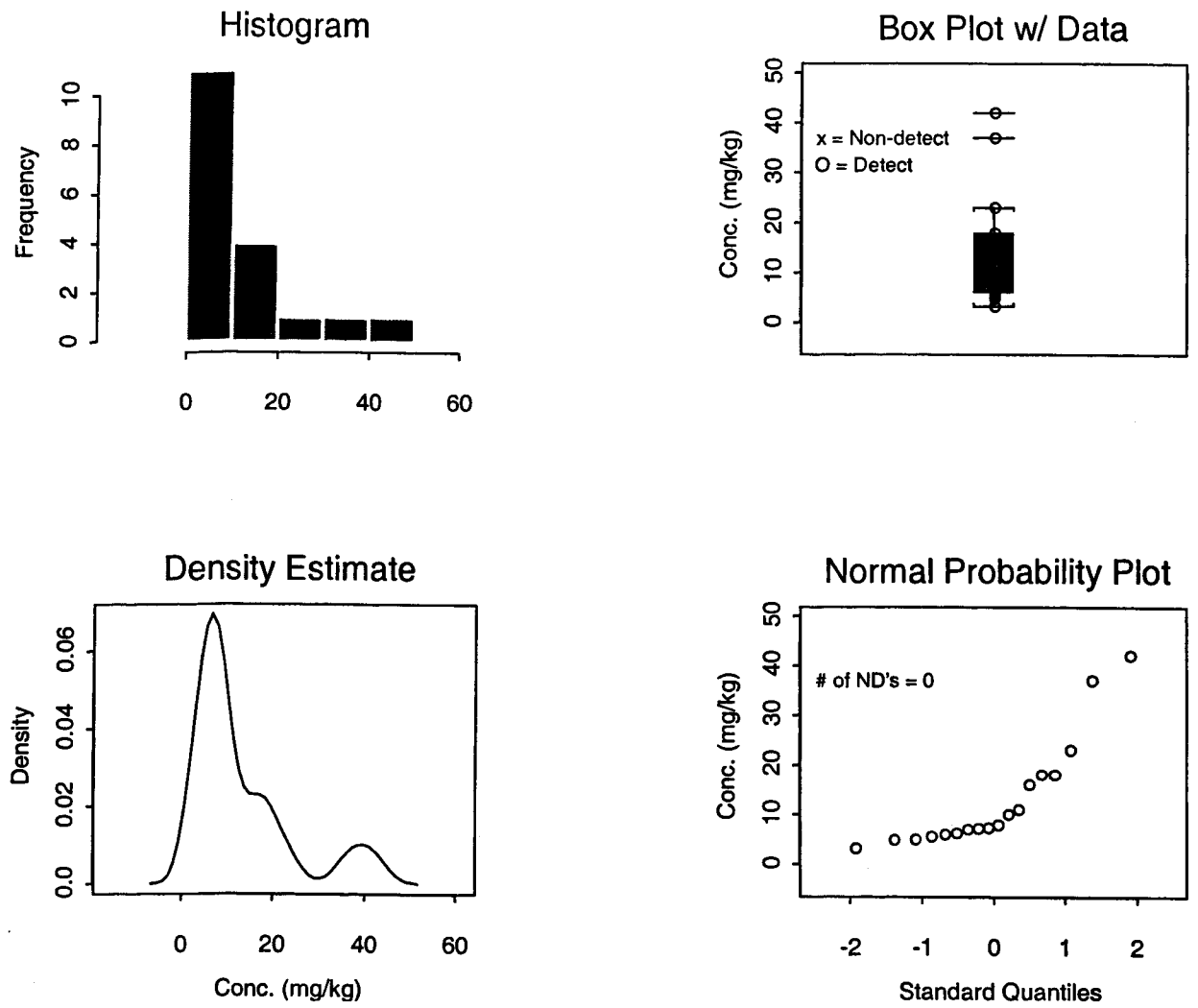


Figure E-1.0-7. EDA plots for lead

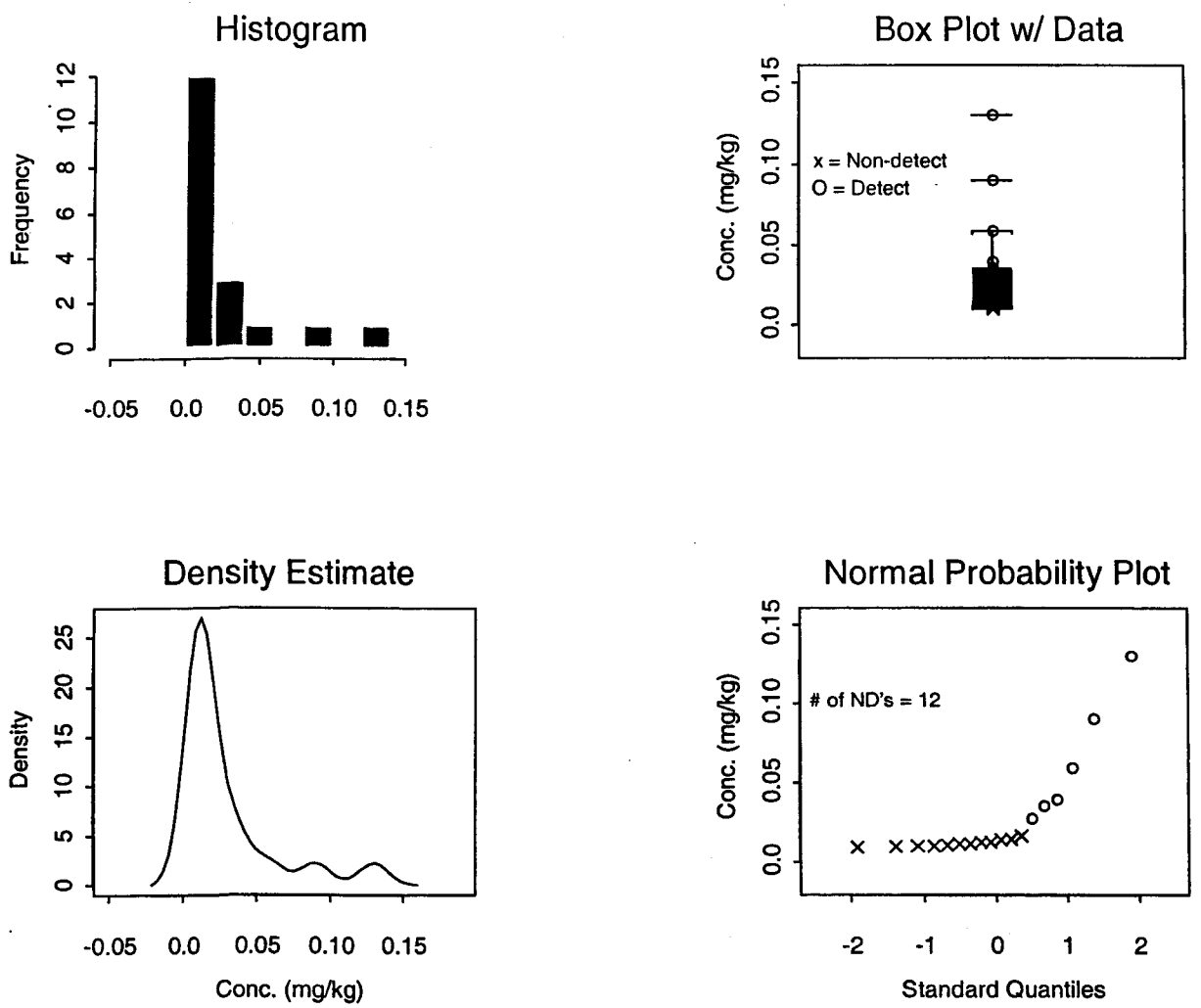


Figure E-1.0-8. EDA plots for mercury

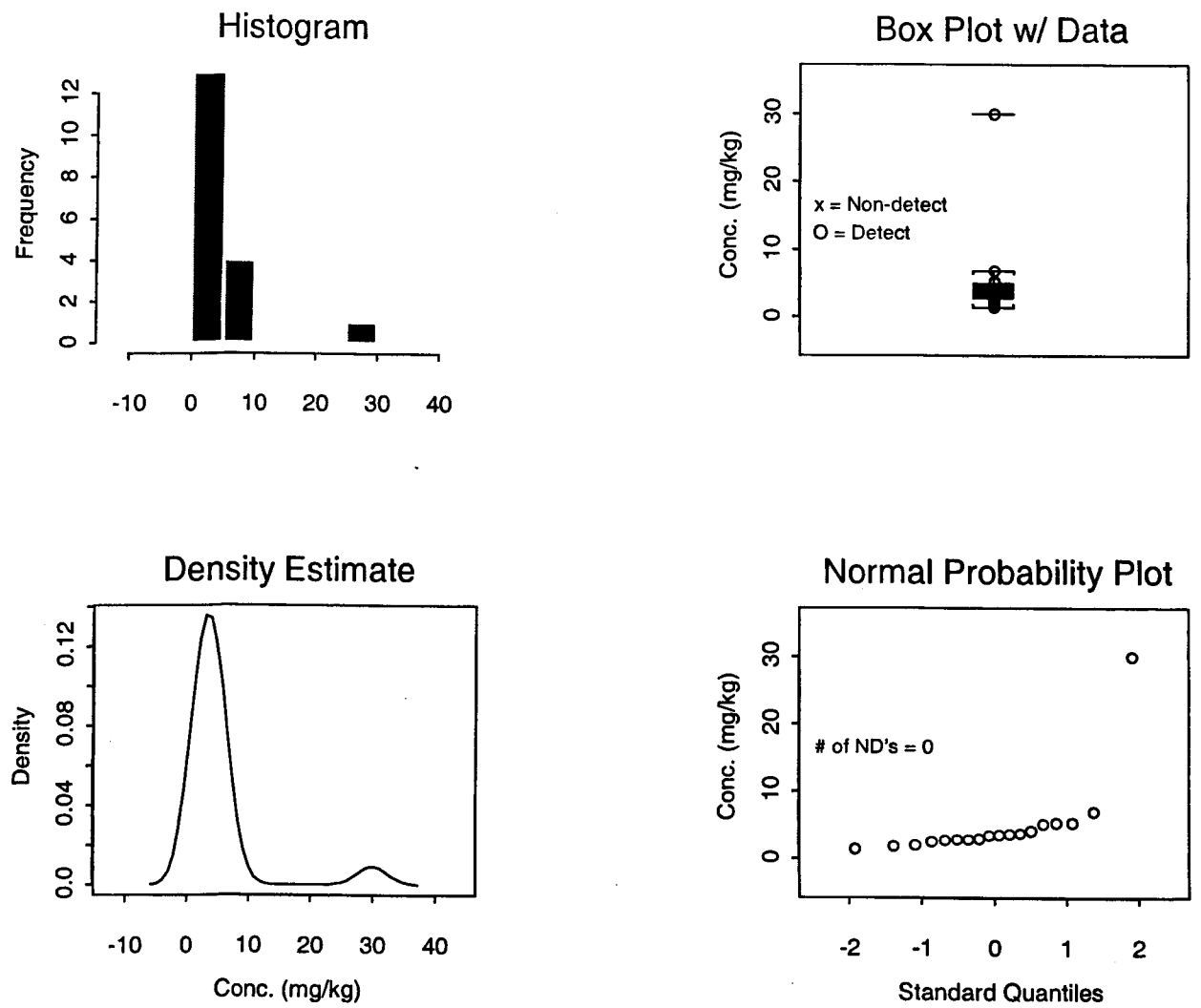


Figure E-1.0 9. EDA plots for nickel

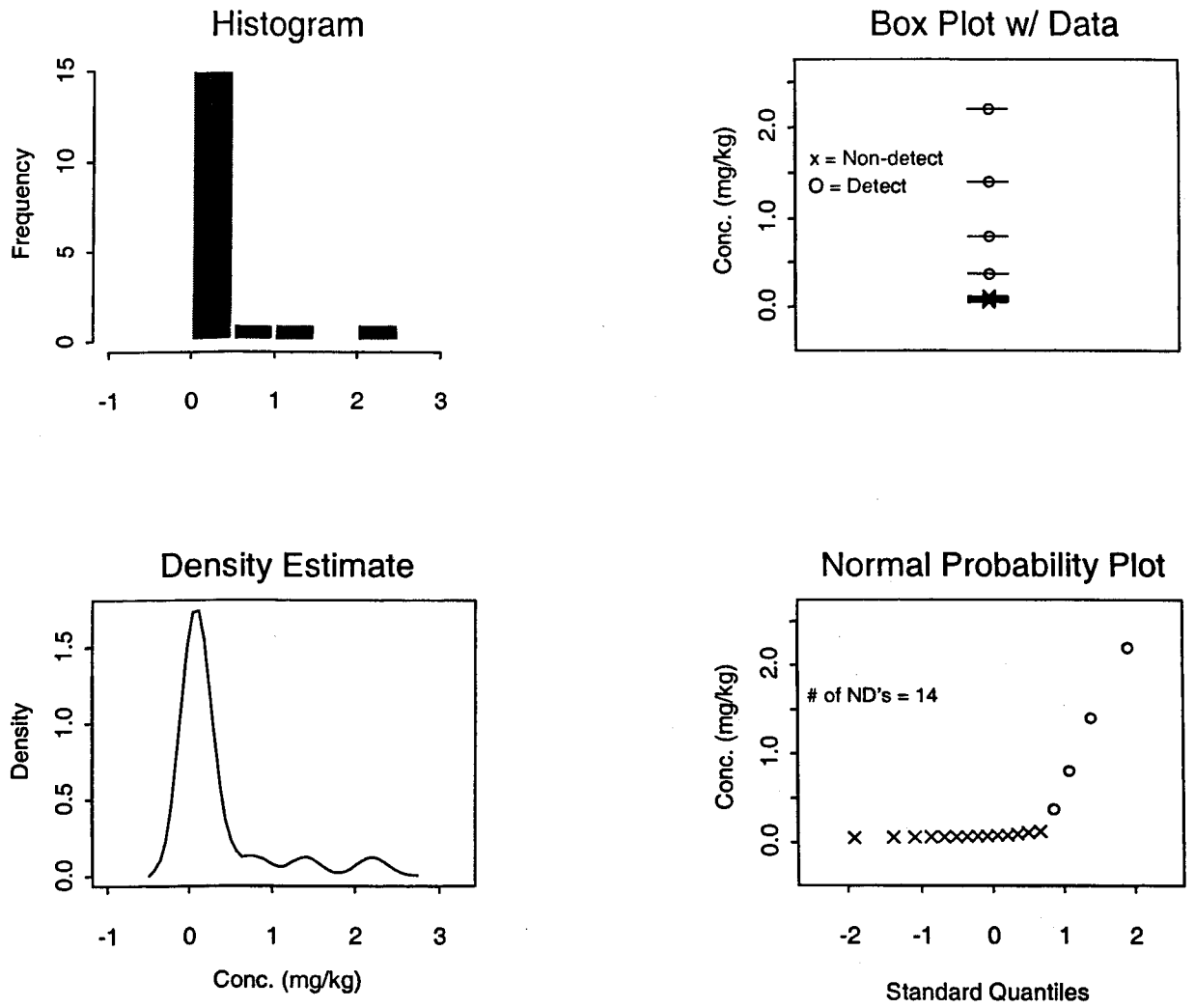


Figure E-1.0-10. EDA plots for silver

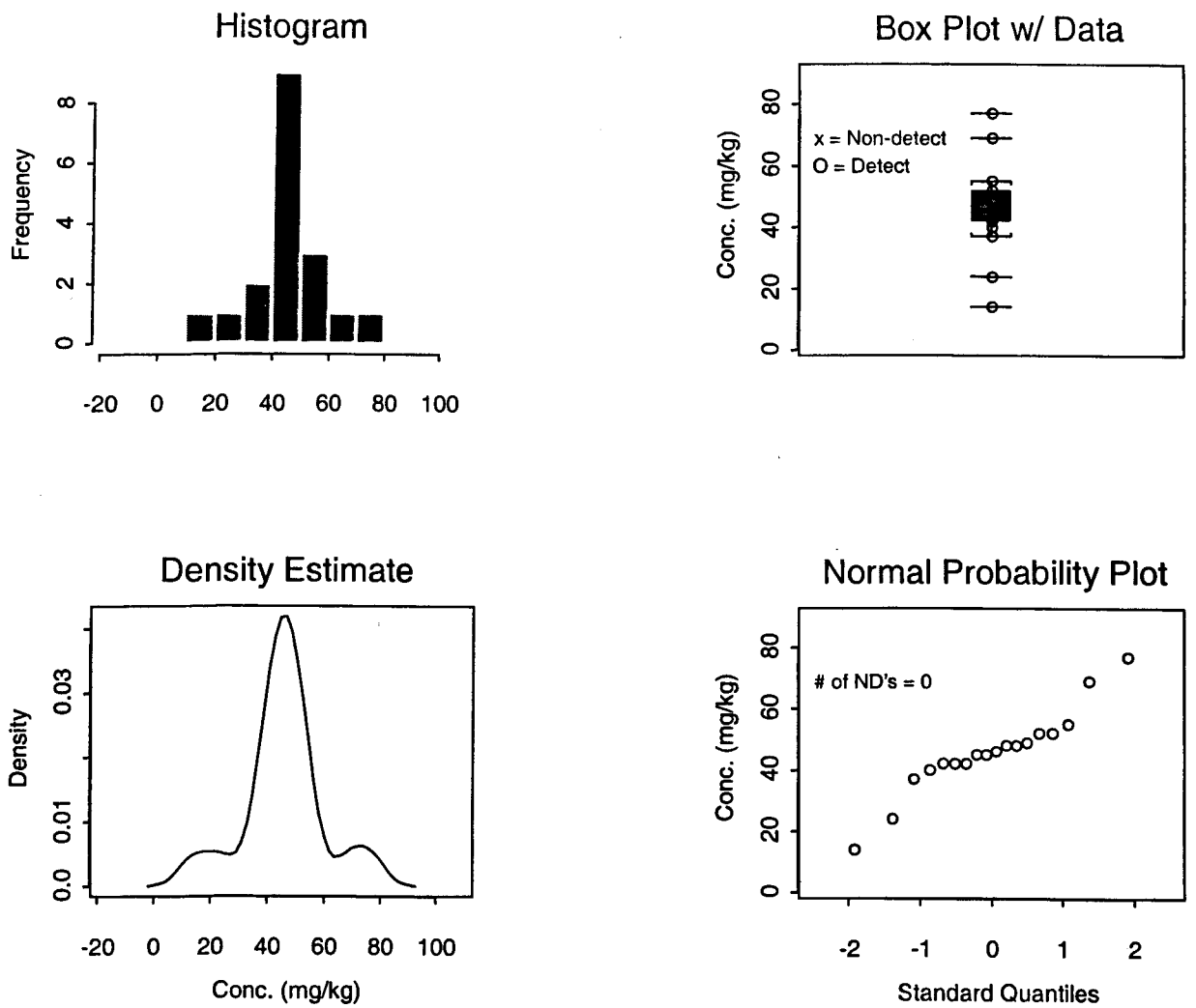


Figure E-1.0-11. EDA plots for zinc

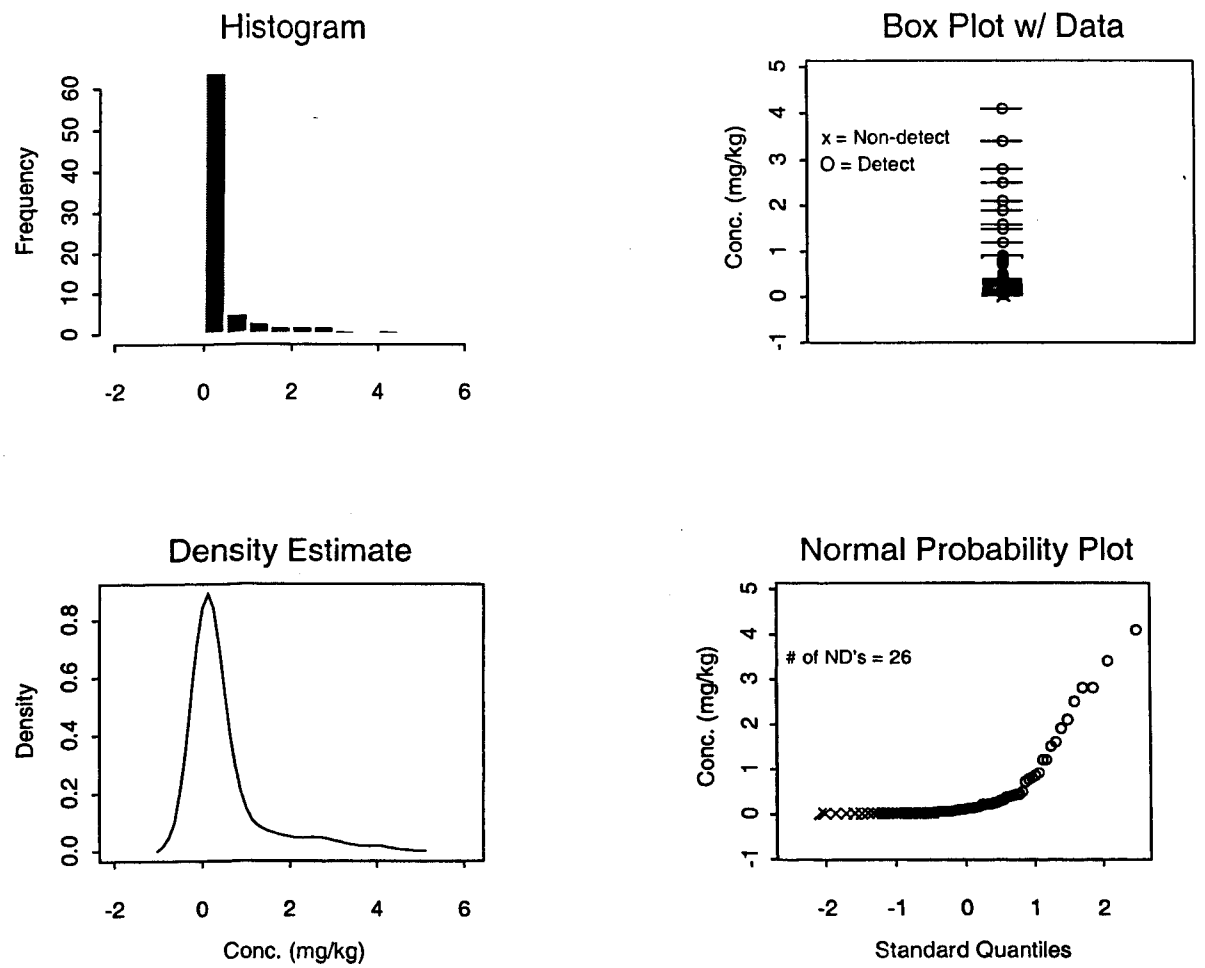


Figure E-1.0-12. EDA plots for Aroclor-1260

E-1.2 Shapiro-Wilk Distributional Test

The results of the Shapiro-Wilk distributional test are presented in Table E-1.2-1. This distributional test calculates a probability value (*p*-value) to indicate whether the distribution is normal, lognormal, or neither. The decision about the type of distribution was made using the following criteria:

1. Low normal *p*-value and high lognormal *p*-value: use lognormal UCL
2. High normal *p*-value and low lognormal *p*-value: use normal UCL
3. Low normal *p*-value and low lognormal *p*-value: use bootstrap UCL

where any *p*-value below 0.1 would be considered low, and any *p*-value above 0.1 would be considered high; *p*-values that fall close to 0.1 must be evaluated using professional judgment.

Table E-1.2-1
Results of the Shapiro-Wilk Distributional Test

Analyte	Normal *p*-Value	Lognormal *p*-Value	Distribution
Arsenic*	<0.0001	<0.0001	Neither
Beryllium*	<0.0001	0.0013	Neither
Cadmium*	<0.0001	0.0014	Neither
Chromium	0.0002	0.9427	Lognormal
Cobalt*	<0.0001	0.0003	Neither
Copper	0.0001	0.2378	Lognormal
Lead	0.0005	0.2501	Lognormal
Mercury*	<0.0001	0.0019	Neither
Nickel*	<0.0001	0.0081	Neither
Silver*	<0.0001	0.0001	Neither
Zinc	0.1493	0.0032	Normal
Aroclor-1260*	<0.0001	<0.0001	Neither

* Results indicate that neither normal nor lognormal model is appropriate; therefore, the results from the non-parametric bootstrap will be used for the UCL calculation.

E-1.3 UCLs

UCLs were calculated using three methods.

The first two methods are essentially identical: the difference is the use of a different distributional model. The first uses an assumption of normality, and the second uses an assumption of lognormality. The first two methods generate UCLs by calculating the unbiased minimum variance (UMV) parameter estimates from the distribution of interest. These estimates have minimum variance among the collection of all unbiased estimates. Once the UMV estimates have been obtained, 10,000 sets of samples are generated. The size of each set of samples is equal to the number of samples in the original data set. The number of samples was equal to 18 for all analytes presented in Table E-1.3-1, with the exception of Aroclor-1260, which had 80 samples. The mean is then calculated for each set of samples, and the 95th percentile from that list of 10,000 mean is taken as the 95% UCL.

The third method is a non-parametric bootstrap method. In this method, 10,000 sets of samples are generated. This method differs from the previous one in that no distributional estimates of parameters are made and the original data set is sampled with replacement to generate each of the 10,000 sets of samples. The size of each set of samples is again equal to the number of samples in the original data set. The mean is then calculated for each set of samples, and the 95th percentile from that list of 10,000 means is taken as the UCL.

Table E-1.3-1
Summary of UCL Calculations

Analyte	Normal UCL (mg/kg)	Lognormal UCL (mg/kg)	Bootstrap UCL (mg/kg)	Count of Non-detects	Count of Samples	Maximum Non-detect (mg/kg)
Arsenic	18.639	8.019	21.161[a]	0	18	n/a[b]
Beryllium	0.924	0.810	0.967	0	18	n/a
Cadmium	0.583	0.221	0.653	9	18	0.029
Chromium	11.652	12.351	11.900	0	18	n/a
Cobalt	6.137	4.043	6.592	0	18	n/a
Copper	6.088	6.273	6.195	0	18	n/a
Lead	17.458	16.983	17.373	0	18	n/a
Mercury	0.041	0.037	0.042	12	18	0.016
Nickel	7.575	5.802	7.867	0	18	n/a
Silver	0.547	0.397	0.561	14	18	0.123
Zinc	51.450	53.260	51.222	0	18	n/a
Aroclor-1260	0.613	0.741	0.620	26	80	0.026

[a] The UCLs in the shaded cells are the UCLs that were chosen based on the distribution of the data as indicated in Table E-1.2-1.

[b] n/a = Not applicable.

Appendix F

Risk Assessment Calculations

F-1.0 POST-REMEDIATION ECOLOGICAL SCOPING CHECKLIST

Part A—Scoping Meeting Documentation

Site ID	PRS 03-056(c)
Form of site releases (solid, liquid, vapor). Describe all relevant known or suspected mechanisms of release (spills, dumping, material disposal, outfall, explosive testing, etc.) and describe potential areas of release. Reference locations on a map as appropriate.	The southern portion of the site was used between 1967 and 1992 as a storage area for electrical equipment, capacitors, and transformers with PCB-contaminated dielectric fluids, as well as for drums of waste solvents. Following remediation, PCBs remain in the stream channel at maximum concentration of 4 ppm. All other areas have an average concentration of <1 ppm.
List of primary impacted media (Indicate all that apply.)	**Surface soil – X** (residual contamination) **Surface water/sediment –** **Subsurface – X** Some of the tuff bedrock may also contain (residual contamination) **Groundwater –** **Other, explain –**
FIMAD vegetation class based on ArcView vegetation coverage (Indicate all that apply.)	**Water –** in stream channel in canyon bottom **Bare Ground/Unvegetated – X** exposed tuff (primarily from remedial actions) **Spruce/fir/aspen/mixed conifer –** **Ponderosa pine – X** (with Douglas fir) **Piñon juniper/juniper savannah –** **Grassland/shrubland –** **Developed – X** (at top of the slope)
Is T&E habitat present? If applicable, list species known or suspected to use the site for breeding or foraging.	Based on the T&E habitat review of July 8, 1999 (ESH-20/Ecol-99-0258), the site is approximately 1100 ft from potential Mexican spotted owl nesting habitat and approximately 5300 ft away from American peregrine falcon (now delisted as T&E) nesting habitat, and is within the area in which these species can conservatively be assumed to forage at a medium and high frequency, respectively. It is also within the area in which the bald eagle can conservatively be assumed to forage at a relatively low frequency.
Provide list of neighboring/contiguous/ upgradient sites. Include a brief summary of COPCs and the form of releases for relevant sites and reference a map as appropriate. (Use this information to evaluate the need to aggregate sites for screening.)	The power plant outfall [PRS 03-012(b)] is upgradient of PRS 03-056(c) and provides a steady flow of water in the drainage of Sandia Canyon, which forms the western and northern boundaries of the site. This PRS is known to be an upstream source of PCBs.
Surface water erosion potential information Summarize information from SOP-2.01, including the runoff subscore (maximum of 46); terminal point of surface water transport; slope; and surface water run-on sources.	Run-on is from buildings and parking areas at the top of the slope. The main drainage of Sandia Canyon forms the terminus for site runoff. Prior to the VCA, the site runoff subscore was 22.6/46, with slopes averaging 10–30%,with some slopes exceeding 30%. The surface water run-on score was 7/11, the site setting subscore was 36.5/43, and the total erosion matrix score was 45. Following the VCA, the erosion potential has been reduced by erosion control devices; however, slopes of approximately 45% have been created.

Part B—Site Visit Documentation

Site ID	PRS 03-056(c)
Date of Site Visit	July 18, 2001
Site Visit Conducted by	Tim Fischer, IT Corporation

Receptor Information:

Estimate cover	**Relative vegetative cover (high, medium, low, none)** = low. Areas of remediation are mostly devoid of soil (being exposed tuff bedrock) or have some coverage of ruderal plants (e.g., sunflowers) or grass seedlings from reseeding. The canopy has been opened by the removal of many trees to facilitate remediation and enhance safety. Vegetation undisturbed in the VCA, as well as ruderal plants, provide cover adjacent to these disturbed areas on the east, west, and north sides of the site and between the west and north slopes. **Relative wetland cover (high, medium, low, none)** = none on-site. **Relative structures/asphalt, etc. cover (high, medium, low, none)** = Low, limited to the top of the slope.
Field notes on the FIMAD vegetation class to assist in ground-truthing the ArcView information	The original vegetation of this site was coniferous forest, dominated by Ponderosa pine, mixed with some Douglas fir and Gambel oak. The canopy was nearly closed and the understory was not dense. The VCA resulted in the removal of some trees, which opened the canopy on the west and north slopes, and at the foot of the north slope.
Field notes on T&E habitat, if applicable. Consider the need for a site visit by a T&E subject matter expert to support the use of the site by T&E receptors.	Although the site is not within the nesting habitats, it is within potential foraging range of three sensitive raptor species. The Mexican spotted owl is the most likely of these to use the forested habitat for hunting; however, the probability of its use of this site is diminished by the small size of the site, its proximity to active facilities, the opening of the canopy, and the removal of understory plants and soil, which will lessen the existence of potential prey species. The site habitat conditions are not appropriate for significant use by bald eagles or American peregrine falcons (recently delisted from T&E).
Are ecological receptors present at the site? (yes/no/uncertain) Describe the general types of receptors present at the site (terrestrial and aquatic), and make notes on the quality of habitat present at the site.	Yes. Evidence of small mammal use of remnant vegetation noted during the site visit included rabbit pellets and a (tassel-eared) squirrel feeding on green Douglas fir cones. Bob Lechel of IT Corporation stated that a bobcat had been seen in the area recently. Use of the Ponderosa pine vegetation type by other terrestrial wildlife species is likely, including deer, elk, rodents, carnivores, and various species of forest birds such as jays, woodpeckers, nuthatches, titmice, towhees, vireos, warblers, etc.

Contaminant Transport Information:

Surface water transport—field notes on the erosion potential, including a discussion of the terminal point of surface water transport (if applicable).	Because of the steep slopes remaining at the west and north slope areas, some erosion may occur. Both of these slopes have been remediated, and the eroding material would be primarily clean fill. Erosion control has been employed on these slopes in the form of jute mats. Grasses are growing on the north slope, and ruderals, such as sunflowers, were observed on the west slope. These should help stabilize the slopes. In addition, the flat area on top of the slope will be paved, and river rock has been put down to stabilize the top and toe of the slopes. Straw bale and log dams have been placed across the ephemeral drainages, which will help prevent discharge of soil to the Sandia Canyon drainage, which is the terminus for runoff from this site.
Are there any off-site transport pathways (surface water, air, or groundwater)? (yes/no/uncertain) Provide explanation	No. The VCA removed soils with PCB concentrations greater than 1 ppm. On the west and north slopes, clean fill replaced these soils and covers areas of possible residual contamination. Along the ephemeral drainages, contaminated soil was typically removed to bedrock (tuff). Potential off-site transport of soils with residual contamination is prevented by erosion-control structures previously described.

Interim action (IA) needed to limit off-site transport? (yes/no/uncertain) Provide explanation/recommendation to project lead for IA strategic management decision point (SMDP).	No.

Ecological Effects Information:

Physical disturbance (Provide list of major types of disturbances, including erosion and construction activities; review historical aerial photos where appropriate.)	Disturbances associated with the VCA dominate the site. These include excavation of the two slopes and their recontouring with clean fill; removal of soil and associated vegetation (including some trees) from the channels and adjacent areas of the ephemeral drainages; and placement of erosion-control devices along these drainages, on the slopes, and at the top of the slopes.
Are there obvious ecological effects? (yes/no/uncertain) Provide explanation and apparent cause (e.g., contamination, physical disturbance, other).	Removal of the trees during the VCA opened the canopy more than it had been previously, and areas of soil removal below the north slope have left new exposures of bedrock. The total affected area is probably less than 1 acre in size and has not significantly altered the habitat with respect to the range of natural variability (i.e., the natural existence of small canopy gaps and exposed bedrock in this habitat type). The ecological effect is expected to be insignificant.
Interim action needed to limit apparent ecological effects? (yes/no/uncertain) Provide explanation and recommendations to mitigate apparent exposure pathways to project lead for IA SMDP.	No.

No Exposure/Transport Pathways:

If there are no complete exposure pathways to ecological receptors on-site, and no transport pathways to off-site receptors, the remainder of the checklist should not be completed. Stop here and provide additional explanation/justification for proposing an ecological NFA recommendation (if needed). At a minimum, the potential for future transport should include likelihood that future construction activities could make contamination more available for exposure or transport. The VCA has likely removed significant ecological pathways for PCB exposures and the potential for off-site transport of residual contamination. With the exception of plant roots (following crevices), residual contamination in the tuff is not considered to be accessible to ecological receptors and is considered relatively immobile. For plants, this pathway of exposure is expected to be minor and not a pathway for significant food chain uptake. Determining the success of this VCA will be based on the screening of the confirmatory samples for potential risk. If no risk is indicated, PRS 03-056(c) will be considered a potential candidate for NFA.

Part C— Ecological Pathways Conceptual Exposure Model

Question A:

Could soil contaminants reach receptors via vapors?

Volatility of the hazardous substance (volatile chemicals generally have Henry's law constant >10^{-5} atm-me/mol and molecular weight <200 g/mol)

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Residual PCBs at the site are primarily absorbed into tuff; therefore, exposure to air is minimal. PCBs are heavy molecules (molecular weight approximately 328 g/mol) and are not highly

volatile (Henry's law constant approximately 4.1 x 10^{-4}); therefore, release from the surface of the tuff through volatilization will be slow.

Question B:

Could the soil contaminants reach receptors through fugitive dust carried in air?

Soil contamination would have to be on the actual surface of the soil to become available for dust.

In the case of dust exposures to burrowing animals, the contamination would have to occur in the depth interval where these burrows occur.

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Residual PCBs at the site are primarily absorbed into tuff and are therefore not associated with respirable dust particles.

Question C:

Can contaminated soil be transported to aquatic ecological communities (use SOP-2.01 runoff score and terminal point of surface water runoff to help answer this question)?

If the SOP-2.01 runoff score* for each PRS included in the site is equal to zero, this suggests that erosion at the site is not a transport pathway. (* Note that the runoff score is not the entire erosion potential score, rather it is a subtotal of this score with a maximum value of 46 points).

If erosion is a transport pathway, evaluate the terminal point to see if aquatic receptors could be affected by contamination from this site.

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: The residual PCBs are primarily absorbed into tuff and are therefore not open to transport by surface water runoff.

Question D:

Is contaminated groundwater potentially available to biological receptors through seeps or springs or shallow groundwater?

Known or suspected presence of contaminants in groundwater.

The potential for contaminants to migrate via groundwater and discharge into habitats and/or surface waters.

Contaminants may be taken up by terrestrial and rooted aquatic plants whose roots are in contact with groundwater present within the root zone (~1 m depth).

Terrestrial wildlife receptors generally will not contact groundwater unless it is discharged to the surface.

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Groundwater is not known to be contaminated by this site.

Question E:

Is infiltration/percolation from contaminated subsurface material a viable transport and exposure pathway?

Suspected ability of contaminants to migrate to groundwater.

The potential for contaminants to migrate via groundwater and discharge into habitats and/or surface waters.

Contaminants may be taken up by terrestrial and rooted aquatic plants whose roots are in contact with groundwater present within the root zone (~1 m depth).

Terrestrial wildlife receptors generally will not contact groundwater unless it is discharged to the surface.

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: Residual PCBs are absorbed into tuff and are not highly soluble in water. Therefore, transport to groundwater via percolation is unlikely.

Question F:

Might erosion or mass wasting events be a potential release mechanism for contaminants from subsurface materials or perched aquifers to the surface?

This question is only applicable to release sites located on or near the mesa edge.

Consider the erodability of surficial material and the geologic processes of canyon/mesa edges.

Answer (likely/unlikely/uncertain): Unlikely

Provide explanation: The residual PCBs are absorbed into tuff and are therefore not open to transport by surface water erosion. The site is not near a mesa edge where mass wasting is a potential mechanism of transport.

Question G:

Could airborne contaminants interact with receptors through respiration of vapors?

Contaminants must be present as volatiles in the air.

Consider the importance of inhalation of vapors for burrowing animals.

Foliar uptake of organic vapors is typically not a significant exposure pathway.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 0

Terrestrial Animals: 0

Provide explanation: The potential for release of residual PCBs through volatilization is considered to be very low (see Question A). Therefore, exposure of receptors through inhalation of vapors is not considered to be a potentially significant exposure pathway.

Question H:

Could airborne contaminants interact with plants through deposition of particulates or with animals through inhalation of fugitive dust?

Contaminants must be present as particulates in the air or as dust for this exposure pathway to be complete.

Exposure via inhalation of fugitive dust is particularly applicable to ground-dwelling species that would be exposed to dust disturbed by their foraging or burrowing activities or by wind movement.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 0

Terrestrial Animals: 0

Provide explanation: The residual PCBs are not considered to be associated with respirable dust (see Question B). Therefore, exposure of receptors through dust inhalation is not considered to be a potentially significant exposure pathway.

Question I:

Could contaminants interact with plants through root uptake or rain splash from surficial soils?

Contaminants in bulk soil may partition into soil solution, making them available to roots.

Exposure of terrestrial plants to contaminants present in particulates deposited on leaf and stem surfaces by rain striking contaminated soils (i.e., rain splash).

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 2

Provide explanation: Plant roots that come in contact with the tuff or penetrating cracks and crevices in the tuff may be exposed to residual PCBs in the tuff. These may be taken up, by the roots, into the plant. Because PCBs have relatively high log K_{ow} values (>6), uptake by plants is expected to be relatively low and the PCBs are not expected to be highly mobile within the plant.

Question J:

Could contaminants interact with receptors through food web transport from surficial soils?

The chemicals may bioaccumulate in animals.

Animals may ingest contaminated food items.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 2

Provide explanation: Animals that consume plants which are contact with contaminated tuff (see Question I) may ingest PCBs that have been taken up by the plant. These may bioaccumulate in animals that regularly feed on plants at the site. The PCBs in the tissues of these animals would be available for potential transfer to predators or scavengers who might consume them.

Question K:

Could contaminants interact with receptors via incidental ingestion of surficial soils?

Incidental ingestion of contaminated soil could occur while animals grub for food resident in the soil, feed on plant matter covered with contaminated soil, or groom themselves clean of soil.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 1

Provide explanation: Site activities (including the removal of contaminated soil and site restoration) as well as subsequent weathering of exposed tuff could have created soil-sized particles containing residual PCBs that could be ingested by ecological receptors at the site. This is unlikely to constitute a significant exposure pathway to ecological receptors.

Question L:

Could contaminants interact with receptors through dermal contact with surficial soils?

Significant exposure via dermal contact would generally be limited to organic contaminants that are lipophilic and can cross epidermal barriers.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 1

Provide explanation: Direct dermal contact with soil-sized particles containing PCBs (see Question K) could result in exposure through dermal uptake of the PCBs. As with exposure through ingestion of such particles, dermal contact is unlikely to constitute a significant exposure pathway at this site.

Question M:

Could contaminants interact with plants or animals through external irradiation?

External irradiation effects are most relevant for gamma-emitting radionuclides.

Burial of contamination attenuates radiological exposure.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 0

Terrestrial Animals: 0

Provide explanation: No radiological COPCs.

Question N:

Could contaminants interact with plants through direct uptake from water and sediment or sediment rain splash?

Contaminants may be taken up by terrestrial plants whose roots are in contact with surface waters.

Terrestrial plants may be exposed to particulates as they are deposited on leaf and stem surfaces by rain striking contaminated sediments (i.e., rain splash) in an area which is only periodically inundated with water.

Contaminants in sediment may partition into soil solution, making them available to roots.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 0

Provide explanation: No pathways associated with surface water or sediment exist for this site.

Question O:

Could contaminants interact with receptors through food web transport from water and sediment?

The chemicals may bioconcentrate in food items.

Animals may ingest contaminated food items.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 0

Provide explanation: No pathways associated with surface water or sediment exist for this site.

Question P:

Could contaminants interact with receptors via ingestion of water and suspended sediments?

If sediments are present in an area that is only periodically inundated with water, terrestrial receptors may incidentally ingest sediments.

Terrestrial receptors may ingest water-borne contaminants if contaminated surface waters are used as a drinking water source.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 0

Provide explanation: No pathways associated with surface water or sediment exist for this site.

Question Q:

Could contaminants interact with receptors through dermal contact with water and sediment?

If sediments are present in an area that is only periodically inundated with water, terrestrial species may be dermally exposed during dry periods.

Terrestrial organisms may be dermally exposed to water-borne contaminants as a result of wading or swimming in contaminated waters.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Animals: 0

Provide explanation: No pathways associated with surface water or sediment exist for this site.

Question R:

Could contaminants interact with plants or animals through external irradiation?

External irradiation effects are most relevant for gamma-emitting radionuclides.

Burial of contamination attenuates radiological exposure.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Terrestrial Plants: 0

Terrestrial Animals: 0

Provide explanation: No radiological COPCs.

Question S:

Could contaminants bioconcentrate in free-floating aquatic plants, attached aquatic plants, or emergent vegetation?

Aquatic plants are in direct contact with water.

Contaminants in sediment may partition into pore water, making them available to submerged roots.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Aquatic Plants/Emergent Vegetation: 0

Provide explanation: No aquatic pathways exist at this site.

Question T:

Could contaminants bioconcentrate in sedimentary or water column organisms?

Aquatic receptors may actively or incidentally ingest sediment while foraging.

Aquatic receptors may be directly exposed to contaminated sediments or may be exposed to contaminants through osmotic exchange, respiration, or ventilation of sediment pore waters.

Aquatic receptors may be exposed through osmotic exchange, respiration, or ventilation of surface waters.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Aquatic Animals: 0

Provide explanation: No aquatic pathways exist at this site.

Question U:

Could contaminants bioaccumulate in sedimentary or water column organisms?

Lipophillic organic contaminants and some metals may concentrate in an organism's tissues.

Ingestion of contaminated food items may result in contaminant bioaccumulation through the food web.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

Aquatic Animals: 0

Provide explanation: No aquatic pathways exist at this site.

Question V:

Could contaminants interact with aquatic plants or animals through external irradiation?

External irradiation effects are most relevant for gamma-emitting radionuclides.

The water column acts to absorb radiation, thus external irradiation is typically more important for sediment-dwelling organisms.

Provide quantification of exposure pathway (0 = no pathway, 1 = unlikely pathway, 2 = minor pathway, 3 = major pathway).

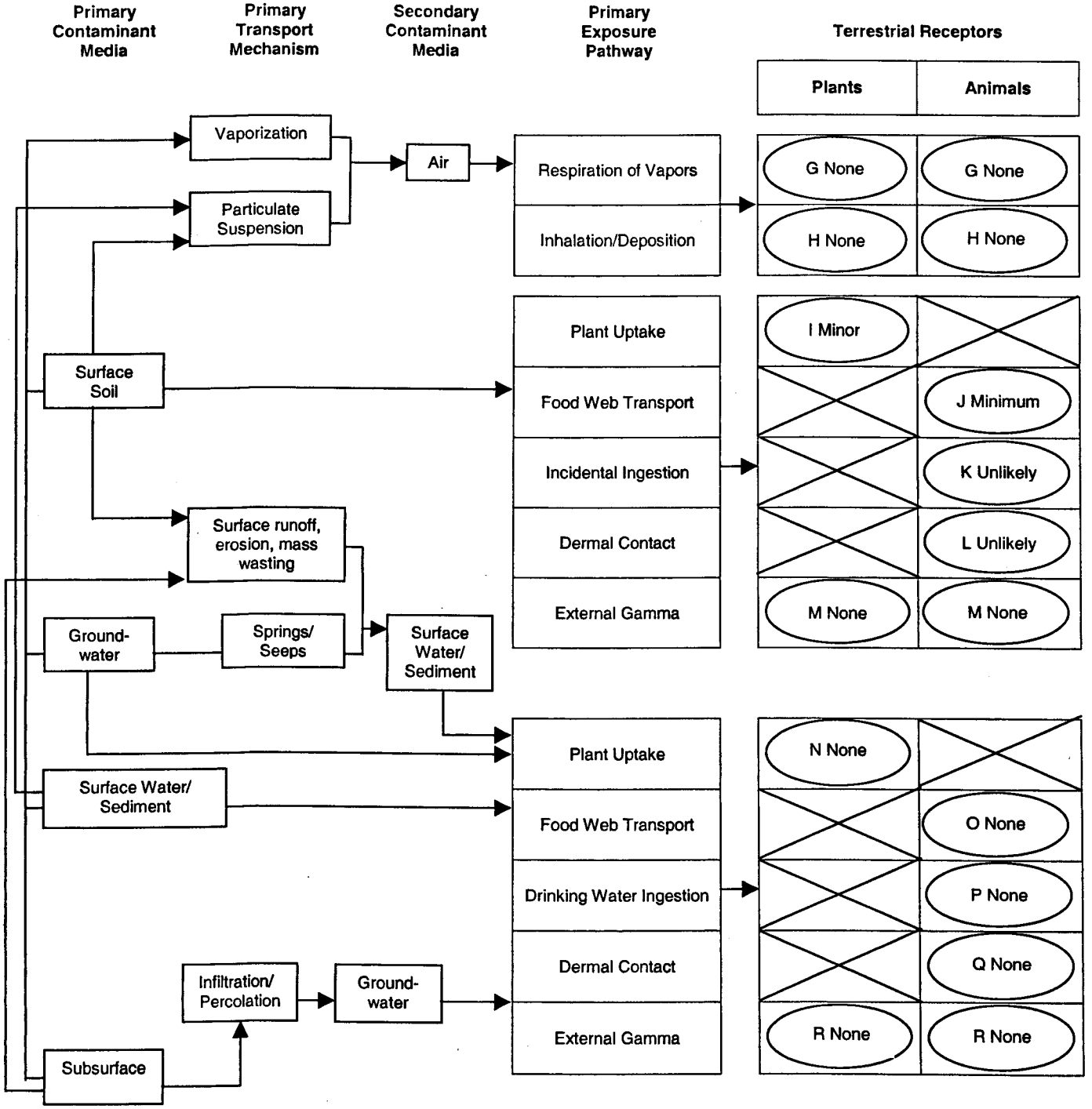
Aquatic Plants: 0

Aquatic Animals: 0

Provide explanation: No radiological COPCs. No aquatic pathways exist at this site.

NOTE:
Letters in circles refer to questions on the scoping checklist

Ecological Scoping Checklist: PRS 03-056(c)
Terrestrial Receptors
Ecological Pathways Conceptual Exposure Model: Post-VCA Site Conditions



Signatures and certifications:

Checklist completed by (provide name, organization and phone number):

Name (printed): N. Timothy Fischer

Name (signature): Mary Lee Hoag for Tim Fischer

Organization: IT Corporation

Phone number: (505) 262-8906

Date Completed: July 20, 2001

Verification by a member of ER Project Ecological Risk Task Team (provide name, organization and phone number):

Name (printed): Richard Miranda

Name (signature): Richard Miranda

Organization: E/ER

Phone number: 665-6953

F-2.0 ORIGINAL ECOLOGICAL SCOPING CHECKLIST

The original (pre-VCA) ecological scoping checklist performed at PRS 03-056(c) can be found within Appendix H to this document, as Appendix D to the VCA plan for PRS 03-056(c) (LANL 1999, 64711).

Appendix G

Comparison of Anticipated and Actual Costs

The table below (Table G-1.0-1) provides a summary of the estimated costs versus the actual costs of the PRS 03-056(c) VCA.

Table G-1.0-1
Estimated Costs versus Actual Costs

Activity	Estimated Cost	Actual Cost
Pre-field activities (includes contract bid, erosion controls, VCA plan preparation, readiness review, field preparation, and mobilization)	$191,217	$212,118
Field activities (includes pre-excavation characterization activities, excavation activities, waste management, verification sampling, and site restoration)	$587,876	$799,992
Sample analysis (external laboratory)	$150,636	$139,560
Waste disposal (includes waste disposal costs, transportation, bins, and waste disposal paperwork, and coordination)	$700,022	$468,772
VCA report preparation (includes data analysis and assessment, VCA report preparation, editing and compositing, peer review, and comment resolution).	$112,537	$75,565*
Totals	$1,742,288	$1,696,007*

* Not all of the actual costs of the VCA report preparation activities are included in this figure because not all the costs are in the system at this time. Also, the VCA report review and comment resolution cycles have not been completed.

Appendix H

VCA Plan, RSI, and RSI Response

LA-UR-99-3928
September 24, 1999

Voluntary Corrective Action Plan for Potential Release Site

03-056(c)

Environmental Restoration Project
A Department of Energy Environmental Cleanup Program

Los Alamos
NATIONAL LABORATORY
Los Alamos, NM 87545

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the United States Department of Energy under contract W-7405-ENG-36.

EXECUTIVE SUMMARY

This voluntary corrective action (VCA) plan summarizes the proposed corrective action activities at Los Alamos National Laboratory (LANL) potential release site (PRS) 03-056(c). PRS 03-056(c) was an outdoor storage area that operated from 1967 to 1992. The area was used to store electrical equipment, capacitors, and transformers with dielectric fluids, some of which contained polychlorinated biphenyls (PCBs). Activities within the storage area resulted in the release of PCBs and perchloroethene (PCE) through spills, leaks, and handling practices. As part of the corrective action activity, LANL conducted an expedited cleanup (EC) in which approximately 900 yd^3 of PCB-contaminated soil and debris (some of which also contained PCE) were cleaned up to 10 parts per million (ppm) at the North and West slopes of the site above the Sandia Canyon stream channel.

In August 1995, Environmental Protection Agency (EPA) Region 6 designated a less than 1 ppm PCB cleanup level for this site because the contamination is in or near a watercourse. As a result, LANL will perform additional cleanup activities to meet the cleanup guideline of <1 ppm total PCBs for the site. Because PRS 03-056(c) is included in Table A of the Hazardous and Solid Waste Amendments (HSWA) Module of LANL's Hazardous Waste Facility Permit, remediation and assessment activities will continue to be conducted as part of Resource Conservation and Recovery Act (RCRA) corrective action. Verification sampling and waste management will follow the guidelines in Toxic Substances Control Act (TSCA) 40 Code of Federal Regulations (CFR) 761.

This plan describes the field activities and methods that LANL proposes to use to remove soil and tuff containing 1 ppm or greater total PCBs from the slopes and ephemeral drainages above the active watercourse. VCA activities will include characterizing the site to better define extent, excavating soil and tuff within defined limits to less than 1 ppm total PCBs, conducting confirmation sampling to verify that cleanup is complete, conducting a data assessment to demonstrate an acceptable risk, and designing and installing engineered barriers, erosion control structures and run-on control structures to maintain slope stability and to mitigate residual PCBs (if present) from leaving the site and entering the watercourse. Finally, the VCA plan will discuss waste management and disposal activities related to removal of PCB-contaminated soils from the site.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i

1.0 INTRODUCTION 1

1.1 Purpose and Scope 1

1.2 Regulatory History of PRS 03-056(c) 4

1.3 Rationale for Proposed Corrective Action 4

2.0 PREVIOUS SITE CHARACTERIZATION of PRS 03-056(c) 5

2.1 Site Description and Operational History 5

2.2 Previous Field Investigations 5

2.2.1 Pre-Excavation 5

2.2.2 EC and Post-Excavation 6

2.3 Results of Previous Investigations 6

2.3.1 Pre-Excavation Sampling Results 6

2.3.2 Post-Excavation Sampling Results 9

3.0 BASIS FOR CLEANUP LEVELS 12

4.0 PROPOSED CORRECTIVE ACTION 13

4.1 Conceptual Model 13

4.1.1 Distribution of Contaminants 13

4.1.2 Potential Contaminant Transport Pathways 13

4.1.3 Potential Contaminant Exposure Pathways to Receptors 14

4.2 Supplemental Sampling 15

4.2.1 Field Screening 15

4.2.2 Laboratory Sampling 16

4.3 Cleanup Activities 18

4.3.1 Mobilization and Preparation 18

4.3.2 Temporary Erosion Control Measures 20

4.3.3 Removal Activities 20

4.4 Decontamination of Equipment and Personnel 22

4.5 Site Restoration 22

5.0 CONFIRMATORY SAMPLING 23

5.1 Field Screening 23

5.2 Laboratory Sampling 25

6.0 WASTE MANAGEMENT 28

6.1 Estimated Types and Volumes of Wastes 28

6.2 Method of Management and Disposal 28

7.0 PROPOSED SCHEDULE AND UNCERTAINTIES 30
8.0 REFERENCES 31

APPENDICES

Appendix A – Acronyms and Abbreviations
Appendix B – VCA Checklist
Appendix C – SOP 2.01
Appendix D – Ecological Scoping Checklist

LIST OF TABLES

Table 1.2-1 History of Significant Activities at PRS 03-056(c) 4

Table 2.3-1 Post-Excavation Verification Sample Results from West Slope 9

Table 2.3-2 Post-Excavation Verification Sample Results from North Slope 10

Table 4.2-1 Proposed Supplementary Sample Locations for PCB Immunoassay Field Screening 16

Table 4.2-2 Proposed Supplementary Sample Locations for Fixed-Laboratory Analyses 18

Table 5.0-1 Proposed Confirmation Sample Locations for Immunoassay Field Screening 25

Table 5.0-2 Proposed Verification Sample Locations and Analyses 27

Table 6.1-1 Anticipated Waste Type and Volume for VCA at PRS 03-056(c) 28

LIST OF FIGURES

Figure 1.0-1 Location of TA-3 with respect to Laboratory technical areas and surrounding land holdings 2

Figure 1.0-2 PRS 03-056(c) including North Slope, West Slope, and ephemeral drainages. 3

Figure 2.2-1 1996 EC post-excavation composite locations at PRS 03-056(c). 7

Figure 2.2-2 1996 EC post-excavation sampling locations at PRS 03-056(c) 8

Figure 4.2-1 Proposed pre-excavation sampling locations for PRS 03-056(c). 17

Figure 4.3-1 Proposed site logistics plan for the VCA at PRS 03-056(c). 19

Figure 5.0-1 Proposed locations for post-excavation samples at PRS 03-056(c). 24

VOLUNTARY CORRECTIVE ACTION PLAN
FOR POTENTIAL RELEASE SITE 03-056(c)

1.0 INTRODUCTION

This document describes the voluntary corrective action (VCA) to be conducted at potential release site (PRS) 03-056(c) within Technical Area 3 (TA-3) of Los Alamos National Laboratory (LANL). Polychlorinated biphenyls (PCB)-contaminated soils and tuff will be identified, bounded, and removed in accordance with Resource Conservation and Recovery Act (RCRA) corrective actions. Because the PCB-contaminated soil and tuff at the site are considered PCB remediation waste as defined in Toxic Substances Control Act (TSCA) at 40 CFR (Code of Federal Regulations) 761.3, waste management disposal activities will be conducted in accordance with the requirements of 40 CFR 761.61. Remediation activities are scheduled to begin during the fall of 1999. All VCA activities will be conducted by LANL's Environmental Restoration (ER) Project team and its subcontractors. Figure 1.0-1 shows the location of TA-3 relative to other TAs. Figure 1.0-2 shows the location of the PRS within TA-3.

1.1 Purpose and Scope

The objective of the VCA at PRS 03-056(c) is to remove soil and tuff that contain 1 part per million (ppm), or greater, PCBs within previously defined areas: the North Slope, the West Slope, and the ephemeral drainages above the Sandia Canyon watercourse (Figure 1.0-2). The scope of the remediation effort includes the following tasks:

- Conduct initial screening and sampling to better define the limits of PCB-contaminated soil and tuff (equal to or greater than 1 ppm total PCBs) within the three areas described above
- Remove soil and tuff that contain 1 ppm, or greater, total PCBs (where practical and feasible)
- Conduct confirmatory soil and tuff sampling for PCBs to verify that removal activities have met the cleanup levels
- Install run-off control structures to mitigate the possibility of residual PCBs (if present) leaving the remediated area
- Prepare a VCA report that describes all remedial activities at the site (that will be in accordance with LANL guidelines and federal PCB regulations) and report results of the confirmatory sampling and data assessments
- Verify that there is an acceptable risk, leading to a No Further Action (NFA) recommendation for PRS 03-056(c)

The boundaries of the site will determine the extent of the removal. Based on previous investigations, the lateral extent of soils containing 1 ppm or greater PCBs encompasses approximately 50,000 ft^2, or 1.1 acres (Figure 1.0-2). The site is bounded on the south by Building TA-3-223. The north boundary is near the break in slope above the Sandia Canyon watercourse. The west boundary is near the break in the western slope above the Sandia Canyon watercourse. The east boundary is the easternmost ephemeral slope drainage, west of the sludge drying beds. The Sandia Canyon watercourse and banks are not part of the remedial activities. VCA activities will not include removing any PCB-contaminated sediment that may exist in the Sandia Canyon watercourse.

The vertical extent of soil at PRS 03-056(c) varies from a thin veneer to possibly up to 5-ft thick (on the north-west end of Building TA-3-223) overlying Bandelier Tuff. Approximately 900 yd^3 of soil and tuff will be removed during the VCA. Should PCBs extend deeper than the prescribed decision points (refer to

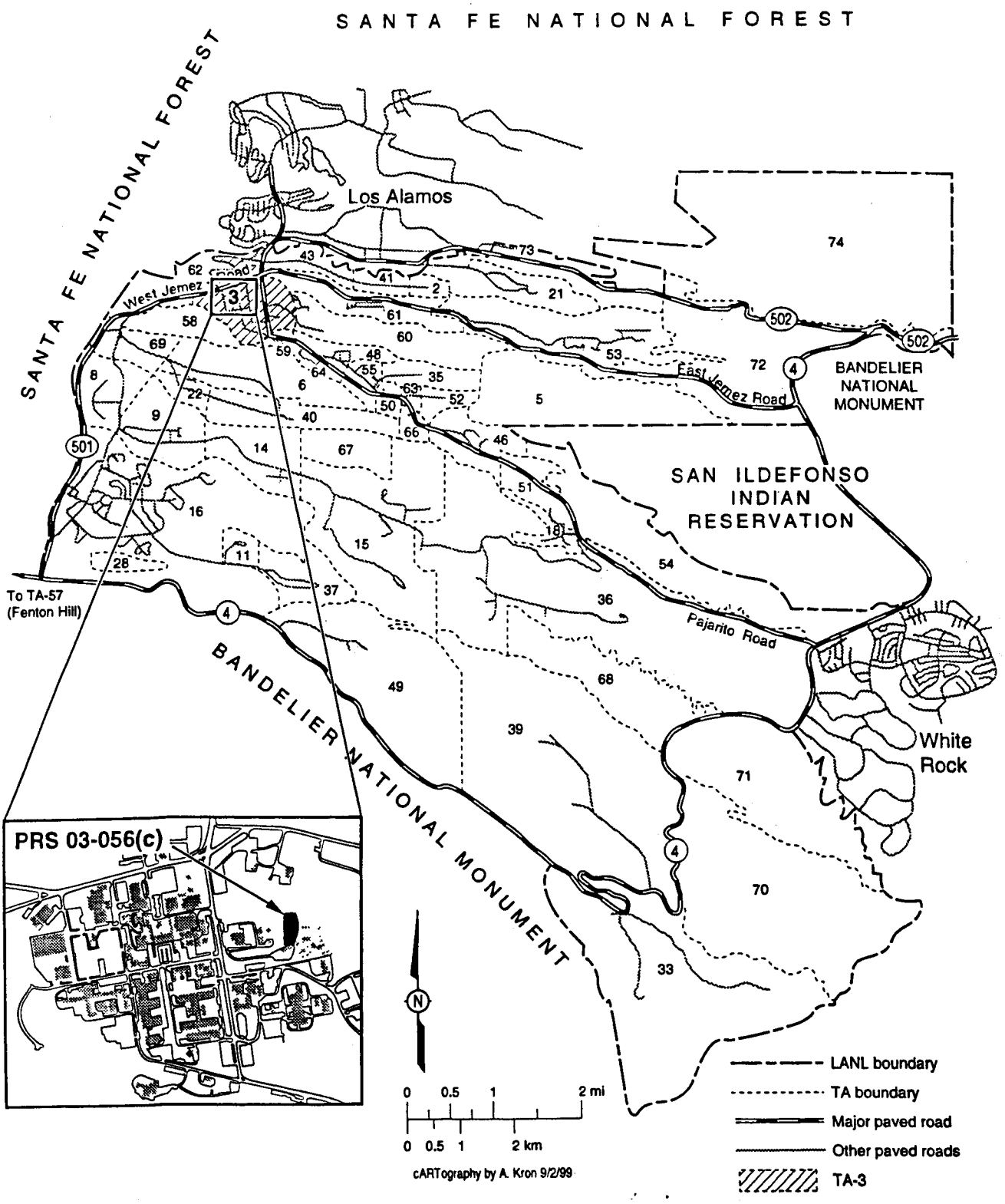


Figure 1.0-1 Location of TA-3 with respect to Laboratory technical areas and surrounding land holdings.

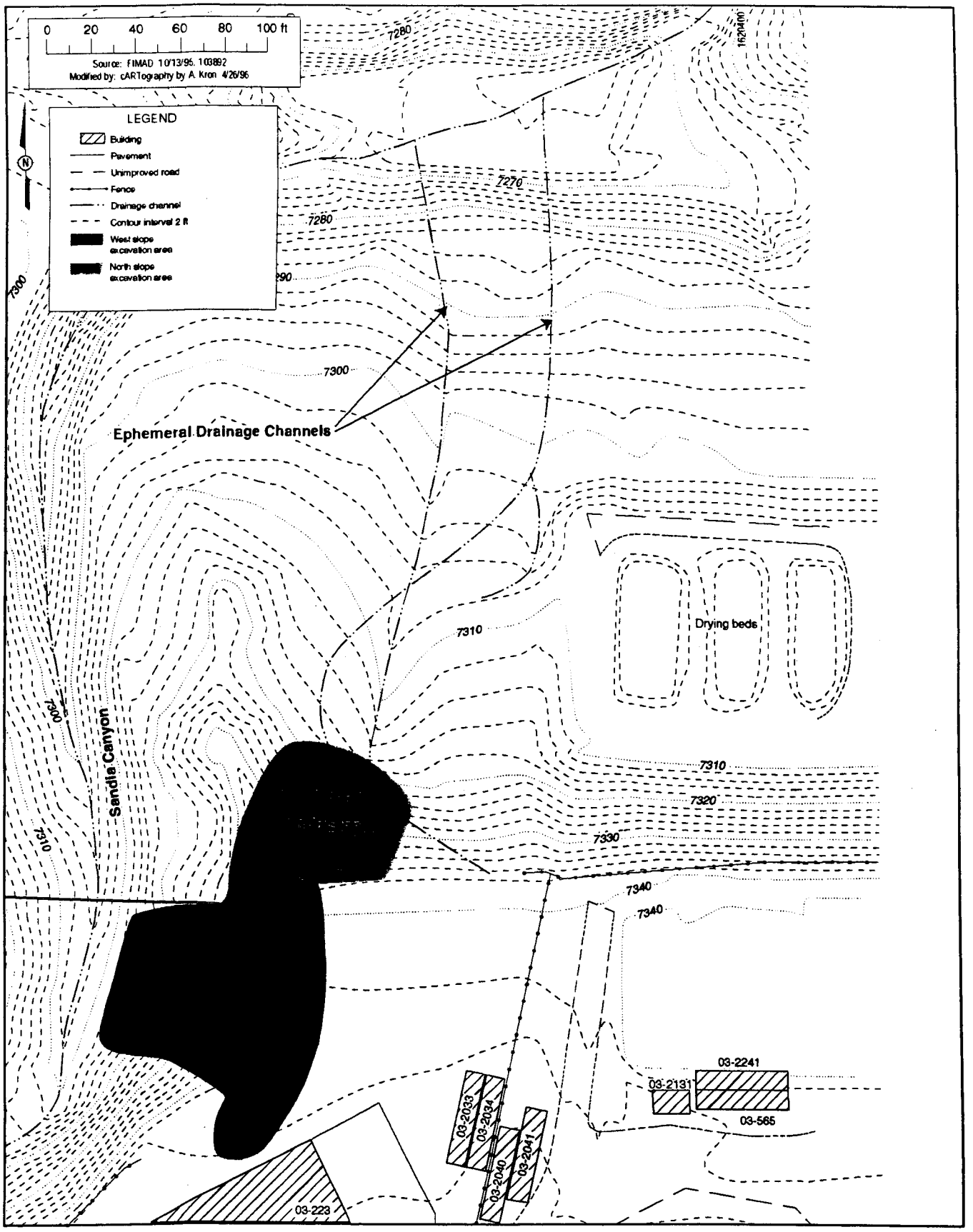


Figure 1.0-2. PRS 03-056(c) including North Slope, West Slope, and ephemeral drainages.

Section 4.3.3), the remedial plan is to assess the concentration and associated risks and either remove tuff or install engineered controls to mitigate PCB migration and potential risks to human health and the environment.

1.2 Regulatory History of PRS 03-056(c)

An expedited cleanup (EC) was conducted in 1995. During this EC, approximately 1000 yd^3 of PCB-contaminated soils were removed from the mesa top and slopes of Sandia Canyon using a cleanup criteria of 10 ppm. Before and during the EC, the Department of Energy (DOE) Los Alamos Area Office (LAAO), LANL ER Project, the US Environmental Protection Agency (EPA), and the New Mexico Environment Department (NMED) participated in discussions regarding the final target cleanup criteria for the site. The final target cleanup level at the site is <1 ppm total PCBs in soils and tuff. Table 1.2-1 contains a chronological list of significant activities at PRS 03-056(c) from 1995 through 1997.

TABLE 1.2-1
HISTORY OF SIGNIFICANT ACTIVITIES AT PRS 03-056(c)

Date	Activity	Synopsis of Correspondence
June 1, 1995	LANL to EPA	EC Plan for PRS 03-056(c) submitted to EPA
August 9, 1995	EPA	EPA commented on EC Plan with notice of deficiency (NOD); disagreed with 10 ppm cleanup level, proposed a more stringent cleanup level
August 1995–March 1996	LANL	Conducted remedial activities: 1000 yd^3 of soil containing >10 ppm total PCBs removed from slopes and mesa top LANL performed human health and ecological risk assessment to support the decision to leave <10 ppm PCBs on site
December 6, 1995	LANL to EPA	LANL submitted status report to EPA on reproposed 10 ppm cleanup level
March 13, 1996	NMED to LANL	NMED submitted NOD on status report; requested justification for 10 ppm cleanup level
May 2, 1996	LANL to NMED and EPA	LANL submitted responses to NOD, with copies to EPA TSCA
November 6, 1996	LANL	ER Project indicated that no further action can be pursued until a cleanup level is agreed upon
June 10, 1997	EPA to DOE	EPA Region 6 TSCA provided documentation of the clean up level (<1 ppm)

1.3 Rationale for Proposed Corrective Action

The rationale for conducting the corrective action at PRS 03-056(c) is to meet the EPA cleanup requirements of <1 ppm for PCBs and to propose the site for NFA. The EPA cleanup level at the site is <1 ppm for PCBs. Following the corrective action, a data assessment will be performed to determine whether residual contamination poses an acceptable level of risk under current and projected future land use. If the determination is made that an acceptable level of risk has been reached, the site will be proposed for human health and ecological NFA under Criterion 5 following the Installation Work Plan (IWP) guidance (LANL 1998, 62060). Once approved for NFA, the site will be included in a Class III permit modification requesting removal from the HSWA Module of LANL's Hazardous Waste Facility Permit.

2.0 PREVIOUS SITE CHARACTERIZATION OF PRS 03-056(c)

2.1 Site Description and Operational History

PRS 03-056(c) is located on Sigma Mesa, on the southern flank of Sandia Canyon, in Los Alamos County, New Mexico. The prevalent soil type on the mesa top is Carjo loam, which consists of moderately deep, well-drained soils that formed in material weathered from Bandelier tuff. The Carjo loam exists as a thin veneer ranging in thickness from a few inches to 3.5 ft at this site. Pleistocene ash flows of the Bandelier Tuff directly underlie the Carjo loam. The depth to the regional aquifer is estimated to be 950–1200 ft below ground surface (LANL 1996, 55746). PRS 03-056(c) lies entirely on US DOE land and is isolated from public access roads. Based on current LANL land-use planning, LANL will continue to use the property for industrial purposes (LANL 1995a, 57224).

As a result of previous investigations conducted at PRS 03-056(c), the site has been divided into three areas: the West Slope, the North Slope, and ephemeral drainages. The West Slope is approximately 130 ft by 70 ft and slopes steeply to the west at a grade of approximately 30°–80°. The North Slope is north-east of the West Slope. This area is approximately 70 ft by 70 ft and slopes to the north at a grade of approximately 28°. The third area encompasses two small, poorly defined ephemeral drainages that run north from the base of the North Slope to the Sandia Canyon watercourse. The small drainages traverse a heavily forested and vegetated area that slopes to the north at a grade of approximately 10°.

PRS 03-056(c) is an inactive outdoor storage area located on the north side of Building TA-3-223 (Figure 1.0-2), a utilities shop. The PRS occupies an area that extends along the length of TA-3-223 and is bounded by a security fence and TA-3-223 to the south. According to previous interviews with Johnson Controls Incorporated (JCI) electrical maintenance personnel at Building 223, the outdoor storage area was used for storing electrical equipment, capacitors, and transformers with PCB-containing dielectric fluids (LANL 1995b, 52951.40). Also, waste solvents were reportedly stored there in unmarked drums from 1967 to approximately 1992. The types of solvents used to clean electrical equipment and stored at the site may have included an unknown solvent from 1967 to approximately 1981 and Viking R30 (trichloroethane) from 1981 to 1990. Beginning in 1990 and continuing through 1992, a nonhazardous citrus-based solvent was used as a substitute for solvent-based cleaners. Transclene, which contains perchloroethene (PCE), may have been stored at the site because it was used by an electrical equipment maintenance subcontractor to retrofill transformers in the field. It is believed that the maintenance crew disposed of all these waste materials at an approved waste disposal facility. In 1991, the site's facility managers placed approximately 1–2 ft of clean fill on the area occupying the former storage area to elevate it and to reroute run-on drainage away from this site. In 1992, the PRS 03-056(c) storage area was decommissioned (LANL 1995b, 52951.40).

2.2 Previous Field Investigations

Previous work consists of investigations in 1991 and 1994 (pre-excavation) and an EC investigation conducted in 1995 (post excavation). These investigations are discussed below.

2.2.1 Pre-Excavation

Previous investigations were conducted at PRS 03-056(c) to determine the residual PCBs at the site (LANL 1996, 55746). In November 1991, five surface soil samples were collected along the perimeter fence of TA-3-223 by Environmental Management 8 (EM-8) personnel. This was part of an interim action reconnaissance survey preceding a slope stabilization project. A 1994 investigation was conducted as part of a RCRA Facility Investigation (RFI). A total of 22 soil samples were collected from 18 locations at depths ranging from 0 to 3 ft below grade. Samples were submitted to a fixed laboratory for one or more of the following analyses: metals by EPA SW 846 Methods 6010/6020/7421, PCBs/pesticides by EPA Method 8080, semivolatile organic compounds (SVOCs) by EPA SW 846 Method 8270, and volatile organic compounds (VOCs) by EPA Method 8260. Twenty-two samples were submitted for metals

analysis, 13 samples were submitted for PCB/pesticide/SVOC analyses, and 11 samples were submitted for VOC analysis (LANL 1996, 55746).

2.2.2 EC and Post-Excavation

In August 1995, the site was further characterized as part of an EC to identify the lateral extent of soils containing residual PCBs (LANL 1996, 55746). The 1994 pre-excavation sampling indicated that metals, SVOCs, pesticides, and VOCs, including PCE, were below SALs outside the boundary of the excavation area (LANL 1996, 55746); therefore, only PCBs were investigated further. Ten samples were initially collected from the West Slope area to better define the lateral extent of PCB contamination. A 45-ft-diameter area was initially mapped to represent the area of suspected contamination. A 10-ft-by-10-ft grid was placed over the area of suspected contamination, and soil samples were collected within grid nodes in order to provide a statistically defensible sampling approach (acceptable by EPA) for proceeding with remediation. The grid samples were analyzed for PCBs by a fixed laboratory using EPA SW-846 Method 8080. The results of the grid sampling effort were used to target areas for soil excavation. During excavation activities, the lateral extent of soil contamination was further defined to encompass an area approximately 130 ft long by 70 ft wide. To verify that the proposed 10 ppm cleanup level had been met during this excavation, a verification sampling location grid was laid out on the West Slope and divided into four composite zones. Samples were collected within these zones in accordance with "Verification of PCB Spill Cleanup by Sampling and Analysis" (EPA 1995, 08026.1). Composites with either nine or ten grid location samples were collected within the zones and submitted for fixed-laboratory analysis of PCBs using EPA SW-846 Method 8080. (See Figure 2.2-1 for composite locations and Figure 2.2-2 for actual sample locations.) Vertical bounding samples were not collected.

As sample analyses revealed PCBs in the soil, the West Slope excavation area was expanded in a northerly direction along the mesa edge. Additional site characterization samples were collected in the North Slope area (LANL 1996, 55746). The soil samples from the North Slope were analyzed for PCBs by EPA SW-846 Method 8080. PCB-contaminated soil was excavated from an area approximately 60 ft long by 70 ft wide. To verify that the proposed 10 ppm cleanup level had been met, a verification sampling location grid was laid out on the North Slope and divided into four composite zones, in accordance with EPA guidance (EPA 1985, 08026.1). Composite samples were collected from within the zones and analyzed for PCBs using EPA SW-846 Method 8080. (See Figure 2.2-1 for composite zones and Figure 2.2-2 for actual sample locations.) Vertical bounding samples were not collected.

Three soil samples were collected from the ephemeral slope drainages, downslope from the North and West slope remedial areas. The samples were analyzed for PCBs by EPA SW-846 Method 8080. Four sediment samples were collected from the watercourse downstream of PRS 03-056(c) in Sandia Canyon. The samples were analyzed for PCBs by EPA SW-846 Method 8080.

2.3 Results of Previous Investigations

2.3.1 Pre-Excavation Sampling Results

During the November 1991 investigation, four of the five soil samples collected from the storage area had concentrations of total PCBs greater than 1 ppm and less than 10 ppm. The fifth sample contained 9600 ppm PCBs. Mercury was present at 0.471 ppm, below the screening action level (SAL) for mercury, 24 ppm (LANL 1993, 20947).

PCBs were detected during the 1994 investigation at concentrations from <1 ppm to 9600 ppm at depths ranging from ground surface to 1.5 ft. Concentrations decreased with depth. Mercury was detected in three samples at levels ranging from 0.04 ppm to 1.7 ppm. All mercury results were below the SAL of 24 ppm. PCE was detected in two samples at concentrations up to 0.044 ppm, which is also below the

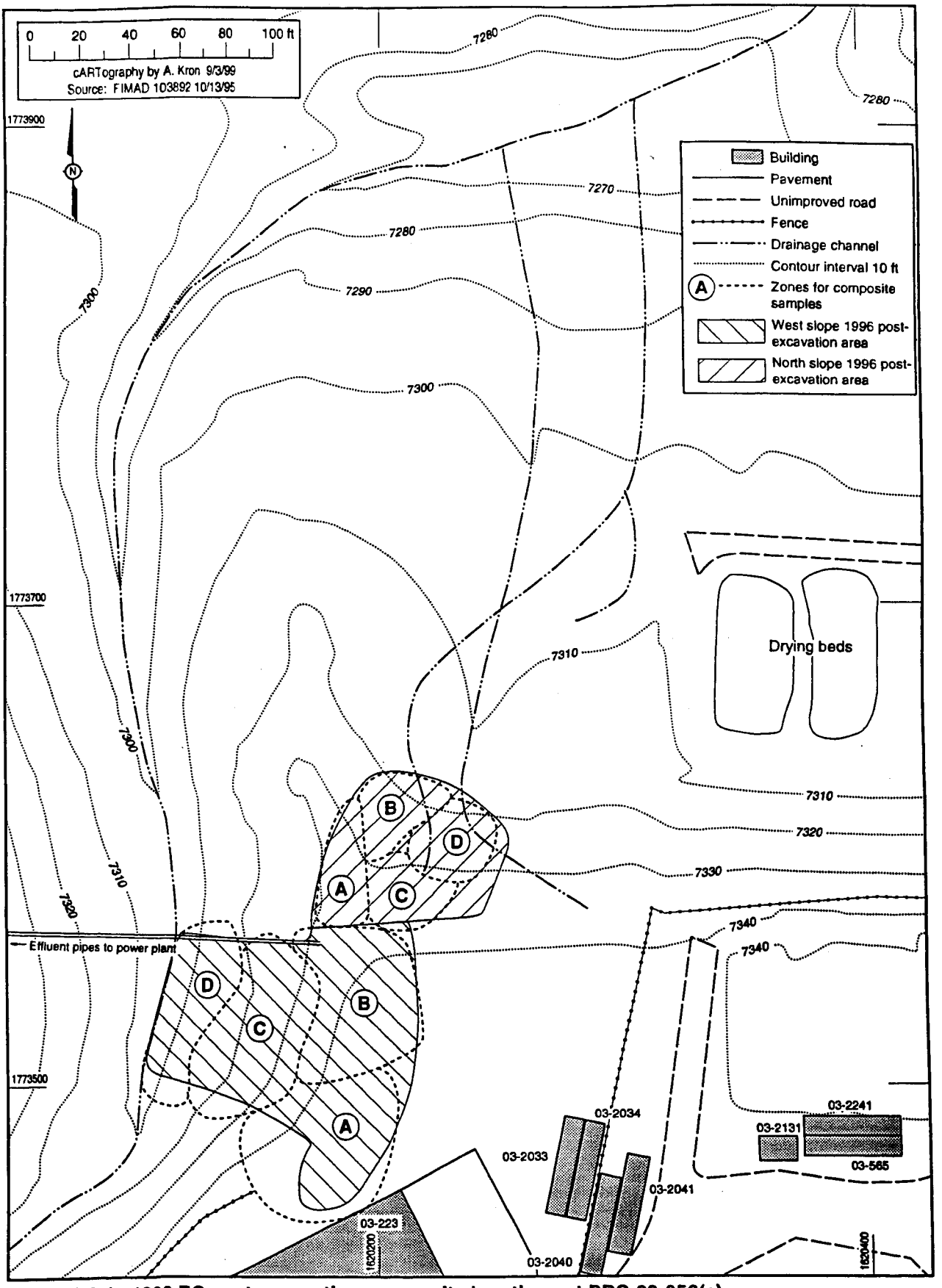
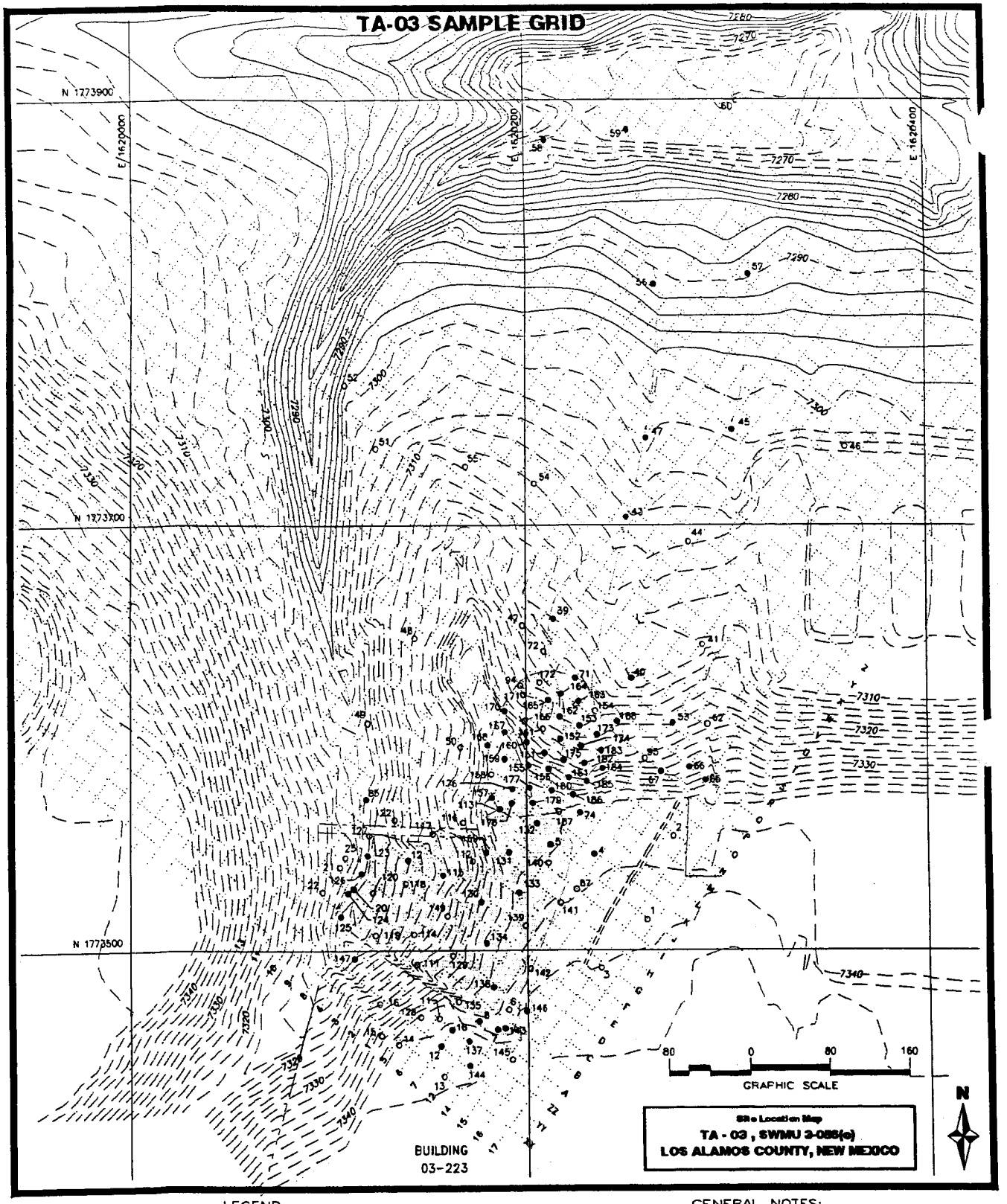


Figure 2.2-1. 1996 EC post-excavation composite locations at PRS 03-056(c).



LEGEND:

- Excavation limits
- Drainage channel
- Effluent pipe
- Edge of pavement
- Chain link fence line
- Stormwater diversion trench
- PCB concentration below 1 ppm, field laboratory
- PCB concentration above 1 ppm, fixed laboratory
- Sample grid

GENERAL NOTES:

1.) Contour interval = 2 feet.

2.) Contour data is based on a composite of survey data from SURV-TEK Inc. and countour data from FBMD.

3.) Information on this map is provisional and their accuracy has not been confirmed.

4.) Grid provides NM State Plane Coordinates in ft.
Grid interval = 200 ft.
NAD 83, NM Central Zone

Figure 2.2-2. 1996 EC post-excavation sampling locations at PRS 03-056(c).

SAL of 4.7 ppm. The samples collected from the drainages contained concentrations of PCBs greater than 1 ppm.

2.3.2 Post-Excavation Sampling Results

Analytical results from the 1995 composite verification samples collected after the EC on the West Slope indicated that PCB concentrations in zones A and B (composites of nine and ten samples, respectively) exceeded the 10 ppm clean-up criteria. This is based on compositing strategy calculations stipulated in "Verification of PCB Spill Cleanup by Sampling and Analysis" (EPA 1985, 08026.1). PCB concentrations in zones C and D (composite of nine samples each) were determined to be below the 10 ppm criteria based on compositing strategy calculations stipulated. Additional samples were collected at each individual sample location in zones A and B, and analytical results indicated that 16 of the 19 samples contained concentrations of PCBs less than 10 ppm, and 7 of these samples contained concentrations of PCBs at less than 1 ppm (LANL 1996, 55746). Table 2.3-1 presents the available results for samples collected in the composite zones. Figures 2.2-1 and 2.2-2 show locations of composite zones and samples.

Analytical results of the 1995 composite verification samples collected on the North Slope indicated that PCB concentrations in all four of the composite zones (A, B, C, and D) exceeded the 10 ppm criteria based on compositing strategy calculations stipulated (EPA 1985, 08026.1). Individual samples from each location were then analyzed to isolate those areas with the highest PCB concentrations. The analytical results for the individual samples indicated that 37 of the 50 locations contained PCBs at concentrations less than 10 ppm, and 9 of these samples contained concentrations of PCBs at less than 1 ppm (LANL 1996, 55746). One of the individual results exceeded the criteria of 50 ppm total PCBs. Table 2.3-2 presents the available results for samples collected in the composite zones. Figures 2.2-1 and 2.2-2 show locations of composite zones and samples.

TABLE 2.3-1
POST-EXCAVATION VERIFICATION SAMPLE RESULTS FROM WEST SLOPE

Composite Zone	Map Location (from Figure 2.2-2)	Sample Date	Sample Number	Total PCBs (ppm)
A	*	1/15/96	0103-96-0048	0.042
A	137	1/15/96	0103-96-0049	2.8
A	*	1/15/96	0103-96-0050	0.97
A	143	1/15/96	0103-96-0051	6.0
A	138	1/15/96	0103-96-0052	3.4
A	*	1/15/96	0103-96-0053	0.09
A	146	1/15/96	0103-96-0054	34.0
A	144	1/15/96	0103-96-0055	2.1
A	*	1/15/96	0103-96-0056	0.06
B	130	1/15/96	0103-96-0058	13.0
B	131	1/15/96	0103-96-0059	2.1
B	133	1/15/96	0103-96-0060	4.0
B	**	1/15/96	0103-96-0061	0.15
B	**	1/15/96	0103-96-0062	0.0
B	132	1/15/96	0103-96-0063	3.8
B	113	1/15/96	0103-96-0064	13.0
B	**	1/15/96	0103-96-0065	0.24
B	134	1/15/96	0103-96-0066	2.1
B	5	1/15/96	0103-96-0067	8.2
C	85	1/15/96	n/a	1.6
C	122	1/15/96	3-3122***	<1

TABLE 2.3-1 (Continued)
POST-EXCAVATION VERIFICATION SAMPLE RESULTS FROM WEST SLOPE

Composite Zone	Map Location (from Figure 2.2-2)	Sample Date	Sample Number	Total PCBs (ppm)
C	127	1/15/96	3-3127***	<1
C	123	1/15/96	3-3124***	1.4
C	126	1/15/96	3-3126***	1.7
C	20	1/15/96	n/a	1.7
C	125	1/15/96	3-3125***	1.6
C	23	1/15/96	n/a	<1
C	120	1/15/96	3-3120***	<1
D	12	1/15/96	n/a	3.9
D	118	1/15/96	3-3118***	<1
D	149	1/15/96	3-3149***	<1
D	114	1/15/96	3-3114***	<1
D	111	1/15/96	3-3111***	<1
D	112	1/15/96	3-3112***	<1
D	117	1/15/96	3-3117***	<1
D	119	1/15/96	3-3119***	<1
D	147	1/15/96	3-3147***	1.8

* Map location number 129, 135, 139, or 142
** Map location number 140, 141, or 87
*** FIMAD sample number unknown
n/a FIMAD location number not available

Note: The actual samples in composites C and D are approximated (results and locations on map are correct)

TABLE 2.3-2
POST-EXCAVATION VERIFICATION SAMPLE RESULTS FROM NORTH SLOPE

Composite Zone	Map Location (from Figure 2.2-2	Sample Date	Sample Number	Total PCBs (ppm)
A	170	2/1/96	0103-96-0074	1.7
A	115	2/1/96	0103-96-0076	1.7
A	168	2/1/96	0103-96-0077	22.0
A	169	2/1/96	0103-96-0087	2.0
A	178	2/1/96	0103-96-0094	8.5
A	156	2/1/96	0103-96-0096	20
A	*	2/1/96	0103-96-0098	0.38
A	157	2/1/96	0103-96-0099	1.6
A	159	2/1/96	0103-96-0100	19
A	167	2/1/96	0103-96-0101	3.9
A	*	2/1/96	0103-96-0107	0.98
B	164	2/1/96	0103-96-0068	9.4
B	165	2/1/96	0103-96-0069	7.2
B	163	2/1/96	0103-96-0070	14.0
B	**	2/1/96	0103-96-0071	0.36
B	**	2/1/96	0103-96-0072	0.68
B	162	2/1/96	0103-96-0075	47.0
B	**	2/1/96	0103-96-0078	0.83
B	160	2/1/96	0103-96-0079	8.8

TABLE 2.3-2 (Continued)
POST-EXCAVATION VERIFICATION SAMPLE RESULTS FROM NORTH SLOPE

Composite Zone	Map Location (from Figure 2.2-2	Sample Date	Sample Number	Total PCBs (ppm)
B	**	2/1/96	0103-96-0080	0.09
C	151	2/1/96	0103-96-0083	5.4
C	186	2/1/96	0103-96-0088	1.4
C	180	2/1/96	0103-96-0089	13.0
C	181	2/1/96	0103-96-0090	6.0
C	179	2/1/96	0103-96-0091	4.8
C	176	2/1/96	0103-96-0092	4.5
C	187	2/1/96	0103-96-0093	0.38
C	177	2/1/96	0103-96-0095	12
C	188	2/1/96	0103-96-0097	30
C	185	2/1/96	0103-96-0102	12
D	154	2/1/96	0103-96-0073	0.29
D	183	2/1/96	0103-96-0081	1.0
D	175	2/1/96	0103-96-0082	2.3
D	153	2/1/96	0103-96-0084	2.8
D	***	2/1/96	0103-96-0085	2.8
D	173	2/1/96	0103-96-0086	3.5
D	182	2/1/96	0103-96-0103	63
D	184	2/1/96	0103-96-0104	7.0
D	174	2/1/96	0103-96-0105	10
D	155	2/1/96	0103-96-0106	30
NC	***	3/22/96	0103-96-0111	3.9
NC	***	3/22/96	0103-96-0112	15
NC	***	3/22/96	0103-96-0113	15
NC	***	3/22/96	0103-96-0114	7.8
NC	***	3/22/96	0103-96-0115	3.0
NC	***	3/22/96	0103-96-0116	1.2
NC	***	3/22/96	0103-96-0117	4.2
NC	***	3/22/96	0103-96-0118	0.93
NC	***	3/22/96	0103-96-0119	2.5
NC	***	3/22/96	0103-96-0120	4.0

NC = Non-composite samples collected after expanding the north slope verification grid in an attempt to reestablish the extent of the 10 ppm contour at this location

* Map location number 116 or 158
** Map location number 161, 166, 171, or 172
*** Map location number unknown

3.0 BASIS FOR CLEANUP LEVELS

Per direction from EPA Region 6 TSCA PCB Program Office, the clean-up level for the site is 1 ppm PCBs because it is located in or near a watercourse.

4.0 PROPOSED CORRECTIVE ACTION

4.1 Conceptual Model

The conceptual model embodies all current understanding and best scientific expectations/judgment for describing contaminant distribution, migration, fate, and exposure as affected by site physical properties and environmental conditions. It comprises the assumptions used to guide the VCA activities and cleanup design.

The conceptual model provides an understanding of

- The distribution of the contaminants
- The potential contaminant pathways and transport mechanisms
- The potential contaminant exposure pathways to receptors

4.1.1 Distribution of Contaminants

Based on the operational history of PRS 03-056(c) and results of the previous sampling and analyses, PCBs are determined to be the major contaminant of concern at this PRS. PCBs are currently present at concentrations up to 63 ppm and are present in the soil and tuff. Other organics and inorganics, specifically PCE and mercury, were found not to be present at elevated concentrations (LANL 1996, 55746). The soil ranges in thickness from zero to approximately 5 ft thick across the site. PCB-contaminated soil has been detected in the sediment associated with Sandia Canyon to the north of the site. Sandia Canyon is not part of the VCA and is being addressed by the LANL ER Remedial Action Focus Area as part of TA-3.

4.1.2 Potential Contaminant Transport Pathways

The most important processes for transport and partitioning of PCBs in soil is adsorption, which is controlled primarily by the organic carbon content of the medium in which the PCBs are found. In soils with very low organic content, such as those present at PRS 03-056(c), the clay content and the degree of chlorination of the PCB compound(s) controls the absorption characteristics. PCBs tend to be tightly adsorbed to soil particles due to their low water solubility and high octanol-water partition coefficients. Sorption of PCBs in soil increases as organic matter and clay content increase. Therefore, leaching is expected to be greatest from soils with low organic carbon or clay content. However, the longer the PCB constituents remain in contact with particulate matter, the more they are bound to the soil, the less readily they are desorbed, and the less leachable and mobile they become (Alexander 1995, 63536). Due to the age of the release, the PCBs at PRS 03-056(c) are expected to be strongly bound to soil or tuff.

Based on the sorptive characteristics of PCBs, the primary mechanism for contaminant transport is erosion of contaminants bound to the soil surface via snowmelt, rainfall, and surface water run-off. Stormwater run-off will also transport PCBs that are adsorbed to soil particles. The surface water assessment conducted for PRS 03-056(c) generated an erosion matrix score (EMS) of 69.7, indicating a potential for erosion and contaminant migration to occur at the site. However, best management practices (BMPs) are in place at the site to minimize any potential migration of contaminants.

A secondary transport mechanism is contaminant transport as fugitive dust. This mechanism is unlikely as the site is heavily vegetated, and matting is lain over the slopes to minimize generation of fugitive dust.

Another possible transport mechanism is volatilization from soil to air. The volatilization rate is partly dependent on organic carbon and clay content of the soil but is dominated by the vapor pressure. Volatilization is more likely in soils with low organic carbon because sorption of PCBs to these soils is

weaker (ATSDR 1995, 63537). The volatilization rate of PCBs from contaminated tuff and soil at PRS 03-056(c) is expected to be minimal due to the low vapor pressure of PCBs.

The bedrock at this site is comprised of Bandelier Tuff (ATSDR 1995, 63537). The possibility exists that PCB-contaminated soils have migrated downward into fractures and joints. The bedrock is unsaturated and does not provide a migration pathway for PCBs into the regional aquifer, which lies 950–1200 ft below land surface. In addition, the low solubility and mobility of PCBs further reduce the downward migration potential of PCBs through bedrock.

4.1.3 Potential Contaminant Exposure Pathways to Receptors

4.1.3.1 Potential Human Health Exposure Pathways

The plausible receptor for human exposure is the industrial worker. Worker exposure during remediation is addressed in the site-specific health and safety plan. At PRS 03-056(c), the primary exposure pathways would be incidental ingestion of soil and inhalation of contaminated particulates. Dermal exposure to PCBs could also be of concern. Because of the low levels of PCBs at PRS 03-056(c) and the fact that PCBs are not easily released from soils, dermal exposure is not included. Its contribution to exposure would be at least one order of magnitude less than exposure from inhalation or ingestion.

4.1.3.2 Potential Ecological Exposure Pathways

Ecological receptors with potential exposure to PCBs at PRS 03-056(c) include, but are not limited to, deer, elk, ground-dwelling and burrowing small mammals, wide-ranging carnivorous mammals, resident and transient avian species, and many species of invertebrates. A number of trophic levels are represented by these receptors, and the potential for complete food web transport pathways exists. Under current conditions, before the VCA, receptors may be potentially exposed to PCBs through the following complete pathways:

1. Incidental ingestion of soil by foraging animals
2. Food web transport via ingestion of contaminated soil, contaminated plants, or prey
3. Inhalation of dust generated by wind or by foraging and burrowing
4. Plant exposure to PCBs from surface splash or root uptake
5. Transport of contaminated soil to aquatic ecological communities
6. Mass wasting as a potential release mechanism for subsurface material

The exposure pathways described in 1, 2, and 3 will become incomplete upon removal of the contaminated soil from the site and the placement of engineering controls at the site. The surface splash element of pathway 4 will be eliminated with the removal of soil. Although it is possible that some plant roots may invade cracks or crevices in the tuff, it is not expected that root uptake by these plants will present a significant exposure pathway either for the plants or as primary elements in food web transport. Pathway 5 will be interrupted with the removal of contaminated soil, the installation of the erosion control measures in the drainage pathways, and the rerouting of surface water run-on to inhibit run-off from the site. Pathway 6 will be mitigated by placing an asphalt cover over the storage area, where mass wasting has the potential to occur.

Because of the proposed VCA, the exposure pathways that are currently complete will no longer provide means for PCB exposure to ecological receptors within the bounds of the site.

In addition, an ecological pathways conceptual exposure model (CEM), which specifically addresses the potential exposure pathways for ecological receptors, is included in Appendix D, as an element of the ecological scoping checklist prepared for the site (LANL 1999, 63303). After successful implementation

and completion of the VCA, it is not likely that any complete PCB exposure pathways for ecological receptors will remain within PRS 03-056(c).

4.2 Supplemental Sampling

Supplemental, or pre-excavation, sampling will be conducted to determine the extent of PCB-contaminated soil and tuff within the defined boundaries of the site and to determine a correlation between field screening results and fixed-laboratory results for PCB analysis. Results from the supplemental sampling will determine the lateral extent of soil that needs to be excavated. Results from the correlation study will provide a better understanding of the sensitivity and accuracy of the immunoassay field test kits and will guide the use of field screening during the confirmation sampling.

The intent of the sampling is to characterize and estimate the limits of the existing contamination. The sampling will be biased to those areas that are most likely to contain PCBs. These include the bordering areas of known contamination and topographic lows within soil and fractured tuff that are most likely to receive input from surface water run-off. Best professional judgment will be used to determine the sample locations in the field. This sampling approach will bias the results on the high side and will be useful in determining the lateral extent of contaminated mass. Field screening will be used to direct the laboratory sampling. Details are discussed below.

4.2.1 Field Screening

The sampling strategy uses a biased approach that extends beyond the current boundaries of known contamination and is designed to achieve a 95% upper confidence level. Samples will be collected at approximate 30-ft intervals and will cover two general areas: the North and West slopes and the ephemeral slope drainages. Twenty-five samples will be collected from the North and West slope areas and these samples will extend beyond the boundary of the known contamination (Table 4.2-1). The known areas of contamination will not be resampled because they are known to contain PCB concentrations that exceed the cleanup criteria of <1 ppm (Section 2.3). The existing data will be used for the final characterization of the site with the supplementary sampling results. Twenty-one samples will be collected from the ephemeral slope drainages and these samples will extend beyond the boundary of the drainages (Table 4.2-1). The soil in the drainages will not be resampled because results from the previous RFI sampling indicated that the drainages contain PCB concentrations exceeding the clean-up criteria of <1 ppm. (Section 2.3). The existing data will be used with the supplementary sampling results for the final characterization of the site. Proposed sample locations are presented in Figure 4.2-1.

Sample location points will be set up in the field before (or during) collecting the samples. Each point will be marked and given a unique sample location number. The points will be surveyed using a Trimble™ global positioning system (GPS) Total Station.

Grab samples will be collected from each location. The samples will be collected from soil at 0 - 0.5 ft depths (or tuff interface if shallower) using LANL-ER-SOP-6.09, Rev. 0, "Spade and Scoop Method for Collection of Soil Samples," and LANL-ER-SOP-6.10, Rev. 1., "Hand Auger and Thin-Wall Tube Sampler." If field screening indicates that PCB concentrations are greater than 1 ppm, soil or tuff will be further field screened at 1-ft intervals until concentrations are below 1 ppm or until the decision points are met, as set forth in Section 4.3.3. This approach will provide information on the vertical extent of contamination and a vertical stopping point for excavation. Samples taken in tuff will be collected using the backhoe bucket (or equivalent), a manually operated drill, or by chiseling pieces of tuff. The soil or tuff will be described and logged in on the sample collection log forms (LANL-ER-SOP-01.04, Rev. 3., "Sample Control and Field Documentation"). The samples will be brought to the field chemistry trailer to be screened for PCBs using an immunoassay field-screening test kit (EPA SW-846 Method 4020). The chosen test kit will be sensitive to less than 1 ppm total PCBs. This sensitivity is sufficient to meet the performance-required objectives and cleanup levels.

4.2.2 Laboratory Sampling

Ten samples (20 percent of the field-screened samples) will be submitted to an off-site laboratory to be analyzed as verification samples and to determine a correlation between the field results and the fixed-laboratory results (Table 4.2-2). The frequency of sampling and laboratory split analyses is in accordance with EPA sampling requirements (40 CFR 761.130, July 1998), LANL's Screening Level Ecological Risk Assessment Methods (LANL 1999, 63303) and standard operating procedures (SOPs), and NMED's Risk-Based Decision Tree Description (NMED 1998, 57761). The fixed-laboratory verification samples will be selected from field-screening samples containing low and high concentrations of PCBs. The correlation between the field and fixed-laboratory methods will provide information that will be used during the confirmatory sampling. At the fixed laboratory, the verification samples will be analyzed for PCBs using EPA SW-846 Method 8082. Note that PCBs are the only contaminants detected above levels of concern based on the 1994 RFI sampling and EC verification sampling results. The samples will be submitted for quick turnaround results (5 days), and the data will be used to help determine the required extent of removal during the cleanup activities.

TABLE 4.2-1
PROPOSED SUPPLEMENTARY SAMPLE LOCATIONS FOR PCB IMMUNOASSAY FIELD SCREENING

Location ID	Sample ID	Location
03-14233	RE03-99-2041	N & W slope*
03-14234	RE03-99-2042	N & W slope
03-14235	RE03-99-2043	N & W slope
03-14236	RE03-99-2044	N & W slope
03-14237	RE03-99-2045	N & W slope
03-14238	RE03-99-2046	N & W slope
03-14239	RE03-99-2047	N & W slope
03-14240	RE03-99-2048	N & W slope
03-14241	RE03-99-2049	N & W slope
03-14242	RE03-99-2050	N & W slope
03-14243	RE03-99-2051	N & W slope
03-14244	RE03-99-2052	N & W slope
03-14245	RE03-99-2053	N & W slope
03-14246	RE03-99-2054	N & W slope
03-14247	RE03-99-2055	N & W slope
03-14248	RE03-99-2056	N & W slope
03-14249	RE03-99-2057	N & W slope
03-14250	RE03-99-2058	N & W slope
03-14251	RE03-99-2059	N & W slope
03-14252	RE03-99-2060	N & W slope
03-14253	RE03-99-2061	N & W slope
03-14254	RE03-99-2062	N & W slope
03-14255	RE03-99-2063	N & W slope
03-14256	RE03-99-2064	N & W slope
03-14257	RE03-99-2065	N & W slope
03-14258	RE03-99-2066	Drainage
03-14259	RE03-99-2067	Drainage
03-14260	RE03-99-2068	Drainage
03-14261	RE03-99-2069	Drainage
03-14262	RE03-99-2070	Drainage
03-14263	RE03-99-2071	Drainage
03-14264	RE03-99-2072	Drainage
03-14266	RE03-99-2074	Drainage
03-14267	RE03-99-2075	Drainage
03-14268	RE03-99-2076	Drainage
03-14269	RE03-99-2077	Drainage
03-14270	RE03-99-2078	Drainage
03-14271	RE03-99-2079	Drainage
03-14272	RE03-99-2080	Drainage
03-14273	RE03-99-2081	Drainage
03-14274	RE03-99-2082	Drainage
03-14275	RE03-99-2083	Drainage
03-14276	RE03-99-2084	Drainage
03-14277	RE03-99-2085	Drainage
03-14278	RE03-99-2086	Drainage
03-14279	RE03-99-2087	Drainage

*N & W Slope = The North and West slopes

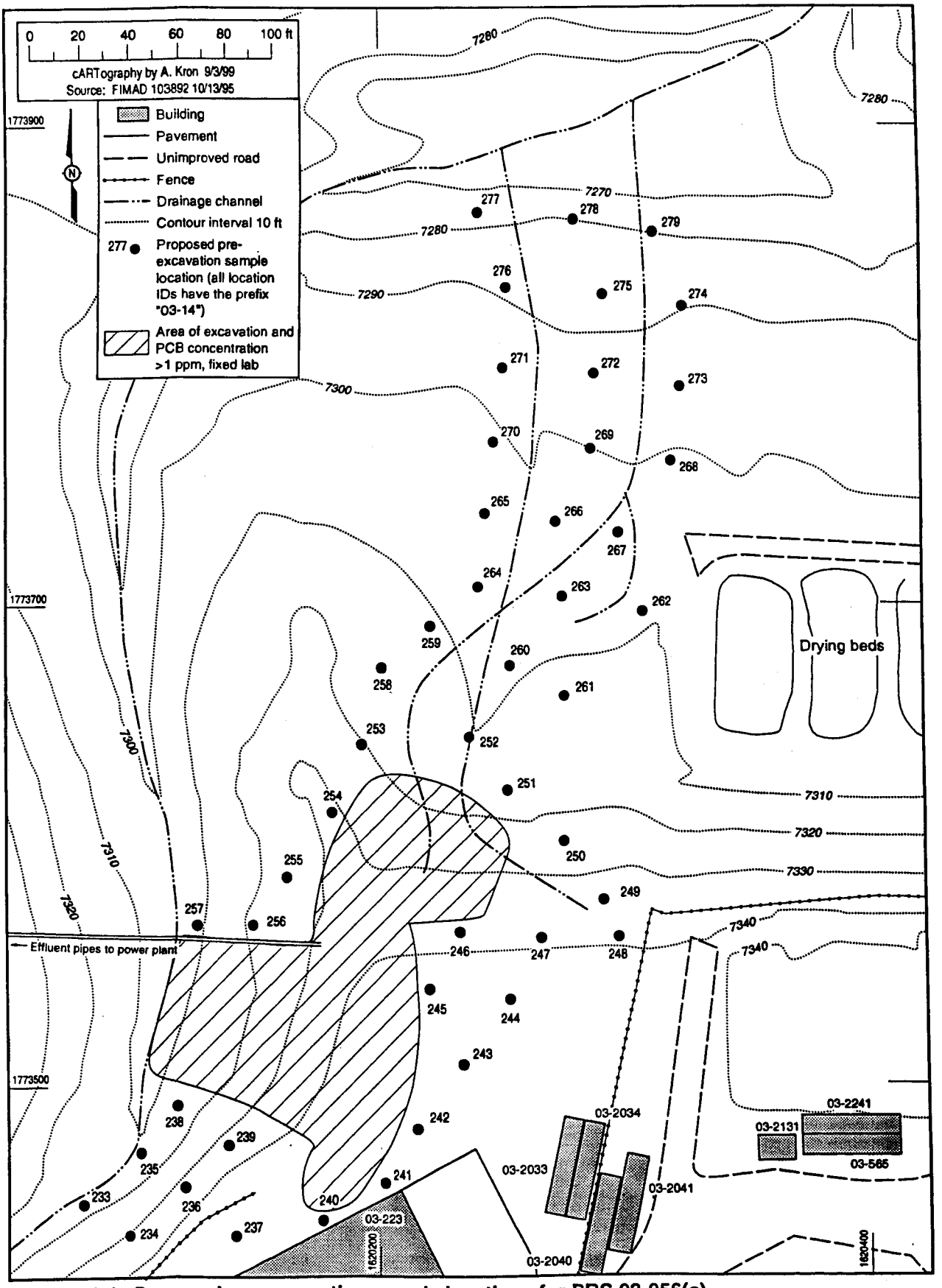


Figure 4.2-1. Proposed pre-excavation sample locations for PRS 03-056(c).

TABLE 4.2-2
PROPOSED SUPPLEMENTARY SAMPLE LOCATIONS FOR FIXED-LABORATORY ANALYSES

Sample ID	Location ID	Location	Analyses
RE03-99-2012	Based on field-screening results	North and West slope grid	PCB
RE03-99-2013	Based on field-screening results	North and West slope grid	PCB
RE03-99-2014	Based on field-screening results	North and West slope grid	PCB
RE03-99-2015	Based on field-screening results	North and West slope grid	PCB
RE03-99-2016	Based on field-screening results	North and West slope grid	PCB
RE03-99-2017	Based on field-screening results	Drainage Grid	PCB
RE03-99-2018	Based on field-screening results	Drainage Grid	PCB
RE03-99-2019	Based on field-screening results	Drainage Grid	PCB
RE03-99-2020	Based on field-screening results	Drainage Grid	PCB
RE03-99-2021	Based on field-screening results	Drainage Grid	PCB

4.3 Cleanup Activities

4.3.1 Mobilization and Preparation

Before conducting the cleanup activities, the site will be prepared and secured. A temporary construction fence or barricade will be installed at the top of the West and North slopes to secure the site from unauthorized access. Fencing will be conducted in accordance with facility management and health and safety requirements. Barricades will also be installed around planned waste storage, equipment decontamination areas, and other work zones, including the downslope perimeters of the excavation areas and contamination reduction zones (CRZ). The entire perimeter of the site will be marked with signs indicating that the site is a construction area and that unauthorized access is prohibited. During working hours, the construction supervisor will be responsible for security at the site and will keep track of site access; workers will sign in and out daily.

Within the overall perimeter of the construction site, three control zones will be established: exclusion zone (EZ), CRZ, and support zone (SZ) (Figure 4.3-1).

The EZ will encompass all areas where soil and tuff removal and waste staging will take place. Access to the EZ will be restricted to workers and other personnel with the required training.

Entrances and exits will be provided through access control points where supplies, rest areas, and initial decontamination measures will be established. To minimize the potential for cross-contamination, separate access points may be established for personnel and equipment. The CRZ will act as a buffer between the contaminated areas and the clean areas at the site (Figure 4.3-1). The CRZ reduces the potential for clean areas to be contaminated or affected by worker activities in the EZ. Decontamination of personnel and equipment will be performed in the "contamination reduction corridor" within the CRZ; separate corridors may be established for the West Slope, the North Slope, and drainage areas within PRS 03-056(c). The CRZs will also accommodate a temporary rest area.

Support Zones will be established outside of the EZ and the CRZs. They will be considered clean (Figure 4.3-1). The SZ will contain administrative and technical support personnel, a clean equipment staging area, a supply trailer, a water storage tank, non-contaminated heavy equipment and vehicle parking areas, protective equipment supply area, sampling equipment, fire extinguishers, spill control supplies, first aid equipment, tools, and a sample preparation area. Strict use of control zones will prevent the spread of contamination into the SZ.

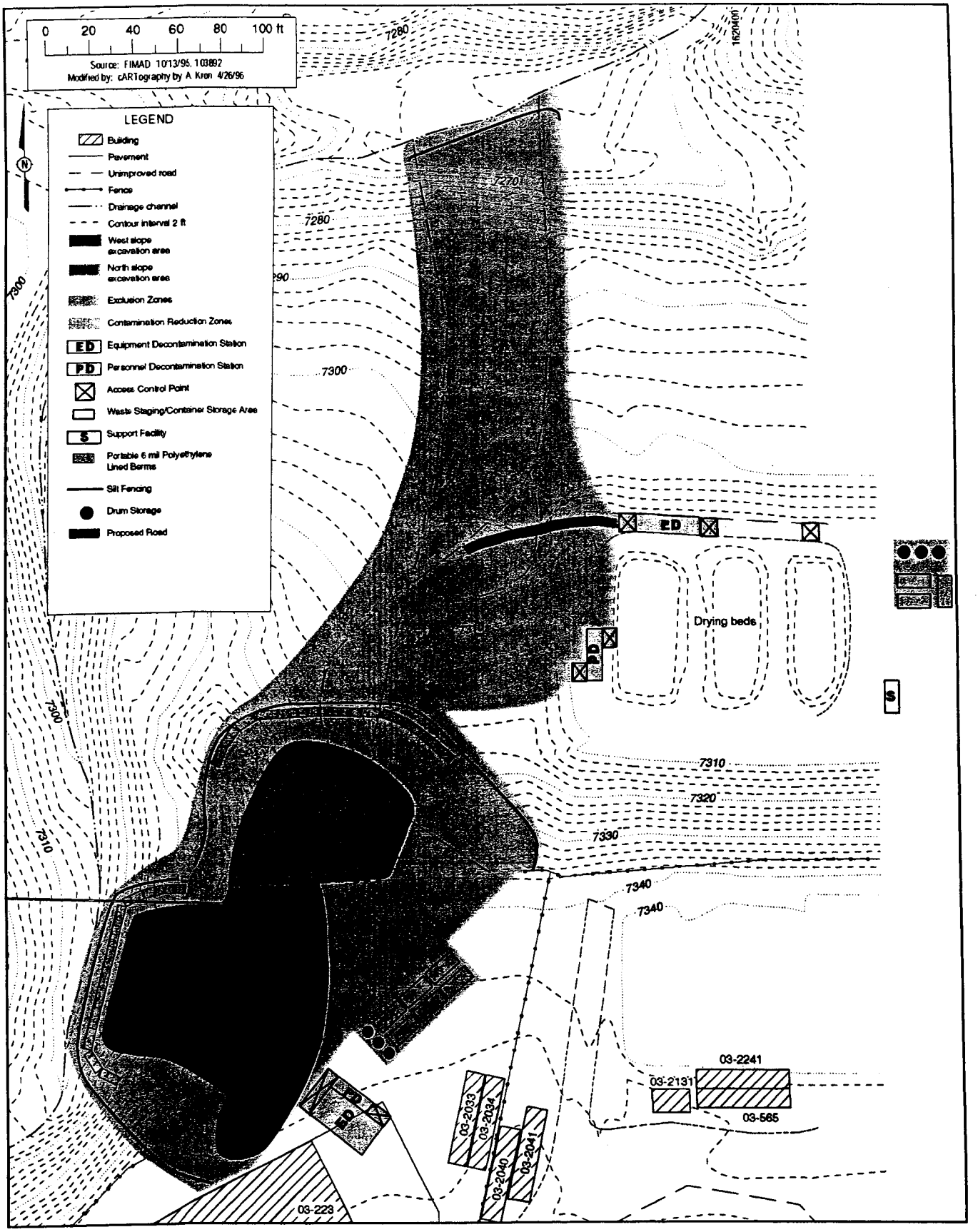


Figure 4.3-1. Proposed site logistics plan for the VCA at PRS 03-056(c)

4.3.2 Temporary Erosion Control Measures

LANL will work with ESH (Environmental Safety and Health) -18 personnel to determine the most appropriate BMPs for the site. To the extent practical, LANL will protect the existing matting on the slopes placed during the previous EC by disturbing it only when necessary and only in areas where necessary. LANL will use existing erosion control structures as much as feasible to ensure that soil and debris do not get released into the drainages during VCA activities.

4.3.3 Removal Activities

Based on previous field and laboratory analyses, the excavation approach will focus on three areas:

1. West Slope
2. North Slope
3. Ephemeral drainage channels north of the North Slope

Each area requires a distinctly different remediation approach as described below. Soil or tuff that is determined, either through field screening or based on previous results, to contain more than 50 ppm PCBs will be handled and stored separately from the rest of the soil and tuff. These volumes will be managed as TSCA PCB remediation waste per section 761.61 (40 CFR 750-761, July 1998).

All excavation activities will comply with ESH-17 air quality requirements.

There are two principal decision points associated with this VCA, one concerning reaching the cleanup level for the site, and the other concerning waste volume. Currently, the cleanup level for the site is <1 ppm PCBs and the estimated volume of material that is contaminated with 1 ppm or greater PCBs is 900 yd^3. These stopping rules are outlined below:

1. VCA excavation activities will stop if field screening indicates that the <1 ppm cleanup goal has been accomplished before excavating the entire 900 yd^3 of material. Samples will be collected for fixed laboratory analysis for verification purposes.

2. Samples will be collected before and as excavation proceeds to better define areas of contamination and refine volume estimates. If the refined volume estimates significantly increase from that originally expected (900 yd^3), a completion strategy will be developed based on the following criteria:

   - Prioritization of the removal of material in areas of higher concentration
   - Characterizing the extent of soil and tuff containing greater than 1 ppm PCBs and possibly doing a risk assessment to calculate remaining residual risk
   - Estimating the volume of material remaining on site
   - Timely communication with appropriate personnel

4.3.3.1 Excavation of the West Slope Area

The West Slope is the largest and steepest of the three areas of contamination. Along this steep slope, a track-mounted excavator (or trackhoe or equivalent) and soil vacuuming techniques will be used during remediation. The excavator is able to remove rock as well as soil. The vacuum truck will be used as a secondary technique.

A trackhoe with an extended reach (e.g., JD-790, or equivalent excavator) will initially be staged at the top of the slope and will remove soil from the top of the slope downward, as directed by excavation guidance sampling. Given the extended reach of the selected excavation equipment, the steepest upper part of the

West Slope can be remediated while the excavator is working from flat ground at the top of the slope, thereby promoting safety. While the excavator is staged at the top of the slope, soil can be loaded directly from the excavator bucket into piles within the EZ or in dump trucks. The bucket will be filled to a level from which there will be no spilling of soil during transport.

Once the upper portion of the West Slope has been remediated, the excavator will be moved to mid-slope to accomplish remediation of the lower portion. The lower portion of the slope has a sufficiently flat grade to allow for safe deployment of the excavator; however, work practices will also be employed to further enhance safety by ensuring that the excavator is always operated with the tracks pointing downslope (the most stable position). A mid-slope bench may be required in order to maintain a workable platform for the excavator to operate from. If this becomes necessary, a bench will be constructed into the tuff and maintained in accordance with Occupational Safety and Health Administration (OSHA) and LANL safety requirements.

Precautions will be taken to prevent cross-contamination that could result from the excavator traversing between contaminated and clean soil areas. The excavator will be staged on clean ground and will progress downslope to clean areas previously excavated. A logical progression of removal will be employed such that soil is removed from the top of the slope downward. The excavator will work from clean ground at all times. This method will continue until the entire West Slope has been cleaned.

While the excavator is working the lower portion of the West Slope, a 4-yd^3 track loader (CAT 973 or equivalent) will be employed to move soil to the temporary piles or directly into dump trucks at the top of the slope within the PRS boundary. Use of a track-mounted loader is the safest means of moving soil up the slope. The track loader will operate behind the excavator so that it will only be moved across clean areas that have been previously excavated. The loader will transfer material to and from the West Slope area and staging area along a predetermined corridor (to prevent cross-contamination).

Certain areas of contamination within the West Slope may be inaccessible to the excavator bucket (e.g., areas surrounding tree trunks or large rocks). For these areas, a vacuum system, the SpoilVac 500 or equivalent, will be used to remove contaminated soil and rock. The vacuum system is mounted on a truck and feeds directly into a standard 55-gal. drum. Up to 50 ft of flexible suction hose is attached to the vacuum head, allowing a range of movement around the drum. Air emissions from the vacuum are controlled by attaching a high-efficiency particulate air (HEPA) filter bag to the exhaust port of the vacuum head. Once the drum is filled, the vacuum head is removed and attached to a new drum.

4.3.3.2 Excavation of the North Slope Area

Excavation of the North Slope will be accomplished using a backhoe (CAT 426c or equivalent) and a 6-yd^3 dump truck or equivalent. Access to the North Slope will be accomplished by extending the dirt road located north of the drying beds southwest to the perimeter of the contaminated area; it will not go through the contaminated area. Precaution will be taken to minimize damage to standing trees. Once the road is extended, the backhoe (or equivalent) and dump truck (or equivalent) can easily access the entire contaminated zone from flat portions of the area. The backhoe will excavate soil and dump directly into the dump truck, which will transport the soil to the waste staging area, or the backhoe (or equivalent) will dump directly into the waste containers. Excavation will progress from the access road to the southwest so that the backhoe will always be working on clean areas that were previously excavated.

Certain areas of contamination within the North Slope may be inaccessible to the backhoe bucket (e.g., areas surrounding tree trunks or large rocks). The vacuum system will be used to remove contaminated soil and rock from these areas, and this soil and debris will be transferred into drums or rolloffs. Drums of vacuumed soil and rock will be moved to the waste staging area by backhoe (or equivalent) or an all-terrain vehicle (ATV) with a small trailer attachment with the appropriate load capacity.

4.3.3.3 Excavation of the Ephemeral Drainage Channels

The vacuum system will be used to remediate the drainage channels north of the North Slope area. It can effectively remove small, localized pockets of contaminated soil. Vacuuming will proceed systematically from south to north, as directed by excavation guidance sampling, in order to prevent cross-contamination. Drums will be moved to the waste staging area using a backhoe (or equivalent) or an all-terrain vehicle (ATV) with a small trailer attachment with the appropriate load capacity.

4.4 Decontamination of Equipment and Personnel

Temporary decontamination stations will be set up in the CRZ corridors (as shown in Figure 4.3-1). Personnel decontamination stations will be located at the exit from the exclusion area and may contain plastic sheeting, plastic-lined trash cans, wash tubs, and brushes, or equivalent. A 55-gal. drum or equivalent will be located next to the personnel decontamination stations for collection of wash water. Water will be supplied via a small water-storage tank or container that will be located in the SZ. A detergent such as Liqui-Nox™ will be used for wet decontamination.

Decontamination will be conducted for equipment leaving the CRZ and EZ (e.g., during movement of equipment from the West Slope to the North Slope) and on equipment being released from the site. The decontamination will take place on a wash pad constructed so that cleaning solutions and wash water can be recycled and collected for proper disposal.

To reduce the volume of decontaminated water that is generated, dry decontamination will be used as a preliminary measure. All parts of the heavy equipment, including the undercarriage, wheels and tracts, chassis, and cab, will be thoroughly cleaned initially by dry decontamination and then by swabbing with a minimal amount of water and detergent. Air filters will be removed and replaced before the equipment leaves the site. Long-handled brushes will be used to effectively remove contaminated soil from heavy equipment and from the vacuum system.

Daily decontamination of the heavy equipment would be impractical. Both the heavy equipment and the drum vacuum system will remain in the EZ until use is complete. Partial decontamination may occur on a daily basis to remove mud buildup. Final decontamination of all heavy equipment will be conducted at the end of the excavation effort.

4.5 Site Restoration

Depending on the post-excavation conditions, the best restoration approach will be devised. If the post-excavation slope is composed of exposed bedrock, the final restored configuration may only include run-on/run-off controls to address storm water concerns. The site restoration design will be addressed following excavation when the physical aspects of the final slope are known.

The LANL ER storm water pollution prevention plan (SWPPP) will be updated at the start of VCA activities (by submitting site-specific information on the LANL SWPPP update form). LANL will consult with ESH-18 and facility management regarding the SWPPP.

5.0 CONFIRMATORY SAMPLING

Confirmatory sampling will be conducted following the removal activities and before site restoration. Sampling will be performed to verify that:

- the extent of PCB contamination associated with the PRS has been vertically and laterally bounded
- soil remaining at the site does not contain concentrations of PCBs exceeding 1 ppm
- there is an acceptable human health risk to an industrial worker and an acceptable ecological risk

The data collected during the supplementary sampling and the extent of the excavation will be used to set the boundaries of the confirmation sampling. The proposed sampling strategy considers the verification sampling strategy in EPA's latest guidance contained in 40 CFR 761 (Subpart 0), with modification for site-specific characteristics and existing site knowledge at this PRS. Rather than propose a Cartesian-grid sampling approach as recommended by EPA in 40 CFR 761 (Subpart 0), LANL proposes sampling on hexagonal grids that have been centered on the cleanup areas and that extend beyond the boundaries of the PRS. The hexagonal grid combined with previous sample data will provide sufficient spatial coverage of the area under investigation without unnecessary duplication. Two hexagonal grids will be set up: one to cover the North and West slopes, and the other to cover the ephemeral slope drainages. For each grid, equilateral triangles will be set up using up to 37 points. The grid sampling layout is presented in Figure 5.0-1. The points will be set up in the field before or during sample collection. Each point within the grids will be marked, and unique sample location numbers will be designated for each point. Table 5.0-1 presents proposed confirmation field-screening sample information. The points will be surveyed using a Trimble™ GPS Total Station. Field screening will be used to direct the laboratory sampling. Details are discussed below.

5.1 Field Screening

Grab samples will be taken from each grid location to determine whether the cleanup criterion has been met. If field screening indicates PCB concentrations are greater than 1 ppm, excavation will continue until either concentrations are less than 1 ppm or until a decision point has been met, as set forth in Section 4.3.3. Samples will be collected from 0–0.5 ft depths using LANL-ER-SOP-6.09, Rev. 0, "Spade and Scoop Method for Collection of Soil Samples", and LANL-ER-SOP-6.10, Rev. 1, "Hand Auger and Thin-Wall Tube Sampler." If the sample is within tuff, it will be collected using the backhoe bucket (or equivalent), a manually operated drill, or by chiseling pieces of tuff. The soil or tuff will be described and logged into the sample collection log forms (LANL-ER-SOP-01.04, "Sample Control and Field Documentation," Rev. 3). The samples will be brought to the field chemistry trailer to be screened for PCBs using the immunoassay field-screening kit (EPA SW-846 Method 4020). The immunoassay test kit will be chosen to have a working accuracy to 0.5 ppm for PCBs. This accuracy is sufficient to meet the performance-required objectives and cleanup level.

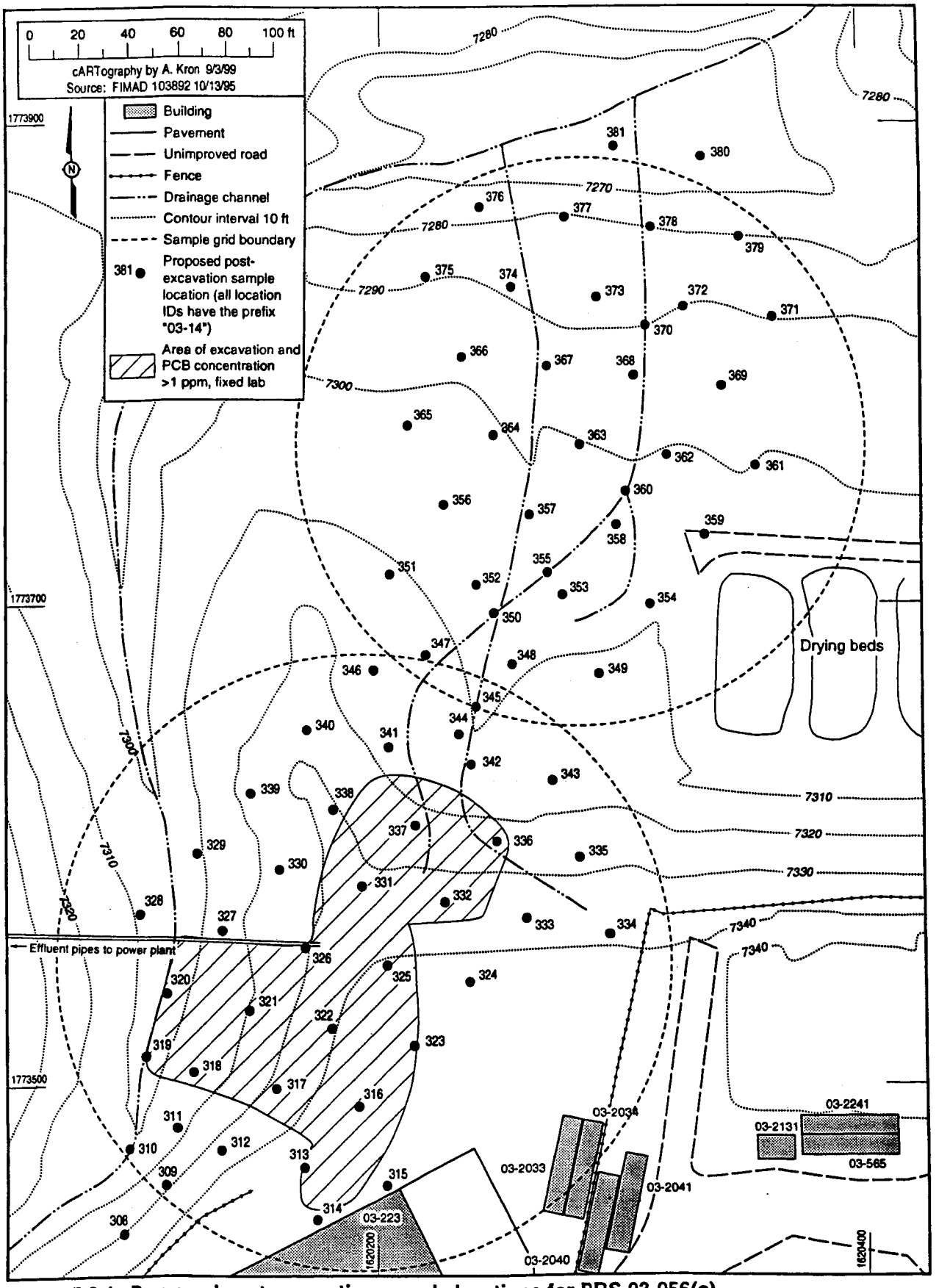


Figure 5.0-1. Proposed post-excavation sample locations for PRS 03-056(c).

TABLE 5.0-1
PROPOSED CONFIRMATION SAMPLE LOCATIONS FOR IMMUNOASSAY FIELD SCREENING

Location ID	Sample ID	Location
03-14308	RE03-99-2116	N & W slope
03-14309	RE03-99-2117	N & W slope
03-14310	RE03-99-2118	N & W slope
03-14311	RE03-99-2119	N & W slope
03-14312	RE03-99-2120	N & W slope
03-14313	RE03-99-2121	N & W slope
03-14314	RE03-99-2122	N & W slope
03-14315	RE03-99-2123	N & W slope
03-14316	RE03-99-2124	N & W slope
03-14317	RE03-99-2125	N & W slope
03-14318	RE03-99-2126	N & W slope
03-14319	RE03-99-2127	N & W slope
03-14320	RE03-99-2128	N & W slope
03-14321	RE03-99-2129	N & W slope
03-14322	RE03-99-2130	N & W slope
03-14323	RE03-99-2131	N & W slope
03-14324	RE03-99-2132	N & W slope
03-14325	RE03-99-2133	N & W slope
03-14326	RE03-99-2134	N & W slope
03-14327	RE03-99-2135	N & W slope
03-14328	RE03-99-2136	N & W slope
03-14329	RE03-99-2137	N & W slope
03-14330	RE03-99-2138	N & W slope
03-14331	RE03-99-2139	N & W slope
03-14332	RE03-99-2140	N & W slope
03-14333	RE03-99-2141	N & W slope
03-14334	RE03-99-2142	N & W slope
03-14335	RE03-99-2143	N & W slope
03-14336	RE03-99-2144	N & W slope
03-14337	RE03-99-2145	N & W slope
03-14338	RE03-99-2146	N & W slope
03-14339	RE03-99-2147	N & W slope
03-14340	RE03-99-2148	N & W slope
03-14341	RE03-99-2149	N & W slope
03-14342	RE03-99-2150	N & W slope
03-14343	RE03-99-2151	N & W slope
03-14344	RE03-99-2152	N & W slope

Location ID	Sample ID	Location
03-14345	RE03-99-2153	Drainage
03-14346	RE03-99-2154	Drainage
03-14347	RE03-99-2155	Drainage
03-14348	RE03-99-2156	Drainage
03-14349	RE03-99-2157	Drainage
03-14350	RE03-99-2158	Drainage
03-14351	RE03-99-2159	Drainage
03-14352	RE03-99-2160	Drainage
03-14353	RE03-99-2161	Drainage
03-14354	RE03-99-2162	Drainage
03-14355	RE03-99-2163	Drainage
03-14356	RE03-99-2164	Drainage
03-14357	RE03-99-2165	Drainage
03-14358	RE03-99-2166	Drainage
03-14359	RE03-99-2167	Drainage
03-14360	RE03-99-2168	Drainage
03-14361	RE03-99-2169	Drainage
03-14362	RE03-99-2170	Drainage
03-14363	RE03-99-2171	Drainage
03-14364	RE03-99-2172	Drainage
03-14365	RE03-99-2173	Drainage
03-14366	RE03-99-2174	Drainage
03-14367	RE03-99-2175	Drainage
03-14368	RE03-99-2176	Drainage
03-14369	RE03-99-2177	Drainage
03-14370	RE03-99-2178	Drainage
03-14371	RE03-99-2179	Drainage
03-14372	RE03-99-2180	Drainage
03-14373	RE03-99-2181	Drainage
03-14374	RE03-99-2182	Drainage
03-14375	RE03-99-2183	Drainage
03-14376	RE03-99-2184	Drainage
03-14377	RE03-99-2185	Drainage
03-14378	RE03-99-2186	Drainage
03-14379	RE03-99-2187	Drainage
03-14380	RE03-99-2188	Drainage
03-14381	RE03-99-2189	Drainage

* N & W slope = The North and West slopes

5.2 Laboratory Sampling

Sixteen samples (20 percent of the field-screened samples) will be submitted for off-site laboratory analyses to ensure that cleanup of PCBs is complete (Table 5.0-2). The frequency of sampling and laboratory split analyses is in accordance with EPA verification sampling requirements (40 CFR 761.130), LANL's Screening Level Ecological Risk Assessment Methods (LANL 1999, 63303) and SOPs, and NMED's Risk-Based Decision Tree Description (NMED 1998, 57761). Locations of verification samples will be selected from the field-screening samples containing elevated concentrations of PCBs. This conservative approach will ensure that any potential remaining contamination will be detected with laboratory analysis.

After the verification sample locations are determined (based on field screening results), the field team will remobilize to collect the 16 samples (two samples from each of 8 determined locations). Verification samples will be collected at a surface depth (just below the excavation) and bounding samples will be collected from approximately 2 ft below the excavation. All of the verification and bounding samples will be analyzed for PCBs at the fixed laboratory using EPA SW-846 Method 8082. Note that PCBs are the only contaminants detected above levels of concern based on the 1994 RFI sampling and EC verification sampling results.

In order to conduct a complete assessment of the site after corrective action, a total of 12 samples taken on a random basis from 6 locations (75% of the verification samples) will be selected from the 16 samples and submitted to the fixed laboratory for additional analyses of metals and PCE. PCE will be analyzed using EPA SW846 Method 8260. Metals will be analyzed using EPA SW846 Methods 6010/6020/7421. This should provide enough data to conduct screening and risk assessments to confirm that ecological and human health risks are at acceptable levels. These samples may be submitted for quick turnaround results (5 days), and the data will be used to determine that cleanup activities are complete. The analytical results in combination with previous sampling results will be evaluated to determine if data gaps exist requiring additional confirmation sampling. Only after the confirmation sampling results have been obtained and data analysis and assessment is completed will the site be restored (as discussed in Section 4.4).

TABLE 5.0-2
PROPOSED VERIFICATION SAMPLE LOCATIONS AND ANALYSES*

Sample ID	Location ID	Location	Analyses
RE03-99-2022	Based on field-screening results	North and West slope grid	PCB
RE03-99-2023	Based on field-screening results	North and West slope grid	PCB
RE03-99-2024	Based on field-screening results	North and West slope grid	PCB
RE03-99-2025	Based on field-screening results	North and West slope grid	PCB
RE03-99-2026	Based on field-screening results	North and West slope grid	PCB
RE03-99-2027	Based on field-screening results	North and West slope grid	PCB
RE03-99-2028	Based on field-screening results	North and West slope grid	PCB
RE03-99-2029	Based on field-screening results	North and West slope grid	PCB
RE03-99-2030	Based on field-screening results	North and West slope grid	PCB
RE03-99-2031	Based on field-screening results	Drainage grid	PCB
RE03-99-2032	Based on field-screening results	Drainage grid	PCB
RE03-99-2033	Based on field-screening results	Drainage grid	PCB
RE03-99-2034	Based on field-screening results	Drainage grid	PCB
RE03-99-2035	Based on field-screening results	Drainage grid	PCB
RE03-99-2036	Based on field-screening results	Drainage grid	PCB
RE03-99-2037	Based on field-screening results	Drainage grid	PCB

* The samples submitted for metals and VOCs will be determined based on field screening results

6.0 WASTE MANAGEMENT

6.1 Estimated Types and Volumes of Wastes

PCB remediation waste will be managed in accordance with the guidelines contained in 40 CFR Part 761.61 of the regulations pertaining to PCB-contaminated soils and waste.

Table 6.1-1 summarizes the wastes that could be generated during the VCA cleanup at PRS 03-056(c).

TABLE 6.1-1
ANTICIPATED WASTE TYPE AND VOLUME FOR VCA AT PRS 03-056(c)

Item	Waste Type	Anticipated Volume
Soil and tuff	PCB-contaminated remediation waste (< 50 ppm PCBs)	900 yd^3*
Soil and tuff	PCB-contaminated remediation waste (> 50 ppm PCBs)	4 yd^3
Personnel Protective Equipment (PPE)/sampling waste	Solid waste (< 50 ppm PCBs)	<1 yd^3
Decontamination liquids	PCB-containing water (< 50 ppm)	200 gal.

* Based on previous EC volumetric estimates

A Waste Characterization Strategy Form (WCSF) has been prepared and submitted to ESH-19 and EM-FWO/SWO (Facility and Waste Operations Division/Solid Waste Operations) for review and approval. The WCSF describes the requirements and uncertainties associated with each waste type that will be generated during this VCA.

6.2 Method of Management and Disposal

Cleanup activities at PRS 03-056(c) involve removing PCB remediation waste consisting of soil containing 1 ppm or greater PCBs. The soil will be sampled for PCBs and any other analytes using the methodology described in Section 5.2 as required by the disposal facility that will accept these wastes.

The removed soil will be stored on-site until all analyses have been evaluated to determine its waste classification. The soil will then be transported to an approved waste disposal facility. Nonrecyclable (PPE, gloves, plastic sheets, etc.) and sampling equipment (scoops, jars, etc.) will be stored on-site in 55-gal. drums until disposal at an approved waste facility. PPE/sampling equipment will not be directly sampled; however, characterization will be based on site-characterization data (soil and/or tuff analyte results).

Based on the low concentration level detected after the EC (less than 50 ppm total PCBs), the majority of the soil at this site is considered PCB-contaminated remediation waste, and can be disposed of in a LANL-approved state-permitted landfill following regulatory requirements (40 CFR 750-761, July 1998).

Based on existing analytical information, approximately 4 yd^3 of PCB remediation waste (> 50 ppm total PCBs) exists at the site. The waste will be segregated, stored and transported to a LANL-approved TSCA waste disposal facility.

Wastes generated from the immunoassay sampling kits will be temporarily stored in a container in a Satellite Accumulation Area within or near the chemistry laboratory trailer until removed to a Less-Than-90-Day Storage Area and/or to a Treatment, Storage, and Disposal (TSD) facility.

PCB-containing decontamination water used during the remedial activities will be containerized and disposed of at a LANL approved waste disposal facility.

7.0 PROPOSED SCHEDULE AND UNCERTAINTIES

The estimated schedule required to complete the VCA at PRS 03-056(c) is presented below.

Task Name	Task Duration (days)	Total Elapsed Time from Project Start (days)
Readiness Review	30	30
Mobilization	30	60
Pre-Excavation Sampling	30	90
Excavation Waste Management	60	150
Post-Excavation Sampling	15	165
Site Restoration	21	186
Prepare VCA Report	60	246

8.0 REFERENCES

Alexander, M., 1995. "How Toxic Are Toxic Chemicals in Soil?" Critical Review, in *Environmental Science Tech.*, Vol. 29, No. 11, pp. 2713–2716. (Alexander 1995, 63536)

ATSDR (Agency for Toxic Substances and Disease Registry), 1995. "Toxicological Profile for Polychlorinated Biphenyls Draft for Public Comment," ATSDR and Research Triangle Institute profile at www.atsdr.cdc.gov, Division of Toxicology/Toxicology Information Branch, Atlanta, Georgia. (ATSDR 1995, 63537)

EPA (US Environmental Protection Agency), August 1985. "Verification of PCB Spill Cleanup by Sampling and Analysis," Environmental Protection Agency report EPA-560/5-85-026, Washington, D.C. (EPA 1985, 08026.1)

LANL (Los Alamos National Laboratory), April 1999. "Screening Level Ecological Risk Assessment Methods," Los Alamos National Laboratory report LA-UR-99-1405, Los Alamos, New Mexico. (LANL 1999, 63303)

LANL (Los Alamos National Laboratory), November 1998. "Installation Work Plan for Environmental Restoration Project," Revision 7, Los Alamos National Laboratory report LA-UR-98-4652, Los Alamos, New Mexico. (LANL 1998, 62060)

LANL (Los Alamos National Laboratory), April 1996. "Draft FSR for SWMU 03-056(c) Expedited Cleanup, R0." Los Alamos National Laboratory, Los Alamos, New Mexico (LANL 1996, ER ID 55746)

LANL (Los Alamos National Laboratory), 1995a. "Site Development Plan - Annual Update 1995," Los Alamos National Laboratory report LALP-95-113, Los Alamos, New Mexico. (LANL 1995, 57224)

LANL (Los Alamos National Laboratory), 1995b. "Los Alamos National Laboratory Environmental Restoration Project Expedited Cleanup Plan for Solid Waste Management Unit 03-056(c)," Los Alamos National Laboratory, Los Alamos, New Mexico. (LANL 1995, 52951.40)

LANL (Los Alamos National Laboratory), July 1993. "RFI Work Plan for Operable Unit 1114," Los Alamos National Laboratory report LA-UR-93-1000, Los Alamos, New Mexico. (LANL 1993, 20947)

NMED (New Mexico Environment Department), March 1998. "Risk-Based Decision Tree Description," in *the New Mexico Environment Department Hazardous and Radioactive Materials Bureau RCRA Permits Management Program (RPMP) Document Requirement Guide*. (NMED 1998, 57761)

APPENDIX A

ACRONYMS AND ABBREVIATIONS

LIST OF ACRONYMS

ATSDR	Agency for Toxic Substances and Disease Registry
ATV	all-terrain vehicle
BCP	Baseline Change Proposal
BMP	best management practice
CEM	conceptual exposure model
CFR	Code of Federal Regulations
CRZ	contamination reduction zone
DOE	US Department of Energy
EC	expedited cleanup
EM	Environmental Management (division)
EMS	erosion matrix score
EM-FWO/SWO	Environmental Management – Facility Waste Operations/Solid Waste Operations
EPA	US Environmental Protection Agency
ER	environmental restoration
ESH	Environmental Safety and Health (division)
EZ	exclusion zone
GPS	global positioning system
HEPA	high efficiency particulate air (filter)
HRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazard and Solid Waste Amendments of 1984
IWP	Installation Work Plan
JCI	Johnson Controls Incorporated
LAAO	Los Alamos Area Office
LANL	Los Alamos National Laboratory
NFA	no further action
NMED	New Mexico Environment Department
NOD	notice of deficiency
OSHA	Occupational Safety and Health Administration

PCB	polychlorinated biphenyl
PCE	perchloroethene, tetrachloroethene
PPE	personal protective equipment
ppm	part per million
PRS	potential release site
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RPMP	RCRA Permit Management Program
SAL	screening action level
SOP	standard operating procedure
SVOC	semivolatile organic compound
SWMU	solid waste management unit
SWPPP	Storm Water Pollution Prevention Plan
SWQB	Surface Water Quality Bureau
SZ	support zone
TA	technical area
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
VCA	voluntary corrective action
VOC	volatile organic compound
WCSF	Waste Characterization Strategy Form
yd^3	cubic yard

APPENDIX B

VCA CHECKLIST

Accelerated Corrective Action (ACA)
Checklist and Field Work Authorization Form
PRS No. 03-056(c) HSWA

Yes	No	
√		Fact sheet describing planned activities is complete and attached to checklist
√		COPC(s) for HH, ECO, or other requirements are known or will be determined during accelerated site characterization
√		Nature and extent of contamination is defined or accelerated site characterization is planned as part of this action to define nature and extent and guide cleanup.
√		Cleanup levels/PRGs are appropriate.
√		Remedy is obvious
√		Time for removal is less than 6 months.
√		Remedy is final.
√		Land use assumptions are straight forward.
√		Treatment, Storage, Disposal Facilities are available for waste type and volume.
√		Cleanup cost is reasonable for the planned action, and meets accelerated decision logic criterion for decision to proceed with ACA.
	√	Briefing for NMED is required
Explain criteria not checked above:		

Upon reviewing the Accelerated Corrective Action Fact Sheet and the criteria checklist above, the appropriate Accelerated Corrective Action approach for the PRS(s) is:

VCA	√
VCM	

Signature of UC-LANL, DOE-LAAO, and NMED-HRMB Representative	Date
UC	
DOE	
NMED	

The undersigned have reviewed the final plan and believe that it fully satisfies the appropriate Accelerated Corrective Action Approach.

Signature of UC-LANL and DOE-LAAO Representative	Date
UC	
DOE	

Action	Date	Correspondence ID
VCA/VCM plan submitted to NMED		
NOD or RSI Received from NMED		
LANL Response to NOD or RSI		
NMED Approval to VCA/VCM Plan		

After reviewing VCA/VCM Plan, for the site(s) listed above, and believing that the ACA process and VCA/VCM criteria have been met, I authorize the fieldwork to proceed.

DOE ER Program Manager _____ Date _____

PRS 3-056(c) Voluntary Corrective Action Fact Sheet
Removal Of PCB Contaminated Soil
SRS: 36
Erosion Matrix Score: 52.6

Description And History

PRS 3-056(c) is a storage area located northeast of the JCI Utilities Shop (TA-3-223). This area was used by the Laboratory's electrical power line maintenance contractor from 1967 to present. Items stored throughout the yard include electrical cable, used and unused dielectric oils, PCB-containing transformers, capacitors, and oil filled-drums. Drums containing waste and product solvents were also stored at the site.

Transformers with less than 500 ppm PCB were drained into drums at this location, then transported to salvage. Solvents were used to clean electrical equipment. Solvent soaked rags were used to wipe down equipment, the residual solvent was placed in a drum. Once a few drums were full, they were removed from the site for disposal. A nonhazardous citrus-based solvent has been used at the site from 1990 to present. Waste solvent storage area was decommissioned in 1992.

Contaminants

Based on the results of the following sampling events conducted in 1992, 1994, and 1995, several contaminants of potential concern (COPCs) were identified.

In 1992 a slope stabilization project (from water/snow erosion) was initiated at Bld. TA-3-223. Reconnaissance sampling was performed at 5 locations prior to anticipated stabilization activities. PCB results from the reconnaissance sampling halted the stabilization activities. A Phase I RFI was performed in 1994, detection of contaminants (PCBs) greater than SALs lead to an expedited cleanup (EC) in 1995. Mercury, copper, and zinc were also detected at a concentration exceeding their background values (BVs). The list of detected organic chemicals included benzo(b)fluoranthene, tetrachloroethylene, methylene chloride, chrysene, fluoranthene, and pyrene. Because the inorganics and organics listed above (except for Aroclors-1242, -1254 and –1260) were at levels well below SALS, the contaminants that launched the EC were Aroclors-1242, -1254, and –1260.

TSCA guidance was used to determine the 10 ppm PCB cleanup level for the industrial site. A human health and ecological risk assessment was also performed using 10 ppm to back calculate an acceptable cleanup level, which confirmed the TSCA prescribed number to be adequately protective. One thousand cubic yards of PCB contaminated material was removed from the site. For the most part, the two acre site was cleaned up to a less than 10 ppm total PCBs clean up level. PCBs are the only contaminants expected to be remaining onsite based on samples collected during the 1995 EC.

Rationale

The site is located on a steep slope that leads to a Sandia Canyon tributary. The site is considered a watercourse, although only 10-15 ft of the western slope's toe is actually within the high water table. Because PCBs are bioaccumulators, the administrative authority has requested that this site be cleaned up to a level of less than 1 ppm total PCBs instead of the 10 ppm PCBs the site was cleaned to in 1995. Therefore, additional corrective action will be initiated at this site.

Voluntary Corrective Action

The corrective action at this site will involve the removal of PCB contaminated tuff, as well as channel sediment deposits. The estimated amount of material to be excavated is approximately 930 cubic yards. Details of the excavation have not been finalized, but it is currently believed that these activities will be completed using the combined efforts of heavy equipment and vacuum trucks. Continued disturbance to the surrounding environment is inevitable because the northern slope where the storm water channels drain is heavily forested. Excavation of tuff and sediments from the channels will require removal of some trees. To minimize environmental disturbance use

of a vacuum truck will be considered, but hand digging would likely be cost prohibitive. Site restoration will be extensive and require installation of: rock gabions, new drainage grading and a drainage drop inlet, erosion control matting and seeding, new fencing, and a new asphalt storage/parking pad.

Anticipated Waste Types and Volumes

ITEM	WASTE TYPE	ANTICIPATED VOLUME
PCB contaminated soil and tuff material (Mostly 1 to 10 ppm PCB expected)	< 50 ppm PCB waste (with letter from EPA-TSCA for special dispensation)	930 cu yd
PCB contaminated decon water from heavy equipment	< 10 ppm PCB decon water	220 gals.
Sampling materials and PPE	Sanitary	2 cu yd

Estimated Cost

The remedial activities, including planning, cleanup, waste disposal, site restoration, and report preparation will range from $930K to $1.3 million depending on the special EPA-TSCA dispensation for waste disposal of PCBs as a <50 ppm PCB waste stream to a non-TSCA facility. Otherwise, if the waste stream is considered TSCA at the highest PCB value found at the site (greater than 500 ppm PCB) the waste stream will probably have to be shipped to Kettleman Hills, California as done in the 1995 EC, where disposal and transportation costs were very high.

Schedule

The field work portion of this VCA is expected to begin in April 1999 and take approximately 8 months to complete. The field work includes soil removal, verification sampling, and site restoration.

Reference List of Past Plans, Reports, NODs, RSI, etc.

- RFI Work Plan for Operable Unit 1114 (LA-UR-93-1000), Subsection 5.10.
- Los Alamos National Laboratory Environmental Restoration Project Expedited Cleanup Plan for SWMU 3-056(c).
- Field Summary Report for EC at PRS 3-056(c) by ERM/Golder, 1996.
- Status Report for Solid Waste Management Unit 3-056(c) and Proposal of Cleanup Level, December 7, 1995, EM/ER:95-704.
- Notice of Deficiency, Status Report for SWMU 3-056(c), Los Alamos National Laboratory (NM0890010515), March 13, 1996.
- Response to the Notice of Deficiency for Solid Waste Management Unit 3-056(c), Technical Area 3, Expedited Cleanup Status Report. May 2, 1996, EM/ER:96-253.

APPENDIX C

SOP 2.01

Los Alamos National Laboratory

Environment, Safety & Health Division
ESH-18 Water Quality & Hydrology Group

Surface Water Assessment
Erosion Matrix for PRS 03-056(c)

CRITERIA EVALUATED	Value	Erosion/Sediment Transport Potential Low 0.1	Medium 0.5	High 1.0	Calculated Score
Site Setting (43)					
On mesa top	1	Defined based on topographic setting			
Within bench of canyon	4				
Within the canyon floodplain but not watercourse	13				
Within bottom of canyon channel in watercourse	17				17.0
Estimated % ground and canopy cover	13	>75%	25-75%	<25%	13.0
Slope	13	0-10%	10-30%	>30%	6.5
Surface Water Factors-Run-off (46)					
Visible evidence of runoff discharging? (Yes/No)	5	If no, score of 0 for runoff section. If yes, score 5 and proceed with section.			5.0
Where does runoff terminate?	19	Other	Bench Setting	Drainage/Wetland	19.0
Has runoff caused visible erosion? (Yes/No)	22	Sheet	Rill	Gully	2.2
		If no, score as 0. If yes, calculate as appropriate.			
Surface Water Factors-Run-on (11)					
Structures adversely affecting run-on (Yes/No)	7*	If yes, score as 7. If no, score as 0.			7.0
Current operations adversely impacting (Yes/No)	4	If yes, score as 4. If no, score as 0.			0.0
Natural drainages onto site (Yes/No)	7*	If yes, score as 7. If no, score as 0.			0.0
**Select either structures or natural drainages.*					
MAX. POSSIBLE EROSION MATRIX SCORE:	**100**			**Total Score**	69.7**

REVISED PART B

** Indicates BMPs in place. Erosion potential without BMPs may be greater.

Report Printed 9/2/99 12:37:26 PM.

Los Alamos National Laboratory
SURFACE WATER
SITE ASSESSMENT

Revised Part B. Please discard previous.

SITE INFORMATION

1a) PRS Number: 03-056(c) 1b) Structure Number: 3-223 1c) FMU Number:

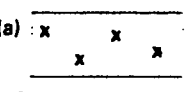
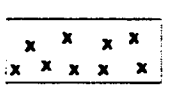
2. Date/Time (M/D/Y H:M am/pm): 9/16/97 11:00:00 AM

SITE SETTING (check all that apply)

3. ● On mesa top (a). ○ In the canyon floor, but not in an established channel (c).
   ○ Within a bench of a canyon (b). ● Within established channel in the canyon floor (d).

Explanation: Former transformer clean-out/storage area. PRS extends to the north and west from edge of canyon to just above watercourse in tributary of Sandia canyon.

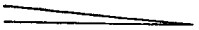
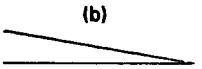
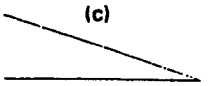
4. Estimated ground and/or canopy cover at site: (deciduous leaves, pine needles, rocks, vegetation, trees, structures, asphalt, etc.)

(illustration) (a)  (b)  (c)

Estimated % of ground/canopy cover: ● 0% to 25% ○ 25% to 75 ● 75% to 100

Explanation: Site is exposed due to remediation effort. Mostly soils and rock which is currently covered with plastic.

5. Steepest slope at the area impacted:

(a)  (b)  (c) 

○ Less than 10% ● 10% to 30% ○ 30% and greater

Explanation: Located on exposed northwest and north facing slope.

RUNOFF FACTORS

Y / N

☑ ☐ **6. Is there visible evidence of runoff discharging from site? If yes, answer a) - c) below:**

☐ ☑ 6a) Is runoff channelized? If yes, describe ○ Man-made channel. ○ Natural channel.

Explanation: Sheet flow runoff from slope directly into tributary of Sandia Canyon. Northern site has natural channels created from runoff of adjacent parking area.

RUNOFF FACTORS, CONT'D

6b) Where does evidence of runoff terminate?

- [x] Drainage or wetland (name) Sandia Canyon
- [ ] Within bench of canyon setting (name)
- [ ] Other (i.e., retention pond, meadow, mesa top)

Explanation: Runoff terminates directly into tributary below site. There are additional sources of potential contaminants immediately upstream from the site (TA-3 Power Plant 3-22).

Y / N

[x] [ ] 6c) Has runoff caused visible erosion at the site? If yes, explain below [x] Sheet [ ] Rill Gully

Explanation: Visible erosion difficult to see due to plastic cover. Any current erosion processes have been impeded while remediation effort is ongoing.

RUN-ON FACTORS

Please rate the potential for storm water to run on to this site: (Check EITHER #7 or #9)

[x] [ ] 7. Are structures (i.e., buildings, roof drains, parking lots, storm drains) creating run-on to the site?

Explanation: Parking lot above PRS.

[ ] [x] 8. Are current operations (i.e., fire hydrants, NPDES outfalls) adversely impacting run-on to the site?

Explanation: No operational impact

[ ] [x] 9. Are natural drainage patterns directing stormwater onto site?

Explanation: Run-on is diverted by asphalt berm and channel.

ASSESSMENT FINDING:

[x] [ ] **10. Based on the above criteria and the assessment of this site, does soil erosion potential exist? (REFER TO EROSION POTENTIAL MATRIX.)**

Veenis, Steve

11. Signature of Water Quality/Hydrology Representative

SV Initials of independent reviewer.

Check here when information is entered in database: [x]

This page is for ESH-18 notes, recommendations, and photos.

	Y	N	
12. a)		●	Is there visible trash/debris on the site?
b)		●	Is there visible trash/debris in a watercourse?

Description of existing BMPs:

Curlex geomat were placed over the entire slope in November 1997. Asphalt berm diverts storm water away from slope on top of site. Original BMPs installed 7/31/95.

●		Are BMPs being properly maintained? If no, describe in "Other Internal Notes."
●		Are BMPs effectively keeping sediment in place and reducing erosion potential?

OTHER INTERNAL NOTES:

The score had previously been recorded as (52.6) but was modified because the runoff termination point (question 6b) was not properly noted on the form.

APPENDIX D

ECOLOGICAL SCOPING CHECKLIST

ECOLOGICAL SCOPING CHECKLIST
PART A

SCOPING MEETING DOCUMENTATION

Site ID	PRS 03-056(c)
Form of site releases. Describe all relevant known or suspected mechanisms of release (spills, dumping, material disposal, outfall, explosive testing, etc.) and describe potential areas of release. Reference locations on a map as appropriate.	The southern portion of the site was used as a storage area for electrical equipment, capacitors, and transformers with PCB-contaminated dielectric fluids. Waste solvent was stored there in unmarked drums from 1967 to 1992. The PRS extends steeply downgradient to the west and north from the relatively level storage area. Leaks and spills from the stored equipment and drums are the known and suspected mechanisms of release at the site.
List of Primary Affected Media **(Indicate all that apply)**	**Surface soil** – X **Surface water/sediment**– **Subsurface** – X **Groundwater** – **Other; explain** –
FIMAD vegetation class based on Arcview vegetation coverage **(Indicate all that apply)**	**Water** – **Bare ground/unvegetated** – **Spruce/fir/aspen/mixed conifer** – X **Ponderosa pine** – X **Piñon juniper/juniper savannah** – **Grassland/shrubland** – **Developed** – X (very small portion of site)
Is T&E Habitat Present? **If applicable, list species known or suspected to use the site for breeding or foraging.**	Although no significant breeding or foraging habitats for T&E species are likely to exist at the site, a T&E review for PRS 03-056(c) has been requested from ESH-20. The ESH-20 response will be included in a revised ecological scoping checklist that will be included in the VCA completion report.
Provide list of Neighboring/ Contiguous/ Upgradient sites and include a brief summary of COPCs and the form of releases for relevant sites; reference a map as appropriate. **(Use this information to evaluate the need to aggregate sites for screening)**	PRS 03-012(b), which is the outfall from the power plant and provides much of the flow in the drainage that forms the western and northern boundary of PRS 03-056(c), is upgradient from the site. PCBs have been detected at the upgradient PRS, although the most significant transport pathway [i.e., the creek flowing from the power plant outfall, from PRS 03-012(b)] does not affect PRS 03-056(c) directly. No additional PRSs will be considered in this scoping checklist because the checklist is being used to assist in the performance of a VCA at PRS 03-056(c).

Site ID	PRS 03-056(c)
Surface Water Erosion Potential Information **Summarize information from AP 4.5 or SOP 2.01, including the run-off subscore (maximum of 46), terminal point of surface water transport, slope, and surface water run-on sources.**	Runoff subscore = 22.6/46 Surface water transport terminates in creek along western and northern boundaries of PRS 03-056(c) Slope = average 10–30 % (several locations have slopes > 30%); Surface water run-on subscore = 7/11 Site setting subscore = 36.5/43 Total erosion matrix score = 69.7/100
Other Scoping Meeting Notes	The history of the site, including the regulatory actions associated with previous remediation and the proposed VCA, was reviewed. Maps and data from previous sampling investigations and the extent of previous soil removal were also reviewed.

ECOLOGICAL SCOPING CHECKLIST
PART B

SITE VISIT DOCUMENTATION

Site ID	PRS 03-056(c)
Date of Site Visit	June 29, 1999
Site Visit Conducted by	Toby Walters, Debbie Risberg, Don Kellett; all of IT Corporation

Receptor Information:

Estimate of cover	**Relative vegetative cover (high, medium, low, none)** = high, with isolated areas of exposed bedrock **Relative wetland cover (high, medium, low, none)** = none **Relative structures/asphalt, etc. cover (high, medium, low, none)** = low; some asphalt remains on the electrical equipment storage area
Field notes on the FIMAD vegetation class to assist in ground-truthing the Arcview information	Vegetation at the site is a mix of ponderosa pine, Douglas fir, and Gambel oak, with a relatively high diversity of forest understory species, including several shrub species and grasses.
Field notes on T&E Habitat, if applicable. Consider the need for a site visit by a T&E subject-matter expert to support the use of the site by T&E receptors.	The only likely T&E species' use of the site is occasional foraging from avian species with large foraging areas (e.g., Mexican spotted owl, peregrine falcon). It is not likely that any other T&E species use the habitats at PRS 03-056(c). An ESH-20 T&E review has been requested and will be included in a revised ecological scoping checklist to be included in the VCA completion report.
Are ecological receptors present at the site? **(yes/no/uncertain)** **Describe the general types of receptors, terrestrial and aquatic, and make notes on the quality of habitat present at the site.**	Yes, terrestrial receptors common to the woodlands at LANL, including elk, deer, carnivorous mammals, herbivorous rodents, and a number of avian species, are likely to use the site. The site is high-quality wildlife habitat with a predominantly northwest to north aspect that provides a cooler microclimate suitable for denser vegetative cover and greater community diversity than the warmer and drier mesa tops and south-facing slopes. Browse plants are numerous, as are several shrub species bearing fruits and berries.

Contaminant Transport Information:

Surface water transport **Field notes on the erosion potential, including a discussion of the terminal point of surface water transport (if applicable).**	The erosion potential at the site is relatively high. Drainage channels are well defined and, in some cases, are incised in the soil down to the tuff surface. By moving along these channels, surface water may be transported a short distance to the flowing creek in Sandia Canyon that bounds PRS 03-056(c) on the west and north.
Are there any off-site transport pathways (surface water, air, or groundwater)? **Provide explanation**	Yes, the existing surface water pathways are likely to provide off-site transport beyond the bounds of PRS 03-056(c). Erosion control measures, including run-on diversion berms, hay bale berms, settling barriers in drainage channels, a silt fence, and Curlex™ erosion control blankets, are currently present on the site.

ECOLOGICAL SCOPING CHECKLIST
PART B

SITE VISIT DOCUMENTATION
(CONTINUED)

Interim action needed to limit off-site transport? **(yes/no/uncertain)** **Provide explanation/ recommendation to Project Lead for IA SMDP.**	The proposed VCA will reduce contamination on the site and install engineered controls (if necessary) so that run-off and/or off-site transport is minimized.
Physical Disturbance **(Provide list of major types of disturbances, including erosion and construction activities; review historical aerial photos where appropriate.)**	The site underwent an Expedited Cleanup (EC) in 1995, which removed approximately 1000 yd^3 of PCB-contaminated soil from the North and West slopes. Most of this soil removal occurred on the North and West slopes. The West Slope is currently barren of vegetation and is covered with a Curlex™ blanket. The North Slope is also covered by a Curlex™ blanket, but has several trees intermittently distributed across the slope.
Are there obvious ecological effects? **(yes/no/uncertain)** **Provide explanation and apparent cause (e.g., contamination, physical disturbance).**	Yes, vegetation and the supporting soils on the North and West slopes were removed during the 1995 EC. These slopes are currently covered with erosion control blankets. No ecological effects directly related to contamination were observed during the site visit.
Interim action needed to limit apparent ecological effects? **(yes/no/uncertain)** **Provide explanation and recommendations to mitigate apparent exposure pathways to project lead for IA SMDP.**	No, the proposed VCA is intended to mitigate any potential ecological effects.

ECOLOGICAL SCOPING CHECKLIST
PART B

SITE VISIT DOCUMENTATION
(CONTINUED)

No Exposure/Transport Pathways:

If there are no complete exposure pathways to ecological receptors onsite and no transport pathways to offsite receptors, the remainder of the checklist should not be completed. Stop here and provide additional explanation/justification for proposing an ecological No Further Action recommendation (if needed). At a minimum, the potential for future transport should include likelihood that future construction activities could make contamination more available for exposure or transport.

In addition to reducing the residual PCB contamination at the site to 1.0 ppm, or below, the VCA will effectively interrupt the complete exposure pathways that may currently exist at PRS 03-056(c). PCB-contaminated soil will be removed from the site as a result of the VCA. Although it is possible that PCBs will remain within the underlying tuff, the tuff will not be removed because the ecological damage resulting from such removal would be too great. It is not likely that the exposure pathways within the tuff are complete. Additionally, the relatively immobile characteristics that PCBs take on once they have entered the tuff will help mitigate exposure concerns about any residual PCB concentration in the tuff. The areas where soil will be removed to the soil/tuff interface, including the North and West slopes, will be backfilled with clean soil. These reconstructed slopes will be engineered to ensure slope stability. A vegetated cover will then be placed on the stabilized slopes to prevent soil erosion. In addition, a 4-in.-thick asphalt cover will be placed over the electrical equipment storage area, upgradient from the North and West slopes. Stormwater run-on path and the drainage areas upgradient from the site will be reconstructed to promote a channel flow that bypasses PRS 03-056(c) on its path to Sandia Canyon.

Under current conditions, receptors may be exposed to PCBs through the following complete exposure pathways:

1. Incidental ingestion of soil by foraging animals
2. Food web transport via ingestion of contaminated soil, contaminated plants, or prey
3. Inhalation of dust generated during foraging, burrowing, or by wind movement
4. Plant exposure to PCBs from surface splash or root uptake
5. Transport of contaminated soil to aquatic ecological communities
6. Mass wasting as a potential release mechanism for subsurface material

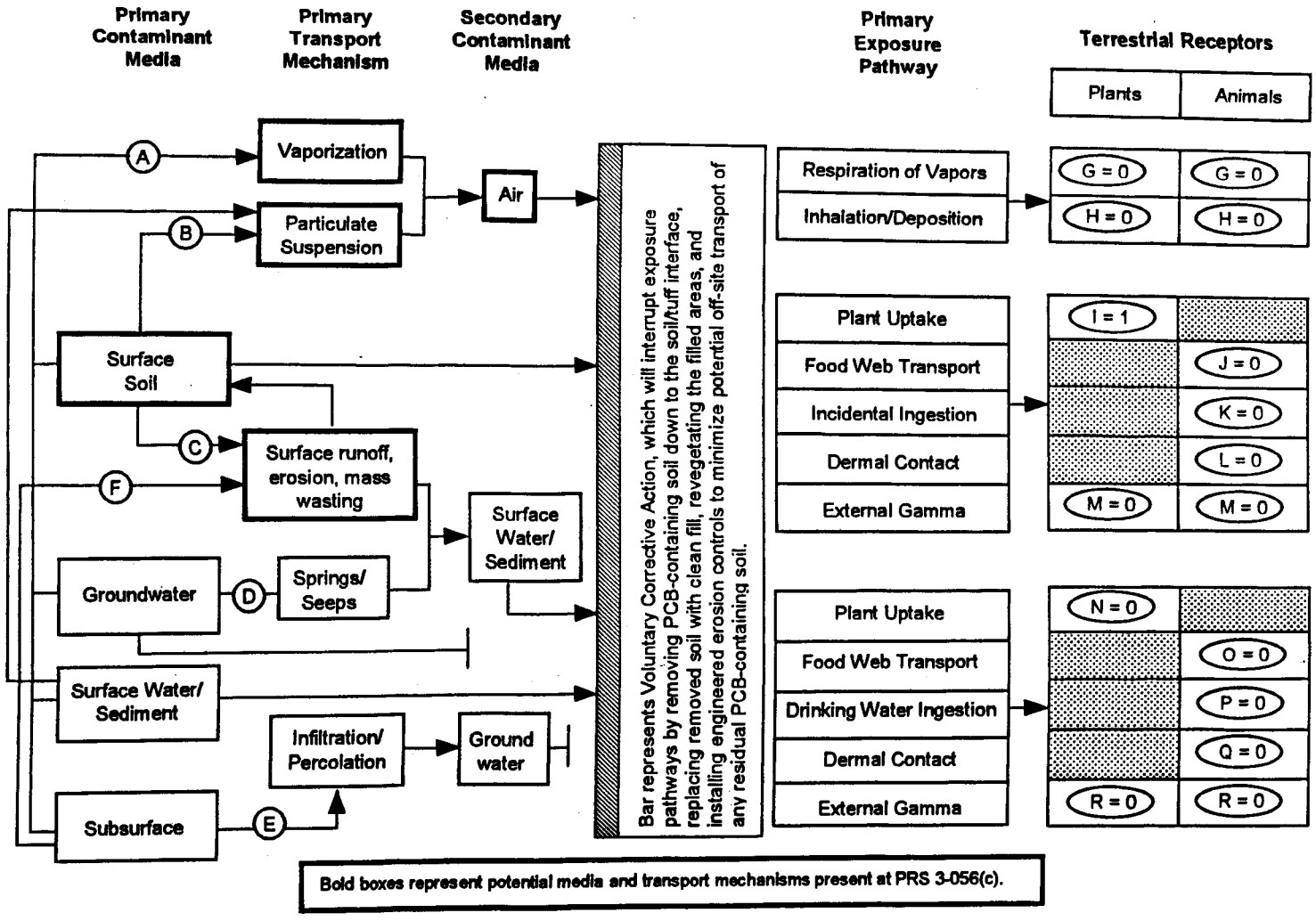
The exposure pathways will be removed as a result of the VCA. The exposure pathways described in 1, 2, and 3 will become incomplete upon removal of the contaminated soil and placement of clean soil and a vegetative cover. The surface splash element of pathway 4 will be eliminated with the removal of soil. Although it is possible that some plant roots may exist within cracks or crevices in the tuff, it is not expected that root uptake will present a significant exposure pathway, either for the plants or as primary elements in food web transport. Pathway 5 will be interrupted with the removal of contaminated soil, the installation of the erosion control measures in the drainage pathways, and the rerouting of surface water run-on to inhibit runoff. Pathway 6 will be mitigated by the placement of an asphalt cover over the storage area, where mass wasting has the potential to occur.

As a result of the VCA, the exposure pathways that are currently complete will no longer provide means for adverse PCB exposure to ecological receptors within the bounds of the site. Consequently, with regard to potential ecological risk, and pending successful completion of the VCA, PRS 03-056(c) will be a candidate for NFA.

Ecological Scoping Checklist: PRS 3-056(c)
Terrestrial Receptors
Ecological Pathways Conceptual Exposure Model

KEY
0 - No Pathway
1 - Unlikely Pathway
2 - Minor Pathway
3 - Major Pathway

Letters correspond to questions on Part C, Ecological Scoping Checklist; numerals to Key.



Bold boxes represent potential media and transport mechanisms present at PRS 3-056(c).

Signatures and certifications:

Checklist completed by (provide name, organization and phone number):

Name (printed): Don Kellett

Name (signature):

Organization: IT Corporation

Phone number: 505-661-5206

Date completed: Site visit, June 29, 1999; checklist completed July 6, 1999

Verification by a member of ER Project Ecological Risk Task Team (provide name, organization and phone number):

Name (printed):

Name (signature):

Organization:

Phone number:

Figure 2.1-1. Photograph of West Slope Area.

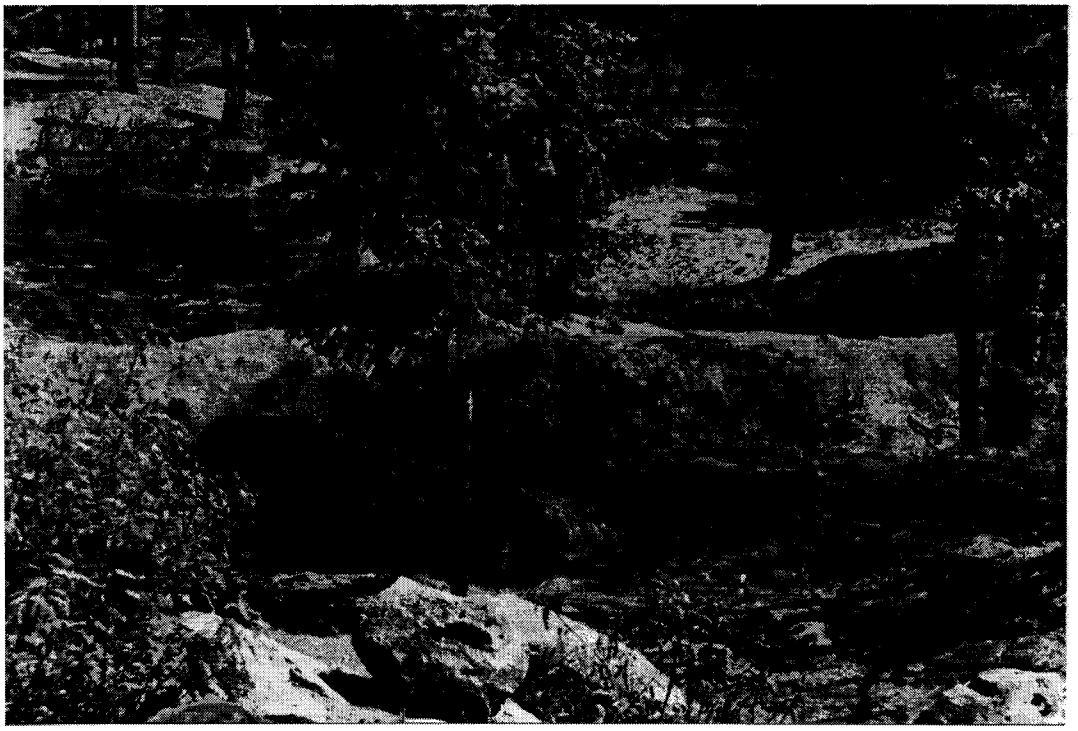


Figure 2.1-2. Photograph of North Slope Area.

Environmental Restoration
University of California
Environmental Science and Waste Technology (E)
Environmental Restoration, MS M992
Los Alamos, New Mexico 87545
505-667-0808/FAX 505-665-4747

U.S. Department of Energy
Los Alamos Area Office, MS A316
Environmental Restoration Program
Los Alamos, New Mexico 87544
505-667-7203/FAX 505-665-4504

Date: August 18, 2000
Refer to: ER2000-0431

Mr. John Kieling
NMED-HWB
P.O. Box 26110
Santa Fe, NM 87502

SUBJECT: SUBMITTAL OF RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) FOR THE VOLUNTARY CORRECTIVE ACTION (VCA) PLAN FOR POTENTIAL RELEASE SITE (PRS) 03-056(c)

Dear Mr. Kieling:

Enclosed are three copies of the Los Alamos National Laboratory (LANL) Environmental Restoration Project's Response to your RSI on the VCA Plan for PRS 03-056(c). This PRS is listed on Table A of the Hazardous and Solid Waste Amendments Module of LANL's Hazardous Waste Facility Permit. The RSI was received at the ER Project Office on July 21, 2000.

If you have any questions, please call Dave McInroy at (505) 667-0819 or Joe Mose at (505) 667-5808.

Sincerely,

Julie A. Canepa, Program Manager
Los Alamos National Laboratory
Environmental Restoration

Sincerely,

for Joseph H. Mose

Theodore J. Taylor, Program Manager
Department of Energy
Los Alamos Area Office

JC/TT/NR/ev

Enclosure: Response to RSI

Cy (w/enc.):
M. Buksa, E/ET, MS M992
G. Lopez Escobedo, E/ET, MS M992
J. Mose, LAAO, MS A316
D. Neleigh, US EPA (2 copies)
N. Riebe, E/ET, MS M992
T. Taylor, LAAO, MS A316
J. Davis, NMED-SWQB
J. Parker, NMED-DOE OB
S. Yanicak, NMED-DOE OB, MS J993
E/ER File, MS M992
E/ER (CT# C803), MS M992
RPF, MS M707

Cy (w/o enc.):
J. Canepa, E/ER, MS M992
D. McInroy, E/ER, MS M992
W. Neff, E/ET, MS M992
V. Rhodes, Aurora, MS M992
J. Bearzi, NMED-HWB
S. Dinwiddie, NMED-HWB

RESPONSE TO REQUEST FOR SUPPLEMENTAL INFORMATION (RSI) FOR VCA PLAN FOR POTENTIAL RELEASE SITE 03-056(c)

This document responds to a letter regarding "Request for Supplemental Information VCA Plan for Potential Release Site 03-056(c), Los Alamos National Laboratory, NM0890010515 HRMB-LANL-99-006" dated July 7, 2000, from the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) to the Los Alamos National Laboratory (LANL) Environmental Restoration (ER) Project. To facilitate review of this response, NMED's comments are included verbatim below. LANL's responses follow each NMED comment.

Specific Comments

1. *Page 1, Section1.1, Purpose and Scope, paragraph 1:*

LANL Statement: *"Install run-off control structures to mitigate the possibility of residual PCBs (if present) leaving the remediated area"*

HWB Comment: *In addition to run-off control structures in the drainages, LANL should install run-on control structures on the mesa top to divert any storm water from entering the drainages if this has not already been done. If residual contamination remains (>1ppm for PCBs), LANL should also provide a viable schedule for maintaining the run-on and run-off control structures.*

LANL Response:

Run-on control structures on the mesa top have been constructed to divert storm water from entering the drainages. The run-on controls installed include diversion of the ruff drain from building TA-3-223. Run-on and run-off controls are planned as part of the site restoration and include installation of new asphalt, new curb, replacing fence, etc. The level of controls that will be constructed will be designed based on the levels of contamination remaining on the site after the cleanup and the location of the contamination if any.

2. *Page 3, Figure 1.0-2, PRS 03-056(c) including North Slope, West Slope, and ephemeral drainages:*

HWB Comments: *LANL should define the PRS boundary on the figure and describe it in the text in the VCA completion report.*

LANL Response:

As requested by NMED, A well-defined PRS boundary will be provided in a figure and text in the PRS 3-056(c) VCA Report.

3. *Page 14, Section 4.1.3.1 Potential Human Health Exposure to Receptors:*

LANL Statement: *"Because of the low levels of PCBs at PRS 03-056(c) and the fact that PCBs are not easily released from soils, dermal exposure is not included. Its contribution to exposure would be at least one order of magnitude less than exposure from inhalation or ingestion."*

HWB Comments: *Dermal contract with soil contaminated with PCBs is one of the most important routes of PCB entry into the human body. LANL should evaluate dermal exposure and use HWB's PCB position paper for guidance.*

LANL Response:

LANL will evaluate the dermal exposure pathway as part of the assessment in the PRS 3-056(c) VCA Report.

4. Page 20, section 4.3.3 Removal Activities, paragraph 4:

LANL Statement: *"If the refined volume estimates significantly increase from that originally expected (900 yd^3), a completion strategy will be developed based on the following criteria:*

- *Prioritization of the removal of material in areas of higher concentration*
- *Characterizing the extent of soil and tuff containing greater than 1 ppm PCBs and possibly doing a risk assessment to calculate remaining residual risk*
- *Estimating the volume of material remaining on site"*

HWB Comments: *LANL should make every effort to remove all soil that has greater than 1 ppm of PCBs. However, HWB understands that the excavation of tuff with PCBs greater than 1 ppm may not be feasible because it will have little cost benefit and there is acceptable risk with the remaining levels. The completion strategy that is discussed in this section should focus on only the tuff. LANL should also have a contingency plan to address further investigation/remedial activities if the site fails the risk assessment.*

LANL Response:

LANL will make every effort to remove all soil at PRS 3-056(c) that is greater than 1 ppm PCBs. As discussed during a meeting with NMED on April 28, 2000 communication with NMED during the cleanup effort will ensure that NMED is consulted with respect to any contamination greater than 1 ppm that is left on the site. LANL will work with NMED in developing a contingency plan, if necessary, as the cleanup effort progresses. In addition, to meet an EPA TSCA request, a risk based cleanup level is being developed for the site, and will be submitted in a Notice to EPA-TSCA and NMED by August 31, 2000. Although, the proposed risk based cleanup level will be greater than 1 ppm, it is the intent of this corrective action to remove all loose soils with concentrations greater than 1ppm, and ensure that any remaining contamination is not a hazard to human health or the environment.

5. Page 23, Section 5.0 confirmatory Sampling, paragraph 1:

LANL Statements: *"Sampling will be performed to verify that....there is an acceptable human health risk to an industrial worker and an acceptable ecological risk"*

HWB Comments: *If LANL is going to request no further action at this PRS, LANL needs to use a residential scenario in its risk assessment in addition to the industrial worker scenario. According to current NMED's Office of General Council opinion, HWB will not be issuing NFA determinations for sites that are not assessed using a residential scenario.*

LANL Response:

The Environmental Restoration (ER) Project conducts an assessment of human health based on a residential exposure scenario on all sites that have had chemicals of potential concern (COPCs) identified as a result of a release. This baseline assessment as outlined in the current Installation Work Plan (IWP) for the ER Project (LANL 2000, 64361.4) is performed regardless of the actual current and future land use and potential receptors at a site. Human health screening action levels (SALs) are derived for all COPCs according to the process described in Appendix C of the current IWP (LANL 2000, 64361.4). The SALs are calculated using the most current available human health toxicity data, standard default values, algorithms, and equations. The parameters and equations used to calculate the SALs are equivalent to those presented in EPA Region 6's Human Health Medium-Specific Screening Levels (EPA 1999, 64637). The SALs are equivalent to a 10-6 risk level for carcinogens and a hazard quotient of 1.0 for noncarcinogens. If the concentration of a COPC does not exceeds its SAL, an assumption of no risk or hazard is made and no further action is required. If the concentration of a COPC exceeds its SAL, then further evaluation is necessary. Subsequent evaluation may include a baseline risk assessment under a residential or site specific scenario, if appropriate, or may involve a screening or baseline risk assessment using a more realistic exposure scenario, e.g., industrial or recreational. The results of the additional evaluation may be a decision that no further action is needed or may conclude that remediation is warranted. Cleanup levels derived for any site requiring remediation will be protective of human health and the environment and based on the appropriate exposure scenario.

For potential release site (PRS) 03-056(c), the potential risk for a resident will be evaluated following the removal of PCB contaminated soil. The risk assessment (screening and/or baseline) will be based on the levels of PCBs that remain at the site. Because this site is not appropriate for residential use (steep slope into canyon), the results of the assessment will be used for comparison purposes only. Any decisions regarding additional action will be based on the potential risk to human health from likely current and future land uses, which in the case of this PRS is continued Laboratory use (i.e., industrial exposure scenario on mesa top with limited site specific worker exposure on the hill slope).

6. Page 30, Section 7.0 Proposed Schedule and Uncertainties

HWB Comments: *Per our meeting on April 28, 2000, LANL is proposing to perform all remediation activities under HSWA Corrective Action and to perform all waste disposal activities under TSCA. LANL's proposed schedule needs to account for waste storage time restraints imposed before disposal occurs. Under TSCA, the PCB remediation waste can be stored for 180 days and is subject to several conditions (40 CFR 761.65(c)(9)). Under RCRA, the listed hazardous constituent (PCE) would cause the waste to fall under the 90-day storage requirement. LANL needs to identify in its plan how the waste will be handled during storage and obtain prior approval.*

LANL Response:

A waste characterization strategy form (WCSF) has been completed and submitted for approval at LANL. The strategy presented in the WCSF is to manage the waste in a <90-day storage area awaiting waste characterization then profiling the waste according to the analytical results and disposing of the waste appropriately. LANL is aware that even if we have a 180 day window for storage of PCB remediation waste, that the potential for RCRA Hazardous waste to be present requires us to manage the waste as hazardous.

7. *Appendix B, PRS 3-056(c) Voluntary Corrective Action Fact Sheet*

HWB Comment: *The erosion matrix score is listed as 52.6 but on page 13 (section 4.1.2, paragraph 2) it is listed as 69.7. Please correct the discrepancy in the final report.*

LANL Response:

The discrepancy noted by NMED will be corrected in the VCA Report.

Appendix I

Photographs

Photograph 1. PRS 03-056(c), August 8, 2000; view looking south on north slope area before excavation activities

Photograph 2. PRS 03-056(c), December 12, 2000; view looking south on north slope area during excavation activities

Photograph 3. PRS 03-056(c), August 8, 2000; view looking north, area of north drainages before excavation activities

Photograph 4. PRS 03-056(c), September 28, 2000; view looking north, area of north drainages after excavation activities

Photograph 5. PRS 03-056(c) November 27, 2000; view looking north, shed area before excavation activities

Photograph 6. PRS 03-056(c), December 5, 2000; view looking north, shed area after excavation activities

Photograph 7. PRS 03-056(c), August 17, 2000; view looking south, toward Building 03-223 before excavation activities started on mesa top; photograph also shows BMPs that were in place before VCA

Photograph 8. PRS 03-056(c), September 28, 2000; view looking south, toward Building 03-223, during mesa-top excavation

Photograph 9. PRS 03-056(c), July 25, 2001; view looking south, toward Building 03-223, during mesa-top site restoration

Photograph 10. PRS 03-056(c), May 30, 2001; view looking north, during mesa-top site restoration

Photograph 11. PRS 03-056(c), December 5, 2000; view looking west, the north slope area during excavation activities

Photograph 12. PRS 03-056(c), May 30, 2001; view looking west, the north slope area after site restoration

Photograph 13. PRS 03-056(c), September 20, 2000; view looking south, up the drainage on the east side of the site before excavation

Photograph 14. PRS 03-056(c), December 18, 2000; view looking south, up the drainage on the east side of the site after excavation

Photograph 15. PRS 03-056(c), December 12, 2000; view looking south, drainage area at west end of site during excavation activities; photo shows bridge built to protect the watercourse

Photograph 16. PRS 03-056(c), December 16, 2000; view looking south, drainage area at west end of site during excavation activities; photo shows water being pumped around the work site to protect the watercourse

Photograph 17. PRS 03-056(c), July 25, 2001; view looking south, finger mesa area showing location (wooden stake) of the anomalous arsenic sample result

Appendix J

Waste Data

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
1	20-73	08/30/00	09/05/00	RE03-00-0200	22	ND	ND	Industrial	Rio Rancho	11/29/00
2	20-45	08/30/00	09/05/00	RE03-00-0201	26	ND	ND	Industrial	Rio Rancho	11/30/00
3	20-23	08/31/00	09/05/00	RE03-00-0202	14	ND	ND	Industrial	Rio Rancho	12/01/00
4	20-44	08/31/00	09/05/00	RE03-00-0203	15	ND	ND	Industrial	Rio Rancho	11/30/00
5	20-62	08/31/00	09/05/00	RE03-00-0204	18	ND	ND	Industrial	Rio Rancho	11/29/00
6	20-54	08/31/00	09/05/00	RE03-00-0205	17	ND	ND	Industrial	Rio Rancho	12/01/00
7	20-76	08/31/00	09/05/00	RE03-00-0206	24	ND	ND	Industrial	Rio Rancho	11/30/00
8	20-51	08/30/00	09/05/00	RE03-00-0207	8	ND	ND	Industrial	Rio Rancho	11/29/00
9	20-34	09/01/00	09/05/00	RE03-00-0208	3	ND	ND	Industrial	Rio Rancho	11/21/00
10	20-28	09/01/00	09/05/00	RE03-00-0209	2	ND	ND	Industrial	Rio Rancho	11/20/00
11	20-20	09/01/00	09/05/00	RE03-00-0210	2	ND	ND	Industrial	Rio Rancho	11/24/00
12	20-09	09/01/00	09/05/00	RE03-00-0211	13	ND	ND	Industrial	Rio Rancho	11/20/00
13	20-70	08/31/00	09/05/00	RE03-00-0212	2	ND	ND	Industrial	Rio Rancho	11/28/00
14	20-40	09/01/00	09/05/00	RE03-00-0213	5	ND	ND	Industrial	Rio Rancho	11/28/00
15	20-11	08/31/00	09/06/00	RE03-00-0214	9	ND	ND	Industrial	Rio Rancho	11/28/00
16	20-64	08/31/00	09/06/00	RE03-00-0215	1	ND	Trichlorofluoromethane, 0.001 J	Industrial	Rio Rancho	12/14/00
17	20-72	08/31/00	09/06/00	RE03-00-0216	98	ND	ND	TSCA	WCS	11/28/00
18	20-14	09/01/00	09/06/00	RE03-00-0217	24	ND	ND	Industrial	Rio Rancho	11/25/00
19	20-63	09/01/00	09/06/00	RE03-00-0218	3	ND	Trichlorofluoromethane, 0.0008 J	Industrial	Rio Rancho	12/16/00
20	20-07	09/01/00	09/06/00	RE03-00-0219	25	ND	ND	Industrial	Rio Rancho	11/24/00
21	20-32	09/01/00	09/06/00	RE03-00-0220	150	ND	ND	TSCA	WCS	11/28/00
22	20-17	09/01/00	09/06/00	RE03-00-0221	18	ND	ND	Industrial	Rio Rancho	11/22/00
23	20001A	09/05/00	09/06/00	RE03-00-0222	12	ND	4-Isopropyltoluene, 0.002 J	Industrial	Rio Rancho	11/21/00
24	20-80	09/05/00	09/06/00	RE03-00-0223	6	ND	ND	Industrial	Rio Rancho	11/22/00
25	20-24	09/05/00	09/06/00	RE03-00-0224	67	ND	ND	TSCA	WCS	11/28/00
26	20004	09/05/00	09/06/00	RE03-00-0225	1300	ND	ND	TSCA	WCS	11/28/00
27	20-39	09/05/00	09/06/00	RE03-00-0226	66	ND	2-Hexanone, 0.001 J; 4-Methyl-2-pentanone, 0.003 J; 1,2-Dichloroethane 0.001	TSCA	WCS	12/04/00
28	20-60	09/05/00	09/06/00	RE03-00-0227	10	ND	ND	Industrial	Rio Rancho	11/25/00
29	20-94	09/06/00	09/13/00	RE03-00-0228	10	ND	ND	Industrial	Rio Rancho	11/24/00
30	20-95	09/07/00	09/13/00	RE03-00-0229	24	ND	ND	Industrial	Rio Rancho	11/25/00
31	20-45a	09/06/00	09/13/00	RE03-00-0230	130	ND	Toluene, 0.001 J	TSCA	WCS	12/05/00
32	20-100	09/11/00	09/13/00	RE03-00-0231	370	ND	ND	TSCA	WCS	11/28/00

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA (continued)

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
33	20-101	09/12/00	09/13/00	RE03-00-0232	50	ND	Toluene, 0.002 J; Trichlorofluoromethane 0.001 J	TSCA	WCS	12/04/00
34	20-41	09/12/00	09/13/00	RE03-00-0233	9	ND	ND	Industrial	Rio Rancho	11/30/00
35	20-103	09/12/00	09/13/00	RE03-00-0234	5	ND	Toluene 0.003 J	Industrial	Rio Rancho	12/18/00
36	20-98	09/12/00	09/13/00	RE03-00-0235	12	ND	Toluene 0.004 J	Industrial	Rio Rancho	12/15/00
37	20-96	09/11/00	09/13/00	RE03-00-0236	23	ND	Toluene 0.001 J	Industrial	Rio Rancho	12/16/00
38	20-99	09/11/00	09/13/00	RE03-00-0237	13	ND	Trichlorofluoromethane 0.001 J	Industrial	Rio Rancho	12/14/00
39	20-97	09/11/00	09/13/00	RE03-00-0238	2	ND	Toluene 0.003 J; Trichlorofluoromethane 0.001 J; Trichloroethene 0.002 J; Tetrachloroethene 0.005 J	Industrial	Rio Rancho	12/18/00
40	30550	09/08/00	09/13/00	RE03-00-0239	67	ND	Toluene 0.003 J; Tetrachloroethene 0.012	TSCA	WCS	12/04/00
41	20-52	09/08/00	09/13/00	RE03-00-0240	27	ND	Toluene 0.003 J; Tetrachloroethene 0.17	Industrial	Rio Rancho	12/18/00
42	20-93	09/07/00	09/13/00	RE03-00-0241	12	ND	Toluene 0.001 J	Industrial	Rio Rancho	12/14/00
43	20-13	09/08/00	09/13/00	RE03-00-0242	110	ND	Toluene 0.001 J; Tetrachloroethene 0.006	TSCA	WCS	12/04/00
44	20-36	09/01/00	09/13/00	RE03-00-0243	7	ND	ND	Industrial	Rio Rancho	12/14/00
45	20-92	09/07/00	09/13/00	RE03-00-0244	8	ND	Toluene 0.005 J	Industrial	Rio Rancho	12/15/00
46	20-89	09/07/00	09/13/00	RE03-00-0245	23	ND	Toluene 0.002 J	Industrial	Rio Rancho	12/16/00
47	20-88	09/07/00	09/13/00	RE03-00-0246	19	ND	ND	Industrial	Rio Rancho	12/06/00
48	20-91	09/07/00	09/13/00	RE03-00-0247	23	ND	Toluene 0.004 J	Industrial	Rio Rancho	12/14/00
49	20-90	09/07/00	09/13/00	RE03-00-0248	30	ND	Toluene 0.004 J	Industrial	Rio Rancho	12/15/00
50	20-39A	09/07/00	09/13/00	RE03-00-0249	17	ND	Toluene 0.004 J	Industrial	Rio Rancho	12/15/00
51	20010	09/13/00	09/13/00	RE03-00-0250	1200	ND	Toluene 0.002 J; Tetrachloroethene 0.006	TSCA	WCS	12/06/00
52	2053	09/13/00	09/13/00	RE03-00-0251	4	ND	Toluene 0.001; Tetrachloroethene 0.001 J	Industrial	Rio Rancho	12/18/00
53	20-65	09/13/00	09/13/00	RE03-00-0252	19	ND	ND	Industrial	Rio Rancho	11/30/00
54	20-71	09/13/00	09/13/00	RE03-00-0253	9	ND	ND	Industrial	Rio Rancho	11/30/00
55	20-05	09/13/00	09/14/00	RE03-00-0254	8	ND	Toluene 0.002 J	Industrial	Rio Rancho	12/18/00
56	31878	09/26/00	09/27/00	RE03-00-0255	6	ND	p-Isopropyltoluene 0.00034 J	Industrial	Rio Rancho	12/18/00
57	20-109	09/26/00	09/27/00	RE03-00-0256	32	ND	ND	Industrial	Rio Rancho	12/01/00
58	20-38	09/25/00	09/27/00	RE03-00-0257	5	ND	Toluene 0.001 J; p-Isopropyltoluene 0.015 J	Industrial	Rio Rancho	12/15/00

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA (continued)

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
59	20-110	09/21/00	09/27/00	RE03-00-0258	1	ND	Toluene 0.0034 J; p-Isopropyltoluene 0.0077	Industrial	Rio Rancho	12/14/00
60	20-81	09/22/00	09/27/00	RE03-00-0259	8	ND	ND	Industrial	Rio Rancho	12/15/00
61	20-108	09/22/00	09/27/00	RE03-00-0290	2	ND	Chloromethane 0.0027 J; Toluene 0.002 J; p-Isopropyltoluene 0.0018 J	Industrial	Rio Rancho	12/14/00
62	20-37	09/25/00	09/27/00	RE03-00-0291	3	ND	Toluene 0.0016 J; p-Isopropyltoluene 0.0045 J	Industrial	Rio Rancho	12/15/00
63	20008	09/14/00	09/27/00	RE03-00-0292	9	ND	ND	Industrial	Rio Rancho	12/02/00
64	20-106	09/14/00	09/27/00	RE03-00-0293	10	ND	ND	Industrial	Rio Rancho	12/01/00
65	20-43	09/18/00	09/27/00	RE03-00-0294	8	ND	ND	Industrial	Rio Rancho	12/02/00
66	20-105	09/15/00	09/27/00	RE03-00-0295	6	ND	ND	Industrial	Rio Rancho	12/01/00
67	20-104	09/15/00	09/27/00	RE03-00-0296	7	ND	ND	Industrial	Rio Rancho	12/02/00
68	20-42	09/18/00	09/27/00	RE03-00-0297	3	ND	ND	Industrial	Rio Rancho	12/04/00
69	20-107	09/26/00	09/27/00	RE03-00-0298	8	ND	ND	Industrial	Rio Rancho	12/02/00
70	20-30	09/27/00	09/27/00	RE03-00-0299	9	ND	ND	Industrial	Rio Rancho	12/01/00
71	20-07	12/02/00	12/05/00	RE03-00-0300	22	ND	ND	Industrial	Rio Rancho	02/05/01
72	20-109	12/02/00	12/05/00	RE03-00-0301	26	ND	Toluene 0.0013 J	Industrial	Rio Rancho	02/06/01
73	20-70	12/02/00	12/05/00	RE03-00-0302	13	ND	ND	Industrial	Rio Rancho	02/06/01
74	20-30	12/02/00	12/05/00	RE03-00-0303	20	ND	ND	Industrial	Rio Rancho	02/07/01
75	20-11	12/02/00	12/05/00	RE03-00-0304	18	ND	p-Isopropyltoluene 0.0038 J	Industrial	Rio Rancho	02/06/01
76	20-51	12/01/00	12/05/00	RE03-00-0305	17	ND	p-Isopropyltoluene 0.065	Industrial	Rio Rancho	02/06/01
77	20-62	12/01/00	12/05/00	RE03-00-0306	14	ND	Toluene 0.0021; p-Isopropyltoluene 0.0021	Industrial	Rio Rancho	02/12/01
78	20-28	12/01/00	12/05/00	RE03-00-0307	15	ND	Toluene 0.0035 J; p-Isopropyltoluene 0.048; Acetone 0.048; 2-Butanone (MEK) 0.0064 J	Industrial	Rio Rancho	02/10/01
79	20-76	12/01/00	12/05/00	RE03-00-0308	23	ND	ND	Industrial	Rio Rancho	02/10/01
80	20-09	12/01/00	12/14/00	RE03-00-0309	10	ND	ND	Industrial	Rio Rancho	02/12/01
81	20-45	12/01/00	12/14/00	RE03-00-0310	12	ND	Acetone 0.014; Carbon disulfide 0.038	Industrial	Rio Rancho	02/14/01
82	20-32	12/05/00	12/14/00	RE03-00-0311	10	ND	Acetone 0.013	Industrial	Rio Rancho	02/06/01
83	20001A	12/05/00	12/14/00	RE03-00-0312	9	ND	ND	Industrial	Rio Rancho	02/06/01
84	20-42	12/04/00	12/14/00	RE03-00-0313	26	ND	ND	Industrial	Rio Rancho	02/09/01
85	20008	12/04/00	12/14/00	RE03-00-0314	13	ND	ND	Industrial	Rio Rancho	02/09/01

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA (continued)

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
86	20-104	12/04/00	12/14/00	RE03-00-0315	10	ND	Toluene 0.0016 J; p-Isopropyltoluene 0.0063	Industrial	Rio Rancho	02/09/01
87	20-43	12/04/00	12/14/00	RE03-00-0316	11	Pb=8.2	Toluene 0.0019; p-Isopropyltoluene 0.0026; Acetone 0.013 J	RCRA hazardous	WCS	03/01/01
88	20004	12/04/00	12/14/00	RE03-00-0317	43	ND	Acetone 0.017 J	Industrial	Rio Rancho	02/09/01
89	20-40	12/02/00	12/14/00	RE03-00-0318	36	ND	ND	Industrial	Rio Rancho	02/09/01
90	20-54	12/05/00	12/14/00	RE03-00-0319	11	ND	ND	Industrial	Rio Rancho	02/07/01
91	20-34	12/05/00	12/14/00	RE03-00-0320	11	ND	Acetone 0.015; p-Isopropyltoluene 0.0018	Industrial	Rio Rancho	02/07/01
92	20010	12/05/00	12/14/00	RE03-00-0321	12	ND	ND	Industrial	Rio Rancho	02/12/01
93	20-44	12/06/00	12/17/00	RE03-00-0322	6	ND	Acetone 0.012	Industrial	Rio Rancho	02/08/01
94	20-101	12/05/00	12/17/00	RE03-00-0323	5	ND	ND	Industrial	Rio Rancho	02/08/01
95	20-105	12/05/00	12/17/00	RE03-00-0324	10	Pb=14	ND	RCRA Hazardous	WCS	03/01/01
96	20-37	12/15/00	12/17/00	RE03-00-0325	2	ND	p-Isopropyltoluene 0.017	Industrial	Rio Rancho	02/05/01
97	20-108	12/15/00	12/17/00	RE03-00-0326	1	ND	ND	Industrial	Rio Rancho	02/08/01
98	20-91	12/15/00	12/17/00	RE03-00-0327	2	ND	ND	Industrial	Rio Rancho	02/08/01
99	20-23	12/15/00	12/17/00	RE03-00-0328	0	ND	ND	Industrial	Rio Rancho	02/09/01
100	20-64	12/15/00	12/17/00	RE03-00-0329	5	ND	ND	Industrial	Rio Rancho	02/12/01
101	20-41	12/07/00	12/17/00	RE03-00-0330	7	ND	Acetone 0.02; p-Isopropyltoluene 0.0039 J	Industrial	Rio Rancho	02/13/01
102	20-38	12/17/00	12/17/00	RE03-00-0331	13	ND	Acetone 0.17; p-Isopropyltoluene 0.12	Industrial	Rio Rancho	02/13/01
103	20-72	12/07/00	12/17/00	RE03-00-0332	6	ND	Acetone 0.035; p-Isopropyltoluene 0.024; Toluene 0.0034 J	Industrial	Rio Rancho	02/13/01
104	20-110	12/17/00	12/17/00	RE03-00-0333	16	ND	Acetone 0.041; p-Isopropyltoluene 0.082	Industrial	Rio Rancho	02/13/01
105	20-73	12/06/00	12/17/00	RE03-00-0334	14	ND	ND	Industrial	Rio Rancho	02/12/01
106	20-39A	12/17/00	12/17/00	RE03-00-0335	16	ND	Acetone 0.043 J; p-Isopropyltoluene 0.11	Industrial	Rio Rancho	02/14/01
107	20-13	12/06/00	12/17/00	RE03-00-0336	15	ND	p-Isopropyltoluene 0.0024 J	Industrial	Rio Rancho	02/17/01
108	20-90	12/17/00	12/17/00	RE03-00-0337	30	ND	Acetone 0.22; p-Isopropyltoluene 0.22; Toluene 0.0056 J	Industrial	Rio Rancho	02/15/01
109	30550	12/06/00	12/17/00	RE03-00-0338	34	ND	ND	Industrial	Rio Rancho	02/16/01

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA (continued)

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
110	20-92	12/16/00	12/17/00	RE03-00-0339	16	ND	Acetone 0.022 J; p-Isopropyltoluene 0.029 J	Industrial	Rio Rancho	02/16/01
111	20-39	12/06/00	12/17/00	RE03-00-0428	14	ND	ND	Industrial	Rio Rancho	02/14/01
112	20-93	12/15/00	12/17/00	RE03-00-0429	2	ND	ND	Industrial	Rio Rancho	02/14/01
113	20-60	12/06/00	12/17/00	RE03-00-0430	11	ND	ND	Industrial	Rio Rancho	02/16/01
114	20-81	12/15/00	12/17/00	RE03-00-0431	2	ND	ND	Industrial	Rio Rancho	02/15/01
115	20-98	12/17/00	12/17/00	RE03-00-0432	21	ND	Acetone 0.092; 2-Butanone (MEK) 0.0015 J; p-Isopropyltoluene 0.031	Industrial	Rio Rancho	02/13/01
116	20-71	12/17/00	12/17/00	RE03-00-0433	36	ND	Acetone 0.043; p-Isopropyltoluene 0.033	Industrial	Rio Rancho	02/14/01
117	20100	12/06/00	12/19/00	RE03-00-0434	6	ND	ND	Industrial	Rio Rancho	02/15/01
118	20-106	12/06/00	12/19/00	RE03-00-0435	6	ND	ND	Industrial	Rio Rancho	02/15/01
119	20-65	12/05/00	12/19/00	RE03-00-0436	11	ND	ND	Industrial	Rio Rancho	02/16/01
120	20-95	12/06/00	12/19/00	RE03-00-0437	9	ND	ND	Industrial	Rio Rancho	02/16/01
121	20-94	12/17/00	12/19/00	RE03-00-0438	17	ND	ND	Industrial	Rio Rancho	02/19/01
122	20-14	12/14/00	12/19/00	RE03-00-0439	12	ND	ND	Industrial	Rio Rancho	2//21/01
123	20-36	12/14/00	12/19/00	RE03-00-0440	4	ND	ND	Industrial	Rio Rancho	02/21/01
124	20-17	12/12/00	12/19/00	RE03-00-0441	94	ND	ND	TSCA	WCS	02/21/01
125	20-107	12/13/00	12/19/00	RE03-00-0442	36	ND	p-Isopropyltoluene 0.0026 J	Industrial	Rio Rancho	02/20/01
126	20-88	12/12/00	12/19/00	RE03-00-0443	20	ND	p-Isopropyltoluene 0.0024 J	Industrial	Rio Rancho	02/20/01
127	20-24	12/12/00	12/19/00	RE03-00-0444	4	ND	p-Isopropyltoluene 0.0037 J	Industrial	Rio Rancho	02/20/01
128	20-80	12/11/00	12/19/00	RE03-00-0445	5	ND	Acetone 0.015 J; p-Isopropyltoluene 0.0014 J	Industrial	Rio Rancho	02/23/01
129	20-45A	12/11/00	12/19/00	RE03-00-0446	4	ND	p-Isopropyltoluene 0.0025 J	Industrial	Rio Rancho	02/19/01
130	31878	12/19/00	12/19/00	RE03-00-0447	4	ND	Acetone 0.019 J; p-Isopropyltoluene 0.003 J; Toluene 0.0015 J	Industrial	Rio Rancho	02/22/01
131	20-05	12/18/00	12/19/00	RE03-00-0448	2	ND	ND	Industrial	Rio Rancho	02/21/01
132	20-103	12/18/00	12/19/00	RE03-00-0449	0	ND	ND	Industrial	Rio Rancho	02/20/01
133	20-63	12/18/00	12/19/00	RE03-00-0450	3	ND	p-Isopropyltoluene 0.0032	Industrial	Rio Rancho	03/07/01
134	20-20	12/18/00	12/19/00	RE03-00-0451	10	ND	ND	Industrial	Rio Rancho	02/26/01
135	20-99	12/14/00	12/19/00	RE03-00-0452	6	ND	ND	Industrial	Rio Rancho	03/06/01
136	20-89	12/18/00	12/19/00	RE03-00-0453	6	ND	ND	Industrial	Rio Rancho	03/01/01
137	20-96	12/18/00	12/19/00	RE03-00-0454	37	ND	ND	Industrial	Rio Rancho	02/26/01

Analytical Results and Disposal Destination of Waste Generated During PRS 03-056(c) VCA (continued)

#	Bin #	Waste Generation Date	Waste Sample Date	Sample Number	Analytical Result PCB (mg/kg)	Analytical Result TCLP Metal (mg/L)	Analytical Result VOA (mg/kg)	Waste Type	Waste Disposal Facility	Waste Ship Date
138	20-53	12/19/00	12/19/00	RE03-00-0455	4	ND	ND	Industrial	Rio Rancho	02/19/01
139	20-97	12/19/00	12/19/00	RE03-00-0456	1	ND	ND	Industrial	Rio Rancho	02/22/01
140	20-52	12/19/00	12/19/00	RE03-00-0457	1	ND	ND	Industrial	Rio Rancho	02/21/01
141	20-75	12/22/00	01/12/01	RE03-01-0103	3	ND	ND	Industrial	Rio Rancho	03/07/01
142	20-69	12/20/00	01/12/01	RE03-01-0104	7	ND	ND	Industrial	Rio Rancho	03/07/01
143	1E+05	03/27/01	04/02/01	RE03-01-0132	43	N/A	N/A	Industrial	Rio Rancho	06/06/01
144	1E+05	03/28/01	04/02/01	RE03-01-0133	4	N/A	N/A	Industrial	Rio Rancho	06/06/01
145	3043	5/22/01	N/A	N/A	N/A	N/A	N/A	Clean debris	Los Alamos landfill	7/26/01

Appendix K

Draft Site Restoration Plan

ENVIRONMENTAL RESTORATION PROGRAM

DRAFT

SITE RESTORATION PLAN FOR THE VOLUNTARY CORRECTIVE ACTION AT POTENTIAL RELEASE SITE 3-056(c)

Technical Area 3
Remedial Actions Focus Area

Environmental Restoration Project Activities
Fiscal Year 2001

LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO

Prepared by:

IT CORPORATION

May 7, 2001

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SITE DESCRIPTION 1

2.1 Site History 1

2.2 Site Activities 1

2.2.1 Backfill of Excavated Area 1

2.2.2 Stabilization of Exposed Backfill Material 2

2.2.3 Installation of Asphalt Paving 2

2.2.4 Backfill and Reseed of Disturbed Areas 2

2.2.5 Soil Stabilization Around Trees Within the Disturbed Area 2

2.2.6 Installation of Gabion Apron 2

2.2.7 Base Course Removal and Reseed of Waste Storage Areas 3

2.2.8 Installation of Chain Link Fencing 3

LIST OF ACRONYMS

BMP	Best Management Practice
EC	Expedited Cleanup
FWO-UI	Facility Waste Operations – Utilities and Infrastructure
LANL	Los Alamos National Laboratory
PCB	Polychlorinated Biphenyls
PMBP	Plant Mix Bituminous Pavement
PRS	Potential Release Site
TA	Technical Area
VCA	Voluntary Corrective Action

1.0 INTRODUCTION

This site restoration plan has been prepared for Technical Area (TA) 3 Voluntary Corrective Action (VCA) activities at Los Alamos National Laboratory (LANL) Potential Release Site (PRS) 3-056(c). This plan will summarize the restoration activities planned for the PRS site.

2.0 SITE DESCRIPTION

2.1 Site History

PRS 3-056(c) located in TA-3, is an inactive outdoor storage area situated on Sigma Mesa, on the southern flank of Sandia Canyon, in Los Alamos County, New Mexico. The PRS occupies an area that extends north northwest of TA-3, Building 223 (TA-3-223). The outdoor storage area was used for the storage of electrical equipment, capacitors, and transformers with polychlorinated biphenyls (PCB)-containing dielectric fluids.

An expedited cleanup (EC) was conducted in 1995. During the EC, approximately 1,000 cubic yards of PCB-contaminated soil was excavated from the mesa top and slopes of Sandia Canyon. In 2000 and 2001, IT Corporation performed a VCA and removed approximately 2,200 cubic yards of PCB-contaminated soil. The cleanup goal of this VCA was to remove PCB-contaminated soil to levels less than or equal to 1 part per million PCB.

2.2 Site Activities

Site restoration activities associated with this VCA will include: backfill of excavated area, stabilization of exposed backfill material, installation of asphalt pad, backfill and reseed of disturbed areas, soil stabilization around trees within the disturbed area, installation of a Gabion apron, base course removal/reseed of waste storage areas, and installation of chain link fencing.

2.2.1 Backfill of Excavated Area

The excavated area located northeast of TA-3-223 at the top of the north and west slopes will be backfilled with approximately 1,000 cubic yards of clean fill material and compacted. Backfill material will consist of clean fill (i.e., free of hazardous constituents) provided by Facility Waste Operations – Utilities and Infrastructure (FWO-UI) and base course removed from the PRS 3-056(c) waste storage areas. The lower portion of the backfill will be compacted to 90% of maximum density. The backfill material will be placed in lifts of a maximum thickness of 6 inches. The top 6 inches of base course shall be compacted to 95% of maximum density per the requirements of the LANL Facility Engineering Manual, Chapter III–Civil, Section 200 Engineering Requirements/Guides, Subsection 202 Grading and Drainage, 202.6 Compaction. The finished surface will be sloped to allow for sheet flow drainage to the southwest portion of the prepared pad. See Figure 1, Site Restoration Plan Map.

2.2.2 Stabilization of Exposed Backfill Material

When the installation and compaction of the backfilled area is complete, the north and west face of the backfill material will require stabilization to prevent erosion. These exposed faces will be sloped to approximately 2 horizontal to 1 vertical (2:1) and stabilized using rock riprap. This work will be completed per the requirements of LANL Facility Engineering Manual, Chapter III-Civil, Section 200 Engineering Requirements/Guides, Subsection 202 Grading and Drainage, 202.4 Earthwork and the Storm Water / Surface Water Pollution Prevention Best Management Practices (BMPs) Guidance Document, Revision 1.0, August 1998. Refer to Figure 1, Site Restoration Plan Map.

2.2.3 Installation of Asphalt Paving

The backfilled area (Section 2.2.1 above) covers approximately 1,000 square yards and will be covered with an asphalt paving consisting of a minimum of 3 inches of Plant Mix Bituminous Pavement (PMBP). This material will meet the requirements of the LANL Facility Engineering Manual, Chapter III-Civil, Section 200 Engineering Requirements/Guides, Subsection 203 Road, Pavement, and Parking Lot Design, 203.10 Pavement Materials. In addition to the asphalt pad, approximately 200 feet of asphalt curbing will be installed along the northern and western edge of the asphalt pad. See Figure 1, Site Restoration Plan Map.

2.2.4 Backfill and Reseed of Disturbed Areas

Excavated areas not slated for backfill and paving will be backfilled with a clean topsoil, graded to match the local terrain, and reseeded utilizing a native seed mix provided by LANL. Clean topsoil will be obtained from FWO-UI and placed within the disturbed areas until the grade has been reestablished to match the undisturbed local terrain. A native seed mixture will then be applied to the graded surface. See Figure 1, Site Restoration Plan Map.

2.2.5 Soil Stabilization Around Trees Within the Disturbed Area

PCB-contaminated soil was removed from numerous locations on the mesa top and adjacent slopes including areas surrounding trees. IT plans to place clean topsoil around the trees to cover exposed roots in an attempt to stabilize those trees that were impacted by the cleanup activities.

2.2.6 Installation of Gabion Apron

As stated in Section 2.2.1, the backfilled area will be sloped to promote water drainage to the southwest corner of the asphalt pad. An asphalt drainage channel will be installed and will extend approximately 15 to 20 feet down the southwest corner. At the end of this asphalt drainage channel, IT will install a Gabion Apron. The apron will be

approximately 10 feet wide and 20 feet long. The apron will be installed per the requirements of the Storm Water / Surface Water Pollution Prevention Best Management Practices (BMPs) Guidance Document, Revision 1.0, August 1998. The apron will help to dissipate the energy of the storm water draining off of the asphalt pad. This will reduce the erosion of the slope leading down to the Sandia Watercourse. See Figure 1 for the approximate location of the asphalt drainage channel and Gabion apron.

2.2.7 Base Course Removal and Reseed of Waste Storage Areas

In order to accommodate the numerous roll-off bins of waste material generated during the VCA project, IT had to prepare waste storage areas for the roll-off bins. IT prepared these areas by laying down lifts of base course. The purpose of the base course was to provide a stable, well-drained surface. The base course will be removed down to the original grade level and used as backfill for the excavated area. Once the base course has been removed the areas will be reseeded with a native seed mix provided by LANL.

2.2.8 Installation of Chain Link Fencing

In order to access the areas of PCB-contaminated soil, approximately 250 feet of chain link security fencing was removed. Once the installation of the asphalt pad and Gabion apron is completed, the fencing will need to be replaced. IT will procure a fencing subcontractor to replace the removed portion of chain link security fencing. The fence height and style will be comparable to the existing fence. See Figure 1, Site Restoration Plan Map, for the approximate location of the chain link fence.

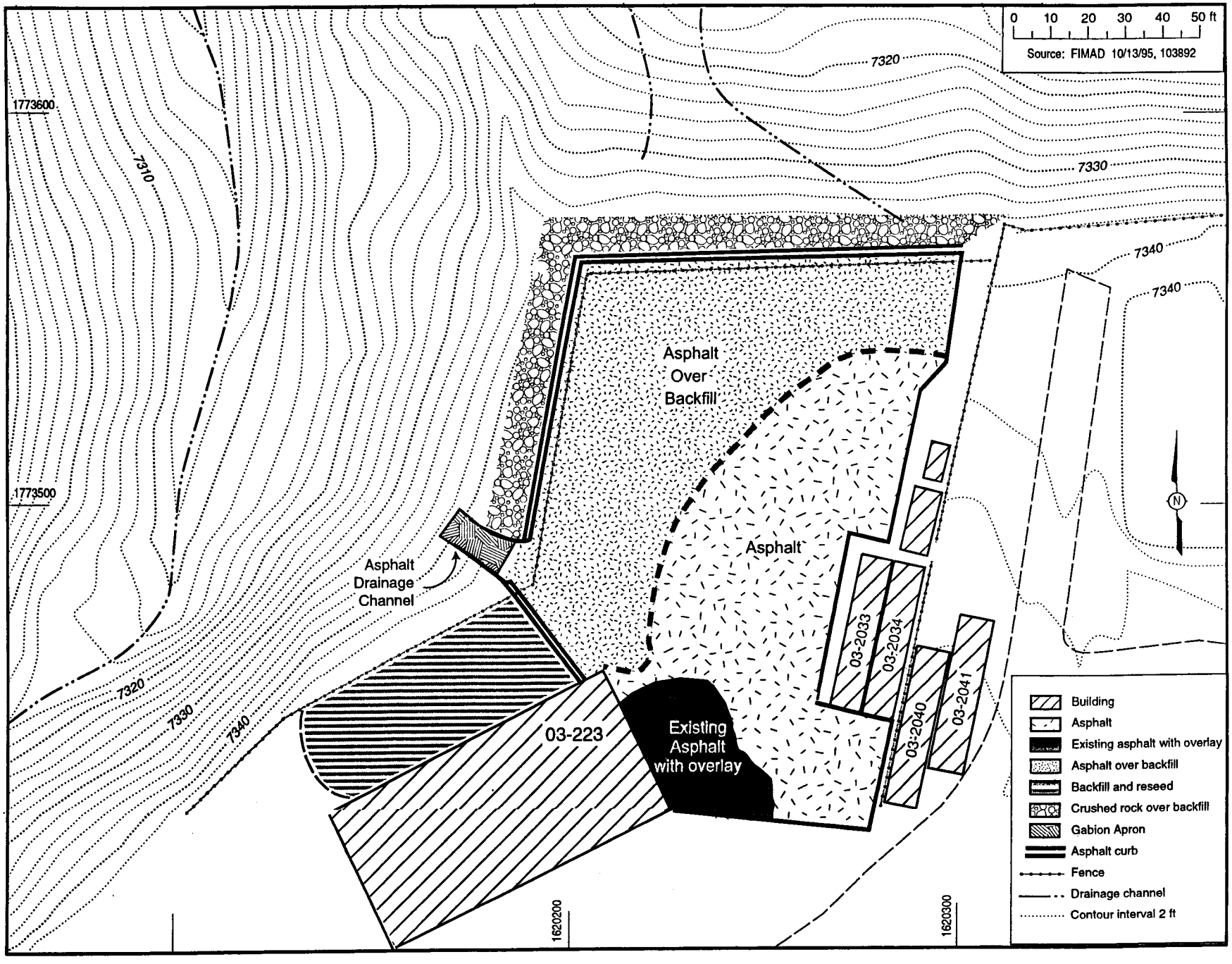


Figure 1. Site Restoration Plan Map for PRS 03-056(c)