Technical Memorandum

Co-Located Chemical Sampling Results at Historical Site Assessment Subarea 5D North and 5D South in Area IV

Santa Susana Field Laboratory
Ventura County, California

Prepared for:

Department of Energy
Energy Technology and Engineering Center
P.O. Box 10300
Canoga Park, California 91309

Prepared by:

CDM Federal Programs Corporation (CDM Smith)

Prepared under:

US Department of Energy
EM Consolidated Business Center
Contract DE-AM09-05SR22404
CDM Task Order DE-AT30-08CC60021/ET17

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I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

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Table of Contents

List of Figures

List of Tables

Appendices

Acronyms and Abbreviations

%D	percent difference/percent drift
%R	percent recovery
mg/L	milligram per liter
ng/kg	nanogram per kilogram
ng/L	nanogram per liter
pg/L	picogram per liter
µg/L	micrograms per liter
AOC	Administrative Order on Consent
ASTM	American Society for Testing and Materials
bgs	below ground surface
CDM Smith	CDM Federal Programs Corporation
CoC	chain of custody
DOE	Department of Energy
DPT	direct push technology
DQI	data quality indicator
DQO	data quality objective
DTSC	Department of Toxic Substances Control
DUAR	data usability assessment review
EDL	estimated detection limit
EFH	extractable fuel hydrocarbon
EPA	U.S. Environmental Protection Agency
FTL	field team leader
GRO	gasoline range organics
HGL	HydroGeoLogic, Inc.
HSA	Historical Site Assessment
ICP	inductively coupled plasma
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LLI	Lancaster Laboratories, Inc.
MDL	method detection limit
mL	milliliters
MS	matrix spike
MSD	matrix spike duplicate
NDMA	n-Nitrosodimethylamine
PAH	polycyclic aromatic hydrocarbon
PARCCS	precision, accuracy, representativeness, comparability, completeness and sensitivity
PCB	polychlorinated biphenyl
PCT	polychlorinated triphenyl
PID	photoionization detector
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RCRA	Resource Conservation and Recovery Act

RFI	RCRA Facility Investigation
RL	reporting limit
RL-LCS	reporting limit laboratory control sample
RL-MS	reporting limit matrix spike
RPD	relative percent difference
SDG	sample delivery group
SIM	selective ion monitoring
SOW	statement of work
SSFL	Santa Susana Field Laboratory
SVOC	semi-volatile organic compound
TM	technical memorandum
TPH	total petroleum hydrocarbon
VOC	volatile organic compound
WP/FSAP	Work Plan/Field Sampling and Analysis Plan

Section 1
Introduction

This Technical Memorandum (TM) presents the results of chemical analyses of surface and subsurface soil, and soil from intermittent drainages collected under the *Master Work Plan/Field Sampling and Analysis Plan, Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (CDM Federal Programs Corporation [CDM] 2011a) (WP/FSAP), *Addendum No. 4 to Master Work Plan/Field Sampling and Analysis Plan, Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California, EPA Subarea 5D North Soil Sampling* (CDM 2011b) (WP/FSAP Addendum) and *Addendum No. 6 to Master Work Plan/Field Sampling and Analysis Plan, Co-Located Chemical Sampling at Area IV Santa Susana Field Laboratory, Ventura County, California, EPA Subareas 3, 5D South, 7 and 8 South Soil Sampling* (CDM 2011c).

This TM addresses sampling within U.S. Environmental Protection Agency (EPA) Historical Site Assessment (HSA) Subareas 5D North and 5D South of Area IV at Santa Susana Field Laboratory (SSFL) and provides a description of the sampling activities, the analytical results, and a discussion of the analytical data review findings. The TM does not provide an interpretation of the results. The data provided in this TM are intended to be combined with data collected under the prior Resource Conversation and Recovery Act (RCRA) Facility Investigation (RFI) efforts within the Area IV soil chemical database. A data gap analysis will be performed to assess the adequacy of Area IV data as a whole in defining the nature and extent of chemicals in soil for purposes of remedy determination.

1.1 Co-Located Soil Chemical Sampling Objectives

The radiological characterization study being performed by EPA includes collection of surface and subsurface soil, as well as drainage soil samples throughout Area IV of SSFL and the Northern Buffer Zone for analysis of radionuclides. The California Department of Toxic Substances Control (DTSC) and Department of Energy (DOE) agreed in the *Administrative Order on Consent for Remedial Action (AOC,* Docket Number HSA-CO 10/11-037) (DTSC 2010) that soil/sediment samples collected by EPA will also be analyzed for chemical analytes. EPA's contractor, HydroGeoLogic, Inc. (HGL) was responsible for the collection of the EPA-proposed soil samples. DTSC and DOE agreed that the chemical analyses of the soil samples provided by EPA would be done by DOE's contractor, CDM. CDM was responsible for the management, shipment, and laboratory analyses of the samples collected for chemical analyses.

The AOC was signed by DTSC and DOE on December 6, 2010. The AOC is a legally binding order that requires and describes the characterization of Area IV and Northern Buffer Zone soils/sediments and further defines DOE's obligations in relation to radiologic and chemical cleanup of soils within these areas. It also stipulates that during Phase 1 of the chemical investigation activities, DOE is to analyze soil samples for chemical constituents at locations where EPA collects a sample for radiological analysis.

1.2 Basis for HSA Subareas 5D North and 5D South Soil Sampling

HGL's *Field Sampling Plan for Soil Sampling, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California* (HGL 2010) includes a description of the project objectives, the scope of work, laboratory analytical suites, sample collection and other standard field operation methods for EPA's radiological characterization study.

Subarea 5D North FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study (HGL 2011a) and *Subarea 5D South FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study* (HGL 2011b) were prepared by HGL to support the radiological soil sampling field implementation program specific to Subareas 5D North and 5D South. These addenda provide the technical justification for location of the drainage, surface, and subsurface soil samples in Subareas 5D North and 5D South. CDM obtained split soil samples for chemical analysis at each location where HGL collected soil samples for radionuclides analyses.

1.3 Geology

Subarea 5D North is within the Chatsworth Formation, which comprises sandstone interbedded with siltstone and shale. The overlying native soils encountered range from clayey sand and silts with increasing clay at greater depths. Disturbed locations comprise fill soils of unknown origin and debris such as concrete, asphalt, igneous gravel, wood, and charcoal. The observed contact with the bedrock formation occurs between 1.0 foot and 24 feet below ground surface (bgs). Areas where refusal was met at greater than 12 feet bgs are all located within the vicinity of former Building 4020 and comprise predominantly non-native materials.

Subarea 5D South is predominately within the Santa Susana Formation, which is primarily a greenish-brown siltstone with lenses of white limestone. The overlying native soils encountered in this subarea range from silty sand to silts and some clay. The observed contact with the bedrock formation occurs between 0.5 foot and 10.0 feet bgs. Non native materials (gravel) were observed in only trace quantities with this subarea.

Additional information regarding the geology in Area IV can be found in Volume I of *Group 8 – Western Portion of Area IV RCRA Facility Investigation Report Santa Susana Field Laboratory, Ventura County, California* (CH2M Hill 2007).

1.4 Technical Memorandum Organization

This TM includes the following sections:

- **Section 1 - Introduction** – Summarizes the basis and objectives of the co-located soil sampling in Subareas 5D North and 5D South
- **Section 2 - Field Sampling and Analytical Methods** – Provides details regarding field sampling procedures and laboratory analytical methods
- **Section 3 - Soil Sample Analytical Results** – Provides a summary of detected analytical results for each chemical; the appendices provide the overall results

- **Section 4 - Data Usability Assessment** – Discusses the results of the data review and validation processes
- **Section 5 - References**

Section 2
Field Sampling and Analytical Methods

Soil samples were collected from surface and drainage locations in Subarea 5D North between May 17 and June 3, 2011 and on August 22, 2011. Subsurface sampling was performed from May 16 through June 30, July 5 through July 11, and July 27 through August 11, 2011. All Subarea 5D North sample locations are shown on Figure 2-1.

Soil samples at surface and drainage locations in Subarea 5D South were collected September 26 through 28, and November 9 and 10, 2011. Subsurface sampling was performed between October 14 and October 20, 2011 and between November 8 and November 14, 2011. All Subarea 5D South sample locations are shown on Figure 2-2.

Table 2-1 (5D North) and Table 2-2 (5D South) provide EPA's rationale for sampling at each location, sample number, date of soil samples collected, location description, description of any fill materials encountered, reasons for not sampling some of the locations proposed by EPA, and the required analyses.

All soil sampling equipment described in Sections 2.1 and 2.2 that came into contact with sample materials was decontaminated prior to sample collection in accordance with the WP/FSAP.

2.1 Surface and Drainage Sampling

Surface soil and drainage samples in Subareas 5D North and 5D South were collected from the ground surface to 6 inches bgs. The surface of the sample area was prepared by HGL sampling personnel by removing leaves, grass, and any other surface debris. Surface samples to be analyzed for semivolatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs)/polychlorinated triphenyls (PCTs) were collected first using a slide hammer equipped with a 2-inch diameter and 6-inch long stainless steel sample liner. The sampler was pounded into the soil until its top was flush with the ground surface and then removed from the soil. The sample sleeve was removed from the sampler and both ends capped with a Teflon® liner and a plastic cap.

The soil sample for the remaining analytes was collected from a circular hole, approximately 12 inches in diameter to a depth of 6 inches bgs, using a stainless steel trowel and transferred to a stainless steel bowl and homogenized. Debris, wood, or other materials larger than 0.25 inch were removed prior to homogenization. After homogenization, the sample was placed into one or more 16-ounce glass jars. Adhesive sample labels, completed with all sampling information, were affixed to both the sample sleeves and jars. All sleeves and jars were placed into plastic baggies, and placed in a cooler with double bagged ice.

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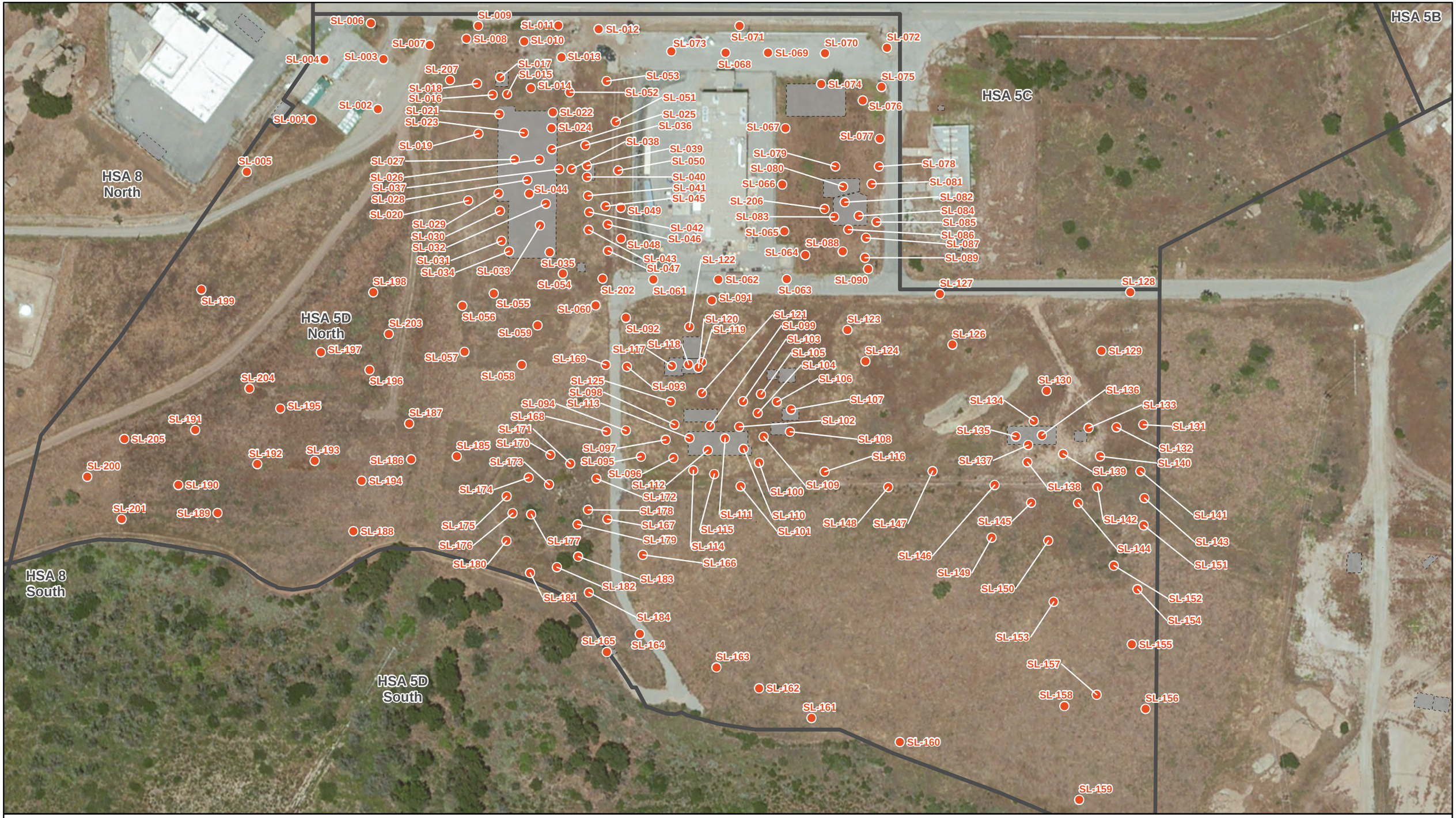

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Legend

- Sample Location
- Area IV Subarea
- Removed Building

Aerial Source: Bing Maps, (c) 2010 Microsoft Corporation and its data suppliers

Subarea 5D North Sample Locations

Santa Susana Field Laboratory
Ventura County, California
Figure 2-1

0 30 60 120 180 240 Feet

CDM Smith

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N

Legend

- Sample Location
- Area IV Subarea
- Removed Building

Aerial Source: Bing Maps, (c) 2010 Microsoft Corporation and its data suppliers

Subarea 5D South Sample Locations

Santa Susana Field Laboratory
Ventura County, California
Figure 2-2

0 30 60 120 180 240 Feet

CDM Smith

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Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	1	Southwest edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	0.5	"2 pieces of glass and 1 piece of plastic"	5/24/11	Primary	SL-001-SA5DN-SS-0.0-0.5
Subsurface	1	Southwest edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	10.0	"Charcoal fleck 1/4 " long" at 4.0 ft	5/17/11	VOCs/Dioxane Primary Primary	SL-001-SA5DN-SB-6.0 SL-001-SA5DN-SB-5.5-6.5 SL-001-SA5DN-SB-9.0-10.0
Surface	2	Southeast edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	0.5	"20% gravel fill rock"	5/25/11	Primary	SL-002-SA5DN-SS-0.0-0.5
Subsurface	2	Southeast edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	10.0	Fill "Clay with sand and gravel, 10% angular coarse gravel fill rock" from surface to 0.5 ft	5/16/11	VOCs/Dioxane Primary Primary	SL-002-SA5DN-SB-4.5 SL-002-SA5DN-SB-4.0-5.0 SL-002-SA5DN-SB-9.0-10.0
Subsurface	3	Northeast side of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	9.0	Fill "Clay with slight odor" from 0.3 to 1.2 ft Refusal on sandstone	5/16/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-003-SA5DN-SB-1.0 SL-003-SA5DN-SB-0.5-1.5 SL-003-SA5DN-SB-8.5 SL-003-SA5DN-SB-8.0-9.0
Surface	4	Northwest edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	0.75	"15% gravel fill and asphalt pieces"	5/25/11	Primary	SL-004-SA5DN-SS-0.0-0.5
Subsurface	4	Northwest edge of Parking Lot 4509.	Characterize radiological contamination from historical spills from containers stored on parking lot.	10.0	Fill "10% angular coarse gravel fill rock" from 0 to 1.3 ft Refusal on sandstone	5/16/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-004-SA5DN-SB-4.0 SL-004-SA5DN-SB-3.5-4.5 SL-004-SA5DN-SB-9.5 SL-004-SA5DN-SB-9.0-10.0
Surface	5	Southwest of Parking Lot 4509.	Aerial Photo Feature, "Excavation".	0.5	None indicated	5/25/11	Primary	SL-005-SA5DN-SS-0.0-0.5
Subsurface	5	Southwest of Parking Lot 4509.	Aerial Photo Feature, "Excavation".	10.0	None indicated Refusal on sandstone	5/17/11	VOCs/Dioxane Primary Primary	SL-005-SA5DN-SB-4.5 SL-005-SA5DN-SB-4.0-5.0 SL-005-SA5DN-SB-9.0-10.0
Subsurface	6	Northeast of Parking Lot 4509, in ditch on south side of G Street.	Potential radiological contamination in soil/sediment originating from former Building 4020.	9.75	None indicated Refusal on sandstone	8/11/11	Primary Primary	SL-006-SA5DN-SB-4.0-5.0 SL-006-SA5DN-SB-9.0-10.0
Drainage	6	Northeast of Parking Lot 4509, in ditch on south side of G Street.	Potential radiological contamination in soil/sediment originating from former Building 4020.	0.5	"trace asphalt gravel and sandstone fragments"	5/25/11	Primary	SL-006-SA5DN-SS-0.0-0.5
Subsurface	7	East of Parking Lot 4509, in ditch west side of Water Tower Rd.	Characterize potential radiological contamination in soil/sediment originating from Parking Lot 4509.	6.0	None indicated Refusal on sandstone	8/10/11	Primary	SL-007-SA5DN-SB-4.0-5.0
Drainage	7	East of Parking Lot 4509, in ditch west side of Water Tower Rd.	Characterize potential radiological contamination in soil/sediment originating from Parking Lot 4509.	0.5	None indicated	8/22/11	Primary	SL-007-SA5DN-SS-0.0-0.5
Surface	8	North of former Building 4020, in former parking lot.	Aerial Photo Feature, "Possible Open Storage" and proximity to former Building 4020.	0.5	None indicated	5/23/11	Primary	SL-008-SA5DN-SS-0.0-0.5
Subsurface	8	North of former Building 4020, in former parking lot.	Aerial Photo Feature, "Possible Open Storage" and proximity to former Building 4020.	10.0	Fill "silty clay" from 0 to 1 ft	5/31/11	VOCs/Dioxane Primary Primary	SL-008-SA5DN-SB-4.5 SL-008-SA5DN-SB-4.0-5.0 SL-008-SA5DN-SB-9.0-10.0
Subsurface	9	Ditch on the south side of G Street, north of former Building 4020.	Characterize surface water run-off from activities associated with former Building 4020 and parking lot.	10.0	None indicated	8/9/11	Primary	SL-009-SA5DN-SB-4.0-5.0MS SL-009-SA5DN-SB-9.0-10.0
Drainage	9	Ditch on the south side of G Street, north of former Building 4020.	Characterize surface water run-off from activities associated with former Building 4020 and parking lot.	0.5	None indicated	5/23/11	Primary	SL-009-SA5DN-SS-0.0-0.5
Surface	10	North of former building 4020.	Aerial Photo Feature, "Possible Open Storage".	0.5	"Gravelly sand, 40% gravel fill"	5/23/11	Primary	SL-010-SA5DN-SS-0.0-0.5
Subsurface	10	North of former building 4020.	Aerial Photo Feature, "Possible Open Storage".	10.0	Fill "well graded sand with gravel, 25% fine to coarse angular gravel fill rock" surface to 1.0 ft	5/31/11	VOCs/Dioxane Primary Primary	SL-010-SA5DN-SB-4.5 SL-010-SA5DN-SB-4.0-5.0 SL-010-SA5DN-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	11	North of former Building 4020, in ditch on south side of G Street.	Characterize potential radiological contamination in soil/sediment originating from former Building 4020.	7.0	None indicated Refusal on sandstone	8/9/11	Primary	SL-011-SA5DN-SB-4.0-5.0
Drainage	11	North of former Building 4020, in ditch on south side of G Street.	Characterize potential radiological contamination in soil/sediment originating from former Building 4020.	0.5	None indicated	5/23/11	Primary	SL-011-SA5DN-SS-0.0-0.5
Subsurface	12	In ditch south side of G Street, northwest of former Building 4020.	Characterize potential radiological contamination in soil/sediment originating from former Building 4020.	10.0	"20% gravel fill rock" from 0 to 1.5 ft	8/9/11	GRO Primary&Secondary GRO Primary&Secondary	SL-012-SA5DN-SB-4.5 SL-012-SA5DN-SB-4.0-5.0 SL-012-SA5DN-SB-9.5 SL-012-SA5DN-SB-9.0-10.0
Drainage	12	In ditch south side of G Street, northwest of former Building 4020.	Characterize potential radiological contamination in soil/sediment originating from former Building 4020.	0.5	"15% gravel fill rock"	5/23/11	Primary & Secondary	SL-012-SA5DN-SS-0.0-0.5
Surface	13	North of former Building 4020.	Investigate potential residual radiological contamination associated with Incident A0016.	0.5	"35% gravel fill"	5/23/11	Primary&Secondary	SL-013-SA5DN-SS-0.0-0.5
Subsurface	13	North of former Building 4020.	Investigate potential residual radiological contamination associated with Incident A0016.	10.0	"20% coarse to fine angular gravel fill rock" from 0 to 1.5 ft	5/31/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-013-SA5DN-SB-4.5 SL-013-SA5DN-SB-4.0-5.0 SL-013-SA5DN-SB-9.5 SL-013-SA5DN-SB-9.0-10.0
Surface	14	North of former Building 4020.	Investigate potential residual radiological contamination associated with Incident A0016.	0.5	"Trace gravel fill"	5/23/11	Primary&Secondary	SL-014-SA5DN-SS-0.0-0.5
Subsurface	14	North of former Building 4020.	Investigate potential residual radiological contamination associated with Incident A0016.	10.0	Fill "clayey silt with sand, 5% angular volcanic gravel (fill rock)" from 0 to 2.2 ft	5/31/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-014-SA5DN-SB-4.5MS SL-014-SA5DN-SB-4.0-5.0MS SL-014-SA5DN-SB-9.5 SL-014-SA5DN-SB-9.0-10.0
Surface	15	North side of former Building 4020.	Former location of fission tanks.	0.5	"10% gravel fill"	5/23/11	Primary&Secondary	SL-015-SA5DN-SS-0.0-0.5
Subsurface	15	North side of former Building 4020.	Former location of fission tanks.	13.0	Fill "sitly clay with trace angular gravel" from 0 to 10.2 ft "trace charcoal pieces" at 8.5 ft "trace angular gravel present in Macrocore shoe" at 10.0 ft Refusal on Sandstone	6/1/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-015-SA5DN-SB-4.5 SL-015-SA5DN-SB-4.0-5.0 SL-015-SA5DN-SB-12.5 SL-015-SA5DN-SB-12.0-13.0
Surface	16	North side of former Building 4020.	Former location of fission tanks.	0.5	"10% gravel fill"	5/23/11	Primary&Secondary	SL-016-SA5DN-SS-0.0-0.5
Subsurface	16	North side of former Building 4020.	Former location of fission tanks.	13.0	Fill "sandy clay" into "silty clay" from 0 to 11 ft "15% angular gravel (fill rock or asphalt)" from 0 to 5 ft "Asphalt pieces (~3/4" diameter)" at 2.8 ft "charcoal flake" at 4.5 ft "5% medium to coarse angular gravel (fill rock)" from 5 to 11 ft "clear plastic sheeting" at 7.75 ft Refusal on sandstone	6/2/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-016-SA5DN-SB-4.5 SL-016-SA5DN-SB-4.0-5.0 SL-016-SA5DN-SB-12.5 SL-016-SA5DN-SB-12.0-13.0
Surface	17	North of former Building 4020.	Potential migration of contamination from the former Fission Gas Tanks.	0.5	"15% gravel fill and concrete fragments"	5/23/11	Primary	SL-017-SA5DN-SS-0.0-0.5
Subsurface	17	North of former Building 4020.	Potential migration of contamination from the former Fission Gas Tanks.	8.0	Fill "silty clay with trace angular medium gravel" 0 to 1.0 ft Refusal on siltstone	6/1/11	VOCs/Dioxane Primary Primary	SL-017-SA5DN-SB-4.5 SL-017-SA5DN-SB-4.0-5.0 SL-017-SA5DN-SB-7.0-8.0
Surface	18	North side of former Building 4020.	Downgradient of the Fission Tank excavation pit. Geophysical Anomaly, "Conductivity".	0.5	"Trace gravel fill"	5/23/11	Primary&Secondary	SL-018-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	18	North side of former Building 4020.	Downgradient of the Fission Tank excavation pit. Geophysical Anomaly, "Conductivity".	9.5	Fill "silty clay with trace asphalt pieces" from 0 to 1.0 ft Refusal on sandstone	6/1/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-018-SA5DN-SB-4.5 SL-018-SA5DN-SB-4.0-5.0 SL-018-SA5DN-SB-8.0 SL-018-SA5DN-SB-7.5-8.5
Surface	19	West of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity". Aerial photo feature, "Possible Open Storage". 4020 leach field	0.5	None indicated	5/23/11	Primary&Secondary	SL-019-SA5DN-SS-0.0-0.5
Subsurface	19	West of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity". Aerial photo feature, "Possible Open Storage". 4020 leach field	10.0	"Charcoal nodules present in trace amounts" 0 to 1.0 ft	6/3/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-019-SA5DN-SB-4.5 SL-019-SA5DN-SB-4.0-5.0 SL-019-SA5DN-SB-9.5 SL-019-SA5DN-SB-9.0-10.0
Surface	20	West of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity". Aerial photo feature, "Possible Open Storage".	0.5	"15% gravel fill rock"	5/20/11	Primary&Secondary	SL-020-SA5DN-SS-0.0-0.5
Subsurface	20	West of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity". Aerial photo feature, "Possible Open Storage".	4.5	Fill "silty clay with sand" from 0 to 1.0 ft Refusal on sandstone	6/15/11	VOCs/Dioxane/GRO Primary&Secondary	SL-020-SA5DN-SB-4.0 SL-020-SA5DN-SB-3.5-4.5
Surface	21	Northwest corner of former Building 4020 "Hot Lab" footprint.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	0.5	"15% gravel fill rock"	5/23/11	Primary&Secondary	SL-021-SA5DN-SS-0.0-0.5
Subsurface	21	Northwest corner of former Building 4020 "Hot Lab" footprint.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	20.5	Fill "sandy clay, sandy silt and poorly graded sand" from 0 to 20.5ft "trace asphalt gravel 3/8" diameter" at 3.7 ft "Poorly graded sand" from 13.75 to 16.5 ft "@ 20' 1/2" to 1" pink quartzite gravel layer (pink quartzite viewed in all 5 advancements)" Refusal on poorly graded sand	6/2/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-021-SA5DN-SB-4.5 SL-021-SA5DN-SB-4.0-5.0 SL-021-SA5DN-SB-20.0 SL-021-SA5DN-SB-19.5-20.5
Surface	22	Northeast corner of former Building 4020 "Hot Lab" footprint.	Location of former 500 gallon waste hold up tanks.	0.5	"5% gravel fill and asphalt"	5/23/11	Primary&Secondary	SL-022-SA5DN-SS-0.0-0.5MS
Subsurface	22	Northeast corner of former Building 4020 "Hot Lab" footprint.	Location of former 500 gallon waste hold up tanks.	16.0	Fill "silty clay, sandy clay and poorly graded sand" from 0 to 16 ft "fine angular gravel within clay" at 7.75 ft "pink quartzite gravel (medium to coarse gravel)" at 14.8 ft Refusal on sandstone	6/6/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-022-SA5DN-SB-4.5 SL-022-SA5DN-SB-4.0-5.0 SL-022-SA5DN-SB-15.5 SL-022-SA5DN-SB-15.0-16.0
Surface	23	North central portion of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Magnetometer". Possible residual contamination from former radioactive waste hold up tanks in the basement.	0.5	"10% gravel fill"	5/23/11	Primary&Secondary	SL-023-SA5DN-SS-0.0-0.5
Subsurface	23	North central portion of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Magnetometer". Possible residual contamination from former radioactive waste hold up tanks in the basement.	21.0	Numerous layers of clay/silt/sand to 21 ft described as all Fill "layer of concrete gravel 3/4 " diameter" at 3.6 ft "angular granitic medium gravel" at 9.8 ft "trace charcoal" at 12.3 ft "pockets of sand" at 18 ft	6/8/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-023-SA5DN-SB-4.5 SL-023-SA5DN-SB-4.0-5.0 SL-023-SA5DN-SB-20.5 SL-023-SA5DN-SB-20.0-21.0
Surface	24	Northeast corner of former Building 4020 "Hot Lab" footprint.	Possible residual contamination from former radioactive waste hold up tanks in the basement. Geophysical Anomaly, "Conductivity".	0.5	"trace asphalt pieces"	5/20/11	Primary&Secondary	SL-024-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	24	Northeast corner of former Building 4020 "Hot Lab" footprint.	Possible residual contamination from former radioactive waste hold up tanks in the basement. Geophysical Anomaly, "Conductivity".	20.0	Fill comprised of "silty slay, sandy silt and poorly graded sand" from 0 to 15.0 ft Refusal on siltstone	6/7/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-024-SA5DN-SB-4.5MS SL-024-SA5DN-SB-4.0-5.0MS SL-024-SA5DN-SB-19.5 SL-024-SA5DN-SB-19.0-20.0
Surface	25	Northeast corner of former Building 4020 "Hot Lab" footprint.	Possible residual contamination from former 500 gallon radioactive waste hold up tanks in the basement.	0.5	"5% asphalt, brick and concrete fragments"	5/20/11	Primary&Secondary	SL-025-SA5DN-SS-0.0-0.5
Subsurface	25	Northeast corner of former Building 4020 "Hot Lab" footprint.	Possible residual contamination from former 500 gallon radioactive waste hold up tanks in the basement.	24.0	Fill comprised of "clay, silty clay, silty sand and poorly graded sand" from 0 to 24.0 ft "poorly graded sand" appears at 20.0 ft Refusal on sandstone	6/8/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-025-SA5DN-SB-4.5 SL-025-SA5DN-SB-4.0-5.0 SL-025-SA5DN-SB-23.5 SL-025-SA5DN-SB-23.0-24.0
Surface	26	North central portion of former Building 4020 "Hot Lab" footprint.	Location of former sump underneath Hot Cell #4. Geophysical Anomaly, "Magnetometer".	0.5	"5% gravel fill"	5/20/11	Primary&Secondary	SL-026-SA5DN-SS-0.0-0.5
Subsurface	26	North central portion of former Building 4020 "Hot Lab" footprint.	Location of former sump underneath Hot Cell #4. Geophysical Anomaly, "Magnetometer".	18.0	Fill composed of "silty clay, silty sand and poorly graded sand" from 0 to 18.0 ft "asphalt pieces ~1/2" diameter" at 5.8 ft Refusal on sandstone	6/7/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-026-SA5DN-SB-4.5 SL-026-SA5DN-SB-4.0-5.0 SL-026-SA5DN-SB-17.5 SL-026-SA5DN-SB-17.0-18.0
Surface	27	North central portion of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity and Magnetometer".	0.5	"trace asphalt fragments"	5/20/11	Primary&Secondary	SL-027-SA5DN-SS-0.0-0.5
Subsurface	27	North central portion of former Building 4020 "Hot Lab" footprint.	Geophysical Anomaly, "Conductivity and Magnetometer".	15.0	Fill comprised of "clay w/ sand, sand and silty sand" from 0 to 14.0 ft "trace angular gravel" from 0 to 11.5 ft Refusal on sandstone	6/3/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-027-SA5DN-SB-4.5 SL-027-SA5DN-SB-4.0-5.0 SL-027-SA5DN-SB-14.5 SL-027-SA5DN-SB-14.0-15.0
Surface	28	Central portion of former Building 4020 footprint.	Historical data	0.5	"5% asphalt fragments, trace gravel fill"	5/20/11	Primary&Secondary	SL-028-SA5DN-SS-0.0-0.5
Subsurface	28	Central portion of former Building 4020 footprint.	Historical data	12.5	Fill comprised of "clay w/ sand, clay and poorly graded sand from 0 to 12.5 ft "angular sandstone gravel ~3/4 diameter" at 3.5 ft "Concrete Debris from 7 to 7.2 ft and at 8.3 ft "angular fine granitic gravel (fill rock)" at 9.0 ft Refusal on sandstone	6/8/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-028-SA5DN-SB-4.5 SL-028-SA5DN-SB-4.0-5.0 SL-028-SA5DN-SB-12.0 SL-028-SA5DN-SB-11.5-12.5
Surface	29	West portion of former Building 4020 footprint	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	0.5	"trace asphalt fragments"	5/20/11	Primary&Secondary	SL-029-SA5DN-SS-0.0-0.5
Subsurface	29	West portion of former Building 4020 footprint	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	7.5	Fill comprised of "sandy silt and sandy silt with clay " from 0 to 7.5 ft "trace angular granite gravel" from 0 to 3.0 ft Refusal on sandstone	6/15/11	VOCs/Dioxane/GRO Primary&Secondary	SL-029-SA5DN-SB-4.5 SL-029-SA5DN-SB-4.0-5.0
Surface	30	Southwest portion of former Building 4020 footprint.	Loading dock area of former Building 4020.	0.5	None indicated	5/19/11	Primary&Secondary	SL-030-SA5DN-SS-0.0-0.5
Subsurface	30	Southwest portion of former Building 4020 footprint.	Loading dock area of former Building 4020.	5.0	Fill "silty clay with sand" from 0 to 2.0 ft "fill rock and concrete debris" at 1.7 ft Refusal on sandstone	6/15/11	VOCs/Dioxane/GRO Primary&Secondary	SL-030-SA5DN-SB-4.5MS SL-030-SA5DN-SB-4.0-5.0MS
Surface	31	Southwest portion of former Building 4020 footprint.	Loading dock area of former Building 4020.	0.5	"trace charcoal"	5/19/11	Primary&Secondary	SL-031-SA5DN-SS-0.0-0.5
Subsurface	31	Southwest portion of former Building 4020 footprint.	Loading dock area of former Building 4020.	7.5	Fill "clayey silt with sand" from 0 to 1 ft Refusal on sandstone	6/15/11	VOCs/Dioxane/GRO Primary&Secondary	SL-031-SA5DN-SB-4.5 SL-031-SA5DN-SB-4.0-5.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	32	Southeast portion of former Building 4020 footprint.	Geophysical Anomaly, "Magnetometer". Footprint of former Building 4020.	0.5	"5% gravel fill and sandstone rock fragments"	5/19/11	Primary&Secondary	SL-032-SA5DN-SS-0.0-0.5
Subsurface	32	Southeast portion of former Building 4020 footprint.	Geophysical Anomaly, "Magnetometer". Footprint of former Building 4020.	11.0	Fill comprised of "clayey silt, silty clay, and poorly graded sand" from 0 to 11.0 ft Refusal on sandstone	6/14/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-032-SA5DN-SB-4.5 SL-032-SA5DN-SB-4.0-5.0 SL-032-SA5DN-SB-10.5 SL-032-SA5DN-SB-10.0-11.0
Surface	33	Southern portion of former Building 4020 footprint.	Location of basement sump under Hot Cell #1.	0.5	"trace rock fragments-asphalt"	5/19/11	Primary&Secondary	SL-033-SA5DN-SS-0.0-0.5
Subsurface	33	Southern portion of former Building 4020 footprint.	Location of basement sump under Hot Cell #1.	12.0	Fill comprised of "silty sand, clay, clayey silt and poorly graded sand" from 0 to 11.5 ft "trace angular volcanic medium gravel" from 0 to 2.5 ft "trace charcoal fragments" at 4.0 ft "trace asphalt" at 5.0 ft "concrete debris ~1/2" diameter" at 9.3 ft Refusal on sandstone	6/14/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-033-SA5DN-SB-4.5MS SL-033-SA5DN-SB-4.0-5.0MS SL-033-SA5DN-SB-11.5 SL-033-SA5DN-SB-11.0-12.0
Surface	34	Southwest corner of former Building 4020.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	0.5	"15% gravel fill and asphalt fragments"	5/19/11	Primary&Secondary	SL-034-SA5DN-SS-0.0-0.5
Subsurface	34	Southwest corner of former Building 4020.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	7.0	Fill "clay with silt and sand" from 0 to 2.5 ft "angular medium gravel (fill rock)" at 2.5 ft Refusal on sandstone	6/15/11	VOCs/Dioxane/GRO Primary&Secondary	SL-034-SA5DN-SB-4.5 SL-034-SA5DN-SB-4.0-5.0
Surface	35	Southeast corner of former Building 4020 footprint.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	0.5	"trace amounts of carbon/charcoal"	5/19/11	Primary&Secondary	SL-035-SA5DN-SS-0.0-0.5
Subsurface	35	Southeast corner of former Building 4020 footprint.	Investigate the potential for radiological release through cracks in the foundation of former Building 4020 "Hot Lab".	10.5	Fill " comprised of silty clay and clayey silt from 0 to 10.5 ft Refusal on sandstone	6/14/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-035-SA5DN-SB-4.5 SL-035-SA5DN-SB-4.0-5.0 SL-035-SA5DN-SB-10.0 SL-035-SA5DN-SB-9.5-10.5
Surface	36	East of former Building 4020 footprint.	Potential migration of contamination from the 3,000 gallon holdup tank.	0.5	"15% gravel fill, trace asphalt fragments"	5/20/11	Primary&Secondary	SL-036-SA5DN-SS-0.0-0.5
Subsurface	36	East of former Building 4020 footprint.	Potential migration of contamination from the 3,000 gallon holdup tank.	10.0	Fill "silty clay" from 0 to 3.0 ft	6/7/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-036-SA5DN-SB-4.5 SL-036-SA5DN-SB-4.0-5.0 SL-036-SA5DN-SB-9.5 SL-036-SA5DN-SB-9.0-10.0
Surface	37	East side of former Building 4020 footprint.	Former location of a radioactive waste pipeline to the 3,000 gallon holdup tank.	0.5	"5% rock fragments (asphalt, fill rock)"	5/20/11	Primary&Secondary	SL-037-SA5DN-SS-0.0-0.5
Subsurface	37	East side of former Building 4020 footprint.	Former location of a radioactive waste pipeline to the 3,000 gallon holdup tank.	12.5	Fill "sandy clay, clayey silt and silty sand" from 0 to 12.0 ft "trace asphalt fine gravel" at 3.9 ft "angular medium granitic gravel" at 4.1 ft Refusal on siltstone	6/9/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-037-SA5DN-SB-4.5 SL-037-SA5DN-SB-4.0-5.0 SL-037-SA5DN-SB-12.0 SL-037-SA5DN-SB-11.5-12.5
Surface	38	East side of former Building 4020 footprint.	Former location of a radioactive waste pipeline to the 3,000 gallon holdup tank.	0.5	"5% gravel fill"	5/20/11	Primary&Secondary	SL-038-SA5DN-SS-0.0-0.5
Subsurface	38	East side of former Building 4020 footprint.	Former location of a radioactive waste pipeline to the 3,000 gallon holdup tank.	12.5	Fill "silty clay, clay with sand and poorly graded sand" from 0 to 11.0 ft "angular volcanic granite medium gravel" at 3.5 ft "trace angular fine volcanic gravel" from 4 to 6.5 ft Refusal on sandstone	6/9/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-038-SA5DN-SB-4.5 SL-038-SA5DN-SB-4.0-5.0 SL-038-SA5DN-SB-11.0 SL-038-SA5DN-SB-10.5-11.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	39	East side of former Building 4020 footprint.	Former location of a radioactive waste 3,000 gallon holdup tank.	0.5	"5% gravel fill"	5/20/11	Primary&Secondary	SL-039-SA5DN-SS-0.0-0.5
Subsurface	39	East side of former Building 4020 footprint.	Former location of a radioactive waste 3000 gallon holdup tank.	12.5	Fill "comprised of sandy clay and poorly graded sand" from 0 to 12.4 ft "asphalt debris" at 2.1 ft, 3.5 ft and 9.1 ft "medium subangular granitic gravel" at 3.9 ft "concrete debris ~ 1.5" diameter" at 4.2 ft "subangular medium granitic gravel" at 6.5 ft Refusal on sandstone	6/9/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-039-SA5DN-SB-4.5 SL-039-SA5DN-SB-4.0-5.0 SL-039-SA5DN-SB-12.0 SL-039-SA5DN-SB-11.5-12.5
Surface	40	East side of former Building 4020 footprint.	Former location of a radioactive waste 3000 gallon holdup tank.	0.5	"5% gravel fill"	5/20/11	Primary&Secondary	SL-040-SA5DN-SS-0.0-0.5
Subsurface	40	East side of former Building 4020 footprint.	Former location of a radioactive waste 3000 gallon holdup tank.	11.5	Fill "comprised of sandy clay and poorly graded sand" from 0 to 11 ft "asphalt piece" at 2 ft "subrounded medium gravel (granitic fill rock) ~3/4 diameter" at 3.2 ft "subrounded 1" granitic gravel" at 7.8 ft Refusal at sandstone	6/9/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-040-SA5DN-SB-4.5 SL-040-SA5DN-SB-4.0-5.0 SL-040-SA5DN-SB-10.0 SL-040-SA5DN-SB-10.5-11.5
Surface	41	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	0.5	"10% gravel fill rock"	5/19/11	Primary&Secondary	SL-041-SA5DN-SS-0.0-0.5
Subsurface	41	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	10.0	Fill "comprised of sandy clay, silty clay and poorly graded sand" from 0 to 10.0 ft "trace gravel" from 0 to 6.8 ft "angular medium quartzite gravel" at 4.7 ft "asphalt debris (fine asphalt gravel)" at 8.2 ft "granite medium gravel" at 9.0 ft	6/10/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-041-SA5DN-SB-4.5 SL-041-SA5DN-SB-4.0-5.0 SL-041-SA5DN-SB-9.5 SL-041-SA5DN-SB-9.0-10.0
Surface	42	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	0.5	"5% fill gravel"	5/19/11	Primary&Secondary	SL-042-SA5DN-SS-0.0-0.5
Subsurface	42	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	10.0	Fill "comprised of silty clay, sandy silt and poorly graded sand" from 0 to 9.5 ft "subangular gneiss medium gravel" at 4.75 ft "angular medium gravel (fill rock)" at 7.5 ft	6/13/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-042-SA5DN-SB-4.5 SL-042-SA5DN-SB-4.0-5.0 SL-042-SA5DN-SB-9.5 SL-042-SA5DN-SB-9.0-10.0
Surface	43	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	0.5	"trace gravel fill"	5/19/11	Primary&Secondary	SL-043-SA5DN-SS-0.0-0.5MS
Subsurface	43	East side of former Building 4020 footprint.	Location of former leach pits and leach field. Aerial Photo feature, "Open Storage".	10.0	Fill "comprised of silty clay, poorly graded sand with silt, and silt" from 0 to 10.0 ft "angular granitic medium gravel" at 2.45 ft "large asphalt gravel" at 3.45 ft "trace asphalt" at 8 ft	6/13/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-043-SA5DN-SB-4.5 SL-043-SA5DN-SB-4.0-5.0 SL-043-SA5DN-SB-9.5 SL-043-SA5DN-SB-9.0-10.0
Surface	44	Center portion of former Building 4020 footprint.	Geophysical Anomaly, "Magnetometer". Potential for radiological release through cracks in the foundation of former Building 4020.	0.5	"trace gravel"	5/20/11	Primary&Secondary	SL-044-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	44	Center portion of former Building 4020 footprint.	Geophysical Anomaly, "Magnetometer". Potential for radiological release through cracks in the foundation of former Building 4020.	13.0	Fill "comprised of silty clay, clay with silt and poorly graded sand" from 0 to 12.8 ft "large granitic angular gravel" at 2.1 ft, 3.0 ft, and 3.5 ft "sheathed electrical wire ~ 1/4" long" at 5.6 ft "coarse granitic medium gravel ~1/2 diameter" at 6.5 ft "concrete debris ~1" diameter" at 7.2 ft "granitic medium gravel" at 7.9 ft "asphalt debris~1" diameter" at 9.6 ft "trace tar pitch, mottled trace angular gravel (fill rock)" from 12.2 to 12.8 ft Refusal on sandstone	6/14/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-044-SA5DN-SB-4.5 SL-044-SA5DN-SB-4.0-5.0 SL-044-SA5DN-SB-12.5 SL-044-SA5DN-SB-12.0-13.0
Surface	45	East of former Building 4020 footprint.	Historical Data	0.5	"5% gravel fill"	5/19/11	Primary&Secondary	SL-045-SA5DN-SS-0.0-0.5
Subsurface	45	East of former Building 4020 footprint.	Historical Data	10.0	None indicated	6/10/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-045-SA5DN-SB-4.5 SL-045-SA5DN-SB-4.0-5.0 SL-045-SA5DN-SB-9.5 SL-045-SA5DN-SB-9.0-10.0
Surface	46	East of former Building 4020 footprint.	Drain line from former leach pits and septic tank to ditch.	0.5	"10% fill gravel and asphalt fragments"	5/19/11	Primary&Secondary	SL-046-SA5DN-SS-0.0-0.5
Subsurface	46	East of former Building 4020 footprint.	Drain line from former leach pits and septic tank to ditch.	10.0	None indicated	6/13/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-046-SA5DN-SB-4.5 SL-046-SA5DN-SB-4.0-5.0 SL-046-SA5DN-SB-9.5 SL-046-SA5DN-SB-9.0-10.0
Surface	47	East of former Building 4020 footprint.	Drain line from former leach pits and septic tank to ditch.	0.5	"10% rock fragments/gravel (asphalt, gravel fill, sandstone fragments)"	5/19/11	Primary&Secondary	SL-047-SA5DN-SS-0.0-0.5
Subsurface	47	East of former Building 4020 footprint.	Drain line from former leach pits and septic tank to ditch.	11.0	Fill "clay" from 0 to 3.25ft Refusal on sandstone	6/13/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-047-SA5DN-SB-4.5 SL-047-SA5DN-SB-4.0-5.0 SL-047-SA5DN-SB-10.5 SL-047-SA5DN-SB-10.0-11.0
Surface	48	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from leach pit and leach field.	0.5	"15% gravel, fill"	5/19/11	Primary	SL-048-SA5DN-SS-0.0-0.5
Subsurface	48	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from leach pit and leach field.	12.5	None indicated Refusal on sandstone	6/10/11	VOCs/Dioxane Primary Primary	SL-048-SA5DN-SB-4.5 SL-048-SA5DN-SB-4.0-5.0 SL-048-SA5DN-SB-11.5-12.5
Surface	49	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from leach pit and leach field.	0.5	"15% gravel fill and asphalt pieces"	5/19/11	Primary	SL-049-SA5DN-SS-0.0-0.5
Subsurface	49	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from leach pit and leach field.	16.5	None indicated Refusal on siltstone	6/10/11	VOCs/Dioxane Primary Primary	SL-049-SA5DN-SB-4.5 SL-049-SA5DN-SB-4.0-5.0 SL-049-SA5DN-SB-15.5-16.5
Surface	50	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from 3,000 gallon holdup tank.	0.5	"10% gravel (fill and asphalt fragments)"	5/20/11	Primary	SL-050-SA5DN-SS-0.0-0.5
Subsurface	50	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from 3,000 gallon holdup tank.	12.5	None indicated Refusal on sandstone	6/9/11	VOCs/Dioxane Primary Primary	SL-050-SA5DN-SB-4.5 SL-050-SA5DN-SB-4.0-5.0 SL-050-SA5DN-SB-11.5-12.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	51	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from 3,000 gallon holdup tank.	0.5	"15% gravel fill and asphalt"	5/20/11	Primary&Secondary	SL-051-SA5DN-SS-0.0-0.5
Subsurface	51	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch and from 3,000 gallon holdup tank.	15.0	None indicated Refusal on sandstone	6/8/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-051-SA5DN-SB-4.5 SL-051-SA5DN-SB-4.0-5.0 SL-051-SA5DN-SB-14.5 SL-051-SA5DN-SB-14.0-15.0
Surface	52	Northeast of former Building 4020 footprint.	Geophysical Anomaly, "Conductivity".	0.5	"5% gravel fill, trace pieces of metal found"	5/23/11	Primary	SL-052-SA5DN-SS-0.0-0.5
Subsurface	52	Northeast of former Building 4020 footprint.	Geophysical Anomaly, "Conductivity".	10.0	None indicated	6/3/11	VOCs/Dioxane Primary Primary	SL-052-SA5DN-SB-4.5 SL-052-SA5DN-SB-4.0-5.0 SL-052-SA5DN-SB-9.0-10.0
Surface	53	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch.	0.5	"trace gravel fill"	5/23/11	Primary	SL-053-SA5DN-SS-0.0-0.5
Subsurface	53	East of former Building 4020 footprint, along former 24th Street.	Potential contamination in the former ditch.	12.5	None indicated Refusal on siltstone	6/6/11	VOCs/Dioxane Primary Primary	SL-053-SA5DN-SB-4.5 SL-053-SA5DN-SB-4.0-5.0 SL-053-SA5DN-SB-11.5-12.5
Surface	54	Northeast corner of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	0.5	None indicated	5/18/11	Primary	SL-054-SA5DN-SS-0.0-0.5
Subsurface	54	Northeast corner of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	10.0	Fill "silty clay with asphalt chunks" from 0 to 1.0 ft "charcoal bits" at 9.0 ft	6/13/11	VOCs/Dioxane Primary Primary	SL-054-SA5DN-SB-4.5 SL-054-SA5DN-SB-4.0-5.0 SL-054-SA5DN-SB-9.0-10.0
Surface	55	Northwest portion of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	0.5	"15% gravel (sandstone fragments, asphalt gravel fill)"	5/18/11	Primary	SL-055-SA5DN-SS-0.0-0.5
Subsurface	55	Northwest portion of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	10.0	Fill "clayey silt with sand and trace granitic gravel" from 0 to 3.0 ft Refusal on sandstone	6/15/11	VOCs/Dioxane Primary Primary	SL-055-SA5DN-SB-4.5 SL-055-SA5DN-SB-4.0-5.0 SL-055-SA5DN-SB-9.0-10.0
Surface	56	West side of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	0.5	"5% rock fragments (sandstone, gravel, asphalt)"	5/18/11	Primary	SL-056-SA5DN-SS-0.0-0.5
Subsurface	56	West side of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	10.0	None indicated	6/15/11	VOCs/Dioxane Primary Primary	SL-056-SA5DN-SB-4.5 SL-056-SA5DN-SB-4.0-5.0 SL-056-SA5DN-SB-9.0-10.0
Surface	57	Southwest corner of the 4020 Parking Lot	Stakeholder Request - Staging area for the D&D of former Building 4020.	0.5	None indicated	5/24/11	Primary	SL-057-SA5DN-SS-0.0-0.5MS
Subsurface	57	Southwest corner of the 4020 Parking Lot	Stakeholder Request - Staging area for the D&D of former Building 4020.	10.0	None indicated	6/16/11	VOCs/Dioxane Primary Primary	SL-057-SA5DN-SB-4.5 SL-057-SA5DN-SB-4.0-5.0 SL-057-SA5DN-SB-9.0-10.0
Surface	58	South edge of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	0.5	None indicated	5/18/11	Primary	SL-058-SA5DN-SS-0.0-0.5
Subsurface	58	South edge of former Parking Lot 4520.	Staging area for the D&D of former Building 4020.	10.0	None indicated	6/16/11	VOCs/Dioxane Primary Primary	SL-058-SA5DN-SB-4.5 SL-058-SA5DN-SB-4.0-5.0 SL-058-SA5DN-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	59	Center portion of former Parking Lot 4520.	Staging area for the D&D of former Building 4020. Geophysical Anomaly, "Conductivity".	0.5	"5% sandstone rock fragments and fill rock"	5/18/11	Primary	SL-059-SA5DN-SS-0.0-0.5
Subsurface	59	Center portion of former Parking Lot 4520.	Staging area for the D&D of former Building 4020. Geophysical Anomaly, "Conductivity".	10.0	"charcoal flecks" at 7.3 ft	6/16/11	VOCs/Dioxane Primary Primary	SL-059-SA5DN-SB-4.5 SL-059-SA5DN-SB-4.0-5.0 SL-059-SA5DN-SB-9.0-10.0
Surface	60	Drainage ditch southeast of former Building 4020.	The ditch received surface water from former building 4020 and from former Parking Lot 4520.	0.5	"5% gravel fill rock"	5/25/11	Primary	SL-060-SA5DN-SS-0.0-0.5
Subsurface	60	Drainage ditch southeast of former Building 4020.	The ditch received surface water from former building 4020 and from former Parking Lot 4520.	9.2	"soft asphalt debris" from 0 to 1.0 ft "pieces of concrete, asphalt debris" from 1 to 4 ft Refusal on sandstone	8/5/11	Primary Primary	SL-060-SA5DN-SB-4.0-5.0 SL-060-SA5DN-SB-7.0-8.0
Subsurface	61	South of Building 4055.	Potential radiological contamination from activities associated with Building 4055.	10.0	None indicated	6/16/11	VOCs/Dioxane Primary Primary	SL-061-SA5DN-SB-4.5 SL-061-SA5DN-SB-4.0-5.0 SL-061-SA5DN-SB-9.0-10.0
Subsurface	62	South of Building 4055.	Potential radiological contamination from activities associated with Building 4055.	7.5	None indicated Refusal on sandstone	6/16/11	VOCs/Dioxane Primary	SL-062-SA5DN-SB-4.5 SL-062-SA5DN-SB-4.0-5.0
Subsurface	63	Southeast of Building 4055.	Potential migration of radiological contaminants from the Building 4055 waste holdup system.	1.7	None indicated Refusal on sandstone	No sample due to shallow refusal < 2.5 ft bgs 6/22/2011	NA	NA
Surface	64	Southeast of Building 4055.	Potential migration of radiological contaminants from the Building 4055 waste holdup system.	0.5	"an iron nail, a lite and fill rock found"	5/18/11	Primary&Secondary	SL-064-SA5DN-SS-0.0-0.5
Subsurface	64	Southeast of Building 4055.	Potential migration of radiological contaminants from the Building 4055 waste holdup system.	5.1	None indicated Refusal on sandstone	5/20/11	VOCs/Dioxane/GRO Primary&Secondary	SL-064-SA5DN-SB-4.5 SL-064-SA5DN-SB-4.0-5.0
Surface	65	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	0.5	None indicated	5/18/11	Primary&Secondary	SL-065-SA5DN-SS-0.0-0.5
Subsurface	65	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	8.0	None indicated Refusal on sandstone	5/20/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-065-SA5DN-SB-4.5 SL-065-SA5DN-SB-4.0-5.0 SL-065-SA5DN-SB-7.5 SL-065-SA5DN-SB-7.0-8.0
Surface	66	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	0.5	"5% gravel (fill rock and cement)"	5/17/11	Primary&Secondary	SL-066-SA5DN-SS-0.0-0.5
Subsurface	66	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	10.0	None indicated	5/19/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-066-SA5DN-SB-4.5 SL-066-SA5DN-SB-4.0-5.0 SL-066-SA5DN-SB-9.5 SL-066-SA5DN-SB-9.0-10.0
Surface	67	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	0.5	None indicated	5/17/11	Primary&Secondary	SL-067-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	67	East of Building 4055.	Potential migration of radiological contamination from the 4055 waste holdup tank system and pipeline.	10.0	None indicated	5/19/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-067-SA5DN-SB-4.5 SL-067-SA5DN-SB-4.0-5.0 SL-067-SA5DN-SB-9.5 SL-067-SA5DN-SB-9.0-10.0
Subsurface	68	Parking Lot on the north side of Building 4055.	Potential radiologic contamination from activities associated with Building 4055.	10.0	Fill "clayey silt" from 0 to 1.0 ft	5/17/11	VOCs/Dioxane Primary Primary	SL-068-SA5DN-SB-4.5 SL-068-SA5DN-SB-4.0-5.0 SL-068-SA5DN-SB-9.0-10.0
Subsurface	69	Parking Lot on the north side of Building 4055.	Potential radiological contamination associated with activities conducted within Building 4055.	10.0	Fill "clay" from 0 to 0.5 ft	5/18/11	VOCs/Dioxane Primary Primary	SL-069-SA5DN-SB-4.5 SL-069-SA5DN-SB-4.0-5.0 SL-069-SA5DN-SB-9.0-10.0
Subsurface	70	Parking Lot on the north side of Building 4055.	Potential radiological contamination associated with activities conducted within Building 4055.	10.0	None indicated	5/18/11	VOCs/Dioxane Primary Primary	SL-070-SA5DN-SB-4.5 SL-070-SA5DN-SB-4.0-5.0 SL-070-SA5DN-SB-9.0-10.0
Subsurface	71	North of Building 4055.	Characterize potential radiological contaminated sediment and soil from activities associated with Building 4055.	10.0	"fragments of asphalt ~1 inch thick" at 2.0 ft "trace gravel fill rock" from 4.5 to 5.0 ft	8/10/11	Primary Primary	SL-071-SA5DN-SB-4.0-5.0 SL-071-SA5DN-SB-9.0-10.0
Drainage	71	North of Building 4055.	Characterize potential radiological contaminated sediment and soil from activities associated with Building 4055.	0.5	"1 piece of iron found"	5/27/11	Primary	SL-071-SA5DN-SS-0.0-0.5
Subsurface	72	Northeast of Building 4055, in ditch south side of G Street.	Characterize potential radiological contaminated sediment and soil from activities associated with Building 4055.	6.0	"5% fine gravel and asphalt fragments" from 0 to 3.5 ft Refusal on sandstone	8/10/11	Primary Primary	SL-072-SA5DN-SB-4.0-5.0
Drainage	72	Northeast of Building 4055, in ditch south side of G Street.	Characterize potential radiological contaminated sediment and soil from activities associated with Building 4055.	0.5	None indicated	5/17/11	Primary	SL-072-SA5DN-SS-0.0-0.5
Subsurface	73	Parking Lot on the north side of Building 4055.	Characterize potential radiological contaminated sediment and soil from activities associated with Building 4055.	10.0	Fill " clay with silt" from 0 to 0.8 ft	5/17/11	VOCs/Dioxane Primary Primary	SL-073-SA5DN-SB-4.5 SL-073-SA5DN-SB-4.0-5.0 SL-073-SA5DN-SB-9.0-10.0
Surface	74	East of Building 4055.	Potential radiological contamination from drainage ditch and elevated gamma survey readings.	0.5	"15% gravel-concrete"	5/17/11	Primary&Energetics	SL-074-SA5DN-SS-0.0-0.5
Subsurface	74	East of Building 4055.	Potential radiological contamination from drainage ditch and elevated gamma survey readings.	10.0	"trace angular medium gravel (fill rock)" from 0 to 1.0 ft	5/18/11	VOCs/Dioxane Primary&Energetics Primary&Energetics	SL-074-SA5DN-SB-4.5 SL-074-SA5DN-SB-4.0-5.0 SL-074-SA5DN-SB-9.0-10.0
Subsurface	75	Drainage north of former Buildings 4373/4374 & east of Building 4055.	Potential radiological contamination from drainage ditch to the west and to the south.	10.0	Fill "silty clay with trace asphalt chunks" from 0 to 2.5 ft	5/23/11	VOCs/Dioxane Primary Primary	SL-075-SA5DN-SB-4.5 SL-075-SA5DN-SB-4.0-5.0 SL-075-SA5DN-SB-9.0-10.0
Drainage	75	Drainage north of former Buildings 4373/4374 & east of Building 4055.	Potential radiological contamination from drainage ditch to the west and to the south.	0.5	"trace asphalt pieces"	5/17/11	Primary	SL-075-SA5DN-SS-0.0-0.5
Surface	76	North of former Buildings 4373/4374 and east of Building 4055.	Historical Data	0.5	"15% gravel fill"	5/17/11	Primary	SL-076-SA5DN-SS-0.0-0.5
Subsurface	76	North of former Buildings 4373/4374 and east of Building 4055.	Historical Data	10.0	None indicated	5/18/11	VOCs/Dioxane Primary Primary	SL-076-SA5DN-SB-4.5MS SL-076-SA5DN-SB-4.0-5.0MS SL-076-SA5DN-SB-9.0-10.0
Subsurface	77	Ditch east of former Building 4373.	Potential radiological contamination migration from activities associated with Building 4373.	10.0	None indicated	6/27/11	VOCs/Dioxane Primary & Energetics Primary & Energetics	SL-077-SA5DN-SB-4.5 SL-077-SA5DN-SB-4.0-5.0 SL-077-SA5DN-SB-9.0-10.0
Subsurface	78	Ditch east of former Building 4373.	Potential contamination associated with discharge from former pipe excavated from trench emanating from former Building 4373.	10.0	None indicated	6/27/11	VOCs/Dioxane Primary & Energetics Primary & Energetics	SL-078-SA5DN-SB-4.5 SL-078-SA5DN-SB-4.0-5.0 SL-078-SA5DN-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	79	Former Building 4374 footprint.	Investigate potential radiological contamination from activities associated with former Building 4374 and 4373.	0.5	"20% gravel fill"	5/17/11	Primary&Energetics	SL-079-SA5DN-SS-0.0-0.5
Subsurface	79	Former Building 4374 footprint.	Investigate potential radiological contamination from activities associated with former Building 4374 and 4373.	10.0	Fill "clayey silt with some asphalt chunks/debris, trace angular gravel (medium fill rock) & a u-bracket (metal) on outside of macrocore" from 0 to 1.75 ft	5/19/11	VOCs/Dioxane Primary&Energetics Primary&Energetics	SL-079-SA5DN-SB-4.5 SL-079-SA5DN-SB-4.0-5.0 SL-079-SA5DN-SB-9.0-10.0
Surface	80	Former Building 4373 footprint.	Investigate potential radiological contamination from activities associated with former Building 4374.	0.5	"20% gravel fill and cement"	5/17/11	Primary&Energetics	SL-080-SA5DN-SS-0.0-0.5
Subsurface	80	Former Building 4373 footprint.	Investigate potential radiological contamination from activities associated with former Building 4374.	9.0	Fill "silty clay" from 0 to 2.0 ft Refusal on sandstone	5/19/11	VOCs/Dioxane Primary&Energetics Primary&Energetics	SL-080-SA5DN-SB-4.5 SL-080-SA5DN-SB-4.0-5.0 SL-080-SA5DN-SB-8.0-9.0
Surface	81	Northwest of Building 4373.	Potential radioactive contamination associated with Geophysical Anomaly (trench) emanating from former Building 4373 footprint.	0.5	None indicated	5/17/11	Primary&Energetics	SL-081-SA5DN-SS-0.0-0.5
Subsurface	81	Northwest of Building 4373.	Potential radioactive contamination associated with Geophysical Anomaly (trench) emanating from former Building 4373 footprint.	10.0	Fill "Silt" from 0 to 2.8 ft	5/23/11	VOCs/Dioxane Primary&Energetics Primary&Energetics	SL-081-SA5DN-SB-4.5 SL-081-SA5DN-SB-4.0-5.0 SL-081-SA5DN-SB-9.0-10.0
Surface	82	Former Building 4373 footprint	Inside the footprint of former Building 4373, elevated gamma readings, magnetometer anomaly.	0.5	"20% gravel fill-concrete, fill rock"	5/17/11	Primary&Energetics	SL-082-SA5DN-SS-0.0-0.5
Subsurface	82	Former Building 4373 footprint	Inside the footprint print of former Building 4373, elevated gamma readings, magnetometer anomaly.	6.0	Fill "silty clay" from 0 to 2.2 ft Refusal on sandstone	5/19/11	VOCs/Dioxane Primary&Energetics	SL-082-SA5DN-SB-4.5 SL-082-SA5DN-SB-4.0-5.0
Surface	83	Former Building 4373 footprint	Investigate potential radiological contamination from activities associated with former Building 4374.	0.5	"15% gravel"	5/17/11	Primary&Energetics	SL-083-SA5DN-SS-0.0-0.5
Subsurface	83	Former Building 4373 footprint	Investigate potential radiological contamination from activities associated with former Building 4374.	5.7	"15% gravel fill, rock and sandstone fragments" from 0 to 1.5 ft Refusal on sandstone	8/8/11	Primary	SL-083-SA5DN-SB-4.0-5.0
Surface	84	Former Building 4373 footprint	Investigate potential radiological contamination from activities associated with former Building 4374.	0.5	"20% gravel (fill rock and cement)"	5/17/11	Primary&Energetics	SL-084-SA5DN-SS-0.0-0.5
Subsurface	84	Former Building 4373 footprint	Investigate potential radiological contamination from activities associated with former Building 4374.	6.0	None indicated Refusal on sandstone	5/23/11	VOCs/Dioxane Primary&Energetics	SL-084-SA5DN-SB-4.5 SL-084-SA5DN-SB-4.0-5.0
Subsurface	85	Southwest of former Building 4373.	Potentially contaminated soil in ditch from activities associated with former Building 4373 and Building 4374.	3.5	None indicated Refusal on sandstone	6/27/11	VOCs/Dioxane Primary&Energetics	SL-085-SA5DN-SB-3.0 SL-085-SA5DN-SB-2.5-3.5
Surface	86	South of former Building 4373.	Characterize Geophysical Anomaly (underground pipe)emanating from the footprint of former Building 4373.	0.5	"trace gravel"	5/18/11	Primary&Secondary	SL-086-SA5DN-SS-0.0-0.5
Subsurface	86	South of former Building 4373.	Characterize Geophysical Anomaly (underground pipe)emanating from the footprint of former Building 4373.	7.5	None indicated Refusal on sandstone	5/20/11	VOCs/Dioxane/GRO Primary&Secondary	SL-086-SA5DN-SB-4.5 SL-086-SA5DN-SB-4.0-5.0
Surface	87	South of former Building 4373.	Characterize potential radiological contamination associated with leach field former Building 4373.	0.5	"5% gravel"	5/18/11	Primary&Secondary	SL-087-SA5DN-SS-0.0-0.5
Subsurface	87	South of former Building 4373.	Characterize potential radiological contamination associated with leach field former Building 4373.	2.5	"10% angular medium gravel (fill rock)" from 0 to 1.0 ft Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft 5/23/2011	NA	NA
Surface	88	South of former Building 4373.	Geophysical Anomaly, "Magnetometer".	0.5	None indicated	5/18/11	Primary&Energetics	SL-088-SA5DN-SS-0.0-0.5
Subsurface	88	South of former Building 4373.	Geophysical Anomaly, "Magnetometer".	5.0	None indicated Refusal on sandstone	5/20/11	VOCs/Dioxane Primary&Energetics	SL-088-SA5DN-SB-4.5 SL-088-SA5DN-SB-4.0-5.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	89	South of former Building 4373.	Characterize potential radiological contamination associated with leach field former Building 4373.	0.5	None indicated	5/18/11	Primary&Secondary	SL-089-SA5DN-SS-0.0-0.5MS
Subsurface	89	South of former Building 4373.	Characterize potential radiological contamination associated with leach field former Building 4373.	5.0	None indicated	5/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-089-SA5DN-SB-4.5 SL-089-SA5DN-SB-4.0-5.0
Surface	90	Northwest corner of the intersection of 22nd and J Street.	Characterize potential radioactive contamination in soil/sediment associated with activities in former Building 4373 and Building 4055.	0.5	"5% gravel fill and asphalt pieces"	5/18/11	Primary&Secondary	SL-090-SA5DN-SS-0.0-0.5
Subsurface	90	Northwest corner of the intersection of 22nd and J Street.	Characterize potential radioactive contamination in soil/sediment associated with activities in former Building 4373 and Building 4055.	NA	NA	sampled by H	NA	NA
Surface	91	Ditch on south side of J Street, North of former Building 4874.	Potential radiological contamination in soil/sediment south side of J Street. Possible open storage in parking lot former Building 4363.	0.5	None indicated	5/27/11	Primary	SL-091-SA5DN-SS-0.0-0.5
Subsurface	91	Ditch on south side of J Street, North of former Building 4874.	Potential radiological contamination in soil/sediment south side of J Street. Possible open storage in parking lot former Building 4363.	6.0	Fill "comprised of silty clay and clay from 0 to 5.0 ft "trace gravel (fill rock)" from 0 to 3.0 ft "asphalt debris ~2" thick" at 3.0 ft "concrete debris~3"think" at 3.75 ft Refusal on sandstone	6/24/11	VOCs/Dioxane Primary	SL-091-SA5DN-SB-4.5 SL-091-SA5DN-SB-4.0-5.0
Surface	92	Northwest of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment south side of J Street. Possible open storage in parking lot former Building 4363.	0.5	None indicated	5/27/11	Primary	SL-092-SA5DN-SS-0.0-0.5
Subsurface	92	Northwest of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment south side of J Street. Possible open storage in parking lot former Building 4363.	8.4	None indicated Refusal on sandstone	6/24/11	VOCs/Dioxane Primary Primary	SL-092-SA5DN-SB-4.5MS SL-092-SA5DN-SB-4.0-5.0MS SL-092-SA5DN-SB-7.0-8.0
Surface	93	West of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment along east side of 24th Street. Possible open storage former Building 4363.	0.5	None indicated	5/27/11	Primary	SL-093-SA5DN-SS-0.0-0.5
Subsurface	93	West of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment along east side of 24th Street. Possible open storage former Building 4363.	10.0	None indicated	6/20/11	VOCs/Dioxane Primary Primary	SL-093-SA5DN-SB-4.5 SL-093-SA5DN-SB-4.0-5.0 SL-093-SA5DN-SB-9.0-10.0
Surface	94	West of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment along east side of 24th Street. Possible open storage former Building 4363.	0.5	None indicated	5/31/11	Primary	SL-094-SA5DN-SS-0.0-0.5
Subsurface	94	West of former Buildings 4874/4375/4875.	Potential radiological contamination in soil/sediment along east side of 24th Street. Possible open storage former Building 4363.	10.0	Fill " comprised of clay with sand, sandy clay and clayey sand" from 0 to 10.0 ft "trace gravel fill rock" from 9.0 to 10.0 ft	6/22/11	VOCs/Dioxane Primary Primary	SL-094-SA5DN-SB-4.5 SL-094-SA5DN-SB-4.0-5.0 SL-094-SA5DN-SB-9.0-10.0
Surface	95	Southwest of former Buildings 4874/4375/4875.	Historical data	0.5	"5% gravel fill rock"	5/31/11	Primary	SL-095-SA5DN-SS-0.0-0.5
Subsurface	95	Southwest of former Buildings 4874/4375/4875.	Historical data	10.0	None indicated	6/21/11	VOCs/Dioxane Primary Primary	SL-095-SA5DN-SB-4.5 SL-095-SA5DN-SB-4.0-5.0 SL-095-SA5DN-SB-9.0-10.0
Surface	97	West of former Building 4363 footprint.	Historical data	0.5	None indicated	5/31/11	Primary&Secondary	SL-097-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	97	West of former Building 4363 footprint.	Historical data	9.5	None indicated Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-097-SA5DN-SB-4.5 SL-097-SA5DN-SB-4.0-5.0 SL-097-SA5DN-SB-9.0 SL-097-SA5DN-SB-8.5-9.5
Surface	98	Northwest of former Building 4363	Historical data	0.5	"5% sandstone fragments and gravel fill"	5/31/11	Primary&Secondary	SL-098-SA5DN-SS-0.0-0.5
Subsurface	98	Northwest of former Building 4363 footprint.	Historical data	8.0	Fill "silty clay" from 0 to 5.0 ft "trace concrete~1/4 diameter" at 3.1 ft "trace asphalt~1/8 diameter" at 4.0 ft "Concrete debris" from 4.0 to 4.6 ft Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-098-SA5DN-SB-4.5 SL-098-SA5DN-SB-4.0-5.0 SL-098-SA5DN-SB-7.5 SL-098-SA5DN-SB-7.0-8.0
Surface	99	North of former Building 4363 footprint.	Historical data	0.5	None indicated	5/31/11	Primary&Secondary	SL-099-SA5DN-SS-0.0-0.5
Subsurface	99	North of former Building 4363 footprint.	Potential radiological contamination from pipeline associated with the leach field.	7.0	None indicated Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary	SL-099-SA5DN-SB-4.5 SL-099-SA5DN-SB-4.0-5.0
Surface	100	Southeast corner of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	0.5	"trace gravel fill"	6/1/11	Primary&NDMA	SL-100-SA5DN-SS-0.0-0.5
Subsurface	100	Southeast corner of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	4.0	None indicated	6/23/11	VOCs/Dioxane Primary & NDMA	SL-100-SA5DN-SB-3.5 SL-100-SA5DN-SB-3.0-4.0
Subsurface	101	South side of former L Street, south of former Building 4363.	Potential radiological contamination from pipeline associated with the leach field.	3.5	Fill "clay with trace asphalt" from 0 to 1.7 ft Refusal on sandstone	6/23/11	VOCs/Dioxane Primary	SL-101-SA5DN-SB-3.0 SL-101-SA5DN-SB-2.5-3.5
Drainage	101	South side of former L Street, south of former Building 4363.	Potential radiological contamination from pipeline associated with the leach field.	0.5	"trace asphalt, pieces of burnt wood, bungee cord, some charcoal"	5/31/11	Primary	SL-101-SA5DN-SS-0.0-0.5
Surface	102	Northeast corner of former Building 4363.	Historical data	0.5	None indicated	5/31/11	Primary&Secondary	SL-102-SA5DN-SS-0.0-0.5
Subsurface	102	Northeast corner of former Building 4363.	Historical data	4.0	"Fill:silty clay with trace to medium gravel" from 0 to 1.3 ft Refusal on sandstone	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-102-SA5DN-SB-4.5 SL-102-SA5DN-SB-4.0-5.0
Surface	103	Northeast corner of former Building 4363.	Potential radiological contamination associated with former leach field.	0.5	None indicated	5/31/11	Primary&Secondary	SL-103-SA5DN-SS-0.0-0.5
Subsurface	103	Northeast corner of former Building 4363.	Potential radiological contamination associated with former leach field.	8.0	Fill "comprised of clayey silt, silty sand and silt with clay" from 0 to 6.9 ft "angular volcanic medium gravel" at 3.0 ft "subrounded medium gravel (fill rock)" at 4.1 ft "1/2" diameter red brick debris" at 6.0 ft Refusal on sandstone	6/24/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-103-SA5DN-SB-4.5 SL-103-SA5DN-SB-4.0-5.0 SL-103-SA5DN-SB-7.5 SL-103-SA5DN-SB-7.0-8.0
Surface	104	Northeast corner of former Building 4363.	Historical Data	0.5	"10% gravel fill rock and asphalt"	5/31/11	Primary&Secondary	SL-104-SA5DN-SS-0.0-0.5
Subsurface	104	Northeast corner of former Building 4363.	Historical Data	5.0	Fill "sandy silt and clayey silt" from 0 to 3.0 ft Refusal on sandstone	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-104-SA5DN-SB-4.5 SL-104-SA5DN-SB-4.0-5.0
Surface	105	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	0.5	"trace gravel fill"	6/1/11	Primary&Secondary	SL-105-SA5DN-SS-0.0-0.5
Subsurface	105	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	6.0	Fill "comprised of sandy silt with clay, clay with silt and well graded gravel with sand" from 0 to 6.0 ft "20% fine subrounded gravel, granitic gravel" from 5.0 to 6.0 ft Refusal on gravel	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-105-SA5DN-SB-4.5 SL-105-SA5DN-SB-4.0-5.0
Surface	106	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	0.5	"trace gravel fill"	6/1/11	Primary&Secondary	SL-106-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	106	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	10.0	Fill "sandy silt with clay" from 0 to 4.0 ft "trace angular medium gravel (fill rock)" from 0 to 4.0 ft "angular medium and fine gravel layer 3" thick" at 5.0 ft	6/23/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-106-SA5DN-SB-4.5 SL-106-SA5DN-SB-4.0-5.0 SL-106-SA5DN-SB-9.5 SL-106-SA5DN-SB-9.0-10.0
Surface	107	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	0.5	"trace gravel fill"	6/1/11	Primary&Secondary	SL-107-SA5DN-SS-0.0-0.5
Subsurface	107	Northeast of former Building 4363.	Characterize potential radiological contamination associated with the former Building 4363 leachfield.	4.5	Fill "clay silt" from 0 to 2.0 ft "5% angular medium volcanic (fill rock) gravel" from 0 to 2.0 ft Refusal on sandstone	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-107-SA5DN-SB-4.0 SL-107-SA5DN-SB-3.5-4.5
Surface	108	East of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	0.5	"trace gravel fill"	6/1/11	Primary	SL-108-SA5DN-SS-0.0-0.5MS
Subsurface	108	East of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	2.5	"Fill:silty clay" from 0 to 2.0 ft "trace fine quartzite gravel" from 0 to 2.0 ft Refusal on sandstone	No sample due to shallow refusal < 2.5 ft bgs 6/23/2011	NA	NA
Surface	109	East of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	0.5	None indicated	6/1/11	Primary&Secondary	SL-109-SA5DN-SS-0.0-0.5
Subsurface	109	East of former Building 4363.	Aerial Photo Feature, "Possible Open Storage".	4.5	Fill "silty clay" from 0 to 1.0 ft Refusal on siltstone	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-109-SA5DN-SB-4.0 SL-109-SA5DN-SB-3.5-4.5
Surface	110	Former Building 4363 footprint.	Historical Data	0.5	"trace sandstone rock fragments and asphalt pieces"	5/31/11	Primary&Secondary	SL-110-SA5DN-SS-0.0-0.5
Subsurface	110	Former Building 4363 footprint.	Historical Data	5.0	Fill "silty clay w/ 5% angular medium quartzite gravel (fill rock)" from 0 to 4.0 ft	6/23/11	VOCs/Dioxane/GRO Primary&Secondary	SL-110-SA5DN-SB-4.5 SL-110-SA5DN-SB-4.0-5.0
Surface	111	Former Building 4363 footprint.	Historical Data	0.5	None indicated	5/31/11	Primary&Secondary	SL-111-SA5DN-SS-0.0-0.5
Subsurface	111	Former Building 4363 footprint.	Historical Data	7.5	Fill "silt and clay" from 0 to 5.5 ft Refusal on sandstone	6/22/11	VOCs/Dioxane/GRO Primary&Secondary	SL-111-SA5DN-SB-4.5 SL-111-SA5DN-SB-4.0-5.0
Surface	112	Former Building 4363 footprint.	Historical Data	0.5	None indicated	5/31/11	Primary&Secondary	SL-112-SA5DN-SS-0.0-0.5
Subsurface	112	Former Building 4363 footprint.	Historical Data	7.5	Fill "clay with silt and sand" from 0 to 5.5 ft Refusal on sandstone	6/22/11	VOCs/Dioxane/GRO Primary&Secondary	SL-112-SA5DN-SB-4.5MS SL-112-SA5DN-SB-4.0-5.0MS
Surface	113	Former Building 4363 footprint.	Historical Data	0.5	None indicated	5/31/11	Primary&Secondary	SL-113-SA5DN-SS-0.0-0.5
Subsurface	113	Former Building 4363 footprint.	Historical Data	7.5	Fill "silty clay with 5% angular medium gravel" from 0 to 1.8 ft "concrete debris ~1/4 diameter" at 1.8 ft Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary	SL-113-SA5DN-SB-4.5 SL-113-SA5DN-SB-4.0-5.0
Surface	114	Southwest of former Building 4363.	Historical Data. Aerial Photo Feature, "Possible Open Storage".	0.5	"trace gravel fill"	5/31/11	Primary & NDMA	SL-114-SA5DN-SS-0.0-0.5
Subsurface	114	Southwest of former Building 4363.	Historical Data. Aerial Photo Feature, "Possible Open Storage".	7.5	Fill "comprised of silt and clay" from 0 to 6.0 ft "trace gravel rock" from 0 to 3.0 ft Refusal on sandstone	6/22/11	VOCs/Dioxane Primary & NDMA	SL-114-SA5DN-SB-4.5 SL-114-SA5DN-SB-4.0-5.0
Subsurface	115	North side of L Street, south of former Building 4363.	Investigate potential radiological contamination in sediment/soil in ditch on the south side of former L Street.	7.0	Fill "clay with silt & sand" from 0 to 5.0 ft Refusal on sandstone	6/22/11	VOCs/Dioxane Primary & NDMA	SL-115-SA5DN-SB-4.5 SL-115-SA5DN-SB-4.0-5.0
Subsurface	116	North side of L Street, southeast of former Building 4363.	Investigate potential radiological contamination in sediment/soil in ditch on the south side of former L Street.	3.0	Fill "silty sand" from 0 to 3.0 ft Refusal on silty clay	6/28/11	VOCs/Dioxane Primary	SL-116-SA5DN-SB-2.5MS SL-116-SA5DN-SB-2.0-3.0MS
Surface	117	Former Building 4875 footprint.	Potential radiological contamination associated with activities at former Building 4875.	0.5	None indicated	5/27/11	Primary & Secondary	SL-117-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	117	Former Building 4875 footprint.	Potential radiological contamination associated with activities at former Building 4875.	7.0	None indicated Refusal on sandstone	6/20/11	VOCs/Dioxane/GRO Primary&Secondary	SL-117-SA5DN-SB-4.5 SL-117-SA5DN-SB-4.0-5.0
Surface	118	Former Building 4375 footprint.	Potential radiological contamination associated with activities at former Building 4875.	0.5	None indicated	5/27/11	Primary & Secondary	SL-118-SA5DN-SS-0.0-0.5
Subsurface	118	Former Building 4375 footprint.	Potential radiological contamination associated with activities at former Building 4875.	7.5	None indicated	6/20/11	VOCs/Dioxane/GRO Primary&Secondary	SL-118-SA5DN-SB-4.5 SL-118-SA5DN-SB-4.0-5.0
Surface	119	East side of former Building 4375.	Potential radiological contamination associated with former pit tank - Drawing 303-GEN. C-42	0.5	"trace sandstone fragments and asphalt"	5/27/11	Primary & Secondary	SL-119-SA5DN-SS-0.0-0.5
Subsurface	119	East side of former Building 4375.	Potential radiological contamination associated with former pit tank - Drawing 303-GEN. C-43	7.5	None indicated Refusal on sandstone	6/20/11	VOCs/Dioxane/GRO Primary&Secondary	SL-119-SA5DN-SB-4.5 SL-119-SA5DN-SB-4.0-5.0
Surface	120	East side of former Building 4375.	Potential radiological contamination associated with former pit tank drain line - Drawing 303-GEN. C-42	0.5	None indicated	5/27/11	Primary & Secondary	SL-120-SA5DN-SS-0.0-0.5
Subsurface	120	East side of former Building 4375.	Potential radiological contamination associated with former pit tank drain line - Drawing 303-GEN. C-43	7.5	None indicated Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary	SL-120-SA5DN-SB-4.5 SL-120-SA5DN-SB-4.0-5.0
Surface	121	North of former Building 4873.	Aerial Photo Feature, "Possible Open Storage".	0.5	"sandstone fragments and gravel fill rock"	5/31/11	Primary&Secondary	SL-121-SA5DN-SS-0.0-0.5
Subsurface	121	North of former Building 4873.	Aerial Photo Feature, "Possible Open Storage".	9.0	None indicated Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-121-SA5DN-SB-4.5 SL-121-SA5DN-SB-4.0-5.0 SL-121-SA5DN-SB-8.5 SL-121-SA5DN-SB-8.0-9.0
Surface	122	North of former Building 4874.	Possible open storage area.	0.5	None indicated	5/27/11	Primary	SL-122-SA5DN-SS-0.0-0.5
Subsurface	122	North of former Building 4874.	Possible open storage area.	7.5	None indicated Refusal on sandstone	6/24/11	VOCs/Dioxane Primary	SL-122-SA5DN-SB-4.5 SL-122-SA5DN-SB-4.0-5.0
Surface	123	Northwest of former Building 4363.	Aerial Photo Feature, "Ground Scar". Possible location of former 6 inch V.C. Pipe.	0.5	None indicated	6/1/11	Primary	SL-123-SA5DN-SS-0.0-0.5
Subsurface	123	Northwest of former Building 4363.	Aerial Photo Feature, "Ground Scar". Possible location of former 6 inch V.C. Pipe.	3.5	None indicated Refusal on sandstone	6/27/11	VOCs/Dioxane Primary	SL-123-SA5DN-SB-3.0 SL-123-SA5DN-SB-2.5-3.5
Surface	124	North of former Building 4863.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	0.5	None indicated	6/1/11	Primary	SL-124-SA5DN-SS-0.0-0.5
Subsurface	124	North of former Building 4863.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	2.0	None indicated Refusal on sandstone	No sample due to shallow refusal 6/27/11	NA	NA
Surface	125	Northwest of former Building 4863.	Aerial Photo Feature, "Drainage".	0.5	None indicated	5/31/11	Primary&Secondary	SL-125-SA5DN-SS-0.0-0.5
Subsurface	125	Northwest of former Building 4863.	Aerial Photo Feature, "Drainage".	10.0	"trace fine angular gravel (sandstone)" from 0 3.5 ft Refusal on sandstone	6/21/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-125-SA5DN-SB-4.5 SL-125-SA5DN-SB-4.0-5.0 SL-125-SA5DN-SB-9.5 SL-125-SA5DN-SB-9.0-10.0
Surface	126	Northwest of former Building 4863.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	0.5	None indicated	6/1/11	Primary	SL-126-SA5DN-SS-0.0-0.5
Subsurface	126	Northwest of former Building 4863.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	1.75	None indicated Refusal on sandstone	No sample due to shallow refusal 6/27/11	NA	NA

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	127	Ditch south side of J Street, northwest of former Building 4863.	Potential contamination from effluent of former 6 inch V.C. Pipe.	1.0	"concrete and asphalt in shoe" from 0 to 1.0 ft	No sample due to shallow refusal 6/28/11	NA	NA
Drainage	127	Ditch south side of J Street, northwest of former Building 4863.	Potential contamination from effluent of former 6 inch V.C. Pipe.	0.5	"25% gravel fill rock and asphalt pieces"	6/1/11	Primary	SL-127-SA5DN-SS-0.0-0.5
Subsurface	128	Ditch south side of J Street at the boundary of 5DN.	Potential radiological contamination from activities associated with former Buildings 4353/4854.	7.0	Fill "silty sand" from 0 to 1.5 ft Refusal on siltstone	6/29/11	VOCs/Dioxane Primary	SL-128-SA5DN-SB-4.5 SL-128-SA5DN-SB-4.0-5.0
Drainage	128	Ditch south side of J Street at the boundary of 5DN.	Potential radiological contamination from activities associated with former Buildings 4353/4854.	0.5	"15% gavel fill and asphalt pieces"	6/1/11	Primary	SL-128-SA5DN-SS-0.0-0.5
Surface	129	North of former Buildings 4353/4854.	Potential radiological contamination from activities associated with former Buildings 4353/4854.	0.5	"trace gravel fill and sandstone fragments"	6/1/11	Primary	SL-129-SA5DN-SS-0.0-0.5
Subsurface	129	North of former Buildings 4353/4854.	Potential radiological contamination from activities associated with former Buildings 4353/4854.	3.5	None indicated Refusal on sandstone	6/29/11	VOCs/Dioxane Primary	SL-129-SA5DN-SB-3.0 SL-129-SA5DN-SB-2.5-3.5
Surface	130	North of former Buildings 4353/4854.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	0.5	"trace gravel and sandstone fragments"	6/1/11	Primary	SL-130-SA5DN-SS-0.0-0.5
Subsurface	130	North of former Buildings 4353/4854.	Historical Site Assessment (HSA) Aerial Photo Feature, "Drainage".	4.0	None indicated Refusal on sandstone	5/25/11	VOCs/Dioxane Primary	SL-130-SA5DN-SB-4.5 SL-130-SA5DN-SB-4.0-5.0
Surface	131	East of former Buildings 4353/4854.	Former Building 4353/4854 leach field. Geophysical, "Magnetometer". Aerial Photo Feature, " Mounded Material/Drainage Channel".	0.5	"trace gravel"	6/2/11	Primary	SL-131-SA5DN-SS-0.0-0.5
Subsurface	131	East of former Buildings 4353/4854.	Former Building 4353/4854 leach field. Geophysical, "Magnetometer". Aerial Photo Feature, " Mounded Material/Drainage Channel".	4.5	None indicated Refusal on sandstone	6/28/11	VOCs/Dioxane Primary	SL-131-SA5DN-SB-4.0 SL-131-SA5DN-SB-3.5-4.5
Surface	132	Northeast of former Building 4854.	Location of former leach field associated with former Building 4353/4854. Geophysical Anomaly, "Magnetometer".	0.5	None indicated	6/2/11	Primary&Secondary	SL-132-SA5DN-SS-0.0-0.5
Subsurface	132	Northeast of former Building 4854.	Location of former leach field associated with former Building 4353/4854. Geophysical Anomaly, "Magnetometer".	5.0	Fill "comprised of silty sand" from 0 to 3.0 ft Fill "well graded gravel with sand, 10% fine to subangular gravel" from 3.0 to 4.0 ft Refusal on sandstone	6/28/11	VOCs/Dioxane/GRO Primary&Secondary	SL-132-SA5DN-SB-4.5 SL-132-SA5DN-SB-4.0-5.0
Surface	133	Northeast of former Building 4854.	Location of former leach field associated with former Building 4353/4854.	0.5	"5% gravel and sandstone fragments"	6/2/11	Primary&Secondary	SL-133-SA5DN-SS-0.0-0.5
Subsurface	133	Northeast of former Building 4854.	Location of former leach field associated with former Building 4353/4854.	7.0	Fill "sandy silt" with asphalt chunks from 0 to 1.0 ft Refusal on siltstone	5/25/11	VOCs/Dioxane/GRO Primary&Secondary	SL-133-SA5DN-SB-4.5 SL-133-SA5DN-SB-4.0-5.0
Surface	134	North side of Former Building 4353.	Location of pipe line leading to the leach field. Geophysical Anomaly, "Magnetometer".	0.5	"10% rock fragments and gravel fill"	6/2/11	Primary&Secondary	SL-134-SA5DN-SS-0.0-0.5
Subsurface	134	North side of Former Building 4353.	Location of pipe line leading to the leach field. Geophysical Anomaly, "Magnetometer".	2.5	Fill "silty sand " with concrete debris from 0 to 1.7 ft Refusal on mudstone	No sample due to shallow refusal <2.5 ft 6/2/11	NA	NA

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	135	Former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	0.5	"10% gravel fill rand siltstone/sandstone"	6/2/11	Primary&Secondary	SL-135-SA5DN-SS-0.0-0.5
Subsurface	135	Former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	1.5	Fill "sandy silt" with trace angular (fill rock) from 0 to 1.0 ft Refusal on mudstone	No sample due to shallow refusal <2.5 ft 5/25/11	NA	NA
Surface	136	Former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	0.5	"15% gravel fill rock"	6/2/11	Primary&Secondary	SL-136-SA5DN-SS-0.0-0.5
Subsurface	136	Former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	1.5	Fill "sandy silt with trace granitic gravel (fill rock)" from 0 to 1.0 ft Refusal on sandstone	No sample due to shallow refusal <2.5 ft 6/02/11	NA	NA
Surface	137	South side of former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	0.5	"5% gravel fill and sandstone fragments"	6/2/11	Primary&Secondary	SL-137-SA5DN-SS-0.0-0.5
Subsurface	137	South side of former Building 4353 footprint.	Potential radiological contamination from activities associated with former Building 4353.	1.5	Fill "sandy silt with trace concrete debris" from 0 to 1.2 ft Refusal on sandstone	No sample due to shallow refusal <2.5 ft 6/02/11	NA	NA
Surface	138	South of former building 4353.	Possible open storage associated with former Building 4353.	0.5	"15% gravel fill and sandstone fragments"	6/2/11	Primary&Secondary	SL-138-SA5DN-SS-0.0-0.5MS
Subsurface	138	South of former building 4353.	Possible open storage associated with former Building 4353.	2.5	Fill "silty sand with trace asphalt" from 0 to 0.5 ft Refusal on siltstone	No sample due to shallow refusal <2.5 ft 5/24/11	NA	NA
Surface	139	Southeast of former building 4353.	Possible open storage associated with former Building 4353.	0.5	None indicated	6/2/11	Primary&Secondary	SL-139-SA5DN-SS-0.0-0.5
Subsurface	139	Southeast of former building 4353.	Possible open storage associated with former Building 4353.	3.0	Fill "sandy silt" from 0 to 3.9 ft Refusal on sandstone	5/24/11	VOCs/Dioxane/GRO Primary&Secondary	SL-139-SA5DN-SB-2.5 SL-139-SA5DN-SB-2.0-3.0
Surface	140	Southeast of former building 4854.	HSA "Historical Drainage". Geophysical Anomaly, "Magnetometer".	0.5	None indicated	6/2/11	Primary&Secondary	SL-140-SA5DN-SS-0.0-0.5
Subsurface	140	Southeast of former building 4854.	HSA "Historical Drainage". Geophysical Anomaly, "Magnetometer".	6.5	"trace fine gravel (angular)" from 3.5 to 5.5 ft Refusal on sandstone	5/25/11	VOCs/Dioxane/GRO Primary&Secondary	SL-140-SA5DN-SB-2.5 SL-140-SA5DN-SB-2.0-3.0
Surface	141	Southeast of former building 4854.	Historical Data	0.5	None indicated	6/2/11	Primary&Secondary	SL-141-SA5DN-SS-0.0-0.5
Subsurface	141	Southeast of former building 4854.	Historical Data	5.0	None indicated Refusal on siltstone	6/28/11	VOCs/Dioxane/GRO Primary&Secondary	SL-141-SA5DN-SB-4.5 SL-141-SA5DN-SB-4.0-5.0
Surface	142	South of former building 4854.	Historical Data	0.5	None indicated	6/2/11	Primary	SL-142-SA5DN-SS-0.0-0.5
Subsurface	142	South of former building 4854.	Historical Data	3.0	None indicated Refusal on sandstone	5/25/11	VOCs/Dioxane Primary	SL-142-SA5DN-SB-2.5 SL-142-SA5DN-SB-2.0-3.0
Subsurface	143	Southeast of former building 4854.	HSA "Historical Drainage". Geophysical Anomaly, "Conductivity".	5.0	None indicated Refusal on siltstone	6/28/11	VOCs/Dioxane Primary	SL-143-SA5DN-SB-4.5 SL-143-SA5DN-SB-4.0-5.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Drainage	143	Southeast of former building 4854.	HSA "Historical Drainage". Geophysical Anomaly, "Conductivity".	0.5	None indicated	6/2/11	Primary	SL-143-SA5DN-SS-0.0-0.5
Surface	144	South of former building 4854.	Aerial Photo Feature, "Possible Open Storage".	0.5	None indicated	6/2/11	Primary	SL-144-SA5DN-SS-0.0-0.5
Subsurface	144	South of former building 4854.	Aerial Photo Feature, "Possible Open Storage".	3.0	None indicated Refusal on siltstone	5/25/11	VOCs/Dioxane Primary	SL-144-SA5DN-SB-2.5MS SL-144-SA5DN-SB-2.0-3.0MS
Surface	145	South of former Buildings 4353/4854.	Aerial Photo Feature, "Possible Open Storage".	0.5	"5% gravel fill and sandstone fragments"	6/2/11	Primary	SL-145-SA5DN-SS-0.0-0.5
Subsurface	145	South of former Buildings 4353/4854.	Aerial Photo Feature, "Possible Open Storage".	3.0	None indicated Refusal on sandstone	5/24/11	VOCs/Dioxane Primary	SL-145-SA5DN-SB-2.5 SL-145-SA5DN-SB-2.0-3.0
Subsurface	146	South side of L Street, south of former Building 4353.	Characterize subsurface soil in ditch on the south side of former L Street.	5.0	None indicated Refusal on sandstone	5/24/11	VOCs/Dioxane Primary	SL-146-SA5DN-SB-2.5 SL-146-SA5DN-SB-2.0-3.0
Subsurface	147	North side of L Street, south of former Building 4353.	Investigate potential radiological contamination in sediment/soil in ditch on the south side of former L Street.	2.0	None indicated Refusal on sandstone	No sample due to shallow refusal < 2.5 ft 6/28/11	NA	NA
Subsurface	148	In ditch on the south side of former L Street.	Potential radiological contamination from activities associated with former Buildings 4473/4873/4863/4363. Historical Data.	2.0	None indicated Refusal on siltstone	No sample due to shallow refusal < 2.5 ft 6/28/11	NA	NA
Drainage	148	In ditch on the south side of former L Street.	Potential radiological contamination from activities associated with former Buildings 4473/4873/4863/4363. Historical Data.	0.5	None indicated	6/1/11	Primary	SL-148-SA5DN-SS-0.0-0.5
Surface	149	South of former Buildings 4353/4854.	Aerial Photo Feature, "Possible Open Storage".	0.5	None indicated	6/2/11	Primary	SL-149-SA5DN-SS-0.0-0.5
Subsurface	149	South of former Buildings 4353/4854.	Aerial Photo Feature, "Possible Open Storage".	5.0	None indicated Refusal on sandstone	7/11/11	VOCs/Dioxane Primary	SL-149-SA5DN-SB-4.5 SL-149-SA5DN-SB-4.0-5.0
Surface	150	South of former Building 4353/4854.	Aerial Photo Feature, "Possible Open Storage". Geophysical Feature, "Magnetometer".	0.5	None indicated	6/2/11	Primary	SL-150-SA5DN-SS-0.0-0.5
Subsurface	150	South of former Building 4353/4854.	Aerial Photo Feature, "Possible Open Storage". Geophysical Feature, "Magnetometer".	5.0	None indicated Refusal on siltstone	5/24/11	VOCs/Dioxane Primary	SL-150-SA5DN-SB-4.5 SL-150-SA5DN-SB-4.0-5.0
Surface	151	South of former Building 4353/4854.	Elevated gamma survey readings,"PGRAY 5". Geophysical Anomaly, "Conductivity". Berm and soil disturbance area.	0.5	None indicated	6/2/11	Primary	SL-151-SA5DN-SS-0.0-0.5
Subsurface	151	South of former Building 4353/4854.	Elevated gamma survey readings,"PGRAY 5". Geophysical Anomaly, "Conductivity". Berm and soil disturbance area.	1.0	None indicated Refusal on siltstone	No sample due to shallow refusal < 1.0 ft bgs 6/29/11	NA	NA
Surface	152	South of former Building 4353/4854.	Elevated gamma survey readings,"PGRAY 6". Geophysical Anomaly, "Conductivity". Berm and soil disturbance area.	0.5	None indicated	6/3/11	Primary	SL-152-SA5DN-SS-0.0-0.5
Subsurface	152	South of former Building 4353/4854.	Elevated gamma survey readings,"PGRAY 6". Geophysical Anomaly, "Conductivity". Berm and soil disturbance area.	3.5	None indicated Refusal on sandstone	6/29/11	VOCs/Dioxane Primary	SL-152-SA5DN-SB-3.0 SL-152-SA5DN-SB-2.5-3.5
Surface	153	South of former Building 4353/4854.	Geophysical Anomaly,"Conductivity". Elevated gamma survey readings.	0.5	None indicated	6/3/11	Primary	SL-153-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	153	South of former Building 4353/4854.	Geophysical Anomaly, "Conductivity". Elevated gamma survey readings.	8.0	None indicated Refusal on siltstone	8/8/11	Primary Primary	SL-153-SA5DN-SB-4.0-5.0 SL-153-SA5DN-SB-7.0-8.0
Surface	154	South of former Building 4353/4854.	Aerial Photo Feature, "Ground Scar".	0.5	None indicated	6/3/11	Primary	SL-154-SA5DN-SS-0.0-0.5
Subsurface	154	South of former Building 4353/4854.	Aerial Photo Feature, "Ground Scar".	10.0	None indicated	6/29/11	VOCs/Dioxane Primary Primary	SL-154-SA5DN-SB-4.5 SL-154-SA5DN-SB-4.0-5.0 SL-154-SA5DN-SB-9.0-10.0
Surface	155	South of former Building 4353/4854.	Aerial Photo Feature, "Medium Toned Mounded Material".	0.5	None indicated	6/3/11	Primary	SL-155-SA5DN-SS-0.0-0.5MS
Subsurface	155	South of former Building 4353/4854.	Aerial Photo Feature, "Medium Toned Mounded Material".	10.0	None indicated	7/8/11	VOCs/Dioxane Primary Primary	SL-155-SA5DN-SB-4.5 SL-155-SA5DN-SB-4.0-5.0 SL-155-SA5DN-SB-9.0-10.0
Surface	156	South of former Building 4353/4854.	Aerial Photo Feature, "Medium Toned Mounded Material".	0.5	None indicated	6/3/11	Primary	SL-156-SA5DN-SS-0.0-0.5
Subsurface	156	South of former Building 4353/4854.	Aerial Photo Feature, "Medium Toned Mounded Material".	10.0	None indicated	7/8/11	VOCs/Dioxane Primary Primary	SL-156-SA5DN-SB-4.5 SL-156-SA5DN-SB-4.0-5.0 SL-156-SA5DN-SB-9.0-10.0
Surface	157	Southeast portion of Subarea 5DN.	Aerial Photo Feature, "Mounded Material". Historical Data	0.5	None indicated	6/3/11	Primary	SL-157-SA5DN-SS-0.0-0.5
Subsurface	157	Southeast portion of Subarea 5DN.	Aerial Photo Feature, "Mounded Material". Historical Data	10.0	None indicated	7/8/11	VOCs/Dioxane Primary Primary	SL-157-SA5DN-SB-4.5 SL-157-SA5DN-SB-4.0-5.0 SL-157-SA5DN-SB-9.0-10.0
Surface	158	Southeast portion of Subarea 5DN.	Historical Data	0.5	None indicated	6/3/11	Primary	SL-158-SA5DN-SS-0.0-0.5
Subsurface	158	Southeast portion of Subarea 5DN.	Historical Data	10.0	None indicated	7/8/11	VOCs/Dioxane Primary Primary	SL-158-SA5DN-SB-4.5 SL-158-SA5DN-SB-4.0-5.0 SL-158-SA5DN-SB-9.0-10.0
Surface	159	South east corner of Subarea 5DN.	Elevated gamma survey readings.	0.5	"trace sandstone fragments"	6/3/11	Primary	SL-159-SA5DN-SS-0.0-0.5
Subsurface	159	South east corner of Subarea 5DN.	Elevated gamma survey readings.	10.0	None indicated	7/8/11	VOCs/Dioxane Primary Primary	SL-159-SA5DN-SB-4.5 SL-159-SA5DN-SB-4.0-5.0 SL-159-SA5DN-SB-9.0-10.0
Surface	160	South east corner of Subarea 5DN.	Elevated gamma survey readings.	0.5	None indicated	6/3/11	Primary	SL-160-SA5DN-SS-0.0-0.5
Subsurface	160	South east corner of Subarea 5DN.	Elevated gamma survey readings.	7.0	None indicated Refusal on siltstone	8/2/11	Primary	SL-160-SA5DN-SB-4.0-5.0
Surface	162	Southeast of former Building 4865.	Aerial Photo Feature, "Ground Scar".	0.5	None indicated	6/3/11	Primary	SL-162-SA5DN-SS-0.0-0.5
Subsurface	162	Southeast of former Building 4865.	Aerial Photo Feature, "Ground Scar".	10.0	None indicated	8/2/11	Primary Primary	SL-162-SA5DN-SB-4.0-5.0 SL-162-SA5DN-SB-9.0-10.0
Surface	164	Northeast of former Building 4865.	Downgradient of former Building 4865.	0.5	None indicated	5/26/11	Primary	SL-164-SA5DN-SS-0.0-0.5
Subsurface	164	Northeast of former Building 4865.	Downgradient of former Building 4865.	10.0	"Fill: clayey silt" from 0 to 1.5 ft	7/7/11	VOCs/Dioxane Primary Primary	SL-164-SA5DN-SB-4.5 SL-164-SA5DN-SB-4.0-5.0 SL-164-SA5DN-SB-9.0-10.0
Surface	165	Former Building 4865.	Historical use of Co-60 with a depleted uranium collimator in the former building.	0.5	None indicated	5/26/11	Primary	SL-165-SA5DN-SS-0.0-0.5
Subsurface	165	Former Building 4865.	Historical use of Co-60 with a depleted uranium collimator in the former building.	10.0	"Concrete" layer from 0.5 to 1.0 ft	6/29/11	VOCs/Dioxane Primary Primary	SL-165-SA5DN-SB-4.5 SL-165-SA5DN-SB-4.0-5.0 SL-165-SA5DN-SB-9.0-10.0
Surface	166	North of former Building 4865.	Approx location of unknown site activities noted in 1992 aerial photo.	0.5	None indicated	6/3/11	Primary	SL-166-SA5DN-SS-0.0-0.5
Subsurface	166	North of former Building 4865.	Approx location of unknown site activities noted in 1992 aerial photo.	10.0	Fill "clayey silt" from 0 to 5.0 ft	7/7/11	VOCs/Dioxane Primary Primary	SL-166-SA5DN-SB-4.5MS SL-166-SA5DN-SB-4.0-5.0MS SL-166-SA5DN-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	167	North of former Building 4865.	Potential radiological contamination in ditch along the west side of 24th Street.	10.0	None indicated	7/7/11	VOCs/Dioxane Primary Primary	SL-167-SA5DN-SB-4.5 SL-167-SA5DN-SB-4.0-5.0 SL-167-SA5DN-SB-9.0-10.0
Subsurface	168	West of former Building 4363.	Potential radiological contamination in ditch along the west side of 24th Street.	10.0	Fill "clayey silt" from 0 to 1.5 ft	7/7/11	VOCs/Dioxane Primary Primary	SL-168-SA5DN-SB-4.5 SL-168-SA5DN-SB-4.0-5.0 SL-168-SA5DN-SB-9.0-10.0
Subsurface	169	South of former Building 4020.	Downgradient of the former Parking Lot 4520.	10.0	None indicated	7/7/11	VOCs/Dioxane Primary Primary	SL-169-SA5DN-SB-4.5 SL-169-SA5DN-SB-4.0-5.0 SL-169-SA5DN-SB-7.5-8.5
Surface	170	North portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	0.5	"trace sandstone fragments"	5/26/11	Primary	SL-170-SA5DN-SS-0.0-0.5
Subsurface	170	North portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	10.0	"15% gravel fill rock and sandstone rock fragments" from 0 to 2.5 ft "15% gravel fill rock" from 3.5 to 5.0 ft	8/1/11	Primary Primary	SL-170-SA5DN-SB-4.0-5.0 SL-170-SA5DN-SB-9.0-10.0
Surface	171	North portion of Fill Area 13.	Elevated gamma survey readings. Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Mounded Material".	0.5	"15% gravel fill, sandstone fragments, asphalt"	5/26/11	Primary&Secondary	SL-171-SA5DN-SS-0.0-0.5
Subsurface	171	North portion of Fill Area 13.	Elevated gamma survey readings. Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Mounded Material".	2.5	"30% gravel fill rock, asphalt, concrete pieces" from 0 to 1.0 ft "15% gravel fill rock" from 1.0 to 2.5 ft Refusal on sandstone	No sample due to shallow refusal < 2.5 ft bgs 7/28/11	NA	NA
Surface	172	Fill Area 13, south of former Building 4020, west of 24th Street.	Geophysical Anomaly, "Conductivity and Magnetometer".	0.5	"5% gravel fill"	5/26/11	Primary	SL-172-SA5DN-SS-0.0-0.5
Subsurface	172	Fill Area 13, south of former Building 4020, west of 24th Street.	Geophysical Anomaly, "Conductivity and Magnetometer".	10.0	"30% gravel fill rock and sandstone/siltstone fragments " from 0 to 3.0 ft	7/28/11	Primary Primary	SL-172-SA5DN-SB-4.0-5.0 SL-172-SA5DN-SB-9.0-10.0
Surface	173	North portion of Fill Area 13.	Elevated gamma survey readings, "PGRAY 2". Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Excavation".	0.5	"5% gravel fill and sandstone fragments"	5/26/11	Primary	SL-173-SA5DN-SS-0.0-0.5
Subsurface	173	North portion of Fill Area 13.	Elevated gamma survey readings, "PGRAY 2". Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Excavation".	10.0	"15% gravel fill" from 0 to 1.0 ft	8/1/11	Primary Primary	SL-173-SA5DN-SB-4.0-5.0 SL-173-SA5DN-SB-9.0-10.0
Surface	174	North portion of Fill Area 13.	Elevated gamma survey readings. Geophysical Anomaly, "Magnetometer".	0.5	"30% gravel fill and sandstone fragments"	5/26/11	Primary	SL-174-SA5DN-SS-0.0-0.5
Subsurface	174	North portion of Fill Area 13.	Elevated gamma survey readings. Geophysical Anomaly, "Magnetometer".	10.0	"25% gravel fill rock" from 0 to 4.0 ft "15% gravel fill rock" from 4.0 to 5.0 ft	7/29/11	Primary Primary	SL-174-SA5DN-SB-4.0-5.0 SL-174-SA5DN-SB-9.0-10.0
Surface	175	North portion of Fill Area 13.	Geophysical Anomaly, "Magnetometer and Conductivity". Aerial Photo Feature, "Trench".	0.5	"5% sandstone rock fragments and asphalt"	5/26/11	Primary&Secondary	SL-175-SA5DN-SS-0.0-0.5
Subsurface	175	North portion of Fill Area 13.	Geophysical Anomaly, "Magnetometer and Conductivity". Aerial Photo Feature, "Trench".	10.0	"10% gravel and sandstone fragments" from 0 to 3.0 ft	8/1/11	GRO Primary&Secondary GRO Primary&Secondary	SL-175-SA5DN-SB-4.5MS SL-175-SA5DN-SB-4.0-5.0MS SL-175-SA5DN-SB-9.5 SL-175-SA5DN-SB-9.0-10.0
Surface	176	West portion of Fill Area 13.	Elevated gamma survey reading, "PGRAY 1". Aerial Photo Feature, "Ground Scar".	0.5	None indicated	5/26/11	Primary	SL-176-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	176	West portion of Fill Area 13.	Elevated gamma survey reading, "PGRAY 1". Aerial Photo Feature, "Ground Scar".	10.0	"trace gravel, sandstone and concrete pieces" from 0 to 1.0 ft "10% gravel fill rock and asphalt" from 1.0 to 4.5 ft "trace gravel" from 4.5 to 6.0 ft	8/1/11	Primary Primary	SL-176-SA5DN-SB-4.0-5.0 SL-176-SA5DN-SB-9.0-10.0
Surface	179	East portion of Fill Area 13.	Geophysical Anomaly, "Conductivity". Aerial Photo Feature, "Mounded Material". Elevated gamma survey readings.	0.5	"trace sandstone fragments"	5/26/11	Primary&Secondary	SL-179-SA5DN-SS-0.0-0.5
Subsurface	179	East portion of Fill Area 13.	Geophysical Anomaly, "Conductivity". Aerial Photo Feature, "Mounded Material". Elevated gamma survey readings.	10.0	"5% gravel fill" from 2.0 to 3.0 ft	7/27/11	GRO Primary&Secondary GRO Primary&Secondary	SL-179-SA5DN-SB-4.5 SL-179-SA5DN-SB-4.0-5.0 SL-179-SA5DN-SB-9.5 SL-179-SA5DN-SB-9.0-10.0
Surface	180	Northwest of former Building 4865.	Aerial Photo Feature, "Excavation". Geophysical Anomaly, "Magnetometer and Conductivity".	0.5	None indicated	5/26/11	Primary	SL-180-SA5DN-SS-0.0-0.5
Subsurface	180	Northwest of former Building 4865.	Aerial Photo Feature, "Excavation". Geophysical Anomaly, "Magnetometer and Conductivity".	10.0	"15% gravel fill rock, concrete and sandstone fragments" from 0 to 1.0 ft "trace fine gravel" from 1.0 to 2.0 ft	7/29/11	Primary Primary	SL-180-SA5DN-SB-4.0-5.0 SL-180-SA5DN-SB-9.0-10.0
Surface	181	Northwest of former Building 4865.	Aerial Photo Feature, "Ground Scar". Geophysical Anomaly, "Magnetometer and Conductivity".	0.5	"trace sandstone rock fragments and gravel fill"	5/26/11	Primary	SL-181-SA5DN-SS-0.0-0.5
Subsurface	181	Northwest of former Building 4865.	Aerial Photo Feature, "Ground Scar". Geophysical Anomaly, "Magnetometer and Conductivity".	10.0	None indicated	6/30/11	VOCs/Dioxane Primary Primary	SL-181-SA5DN-SB-4.5 SL-181-SA5DN-SB-4.0-5.0 SL-181-SA5DN-SB-9.0-10.0
Surface	182	Southeast portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	0.5	"15% gravel fill and sandstone fragments"	5/26/11	Primary	SL-182-SA5DN-SS-0.0-0.5
Subsurface	182	Southeast portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	10.0	"5% fine gravel (granitic)"	6/30/11	VOCs/Dioxane Primary Primary	SL-182-SA5DN-SB-4.5 SL-182-SA5DN-SB-4.0-5.0 SL-182-SA5DN-SB-9.0-10.0
Surface	183	Southeast portion of Fill Area 13.	Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Mounded Material". Elevated gamma survey readings.	0.5	None indicated	5/26/11	Primary	SL-183-SA5DN-SS-0.0-0.5
Subsurface	183	Southeast portion of Fill Area 13.	Geophysical Anomaly, "Magnetometer". Aerial Photo Feature, "Mounded Material". Elevated gamma survey readings.	10.0	"5% sandstone rock fragments and black plastic (trash bag) found (0.5'), trace gravel fill" from 0 to 1.0 ft 5% gravel fill rock and sandstone rock fragments" from 1.0 to 2.0 ft	7/28/11	Primary Primary	SL-183-SA5DN-SB-4.0-5.0MS SL-183-SA5DN-SB-9.0-10.0
Surface	184	Southeast portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	0.5	"15% gravel fill rock"	5/26/11	Primary	SL-184-SA5DN-SS-0.0-0.5
Subsurface	184	Southeast portion of Fill Area 13.	Aerial Photo Feature, "Mounded Material". Geophysical Anomaly, "Conductivity".	10.0	"trace asphalt debris, trace granitic fine gravel" from 0 to 3.2 ft "asphalt debris" from 1.8 to 2.2 ft	6/30/11	VOCs/Dioxane Primary Primary	SL-186-SA5DN-SB-4.5 SL-186-SA5DN-SB-4.0-5.0 SL-186-SA5DN-SB-9.5 SL-186-SA5DN-SB-9.0-10.0
Surface	185	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity".	0.5	None indicated	5/24/11	Primary	SL-185-SA5DN-SS-0.0-0.5
Subsurface	185	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity".	10.0	"trace gravel" from 0 to 2.0 ft "trace asphalt pieces" from 2.0 to 3.0 ft	8/4/11	Primary Primary	SL-185-SA5DN-SB-4.0-5.0 SL-185-SA5DN-SB-9.0-10.0
Surface	186	Pond Dredge Area - Southeast portion of Fill Area 14.	Aerial Photo Feature, "Light Toned Material".	0.5	None indicated	5/24/11	Primary & Secondary	SL-186-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	186	Pond Dredge Area - Southeast portion of Fill Area 14.	Aerial Photo Feature, "Light Toned Material".	10.0	"fill material: clayey silt" from 0 to 3.0 ft	7/5/11	VOCs/Dioxane/GRO Primary& Secondary Primary& Secondary	SL-184-SA5DN-SB-4.5 SL-184-SA5DN-SB-4.0-5.0 SL-184-SA5DN-SB-9.0-10.0
Surface	187	Pond Dredge Area - Southeast portion of Fill Area 14.	Aerial Photo Feature, "Light Toned Material".	0.5	None indicated	5/24/11	Primary	SL-187-SA5DN-SS-0.0-0.5
Subsurface	187	Pond Dredge Area - Southeast portion of Fill Area 14.	Aerial Photo Feature, "Light Toned Material".	10.0	"rusted metal strap" at 5.0 ft	6/30/11	VOCs/Dioxane Primary Primary	SL-187-SA5DN-SB-4.5 SL-187-SA5DN-SB-4.0-5.0 SL-187-SA5DN-SB-9.0-10.0
Surface	188	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity".	0.5	None indicated	5/24/11	Primary	SL-188-SA5DN-SS-0.0-0.5
Subsurface	188	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity".	10.0	None indicated	8/3/11	Primary Primary	SL-188-SA5DN-SB-4.0-5.0 SL-188-SA5DN-SB-9.0-10.0
Surface	189	Pond Dredge Area - Southern portion of Fill Area 14.	Historical data	0.5	None indicated	5/24/11	Primary	SL-189-SA5DN-SS-0.0-0.5
Subsurface	189	Pond Dredge Area - Southern portion of Fill Area 14.	Historical data	10.0	None indicated	8/4/11	Primary Primary	SL-189-SA5DN-SB-4.0-5.0MS SL-189-SA5DN-SB-9.0-10.0
Surface	190	Pond Dredge Area - Southwest portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer".	0.5	None indicated	5/25/11	Primary	SL-190-SA5DN-SS-0.0-0.5
Subsurface	190	Pond Dredge Area - Southwest portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer".	10.0	Fill "clayey silt" with trace gravel from 0 to 3.0 ft	7/6/11	VOCs/Dioxane Primary Primary	SL-190-SA5DN-SB-4.5 SL-190-SA5DN-SB-4.0-5.0 SL-190-SA5DN-SB-9.0-10.0
Surface	191	Pond Dredge Area - Southwest portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Slightly elevated gamma readings.	0.5	None indicated	5/24/11	Primary&Secondary	SL-191-SA5DN-SS-0.0-0.5
Subsurface	191	Pond Dredge Area - Southwest portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Slightly elevated gamma readings.	10.0	Fill "silt w/ clay" with trace gravel from 0 to 3.5 ft	7/6/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-191-SA5DN-SB-4.5 SL-191-SA5DN-SB-4.0-5.0 SL-191-SA5DN-SB-9.5 SL-191-SA5DN-SB-9.0-10.0
Surface	192	Pond Dredge Area - South central portion of Fill Area 14.	Historical Data	0.5	None indicated	5/24/11	Primary&Secondary	SL-192-SA5DN-SS-0.0-0.5
Subsurface	192	Pond Dredge Area - South central portion of Fill Area 14.	Historical Data	10.0	Fill "clayey silt with sand" from 0 to 3.0 ft	7/5/11	VOCs/Dioxane/GRO Primary&Secondary Primary&Secondary	SL-192-SA5DN-SB-4.5 SL-192-SA5DN-SB-4.0-5.0 SL-192-SA5DN-SB-9.0-10.0
Surface	193	Pond Dredge Area - South central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	0.5	None indicated	5/24/11	Primary	SL-193-SA5DN-SS-0.0-0.5
Subsurface	193	Pond Dredge Area - South central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	10.0	None indicated	8/3/11	Primary Primary	SL-193-SA5DN-SB-4.0-5.0 SL-193-SA5DN-SB-9.0-10.0
Surface	194	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	0.5	None indicated	5/24/11	Primary	SL-194-SA5DN-SS-0.0-0.5
Subsurface	194	Pond Dredge Area - Southeast portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	10.0	None indicated	7/5/11	VOCs/Dioxane Primary Primary	SL-194-SA5DN-SB-4.5 SL-194-SA5DN-SB-4.0-5.0 SL-194-SA5DN-SB-9.0-10.0
Surface	195	Pond Dredge Area - South central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	0.5	None indicated	5/24/11	Primary	SL-195-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	195	Pond Dredge Area - South central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	10.0	Fill "sand silt with clay" from 0 to 4.5 ft	7/5/11	VOCs/Dioxane Primary Primary	SL-195-SA5DN-SB-4.5 SL-195-SA5DN-SB-4.0-5.0 SL-195-SA5DN-SB-9.0-10.0
Surface	196	Pond Dredge Area - Central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity ". Aerial Photo Feature, "Fill".	0.5	None indicated	5/24/11	Primary	SL-196-SA5DN-SS-0.0-0.5
Subsurface	196	Pond Dredge Area - Central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity ". Aerial Photo Feature, "Fill".	10.0	Fill "clayey silt " with trace green plastic shards from 0 to 3.0 ft	6/30/11	VOCs/Dioxane Primary Primary	SL-196-SA5DN-SB-4.5 SL-196-SA5DN-SB-4.0-5.0 SL-196-SA5DN-SB-9.0-10.0
Surface	197	Pond Dredge Area - Central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	0.5	None indicated	5/24/11	Primary&Secondary	SL-197-SA5DN-SS-0.0-0.5
Subsurface	197	Pond Dredge Area - Central portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	10.0	None indicated	6/30/11	VOCs/Dioxane/GRO Primary&Secondary VOCs/Dioxane/GRO Primary&Secondary	SL-197-SA5DN-SB-4.5 SL-197-SA5DN-SB-4.0-5.0 SL-197-SA5DN-SB-9.5 SL-197-SA5DN-SB-9.0-10.0
Surface	198	Pond Dredge Area - North portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	0.5	"5% rock fragments (sandstone and asphalt)"	5/24/11	Primary&Secondary	SL-198-SA5DN-SS-0.0-0.5
Subsurface	198	Pond Dredge Area - North portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill".	10.0	"trace gravel - subangular (volcanic, some quartz) from 0 to 2.5 ft "trace asphalt debris" at 10.0 ft	8/5/11	GRO Primary&Secondary GRO Primary&Secondary	SL-198-SA5DN-SB-4.5 SL-198-SA5DN-SB-4.0-5.0 SL-198-SA5DN-SB-9.5 SL-198-SA5DN-SB-9.0-10.0
Surface	199	Pond Dredge Area - West portion of Fill Area 14.	Slightly elevated gamma survey readings.	0.5	None indicated	5/25/11	Primary	SL-199-SA5DN-SS-0.0-0.5
Subsurface	199	Pond Dredge Area - West portion of Fill Area 14.	Slightly elevated gamma survey readings.	10.0	None indicated	7/11/11	VOCs/Dioxane Primary Primary	SL-199-SA5DN-SB-4.5 SL-199-SA5DN-SB-4.0-5.0 SL-199-SA5DN-SB-9.0-10.0
Surface	200	Southwest corner of Subarea 5DN.	Geophysical Anomaly, "Conductivity".	0.5	None indicated	5/25/11	Primary	SL-200-SA5DN-SS-0.0-0.5
Subsurface	200	Southwest corner of Subarea 5DN.	Geophysical Anomaly, "Conductivity".	10.0	None indicated	7/6/11	VOCs/Dioxane Primary Primary	SL-200-SA5DN-SB-4.5MS SL-200-SA5DN-SB-4.0-5.0MS SL-200-SA5DN-SB-9.0-10.0
Surface	201	Southwest corner of Subarea 5DN.	Aerial Photo Feature, "Trench".	0.5	None indicated	5/25/11	Primary	SL-201-SA5DN-SS-0.0-0.5MS
Subsurface	201	Southwest corner of Subarea 5DN.	Aerial Photo Feature, "Trench".	10.0	"Fill: clayey silt" from 0 to 4.0 ft	7/6/11	VOCs/Dioxane Primary Primary	SL-201-SA5DN-SB-4.5 SL-201-SA5DN-SB-4.0-5.0 SL-201-SA5DN-SB-9.0-10.0
Surface	202	Northeast corner of former Parking Lot 4520	Stakeholder Request - Staging area for the D&D of former Building 4020.	0.5	"15% gravel fill"	5/18/11	Primary	SL-202-SA5DN-SS-0.0-0.5
Subsurface	202	Northeast corner of former Parking Lot 4521	Stakeholder Request - Staging area for the D&D of former Building 4020.	10.0	"5% gravel (fill rock) from 0 to 1.0 ft	6/13/11	VOCs/Dioxane Primary Primary	SL-202-SA5DN-SB-4.5 SL-202-SA5DN-SB-4.0-5.0 SL-202-SA5DN-SB-9.0-10.0
Surface	203	Pond Dredge Area - East portion of Fill Area 14.	Aerial Photo Feature, "Fill Area".	0.5	None indicated	5/24/11	Primary	SL-203-SA5DN-SS-0.0-0.5
Subsurface	203	Pond Dredge Area - East portion of Fill Area 14.	Aerial Photo Feature, "Fill Area".	10.0	Fill "silty clay" from 0 to 2.1 ft	6/30/11	VOCs/Dioxane Primary Primary	SL-203-SA5DN-SB-4.5 SL-203-SA5DN-SB-4.0-5.0 SL-203-SA5DN-SB-9.0-10.0
Surface	204	Pond Dredge - West portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill". - Stakeholder Request	0.5	None indicated	5/24/11	Primary	SL-204-SA5DN-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 5D North

Sample Type	EPA Location ID	Location Description From EPA	EPA Technical Justification for Sample Collection	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Subsurface	204	Pond Dredge - West portion of Fill Area 14.	Geophysical Anomaly, "Conductivity and Magnetometer". Aerial Photo Feature, "Fill". - Stakeholder Request	10.0	None indicated	8/4/11	Primary Primary	SL-204-SA5DN-SB-4.0-5.0 SL-204-SA5DN-SB-9.0-10.0
Surface	205	Southwest corner of Subarea 5DN.	Possible open storage - Stakeholder Request	0.5	None indicated	5/25/11	Primary	SL-205-SA5DN-SS-0.0-0.5
Subsurface	205	Southwest corner of Subarea 5DN.	Possible open storage - Stakeholder Request	10.0	Fill "clayey silt" from 0 to 3.0 ft	7/6/11	VOCs/Dioxane Primary Primary	SL-205-SA5DN-SB-4.5 SL-205-SA5DN-SB-4.0-5.0 SL-205-SA5DN-SB-9.0-10.0
Surface	206	West side of former Building 4373.	Entry way to former Building 4373 - Stakeholder Request	0.5	"5% gravel"	5/17/11	Primary&Energetics	SL-206-SA5DN-SS-0.0-0.5
Subsurface	206	West side of former Building 4373.	Entry way to former Building 4373 - Stakeholder Request	5.0	Fill "silt with clay and sand" with angular medium gravel (fill rock) from 0 to 1.5 ft Refusal on sandstone	5/19/11	VOCs/Dioxane Primary&Energetics	SL-206-SA5DN-SB-4.5 SL-206-SA5DN-SB-4.0-5.0
Surface	207	West side of former Building 4373.	Entry way to former Building 4373 - Stakeholder Request	0.5	None indicated	6/3/11	Primary&Secondary	SL-207-SA5DN-SS-0.0-0.5
Subsurface	207	West side of former Building 4373.	Entry way to former Building 4373 - Stakeholder Request	6.8	None indicated Refusal on Sandstone	8/11/11	GRO Primary&Secondary	SL-207-SA5DN-SB-4.5 SL-207-SA5DN-SB-4.0-5.0

Notes & Abbreviations:
EPA Location ID is highlighted in yellow for subsurface locations that were sampled using a hand auger
Primary analyses include: SVOCs, Metals, Chromium VI, Fluoride, Perchlorate, PCBs/PCTs, Dioxins/Furans, pH and pesticides/herbicides in surface samples only.
Secondary analyses include: Alcohols, terphenyls, glycols, TPH-extractable fuel hydrocarbons, Formaldehyde, n-Nitrosodimethylamine, Energetics, Nitrate, Cyanide
bgs = below ground surface
dioxane = 1,4-dioxane
ft = feet
GRO = gasoline range organics
NA = not applicable
NDMA = n-Nitrosodimethylamine
SVOCs = semivolatile organic compounds
VOCs = volatile organic compounds

Table 2-2
Summary of Soil Sample Locations in Subarea 5D South

Sample Type	EPA Location ID	Location Description From EPA	EPA Radionuclide Sampling Technical Justification	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	1	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	0.5	None indicated	9/26/2011	Primary	SL-001-SA5DS-SS-0.0-0.5MS
Subsurface	1	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	0.8	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 9/26/11	NA	NA
Surface	2	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2T	0.5	None indicated	9/26/2011	Primary	SL-002-SA5DS-SS-0.0-0.5
Subsurface	2	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2T	2.8	None indicated Refusal on sandstone	11/14/2011	Primary	SL-002-SA5DS-SB-1.8-2.8
Surface	4	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	0.5	None indicated	9/27/2011	Primary	SL-004-SA5DS-SS-0.0-0.5
Subsurface	4	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	0.8	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 11/10/2011	NA	NA
Surface	5	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	0.5	None indicated	9/27/2011	Primary	SL-005-SA5DS-SS-0.0-0.5
Subsurface	5	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	2.0	None indicated	11/9/2011	Primary & Secondary	SL-005-SA5DS-SB-1.5 SL-005-SA5DS-SB-1.0-2.0
Surface	6	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	0.5	None indicated	9/27/11 11/9/2011	Primary Primary	SL-006-SA5DS-SS-0.0-0.5MS SL-006-SA5DS-SS-0.0-0.5
Subsurface	6	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	1.8	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 11/9/2011	NA	NA
Surface	7	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 7T	0.5	None indicated	9/28/2011	Primary	SL-007-SA5DS-SS-0.0-0.5
Subsurface	7	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 7T	1.7	"trace gravel" from 0 to 1.5 ft	No sample collected due to shallow refusal < 2.5 ft bgs 11/8/2011	NA	NA
Surface	8	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	0.5	None indicated	9/28/2011	Primary	SL-008-SA5DS-SS-0.0-0.5
Subsurface	8	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	1.5	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 11/8/2011	NA	NA
Surface	9	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 9T	0.5	None indicated	9/28/2011	Primary	SL-009-SA5DS-SS-0.0-0.5
Subsurface	9	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 9T	1.3	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 10/18/2011	NA	NA
Surface	10	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	0.5	None indicated	9/28/2011	Primary	SL-010-SA5DS-SS-0.0-0.5
Subsurface	10	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	3.0	"trace gravel" from 0 to 3.0 ft	11/8/2011	TPH-GRO Primary & Secondary	SL-010-SA5DS-SB-2.5 SL-010-SA5DS-SB-2.0-3.0
Surface	13	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	0.5	None indicated	9/28/2011	Primary	SL-013-SA5DS-SS-0.0-0.5
Subsurface	13	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	5.0	None indicated Refusal on sandstone	10/18/2011	Primary	SL-013-SA5DS-SB-4.0-5.0
Surface	14	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	0.5	None indicated	9/28/2011	Primary	SL-014-SA5DS-SS-0.0-0.5
Subsurface	14	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	1.5	None indicated Refusal on sandstone	No sample collected due to shallow refusal < 2.5 ft bgs 10/18/2011	NA	NA
Surface	15	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	0.5	None indicated	9/28/2011	Primary	SL-015-SA5DS-SS-0.0-0.5
Subsurface	15	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	4.5	None indicated Refusal on sandstone	10/18/2011	Primary	SL-015-SA5DS-SB-3.5-4.5

Table 2
Summary of Soil Sample Locations in Subarea 5D South

Sample Type	EPA Location ID	Location Description From EPA	EPA Radionuclide Sampling Technical Justification	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Surface	16	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	0.5	None indicated	9/28/2011	Primary	SL-016-SA5DS-SS-0.0-0.5
Subsurface	16	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	5.5	None indicated Refusal on sandstone	10/19/2011	Primary	SL-016-SA5DS-SB-4.0-5.0
Surface	17	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	0.5	None indicated	9/28/2011	Primary	SL-017-SA5DS-SS-0.0-0.5
Subsurface	17	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	0.5	None indicated	No sample collected due to shallow refusal < 2.5 ft bgs 11/8/2011	NA	NA
Surface	19	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	0.5	None indicated	9/27/2011	Primary	SL-019-SA5DS-SS-0.0-0.5
Subsurface	19	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	3.2	"trace gravel" from 0 to 3.0 ft	11/8/2011	TPH-GRO Primary & Secondary	SL-019-SA5DS-SB-2.5 SL-019-SA5DS-SB-2.0-3.0
Surface	20	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	0.5	None indicated	9/27/2011	Primary	SL-020-SA5DS-SS-0.0-0.5
Subsurface	20	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	1.0	"trace gravel"	No sample collected due to shallow refusal < 2.5 ft bgs 11/9/2011	NA	NA
Surface	21	Southern portion of Subarea5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	0.5	None indicated	9/27/2011	Primary	SL-021-SA5DS-SS-0.0-0.5
Subsurface	21	Southern portion of Subarea5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	3.0	None indicated Refusal on sandstone	11/9/2011	Primary	SL-021-SA5DS-SB-2.0-3.0
Surface	22	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	0.5	None indicated	9/27/2011	Primary	SL-022-SA5DS-SS-0.0-0.5
Subsurface	22	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	5.3	None indicated Refusal on sandstone	11/9/2011	Primary	SL-022-SA5DS-SB-4.0-5.0
Surface	23	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	0.5	None indicated	9/27/2011	Primary	SL-023-SA5DS-SS-0.0-0.5
Subsurface	23	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	1.3	None indicated	No sample collected due to shallow refusal < 2.5 ft bgs 11/10/2011	NA	NA
Surface	24	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	0.5	None indicated	9/27/2011	Primary	SL-024-SA5DS-SS-0.0-0.5
Subsurface	24	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	1.3	None indicated	No sample collected due to shallow refusal < 2.5 ft bgs 11/10/2011	NA	NA
Surface	25	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	0.5	None indicated	9/27/2011	Primary	SL-025-SA5DS-SS-0.0-0.5
Subsurface	25	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	1.0	None indicated	No sample collected due to shallow refusal < 2.5 ft bgs 11/10/2011	NA	NA
Surface	26	Southern portion of Subarea 5D-South, near next to the water tower.	Potential contamination from alternate uses of the vertical tank.	0.5	"20% sandstone rock fragments, asphalt fragments"	9/26/2011	Primary	SL-026-SA5DS-SS-0.0-0.5
Subsurface	26	Southern portion of Subarea 5D-South, near next to the water tower.	Potential contamination from alternate uses of the vertical tank.	10.0	Fill "silty sand with 5% angular sandstone gravel" from 0 to 3.5 ft	10/20/2011	Primary Primary	SL-026-SA5DS-SB-4.0-5.0 SL-026-SA5DS-SB-9.0-10.0
Surface	27	Southern portion of Subarea 5D-South.	Potential contamination from alternate use of vertical tank.	0.5	"trace gravel fill rock and asphalt fragments"	9/26/2011	Primary	SL-027-SA5DS-SS-0.0-0.5
Subsurface	27	Southern portion of Subarea 5D-South.	Potential contamination from alternate use of vertical tank.	1.0	None indicated	No sample collected due to shallow refusal < 2.5 ft bgs 11/11/2011	NA	NA
Surface	28	Southern portion of Subarea 5D-South, next to Tank 4702.	Potential contamination from alternate use of vertical Tank 4702.	0.5	"30% gravel fill rock, asphalt fragments and trace sandstone fragments"	9/26/2011	Primary	SL-028-SA5DS-SS-0.0-0.5
Subsurface	28	Southern portion of Subarea 5D-South, next to Tank 4702.	Potential contamination from alternate use of vertical Tank 4702.	2.8	"10% gravel (granitic, sandstone, max = 1.5")	11/11/2011	Primary	SL-028-SA5DS-SB-1.9-2.9
Surface	29	Southern portion of Subarea 5D-South.	Potential contamination from leaking above ground pipes.	0.5	None indicated	9/26/2011	Primary	SL-029-SA5DS-SS-0.0-0.5
Subsurface	29	Southern portion of Subarea 5D-South.	Potential contamination from leaking above ground pipes.	4.5	None indicated Refusal on sandstone	11/11/2011	Primary	SL-029-SA5DS-SB-3.5-4.5

Table 2-2
Summary of Soil Sample Locations in Subarea 5D South

Sample Type	EPA Location ID	Location Description From EPA	EPA Radionuclide Sampling Technical Justification	Boring Total Depth (ft bgs)	Description of Fill Encountered (from EPA Soil Boring Log)	Sample Date	Laboratory Analyses	Co-Located Chemical Sample Number
Drainage	30	Southern portion of Subarea 5D-South, down gradient from the vertical Tanks 4701 and 4702.	Potential contamination from surface water run-off from the vertical Tanks 4701 and 4702.	0.5	None indicated	9/26/2011	Primary	SL-030-SA5DS-SS-0.0-0.5
Surface	31	Southern portion of Suarea 5D-South, next to above ground piping.	Potential contamination from leaking above ground piping associated with vertical Tanks 4701 and 4702.	0.5	None indicated	9/26/2011	Primary	SL-031-SA5DS-SS-0.0-0.5
Subsurface	31	Southern portion of Suarea 5D-South, next to above ground piping.	Potential contamination from leaking above ground piping associated with vertical Tanks 4701 and 4702.	10.0	None indicated	11/14/2011	Primary	SL-031-SA5DS-SB-4.0-5.0 SL-031-SA5DS-SB-9.0-10.0
Drainage	32	Southern portion of Subarea 5D-South, in drainage down gradient from vertical Tanks 4701 and 4702.	Potential contamination from vertical Tanks 4701 and 4702.	0.5	None indicated	9/26/2011	Primary	SL-032-SA5DS-SS-0.0-0.5
Surface	33	Southern portion of Subarea 5D-South.	Geophysical Feature, "Conductivity Anomaly".	0.5	None indicated	9/28/2011	Primary	SL-033-SA5DS-SS-0.0-0.5
Subsurface	33	Southern portion of Subarea 5D-South.	Geophysical Feature, "Conductivity Anomaly".	3.0	None indicated Refusal on siltsone	10/17/2011	Primary	SL-033-SA5DS-SB-2.0-3.0
Surface	34	Southern portion of SubArea 5D. Borrow Pit Area.	Geophysical Feature, "Conductivity Anomaly".	0.5	None indicated	9/28/2011	Primary	SL-034-SA5DS-SS-0.0-0.5MS
Subsurface	34	Southern portion of SubArea 5D. Borrow Pit Area.	Geophysical Feature, "Conductivity Anomaly".	10.0	None indicated	10/17/2011	Primary	SL-034-SA5DS-SB-4.0-5.0MS SL-034-SA5DS-SB-9.0-10.0
Subsurface	35	Southern portion of SubArea 5D Borrow Pit Area.	Aerial Photo Feature - "Grading Activity".	1.5	None indicated Refusal on siltstone	No sample collected due to shallow refusal < 2.5 ft bgs 10/17/2011	NA	NA
Subsurface	36	Sothern portion of Subarea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity". Geophysical Feature, "Conductivity Anomaly".	10.0	None indicated	10/14/2011	Primary	SL-036-SA5DS-SB-4.0-5.0 SL-036-SA5DS-SB-9.0-10.0
Subsurface	37	Southeastern portion of Subarea 5D-South, Borrow Pit area.	Aerial Photo Feature, "Grading Activity ". Geophysical Feature, "Conductivity Anomaly".	10.0	None indicated	10/14/2011	Primary	SL-037-SA5DS-SB-4.0-5.0 SL-037-SA5DS-SB-9.0-10.0
Surface	38	Southern portion of SubArea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity".	0.5	None indicated	9/27/2011	Primary	SL-038-SA5DS-SS-0.0-0.5
Subsurface	38	Southern portion of SubArea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity".	10.0	None indicated	10/14/2011	Primary	SL-038-SA5DS-SB-4.0-5.0 SL-038-SA5DS-SB-9.0-10.0
Subsurface	39	Southern portion of Subarea 5D-South.	Geophysical Feature, "Magnetometer Anomaly".	4.0	None indicated Refusal on siltstone	10/17/2011	Primary	SL-039-SA5DS-SB-3.0-4.0
Surface	40	Northeastern corner of Subarea 5D-South.	Gamma scanning survey results indicate slightly elevated gamma readings.	0.5	None indicated	9/28/2011	Primary	SL-040-SA5DS-SS-0.0-0.5
Subsurface	40	Northeastern corner of Subarea 5D-South.	Gamma scanning survey results indicate slightly elevated gamma readings.	10.0	None indicated	10/20/2011	Primary	SL-040-SA5DS-SB-4.0-5.0 SL-040-SA5DS-SB-9.0-10.0

Notes & Abbreviations:
EPA Location ID is highlighted in yellow for subsurface locations that were sampled using a hand auger
Primary analyses include: SVOCs, Metals, Chromium VI, Fluoride, Perchlorate, PCBs/PCTs, Herbicides, Dioxins/Furans,pH and pesticides/herbicides in surface samples only.
Secondary analyses include: Alcohols, terphenyls, glycols, TPH-extractable fuel hydrocarbons, Formaldehyde, n-Nitrosodimethylamine, Energetics, Nitrate, Cyanide
bgs = below ground surface
ft = feet
GRO = gasoline range organics
NA = not applicable
NDMA = n-Nitrosodimethylamine
SVOCs = semivolatile organic compounds

All surface and drainage samples were to be analyzed for the primary sample analytes (i.e., SVOCs, PAHs, metals [including mercury], hexavalent chromium, pH, fluoride, PCBs/PCTs, dioxins, perchlorate) and pesticides and herbicides. Selected surface and drainage samples in Subarea 5D North were also to be analyzed for all of the secondary analytes (i.e., total petroleum hydrocarbons - extractable fuel hydrocarbons [TPH-EFH], TPH-gasoline range organics [TPH-GRO], nitrates, formaldehyde, n-Nitrosodimethylamine [NDMA], energetics, cyanide, terphenyls, glycols, and alcohols). Samples from a few locations were to be sampled for energetics or NDMA only, in addition to the primary analytes. Surface samples collected in Subarea 5D South were to be analyzed for primary analytes only.

2.2 Subsurface Sampling

Most of the subsurface soil sampling was performed by a California-licensed direct push technology (DPT) subcontractor under HGL oversight. The majority of the DPT borings in Subareas 5D North and 5D South were advanced to a targeted depth of between approximately 5 and 10 feet bgs. Tables 2-1 and 2-2 provide the actual depths achieved at each location.

Soil cores were collected using the Geoprobe® dual-tube sampling method, which consisted of a 2-inch outer steel drive casing and an inner 1-3/4-inch diameter acetate soil sampling sleeve. After the acetate liner was retracted from the core barrel, it was opened lengthwise with a cutting tool. The core was screened for radioactivity using Micro R (for gamma radiation) and Pancake (for alpha and beta radiation) probes, followed by screening with a photoionization detector (PID). Based on the instrument readings and/or visual evidence of possible contamination, the sample depths were determined. If no elevated radiation or PID readings were indicated, samples were collected from the acetate sleeve by the CDM sampler at the default depths of 4 to 5 feet bgs and 9 to 10 feet bgs.

Soil for volatile organic compounds (VOCs), 1,4-dioxane, and TPH-GRO analyses was collected from the acetate sleeve using EnCore® samplers. Subsurface soil for SVOC, PAH, and PCB/PCT analyses was removed from the acetate sleeve in a manner causing minimal soil disturbance and placed into 16-ounce glass jars. Soil for all other analyses was also placed into 16-ounce glass jars. Adhesive sample labels were completed with all sampling information and affixed to each sample jar, and then placed into plastic baggies. The EnCore® samplers were all placed into one of the bags in which they were received, and the sample label affixed to the outside of the bag. All jars and EnCore® samplers were placed in a cooler with double bagged ice.

Several subsurface locations (as indicated on Tables 2-1 and 2-2) were not accessible by the Geoprobe® rig and these borings were advanced using a hand auger. Each location was augered to the target depth of 5 feet bgs. Each foot of augered soil was retrieved to the surface, placed in plastic bags and screened using the Micro R, Pancake, and PID. All borings were sampled by CDM for chemical analyses at approximately 4 to 5 feet bgs, or in some cases at a shallower depth (see Tables 2-1 and 2-2). The EnCore® samplers were filled first from the soil placed in the plastic bag, and the jars were then filled from the remaining sample material using a decontaminated stainless steel trowel. This process was repeated at those locations where a deeper sample (i.e., target depth of 9 to 10 feet bgs) could also be collected.

Because sampling using a hand auger was not addressed in the WP/FSAP or in either of the FSAP Addendums for Subareas 5D North and 5C South, this sampling method constitutes a variance from the FSAP (see Section 2.7.1). However, sample collection from hand augered holes was revised effective August 2, 2011 and approved by DTSC, such that when conditions permitted, a six-inch

sleeve was collected using a slide hammer for the SVOC, PAH, and PCB/PCT analyses, and any EnCore® samples were collected from the bottom of the sleeve. Of the 26 locations hand-augered in Subarea 5D North, samples at eight locations (SL-170, -172 through -175, -179, -180, and -183) were collected directly from the plastic bag. This constitutes a variance from the FSAP (see Section 2.7.1). Samples from Subarea 5D South were collected using a slide hammer and/or EnCore® sampler as needed.

After all samples were collected from each boring and hand augered hole, the soil cuttings were used to backfill the hole and the hole was topped off with a bentonite chip seal. At locations in asphalt, asphalt patch material was applied on top of the bentonite.

2.3 Sample Handling

All soil samples collected by HGL for chemical analyses were relinquished by the field sampler to CDM's Field Team Leader (FTL). The FTL ensured that the sample labels were completed legibly and correctly. Any discrepancies were discussed with the field samplers and corrections to the sample labels were made as needed. All sample labels were covered with clear tape, the sleeves and jars placed back into their plastic baggie, and refrigerated.

All sampling information was recorded onto one or more chain-of-custody (CoC) forms. Each sampler reviewed the CoC and any discrepancies were corrected by the FTL. Each completed CoC was signed by the sampler and the FTL as the individual responsible for release of the samples to the courier. All samples were packed into coolers in accordance with Section 6.4 of the *Master Work Plan/Field Sampling and Analysis Plan, Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (CDM 2011a).

2.4 Field Quality Control Procedures

Quality control (QC) samples collected in the field included field duplicates, matrix spike (MS)/matrix spike duplicate (MSD) samples, equipment rinsate blanks, and field blanks. Trip blanks filled with laboratory analyte-free water were sent to the site from the laboratory and were submitted unopened with any samples to be analyzed for VOCs, 1,4-dioxane, and/or TPH-GRO.

2.4.1 Field Duplicates and MS/MSD Samples

Both the field duplicates and MS/MSD samples were collected at a frequency of approximately one per 20 parent soil samples collected. The field duplicate and MS/MSD samples were also collected from the same location. The duplicate samples were submitted to the laboratory as separate (and blind) from the parent samples. The MS/MSD samples are additional volume of the parent samples collected in triple volume for the DPT subsurface samples; a double volume of soil was sufficient for the surface and hand-augered MS/MSD samples.

For Subarea 5D North, a total of 11 duplicate/MS/MSD samples were collected in association with the surface/drainage samples and analyzed for the primary analytes and herbicides/pesticides; five of these samples were also analyzed for all secondary analytes. A total of 14 subsurface duplicate/MS/MSD samples were collected and analyzed for the primary analytes and VOCs/1,4-dioxane; five of these samples were also analyzed for all secondary analytes.

For Subarea 5D South, three duplicate/MS/MSD samples were collected in association with the surface samples and analyzed for primary analytes and pesticides and herbicides, and one subsurface duplicate/MS/MSD sample was collected and analyzed for primary analytes.

2.4.2 Equipment Rinsate Blank Samples

As stated in the WP/FSAP, equipment rinsate blanks were prepared and submitted for chemical analysis at a minimum frequency of approximately one per 20 parent soil samples collected for each sampling technique and whenever there were changes in the sample collection procedures, sampling decontamination procedures, or sampling equipment.

For Subarea 5D North, seven equipment blanks associated with surface soil samples were collected and analyzed for primary surface soil analytes, pesticides and herbicides; two of these equipment blanks were also analyzed for the secondary analytes. An eighth equipment blank was analyzed for secondary analytes only. Fourteen equipment blanks were collected in association with the subsurface soil samples and analyzed for primary analytes; seven of these blanks were also analyzed for secondary analytes. Two other equipment blanks were analyzed for secondary analytes only.

For Subarea 5D South, one equipment blank was collected in association with the surface soil samples and analyzed for primary analytes, herbicides and pesticides. Two equipment blanks were collected in association with the subsurface soil samples and analyzed for both primary and secondary analytes.

2.4.3 Field Blank Samples

Field blanks were to be collected once for each lot number of ASTM Type II water that HGL used for decontamination. No field blanks were collected during sampling in Subareas 5D North and 5D South. Samples for Subareas 5D North and 5D South are associated with the field blank collected on April 27, 2011 and have been validated accordingly.

2.4.4 Decontamination of Sampling Equipment

All drilling equipment was cleaned by HGL and their DPT subcontractor before and after completing each boring. This included the sampling device and drill rods. The external surfaces of the equipment were washed with potable water and Alconox, or equivalent laboratory-grade detergent. Equipment was scrubbed until all visible dirt, grime, grease, oil, loose paint, rust flakes, etc., was removed. The equipment was then rinsed with potable water.

Hand sampling equipment used to collect the surface and drainage samples, including shovels, hand trowels, and mixing bowls, were decontaminated as follows:

- Washed with a solution of potable water and Liquinox, or equivalent laboratory-grade detergent
- Rinsed thoroughly with potable water
- Given a final rinse with ASTM Type II water

If the sampling device was not used immediately after being decontaminated, it was wrapped in oil-free aluminum foil, or placed in a closed plastic, stainless steel, glass, or Teflon® container.

2.5 Analytical Laboratory Methods and Procedures

2.5.1 Analytical Methods

The analytical methods for the co-located chemical soil samples were divided into two suites of analyses. The primary suite performed on all samples includes:

- Metals using EPA Methods 6010B/6020, 7471A (mercury), and 7199 (chromium VI)
- Soil pH using EPA Method 9045M
- Fluoride using EPA Method 300.0
- SVOCs using EPA Method 8270C and PAHs using Method 8270C selective ion monitoring (SIM)
- PCBs and PCTs using EPA Method 8082
- Dioxins and furans using EPA Method 1613B
- Perchlorate using EPA Method 314.0 (and EPA Method 6850 for verification of non-detects at a rate of 10 percent of the samples submitted)

Surface soil samples only were also to be analyzed for:

- Pesticides using EPA Method 8081A
- Herbicides using EPA Method 8151A

Locations selected for sampling for the secondary suite of analyses were based on several factors including locations with a process history of the specific chemical usage, sample sites with elevated instrument readings, soil fill, waste, or visually contaminated materials. The secondary list of analyses includes:

- Nitrates using EPA Method 300.0
- Formaldehyde using EPA Method 8315A
- TPH-GRO/TPH-EFH/glycols using EPA Method 8015M
- NDMA using EPA Method 1625C
- Energetics using EPA Method 8330A
- Cyanide using EPA Method 9012B
- Alcohols and terphenyls using EPA Method 8015B

Through July 22, 2011, all shallow (i.e., target depth of 4 to 5 feet bgs) subsurface soil samples and any deeper subsurface soil samples at locations where both the primary and secondary suites were to be sampled, were also analyzed for:

- EPA Method 8260B for VOCs and
- EPA Method 8260B SIM for 1,4-dioxane

These analyses were also to be performed on samples collected from deeper target depths at locations that were originally proposed for primary analyses only, but that exhibited elevated instrument readings, soil fill, waste, or visually contaminated materials.

After July 22, 2011, shallow subsurface soil samples were to be analyzed for VOCs and 1,4-dioxane only at locations that exhibited at least one of the following:

- Field instruments indicated the presence of VOCs above background
- Staining or exhibiting organic odors
- Targeting a feature such as a sump or tank known or suspected to have contained VOCs
- RFI data indicate the potential for VOCs to be at the subsurface soil/bedrock interface
- RFI data indicate potential for VOCs to be harbored in clay soil

2.5.2 Analytical Method Modifications

The analytical laboratory used for the Subareas 5D North and 5D South co-located soil sampling effort was Lancaster Labortories, Inc., (LLI) of Lancaster, Pennsylvania. LLI was selected by competitive procurement (out of five laboratories that submitted proposals) based on their proposed method detection limits (MDLs). Selection of LLI as the co-located soil analytical laboratory was discussed with the community on October 10, 2010.

The analytical methods identified for the co-located soil sampling were selected to be consistent with the methods used for the RFI. These analytical methods are presented in the *Quality Assurance Project Plan, Santa Susana Field Laboratory RCRA Facility Investigation, Surficial Media Operable Unit* (MECx 2009) (RFI Quality Assurance Project Plan [QAPP]) and are listed in Table 2-3.

For Subareas 5D North and 5D South sampling, CDM also evaluated the RFI QAPP detection limits relative to risk-based soil criteria. There were several instances where risk-based soil values were lower than the RFI QAPP limits. To determine whether the analytical MDL could be lowered, method modifications were discussed with DTSC and LLI chemists at the time of implementation. The ability of the laboratory to achieve project reporting limits (RLs) and QC goals using these method modifications remains under evaluation by the project chemists. Table 2-3 also identifies methods that have been modified in an effort to lower respective MDLs and RLs.

Table 2-3 Analytical Methods and Method Modifications for Soil

Parameter Group	Analytical Method	Method Modified?
Volatile Organic Compounds	EPA 8260B	No
1,4-Dioxane	EPA 8260B SIM	No
Primary Analytes		
Select SVOCs	EPA 8270C SIM	No
SVOCs	EPA 8270C	No
Metals (including Mercury)	EPA 6010B/6020/7471A	No
Chromium VI	EPA 7199	No
Fluoride	EPA 300.0	No
Perchlorate[1]	EPA 6850	No
Perchlorate	EPA 314.0	No
PCBs/PCTs	EPA 8082	Yes
Pesticides	EPA 8081A	Yes
Herbicides	EPA 8151A	Yes
Dioxins/Furans	EPA 1613B	No
Secondary Analytes		
Alcohols	EPA 8015B	Yes
Terphenyls	EPA 8015B	Yes
Glycols	EPA 8015M	Yes
TPH (GRO and EFH)	EPA 8015M	Yes
Formaldehyde	EPA 8315A	Yes
n-Nitrosodimethylamine[2]	EPA 1625C	No
Energetics	EPA 8330A	Yes
Nitrate	EPA 300.0	No
Cyanide	EPA 9012B	No
pH	EPA 9045M	No

[1] Perchlorate by Method EPA 6850 was analyzed on 10 percent of samples analyzed by Method EPA 314.0

[2] n-Nitrosodimethylamine was analyzed by both Methods 8270C and 8270C SIM in addition to 1625C

The method modifications primarily involved increasing the prescribed sample volume (soil mass extracted) and concentrating the resulting extract to a smaller final volume, as follows:

- Method 8082 (PCBs and PCTs) – 60 grams of sample prepared and concentrated 5 fold to a final volume of 2 milliliters (mL)
- Method 8081A (Pesticides) – 60 grams of sample prepared and taken to a final volume of 4 mL (due to extract cleanup techniques)
- Method 8151A (Herbicides) – 60 grams of sample prepared and taken to a final volume of 2 mL
- Method 8330A (Energetics) – 5 grams of sample prepared in 10 mL of solvent
- Method 8315A (Formaldehyde) – 20 grams of sample used to prepare the leachate
- Method 8015M (TPH-EFH) – 60 grams of sample prepared and taken to a final volume of 1 mL
- Method 8015B (Alcohols) – 10 grams of sample prepared and taken to a final volume of 5 mL
- Method 8015M (Glycols) – 10 grams of sample prepared and taken to a final volume of 5 mL
- Method 8015B (Terphenyls) – 60 grams of sample prepared and extract concentrated to a final volume of 5 mL instead of 10 mL

For samples analyzed for glycols, an additional method modification was used. The normal method prescribes water extraction of the soils followed by concentration and then analysis by direct injection of the extract. The extraction procedure was altered by using acetone as the extraction solvent followed by concentration and then direct injection into the gas chromatograph. This modification was developed as a response to observed continuing calibration exceedences that could not be corrected using the standard procedure. These exceedances were due to the analytical column experiencing rapid degradation as a result of injecting water.

2.6 Data Review Processes

Analytical data produced by LLI were subject to multiple review steps to coincide with the start of distinct tasks. These steps were performed in a timely manner to ensure appropriate feedback and correction of errors. These steps included:

- Cross-reference check of sample CoC documents against the laboratory acknowledgement of sample receipt form. The laboratory acknowledgement of sample receipt was typically transmitted to the data manager via e-mail two to three days after sample receipt and login and includes a summary of the requested analyses to be performed per sample. Sample log-in errors were identified and corrected at this step.
- Tracking of sample collection, receipt, and laboratory sample delivery group (SDG) numbers on a sample tracking spreadsheet. This spreadsheet also includes field QC sample information, sample location coordinates, and required laboratory deliverables including reports, electronic data deliverables, raw data, and the status of validation.

Upon receipt of the laboratory report (delivered via e-mail), a preliminary review of the data was performed. This review consisted of:

- Reconciliation of the reported analyses against the analyses that were requested on the CoCs.
- Review of the laboratory case narratives. The case narrative identifies and explains quality issues encountered during the analysis of the samples. Quality issues may include (but are not limited to) missed holding times, poor spike recoveries in matrix or batch-specific QC samples, instrument calibration exceedences, and blank contamination. The laboratory consults with the project chemists on these issues and receives instruction on how to proceed before reporting the sample results.
- Review of the laboratory-specific QC data. These data are provided by the laboratory in summary form. Any unanticipated deviations from the project or method-specific criteria are reconciled with the laboratory at this stage.

2.7 Increased Field and Laboratory Quality Control Measures

Further evaluation of additional quality control items such as the frequency of equipment blank collection and evaluation of low level RLs were identified and implemented during the field sampling and laboratory analytical program. These additional measures of quality control were developed in order to address and monitor these items throughout the sampling program.

The frequency of collection for equipment blanks was changed from the original collection frequency of one per 20 parent soil samples to weekly for both surface/drainage and subsurface samples

regardless of the number of soil samples collected. This change was implemented during sampling in Subarea 5D North the week of June 20, 2011, and was initiated in order to align with the frequency of collection of equipment blanks performed under the RFI program.

In addition, collection of additional equipment blanks consisting of HGL's ASTM Type II water was initiated when review of equipment blank data indicated that NDMA was being detected in equipment blanks collected from other subareas (e.g., Subarea 5C) of Area IV. Three equipment blanks (consisting of HGL's American Society for Testing and Materials [ASTM] Type II water) were collected for NDMA only. The field team was instructed by the CDM project manager to begin collecting equipment blanks using HGL's ASTM type II water and submitting soil (i.e., baked sand prepared LLI) and water trip blanks (prepared by LLI) in an effort to determine a possible source of the NDMA other than onsite. Results of all NDMA equipment and trip blank analyses will be discussed in a separate report.

CDM further evaluated the modified RLs in conjunction witha request by DTSC chemists to verify that LLI was achieving the lower RL, LLI was requested in September 2011 to analyze additional soil QC samples spiked near the RL to verify their RLs and to evaluate precision and accuracy results. The QC samples consisted of MS and laboratory control samples (LCS) that were spiked at the MRL. LCSs consist of an aliquot of blank matrix (sand) to which known quantities of the method analyte and all preservation compounds are added. The LCS is prepared and analyzed in a similar manner as the sample. Results and evaluation of these additional QC samples is on-going.

2.8 Deviations from the WP/FSAP

During the field sampling and analytical programs, modifications from the procedures detailed in the WP/FSAP (CDM 2011a) were required. These deviations and associated resolutions were discussed with the FTL, the Project Manager, and in some cases with the DTSC representative prior to implementation. These deviations are described below.

2.8.1 Field Sampling

A total of 201 locations in Subarea 5D North (Table 2-1) were to be sampled at one or more depths. Subsurface samples were not collected at 15 locations due to shallow refusal at less than 2.5 feet (SL-063, -087, -108, -124, -126,-127, -134 through -138, -147, -148, -151, and -171). SL-090 was not sampled by HGL and thus was not sampled by CDM.

A total of 36 locations in Subarea 5D South (Table 2-2) were to be sampled at one or more depths. No subsurface samples were collected at SL-001, -004,-006 through -009, -014, -017, -020, -023 through -025, -027, and -035 due to shallow refusal at less than 2.5 feet bgs.

Subsurface sampling using a hand auger was not originally planned in the Master WP/FSAP or the FSAP Addendums for Subareas 5D North and 5D South. Twenty six locations in Subarea 5D North and nine locations in Subarea 5D South were hand augered as noted in Table 2-1 and Table 2-2, respectively. All locations hand augered in Subarea 5D South were sampled using a slide hammer for collection of soil submitted for SVOC, PAH, and PCB/PCT analyses. No samples were submitted for VOCs/1,4-dioxane or TPH-GRO from these Subarea 5D South locations.

Stainless steel sleeves were collected at all of the hand augered locations in Subarea 5D North (and any Encore Samplers collected from one end of the sleeve) with the exception of SL-175 and SL-179, which were sampled from a plastic bag. The process of hand augering soil and the subsequent

transfer of the sample material into a plastic baggie at these two locations has the potential for loss of VOCs and SVOCs.

Review of the data is ongoing to ascertain whether VOC and SVOC results should be qualified based on changes to the planned sampling procedure. The results of this review will be reported in a future revision of this document.

2.8.2 Analytical Methods

As noted in Section 2.5.2, some analytical methods have been modified for this project. All modifications were discussed with DTSC representatives prior to their implementation. Review of the analytical methods and sample results indicates that the objectives for the project were addressed for all non-modified analyses. All modified analyses are undergoing further studies evaluating the effect of the modifications on precision and accuracy. The reporting limit – laboratory control sample (RL-LCS) and reporting limit-matrix spike (RL-MS) QC samples analyzed by LLI are a prime part of these studies. An independent study evaluating the precision and accuracy of the modified herbicide method has been completed. Review of these herbicide results indicate that the method modifications did not achieve precision and accuracy goals at this lower reporting limit for some of the analytes. Data are currently under further review and it is likely that reporting limits may be elevated for some analytes.

Section 3

Area IV Subareas 5D North and 5D South Soil Sampling Results

Because this TM only provides a presentation of the analytical results, data in this section are presented in a summary fashion. Table 3-1 provides a summary of the Subarea 5D North surface and drainage soil data. The table details the chemicals analyzed, their associated frequency of detection, the minimum and maximum detected concentrations, the range of observed detection limits and RLs, and the sample location where the maximum concentration of each analyte was detected. Table 3-2 provides the same information for Subarea 5D North subsurface soil data. This table also indicates at what depth the maximum concentrations were observed. Table 3-3 provides a summary of the Subarea 5D North combined surface and subsurface datasets.

For Subarea 5D South, Table 3-4 provides a summary of the surface soil data, Table 3-5 provides a summary of the subsurface soil data, and Table 3-6 provides a summary of the combined surface and subsurface datasets.

When screening criteria are developed to assess the presence/absence of contamination (i.e., above/below the applicable criteria) the Subareas 5D North and 5D South data will be combined with RFI data to better define the nature and extent of surface soil contamination throughout Subareas 5D North and 5D South.

Appendix A provides tables for all validated data by analytical method and sample location. Data validation qualifier codes and their definitions are presented in these tables. Appendix B provides the summary analytical data reports as received from LLI. Appendix C presents the data usability and assessment report (DUAR), which details specific qualifications of sample results along with all validation reports. Appendix D is the master database of all sample results including the data validation "flags" (qualifiers).

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Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Fluoride	16984-48-8	300	160 / 184	1.1 J Z J Q J Q, Z	7.7 J Q	0.81 - 1.5	1 - 1.8	mg/kg	SL-012-SA5DN	0 - 0.5
Inorganic	Nitrate	14797-55-8	300	75 / 83	0.94 J Z	56.1	0.81 - 4.9	1.5 - 9.2	mg/kg	SL-192-SA5DN	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314	1 / 184	52.6	52.6	9.1 - 16.6	30.4 - 55.5	ug/kg	SL-203-SA5DN	0 - 0.5
Inorganic	Perchlorate	14797-73-0	6850	3 / 27	3.3 J Z	3.7 J Z	2.1 - 3.2	5.1 - 5.9	ug/kg	SL-111-SA5DN	0 - 0.5
Inorganic	Mercury	7439-97-6	7471A	113 / 184	0.0034 J Z	53.8	0.0028 - 0.314	0.0965 - 10.9	mg/kg	SL-113-SA5DN	0 - 0.5
Inorganic	Cyanide	57-12-5	9012B	2 / 83	0.2 J Z	0.23 J Z	0.18 - 0.33	0.49 - 0.92	mg/kg	SL-192-SA5DN	0 - 0.5
Inorganic	pH	pH	9045M	184 / 184	6.14	8.84	0.01 - 0.01	0.01 - 0.01	pH unit	SL-010-SA5DN	0 - 0.5
Inorganic	Chromium VI	18540-29-9	7199	141 / 184	0.23 J Z	3.3	0.2 - 0.37	1 - 1.8	mg/kg	SL-081-SA5DN	0 - 0.5
Inorganic	Percent Moisture	MOIST	160.3M	183 / 183	1.2	45.9	0.5 - 0.5	0.5 - 0.5	%	SL-042-SA5DN	0 - 0.5
Inorganic	Antimony	7440-36-0	6020	168 / 184	0.0646 J Q, Z	41.4 J Q	0.0581 - 0.109	0.194 - 0.362	mg/kg	SL-194-SA5DN	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	184 / 184	1.72 J Q	43.7 J E, A	0.0775 - 0.145	0.388 - 0.725	mg/kg	SL-134-SA5DN	0 - 0.5
Inorganic	Barium	7440-39-3	6020	184 / 184	67.2 J A	263 J E, A	0.106 - 0.489	0.392 - 1.81	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Beryllium	7440-41-7	6020	184 / 184	0.143 J Q	1.75	0.0155 - 0.029	0.0969 - 0.181	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Cadmium	7440-43-9	6020	184 / 184	0.0683 J Z	2.89 J Q, E	0.0388 - 0.0725	0.0969 - 0.181	mg/kg	SL-129-SA5DN	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	184 / 184	13 J Q, A	81.1 J E	0.116 - 0.217	0.388 - 0.725	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	184 / 184	4.31	56.5 J E, Q, A	0.0194 - 0.0362	0.0969 - 0.181	mg/kg	SL-045-SA5DN	0 - 0.5
Inorganic	Copper	7440-50-8	6020	184 / 184	6.62	107 J Q, A	0.0639 - 0.12	0.388 - 0.725	mg/kg	SL-090-SA5DN	0 - 0.5
Inorganic	Lead	7439-92-1	6020	184 / 184	3.17 J Q, E, A	122 J Q, E, A	0.0101 - 0.0317	0.194 - 0.609	mg/kg	SL-194-SA5DN	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	184 / 184	0.144	8.06	0.0484 - 0.0906	0.0969 - 0.181	mg/kg	SL-184-SA5DN	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	184 / 184	8.89 J Q	57.3 J E, Q, A	0.0969 - 0.181	0.388 - 0.725	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	183 / 184	0.0474 J Z	1.08	0.0388 - 0.0725	0.388 - 0.725	mg/kg	SL-013-SA5DN	0 - 0.5
Inorganic	Silver	7440-22-4	6020	182 / 184	0.0203 J Z	2.6	0.0116 - 0.0217	0.0969 - 0.181	mg/kg	SL-195-SA5DN	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	184 / 184	0.17	0.807 J Q	0.0291 - 0.0538	0.0969 - 0.179	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	184 / 184	24.3 J A	152 J E	0.0213 - 0.0399	0.0969 - 0.181	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	184 / 184	42.7	370 J A	0.543 - 1.68	2.91 - 9.01	mg/kg	SL-090-SA5DN	0 - 0.5
Inorganic	Aluminum	7429-90-5	6010B	184 / 184	10100	47700	4.92 - 28.5	19.6 - 113	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Boron	7440-42-8	6010B	137 / 184	1.34 J Z	27.5	0.352 - 5.04	4.89 - 28.3	mg/kg	SL-129-SA5DN	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	183 / 184	2690	49000 J E	2.48 - 11.2	19.6 - 36.6	mg/kg	SL-023-SA5DN	0 - 0.5
Inorganic	Iron	7439-89-6	6010B	183 / 184	12800	99800	2.98 - 43.1	19.6 - 183	mg/kg	SL-064-SA5DN	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	184 / 184	8.3	48.2	0.22 - 0.71	2 - 3.7	mg/kg	SL-152-SA5DN	0 - 0.5
Inorganic	Magnesium	7439-95-4	6010B	183 / 184	2200	10500	0.437 - 4.65	9.78 - 18.3	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	184 / 184	174	1590 J E	0.0411 - 0.412	0.489 - 2.64	mg/kg	SL-105-SA5DN	0 - 0.5
Inorganic	Phosphorus	7723-14-0	6010B	184 / 184	196 J Q	923	0.4 - 3.17	9.78 - 56.6	mg/kg	SL-151-SA5DN	0 - 0.5
Inorganic	Potassium	9-7-7440	6010B	184 / 184	1760	8590	11.2 - 102	48.9 - 283	mg/kg	SL-197-SA5DN	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	184 / 184	56.5 J Z	363	5.9 - 68.3	97.8 - 183	mg/kg	SL-035-SA5DN	0 - 0.5
Inorganic	Strontium	7440-24-6	6010B	184 / 184	14.1	77.1 J E	0.0286 - 0.113	0.489 - 0.915	mg/kg	SL-190-SA5DN	0 - 0.5
Inorganic	Tin	7440-31-5	6010B	1 / 184	13.5	13.5	0.316 - 1.83	9.88 - 18.3	mg/kg	SL-140-SA5DN	0 - 0.5
Inorganic	Titanium	7440-32-6	6010B	183 / 184	554	2030	0.0701 - 2.25	0.988 - 5.91	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	177 / 184	0.906 J Z	8.35	0.456 - 1.54	4.89 - 9.15	mg/kg	SL-162-SA5DN	0 - 0.5
Misc. Organics	2-Propanol	67-63-0	8015B	2 / 83	150 J Z	150 J Z	100 - 180	510 - 920	ug/kg	SL-066-SA5DN SL-140-SA5DN	0 - 0.5 0 - 0.5
Misc. Organics	Ethanol	64-17-5	8015B	0 / 83	-	-	100 - 180	510 - 920	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	1 / 83	130 J Z	130 J Z	100 - 180	510 - 920	ug/kg	SL-140-SA5DN	0 - 0.5
Misc. Organics	m-Terphenyl	92-06-8	8015B	1 / 83	5.3 J S	5.3 J S	1.5 - 17	3.5 - 39	mg/kg	SL-016-SA5DN	0 - 0.5
Misc. Organics	o-Terphenyl	84-15-1	8015B	1 / 83	1.9 J S, Z	1.9 J S, Z	1.5 - 17	3.5 - 39	mg/kg	SL-016-SA5DN	0 - 0.5
Misc. Organics	p-Terphenyl	92-94-4	8015B	4 / 83	2.2 J Q, E, Z	28 J Z	1.5 - 17	3.5 - 39	mg/kg	SL-121-SA5DN	0 - 0.5
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 83	-	-	5.1 - 9.2	10 - 18	mg/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 83	-	-	5.1 - 9.2	10 - 18	mg/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 83	-	-	5.1 - 9.2	10 - 18	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	11 / 83	1000 J Z	3500	610 - 2600	1500 - 6400	ug/kg	SL-140-SA5DN	0 - 0.5
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 92	-	-	76 - 140	230 - 430	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 92	-	-	76 - 140	230 - 430	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 92	-	-	76 - 140	110 - 220	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 92	-	-	94 - 180	110 - 220	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 92	-	-	57 - 110	110 - 220	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 92	-	-	76 - 140	110 - 220	ug/kg		-
Misc. Organics	HMX	2691-41-0	8330A	0 / 92	-	-	94 - 180	280 - 540	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	6 / 92	43 J Z	58 J Z	38 - 72	110 - 220	ug/kg	SL-097-SA5DN	0 - 0.5
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 92	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 92	-	-	760 - 1400	2300 - 4300	ug/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 92	-	-	760 - 1400	2300 - 4300	ug/kg		-
Misc. Organics	RDX	121-82-4	8330A	3 / 92	68 J Z	140	47 - 150	110 - 220	ug/kg	SL-084-SA5DN	0 - 0.5
Misc. Organics	Tetryl	479-45-8	8330A	0 / 92	-	-	58 - 110	110 - 220	ug/kg		-
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	30 / 184	0.74 J Z	1300	0.33 - 190	1.7 - 970	ug/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	143 / 184	0.45 J Z	300 J C	0.39 - 220	1.7 - 970	ug/kg	SL-207-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	1 / 184	4.4	4.4	0.33 - 190	1.7 - 970	ug/kg	SL-045-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 184	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 184	-	-	1 - 570	3.3 - 1900	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	1 / 184	15	15	1 - 570	3.3 - 1900	ug/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	107 / 184	1.3 J Z, C J Z J L, Z	43	1 - 570	3.3 - 1900	ug/kg	SL-055-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	184 / 184	1.24 J Z	10500 J #	0.0236 - 0.85	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	174 / 184	0.511 J Z	642	0.00781 - 0.191	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	86 / 184	0.351 J Z	48.1	0.0181 - 0.23	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	152 / 184	0.0618 J Z	59	0.0164 - 0.43	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	155 / 184	0.149 J Z	25.9	0.0131 - 0.21	4.95 - 9.18	ng/kg	SL-207-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	179 / 184	0.225 J Z	222	0.0175 - 0.45	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	131 / 184	0.11 J Z	13.3	0.0119 - 0.186	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	178 / 184	0.187 J Z	136	0.0166 - 0.429	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	129 / 184	0.296 J Z	5.05 J Z	0.0142 - 0.184	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	132 / 184	0.048 J Z	31.4	0.0153 - 0.22	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	150 / 184	0.13 J Z	39.5	0.00966 - 0.155	4.95 - 9.18	ng/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	121 / 184	0.16 J Z	17.9	0.0133 - 0.169	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	127 / 184	0.3 J Z	18.7	0.0101 - 0.143	4.95 - 9.18	ng/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	79 / 184	0.0193 J Z	3.55	0.0084 - 0.161	0.99 - 1.84	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	149 / 184	0.0465 J Z	10.9	0.019 - 0.327	0.99 - 1.84	ng/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	184 / 184	9.88 J Z	180000 J #	0.0233 - 1.32	9.9 - 18.4	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	172 / 184	1.33 J Z	2350	0.0166 - 0.236	9.9 - 18.4	ng/kg	SL-090-SA5DN	0 - 0.5
Pesticides	4,4'-DDD	72-54-8	8081A	9 / 183	0.076 J Z	1.5 J S	0.067 - 2.7	0.34 - 3.7	ug/kg	SL-105-SA5DN	0 - 0.5
Pesticides	4,4'-DDE	72-55-9	8081A	104 / 183	0.093 J S, Z	77	0.067 - 4.9	0.34 - 18	ug/kg	SL-123-SA5DN	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	147 / 183	0.1 J S, Z	63	0.067 - 5.5	0.34 - 9.1	ug/kg	SL-207-SA5DN	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	1 / 183	0.11 J S, Z	0.11 J S, Z	0.067 - 0.18	0.17 - 0.45	ug/kg	SL-180-SA5DN	0 - 0.5
Pesticides	Alpha-BHC	319-84-6	8081A	2 / 183	0.04 J FD, Z	0.045 J S, Z	0.034 - 0.091	0.17 - 0.45	ug/kg	SL-098-SA5DN	0 - 0.5
Pesticides	Beta-BHC	319-85-7	8081A	19 / 183	0.1 J Z	2.7	0.061 - 0.32	0.17 - 0.87	ug/kg	SL-133-SA5DN	0 - 0.5
Pesticides	Chlordane	57-74-9	8081A	114 / 183	0.95 J S, Z	15	0.27 - 28	3.4 - 38	ug/kg	SL-024-SA5DN	0 - 0.5
Pesticides	Delta-BHC	319-86-8	8081A	25 / 183	0.042 J Z, C, #	1.2	0.036 - 0.48	0.17 - 0.48	ug/kg	SL-196-SA5DN	0 - 0.5
Pesticides	Dieldrin	60-57-1	8081A	36 / 183	0.1 J Z	11	0.067 - 18	0.34 - 18	ug/kg	SL-180-SA5DN	0 - 0.5
Pesticides	Endosulfan I	959-98-8	8081A	4 / 183	0.064 J Z, C	0.33	0.044 - 0.47	0.17 - 1.8	ug/kg	SL-005-SA5DN	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	10 / 183	0.074 J Z	1.3 J S	0.067 - 1.8	0.34 - 3.7	ug/kg	SL-049-SA5DN	0 - 0.5

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	1 / 183	0.27 J Z	0.27 J Z	0.067 - 1.4	0.34 - 7.3	ug/kg	SL-092-SA5DN	0 - 0.5
Pesticides	Endrin	72-20-8	8081A	2 / 183	0.099 J S, L, Z	0.12 J Z	0.067 - 8.2	0.34 - 8.2	ug/kg	SL-005-SA5DN	0 - 0.5
Pesticides	Endrin Aldehyde	7421-93-4	8081A	18 / 183	0.081 J S, Z	21 J #	0.067 - 2.1	0.34 - 9.1	ug/kg	SL-207-SA5DN	0 - 0.5
Pesticides	Endrin Ketone	53494-70-5	8081A	11 / 183	0.084 J Z J Z, C	0.37 J S, Z	0.067 - 1.4	0.34 - 7.3	ug/kg	SL-045-SA5DN	0 - 0.5
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	16 / 183	0.041 J S, Z	0.15 J Z	0.034 - 0.096	0.17 - 0.45	ug/kg	SL-203-SA5DN	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	8 / 183	0.1 J S, Z J FD, Z	0.31	0.061 - 0.31	0.17 - 0.86	ug/kg	SL-090-SA5DN	0 - 0.5
Pesticides	Heptachlor Epoxide	1024-57-3	8081A	19 / 183	0.035 J S, Z	0.33	0.034 - 4.3	0.17 - 4.3	ug/kg	SL-203-SA5DN	0 - 0.5
Pesticides	Methoxychlor	72-43-5	8081A	1 / 183	0.49 J L, Z	0.49 J L, Z	0.34 - 7.3	1.7 - 35	ug/kg	SL-107-SA5DN	0 - 0.5
Pesticides	Mirex	2385-85-5	8081A	22 / 183	0.074 J Z, C, #	2.2 J S	0.067 - 5.7	0.34 - 7.3	ug/kg	SL-183-SA5DN	0 - 0.5
Pesticides	Toxaphene	8001-35-2	8081A	1 / 183	4.3 J Z	4.3 J Z	2.2 - 19	6.7 - 36	ug/kg	SL-090-SA5DN	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 183	-	-	4.4 - 8.1	9.1 - 17	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	15 / 183	1.2 J Z	110	0.63 - 29	1.7 - 29	ug/kg	SL-192-SA5DN	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	5 / 183	0.1 J Z	0.4	0.083 - 0.32	0.17 - 0.32	ug/kg	SL-034-SA5DN	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	42 / 183	0.08 J Z	0.44	0.076 - 0.82	0.17 - 1.9	ug/kg	SL-064-SA5DN	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	7 / 183	1.7 J Z	2.4 J Z	1.2 - 7.9	3.6 - 7.9	ug/kg	SL-040-SA5DN	0 - 0.5
Pesticides	Dicamba	1918-00-9	8151A	6 / 183	0.46 J Z, #	0.72 J Z	0.4 - 0.74	1.2 - 2.2	ug/kg	SL-065-SA5DN	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	11 / 183	0.87 J Z	2.9	0.81 - 2.8	1.7 - 3.1	ug/kg	SL-131-SA5DN	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	0 / 183	-	-	0.81 - 7	2.4 - 7	ug/kg		-
Pesticides	MCPA	94-74-6	8151A	84 / 183	97 J Z	2400 J S	77 - 1300	250 - 1300	ug/kg	SL-066-SA5DN	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	9 / 183	88 J Z	350 J S	76 - 830	250 - 2800	ug/kg	SL-066-SA5DN SL-074-SA5DN	0 - 0.5 0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	30 / 85	18.4 J Z	1040	16.7 - 308	33.4 - 616	ng/kg	SL-140-SA5DN	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C	1 / 1	26 J Z	26 J Z	17 - 17	170 - 170	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 184	-	-	330 - 1700	1000 - 5100	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C	1 / 1	31 J Z	31 J Z	17 - 17	170 - 170	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 184	-	-	100 - 510	330 - 1700	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 183	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 184	-	-	67 - 340	170 - 840	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 184	-	-	33 - 170	170 - 840	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 184	-	-	67 - 340	170 - 840	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C	4 / 5	21 J Z	370	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C	1 / 1	45 J Z	45 J Z	19 - 19	190 - 190	ug/kg	SL-197-SA5DN	0 - 0.5

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Aniline	62-53-3	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	8 / 8	36 J Z	590	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 184	-	-	1200 - 5900	3300 - 17000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C	23 / 23	18 J L, Z	2900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	25 / 25	22 J Z	3100	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	25 / 25	19 J Z	3400	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	26 / 26	19 J Z	2200	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C	15 / 15	21 J Z	1600	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	107 / 136	18 J L, Z J Z	1200	17 - 84	340 - 1700	ug/kg	SL-197-SA5DN	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	9 / 80	19 J Z	740	17 - 31	170 - 310	ug/kg	SL-056-SA5DN	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	10 / 184	20 J Z	360	17 - 84	170 - 840	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C	34 / 34	19 J L, Z	3000	17 - 31	170 - 310	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C	10 / 10	22 J Z	590	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	1 / 184	150 J Z	150 J Z	17 - 84	170 - 840	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Diethylphthalate	84-66-2	8270C	0 / 77	-	-	17 - 31	170 - 310	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C	1 / 78	42 J Z	42 J Z	17 - 31	170 - 310	ug/kg	SL-067-SA5DN	0 - 0.5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C	6 / 77	19 J Z	680	17 - 31	170 - 310	ug/kg	SL-049-SA5DN	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	2 / 75	25 J Z	230	17 - 31	170 - 310	ug/kg	SL-188-SA5DN	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C	30 / 30	19 J Z	3100	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C	2 / 2	21 J Z	260	17 - 19	170 - 190	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 184	-	-	67 - 340	170 - 840	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C	18 / 18	22 J Z	1900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C	1 / 1	37 J Z	37 J Z	17 - 17	170 - 170	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 184	-	-	170 - 840	500 - 2500	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	16 / 16	21 J Z	2900	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	0 / 184	-	-	17 - 84	170 - 840	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	33 / 33	18 J L, Z	2900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	22 / 183	0.73 J Z	5.6 J Z	0.66 - 19	1.7 - 48	ug/kg	SL-004-SA5DN	0 - 0.5
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	32 / 183	0.7 J Z	7.3 J Z	0.66 - 19	1.7 - 48	ug/kg	SL-004-SA5DN	0 - 0.5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	18 / 180	0.74 J Z	36	0.66 - 19	1.7 - 48	ug/kg	SL-105-SA5DN	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	17 / 183	0.35 J Z	12	0.33 - 9.6	1.7 - 48	ug/kg	SL-133-SA5DN	0 - 0.5
Semivolatiles	Anthracene	120-12-7	8270C SIM	70 / 176	0.37 J Z	270	0.33 - 9.6	1.7 - 48	ug/kg	SL-012-SA5DN	0 - 0.5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	104 / 161	0.75 J Z	590	0.66 - 19	1.7 - 48	ug/kg	SL-098-SA5DN	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	118 / 159	0.76 J Z	480	0.66 - 19	1.7 - 48	ug/kg	SL-098-SA5DN	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	142 / 159	0.79 J Z	770	0.66 - 19	1.7 - 48	ug/kg	SL-098-SA5DN	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	109 / 158	0.77 J Z	170	0.66 - 19	1.7 - 48	ug/kg	SL-129-SA5DN	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	116 / 169	0.73 J Z	330	0.66 - 19	1.7 - 48	ug/kg	SL-098-SA5DN	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	40 / 52	7.7 J Z	700	6 - 130	18 - 380	ug/kg	SL-143-SA5DN	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	14 / 109	6.9 J Z	36 J Z	6 - 36	18 - 110	ug/kg	SL-033-SA5DN	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	140 / 151	0.4 J Z	540	0.33 - 9.6	1.7 - 48	ug/kg	SL-098-SA5DN	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	60 / 174	0.76 J Z	58	0.66 - 19	1.7 - 48	ug/kg	SL-129-SA5DN	0 - 0.5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	2 / 111	7.1 J Z	9.6 J Z	6 - 36	18 - 110	ug/kg	SL-029-SA5DN	0 - 0.5
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	1 / 110	14 J Q, E, Z	14 J Q, E, Z	6 - 36	18 - 110	ug/kg	SL-072-SA5DN	0 - 0.5

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	15 / 111	6.7 J Z	71 J Z	6 - 36	18 - 110	ug/kg	SL-036-SA5DN	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	14 / 113	7.8 J Z	51 J Z	6 - 39	18 - 120	ug/kg	SL-009-SA5DN	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	128 / 154	0.78 J Z	1200	0.66 - 19	1.7 - 48	ug/kg	SL-012-SA5DN	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	30 / 182	0.75 J Z	47	0.66 - 19	1.7 - 48	ug/kg	SL-012-SA5DN	0 - 0.5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	93 / 166	0.82 J FD, Z	180	0.66 - 19	1.7 - 48	ug/kg	SL-129-SA5DN	0 - 0.5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	55 / 183	0.71 J Z	6.7 J Z	0.66 - 19	1.7 - 48	ug/kg	SL-197-SA5DN	0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 184	-	-	0.66 - 19	1.7 - 48	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	115 / 168	0.82 J Z	910	0.66 - 19	1.7 - 48	ug/kg	SL-012-SA5DN	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	128 / 152	0.77 J Z	1100	0.66 - 19	1.7 - 48	ug/kg	SL-012-SA5DN	0 - 0.5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	1 / 83	0.98 J Z	0.98 J Z	0.42 - 22	1.3 - 66	mg/kg	SL-191-SA5DN	0 - 0.5
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	68 / 83	1.4 J Z	33 J Z	0.42 - 22	1.3 - 66	mg/kg	SL-051-SA5DN	0 - 0.5
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	83 / 83	4.5	390	0.42 - 22	1.3 - 66	mg/kg	SL-051-SA5DN	0 - 0.5
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	82 / 83	20	1200	0.42 - 22	1.3 - 66	mg/kg	SL-051-SA5DN	0 - 0.5
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	2 / 83	0.63 J Z	1.9 J Z	0.42 - 22	1.3 - 66	mg/kg	SL-197-SA5DN	0 - 0.5

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limit

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Percent Moisture	MOIST	160.3M	314 / 314	3.6	17.9	0.5 - 0.5	0.5 - 0.5	%	SL-037-SA5DN	4 - 5
Inorganic	Fluoride	16984-48-8	300.0	311 / 313	1.6 J Q	29.6 J Q	0.82 - 0.98	1 - 1.2	mg/kg	SL-079-SA5DN	4 - 5
Inorganic	Nitrate	14797-55-8	300.0	122 / 126	0.96 J Q, Z	19.7	0.82 - 0.97	1.5 - 1.8	mg/kg	SL-192-SA5DN SL-192-SA5DN	4 - 5 9 10
Inorganic	Perchlorate	14797-73-0	314.0	0 / 313	-	-	9.3 - 11	31.1 - 36.5	ug/kg		-
Inorganic	Perchlorate	14797-73-0	6850	6 / 46	2.4 J Z	4.8 J Z	2.3 - 6	5.5 - 6	ug/kg	SL-191-SA5DN	4 - 5
Inorganic	Chromium VI	18540-29-9	7199	197 / 313	0.24 J Z	11.8	0.2 - 0.24	1 - 1.2	mg/kg	SL-188-SA5DN	9 - 10
Inorganic	Mercury	7439-97-6	7471A	115 / 313	0.0035 J Z	1.68	0.0029 - 0.037	0.0979 - 0.525	mg/kg	SL-103-SA5DN	4 - 5
Inorganic	Cyanide	57-12-5	9012B	0 / 126	-	-	0.18 - 1	0.51 - 2.8	mg/kg		-
Inorganic	pH	pH	9045M	313 / 313	6.18	10.7	0.01 - 0.01	0.01 - 0.01	pH unit	SL-165-SA5DN	9 - 10
Inorganic	Aluminum	7429-90-5	6010B	313 / 313	2970 J E	44900	5.17 - 7.3	19.8 - 24.1	mg/kg	SL-197-SA5DN	9 - 10
Inorganic	Boron	7440-42-8	6010B	222 / 313	1 J Z	25.6	0.356 - 4.76	4.94 - 28.1	mg/kg	SL-005-SA5DN	4 - 5
Inorganic	Calcium	7440-70-2	6010B	313 / 313	2500	122000 J E	2.47 - 33.7	19.8 - 118	mg/kg	SL-180-SA5DN	4 - 5
Inorganic	Iron	7439-89-6	6010B	313 / 313	4320	42300	2.58 - 27.6	19.8 - 121	mg/kg	SL-202-SA5DN	4 - 5
Inorganic	Lithium	7439-93-2	6010B	313 / 313	1.3 J Z	64.8	0.23 - 0.75	2 - 2.4	mg/kg	SL-153-SA5DN	7 - 8
Inorganic	Magnesium	7439-95-4	6010B	313 / 313	893	10300	0.435 - 3.03	9.88 - 12.1	mg/kg	SL-017-SA5DN	7 - 8
Inorganic	Manganese	7439-96-5	6010B	313 / 313	126 J E	1370 J FD, E	0.0356 - 0.173	0.494 - 1.11	mg/kg	SL-014-SA5DN	4 - 5
Inorganic	Phosphorus	7723-14-0	6010B	313 / 313	76.8 J Q	1570 J Q	0.346 - 0.668	9.88 - 12.1	mg/kg	SL-012-SA5DN	4 - 5
Inorganic	Potassium	7440-09-7	6010B	313 / 313	459 J Q	6100	11.2 - 21.5	49.4 - 60.3	mg/kg	SL-200-SA5DN	4 - 5
Inorganic	Sodium	7440-23-5	6010B	312 / 313	78.2 J Z	990	5.88 - 44.5	98.8 - 121	mg/kg	SL-066-SA5DN	9 - 10
Inorganic	Strontium	7440-24-6	6010B	313 / 313	17	147 J E	0.0247 - 0.074	0.494 - 0.603	mg/kg	SL-180-SA5DN	4 - 5
Inorganic	Tin	7440-31-5	6010B	0 / 313	-	-	0.316 - 1.19	9.88 - 12.1	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	313 / 313	189	1830	0.0701 - 0.453	0.988 - 5.61	mg/kg	SL-144-SA5DN	2 - 3
Inorganic	Zirconium	7440-67-7	6010B	302 / 313	0.997 J Z	9.49	0.454 - 1	4.94 - 6.03	mg/kg	SL-200-SA5DN	9 - 10
Inorganic	Antimony	7440-36-0	6020	212 / 313	0.0743 J Q, Z	1.39 J Q	0.0629 - 0.0893	0.203 - 0.241	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Arsenic	7440-38-2	6020	313 / 313	0.944 J Q	63	0.0814 - 0.0965	0.407 - 0.483	mg/kg	SL-129-SA5DN	2.5 - 3.5
Inorganic	Barium	7440-39-3	6020	313 / 313	21	715 J E, A	0.108 - 0.63	0.407 - 2.38	mg/kg	SL-066-SA5DN	9 - 10
Inorganic	Beryllium	7440-41-7	6020	312 / 313	0.143 J Q	1.82 J Q	0.0163 - 0.0455	0.102 - 0.285	mg/kg	SL-051-SA5DN	4 - 5
Inorganic	Cadmium	7440-43-9	6020	311 / 313	0.0535 J Q, Z	1.26 J Q, E	0.0419 - 0.0531	0.102 - 0.121	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Chromium	7440-47-3	6020	313 / 313	12.4 J Q	80 J E	0.122 - 0.145	0.407 - 0.483	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Cobalt	7440-48-4	6020	313 / 313	1.99	29 J E, Q	0.0203 - 0.0241	0.102 - 0.121	mg/kg	SL-024-SA5DN	19 - 20
Inorganic	Copper	7440-50-8	6020	313 / 313	2.61 J Q	121 J E, Q	0.0692 - 0.0965	0.407 - 0.483	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Lead	7439-92-1	6020	313 / 313	1.54 J Q	47.6 J E, A	0.0104 - 0.0123	0.203 - 0.241	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Molybdenum	7439-98-7	6020	313 / 313	0.103 J Z	5.9 J E, Q	0.0509 - 0.0603	0.102 - 0.121	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Nickel	7440-02-0	6020	313 / 313	6.64 J Q	60 J E, Q, A	0.102 - 0.121	0.407 - 0.483	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Selenium	7782-49-2	6020	238 / 313	0.0455 J Z	0.424 J Z	0.0419 - 0.07	0.407 - 0.483	mg/kg	SL-152-SA5DN	2.5 - 3.5
Inorganic	Silver	7440-22-4	6020	307 / 313	0.0162 J Z	0.552	0.0126 - 0.0171	0.102 - 0.121	mg/kg	SL-146-SA5DN	2 - 3
Inorganic	Thallium	7440-28-0	6020	312 / 313	0.0642 J Z	0.605 J Q, E	0.0305 - 0.0362	0.102 - 0.121	mg/kg	SL-095-SA5DN	4 - 5
Inorganic	Vanadium	7440-62-2	6020	313 / 313	12.9	124 J E, A	0.0224 - 0.0265	0.102 - 0.121	mg/kg	SL-205-SA5DN	9 - 10
Inorganic	Zinc	7440-66-6	6020	313 / 313	10.1 J Q, A	153 J E	0.57 - 0.676	3.05 - 3.62	mg/kg	SL-098-SA5DN	4 - 5
Misc. Organics	2-Propanol	67-63-0	8015B	0 / 126	-	-	100 - 120	520 - 610	ug/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 126	-	-	100 - 120	520 - 610	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	5 / 126	210 J Z	630	100 - 120	520 - 610	ug/kg	SL-004-SA5DN	3.5 - 4.5
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 126	-	-	1.6 - 1.8	3.6 - 4.3	mg/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 126	-	-	1.6 - 1.8	3.6 - 4.3	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	0 / 126	-	-	1.6 - 1.8	3.6 - 4.3	mg/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 126	-	-	5.2 - 7.6	10 - 12	mg/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	1 / 126	7 J Z	7 J Z	5.2 - 6.1	10 - 12	mg/kg	SL-197-SA5DN	4 - 5
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 126	-	-	5.2 - 6.1	10 - 12	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	2 / 126	660 J Z	6600	620 - 720	1600 - 1800	ug/kg	SL-003-SA5DN	0.5 - 1.5
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 144	-	-	78 - 220	230 - 670	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 144	-	-	78 - 97	230 - 290	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 144	-	-	78 - 97	120 - 150	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 144	-	-	97 - 120	120 - 150	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 144	-	-	58 - 73	120 - 150	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 144	-	-	78 - 97	120 - 150	ug/kg		-
Misc. Organics	HMX	2691-41-0	8330A	0 / 144	-	-	97 - 120	290 - 360	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	3 / 144	47 J Z	78 J Z	39 - 48	120 - 150	ug/kg	SL-018-SA5DN	7.5 - 8.5
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 144	-	-	39 - 48	120 - 150	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 144	-	-	780 - 970	2300 - 2900	ug/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 144	-	-	780 - 970	2300 - 2900	ug/kg		-
Misc. Organics	RDX	121-82-4	8330A	0 / 144	-	-	49 - 93	120 - 150	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 144	-	-	60 - 74	120 - 150	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	73 / 313	1.08 J Z	606	0.0127 - 0.438	5.03 - 6.05	ng/kg	SL-039-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	46 / 313	0.293 J Z	22.3	0.00411 - 0.192	5.03 - 6.05	ng/kg	SL-179-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	14 / 313	0.0449 J Z	3.05 J Z	0.00942 - 0.383	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	96 / 313	0.0116 J Z	1.9 J Z	0.00842 - 0.315	5.03 - 6.05	ng/kg	SL-179-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	34 / 313	0.0875 J Z	24	0.00651 - 0.264	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	77 / 313	0.059 J Z	8.25	0.00885 - 0.326	5.03 - 6.05	ng/kg	SL-039-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	35 / 313	0.0519 J Z	7.52	0.00491 - 0.224	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	62 / 313	0.0781 J Z	3.11 J Z	0.0081 - 0.351	5.03 - 6.05	ng/kg	SL-179-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	98 / 313	0.0363 J Z	4.51 J Z	0.00655 - 0.356	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	66 / 313	0.0176 J Z	1.82 J Z	0.00896 - 0.368	5.03 - 6.05	ng/kg	SL-014-SA5DN	9 - 10
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	86 / 313	0.031 J Z	108	0.00469 - 0.172	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	28 / 313	0.0503 J Z	3.75 J Z	0.00549 - 0.237	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	28 / 313	0.0374 J Z	75.7	0.00458 - 0.183	5.03 - 6.05	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	69 / 313	0.0112 J Z	0.449 J Z	0.00842 - 0.322	1.01 - 1.21	ng/kg	SL-014-SA5DN	9 - 10
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	96 / 313	0.0113 J Z	0.587 J Z	0.008 - 0.337	1.01 - 1.21	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	OCDD	3268-87-9	1613B	158 / 313	2.76 J Z	6890 J #	0.01 - 0.589	10.1 - 12.1	ng/kg	SL-039-SA5DN	4 - 5
PCBs and Dioxins	OCDF	39001-02-0	1613B	52 / 313	0.14 J FD, Z	53.8	0.0147 - 0.774	10.1 - 12.1	ng/kg	SL-179-SA5DN	4 - 5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 313	-	-	0.34 - 20	1.8 - 100	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 313	-	-	0.34 - 20	1.8 - 100	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 313	-	-	0.34 - 20	1.8 - 100	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	1 / 313	0.86 J Z	0.86 J Z	0.34 - 20	1.8 - 100	ug/kg	SL-003-SA5DN	8 - 9
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	2 / 313	1.1 J Z	120 J #	0.34 - 20	1.8 - 100	ug/kg	SL-028-SA5DN	11.5 - 12.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	35 / 313	0.42 J Z	660	0.34 - 20	1.8 - 100	ug/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	36 / 313	0.46 J Z, C, #	11	0.4 - 23	1.8 - 100	ug/kg	SL-028-SA5DN	11.5 - 12.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 313	-	-	0.34 - 20	1.8 - 100	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 313	-	-	0.34 - 20	1.8 - 100	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 313	-	-	1 - 60	3.4 - 200	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 313	-	-	1 - 60	3.4 - 200	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	15 / 313	1.3 J Z	8.3 J S, L	1 - 60	3.4 - 200	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	48 / 129	18.6 J Z	503	17.4 - 200	34.8 - 399	ng/kg	SL-065-SA5DN	7 - 8
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 313	-	-	350 - 3500	1000 - 11000	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	2 / 313	46 J Z	48 J Z	35 - 350	170 - 1800	ug/kg	SL-077-SA5DN	9 - 10
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C	0 / 1	-	-	19 - 19	190 - 190	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 312	-	-	100 - 1100	350 - 3500	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 313	-	-	69 - 710	170 - 1800	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 313	-	-	35 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 313	-	-	69 - 710	170 - 1800	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	1 / 1	19 J Z	19 J Z	19 - 19	190 - 190	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	Benzidine	92-87-5	8270C	0 / 313	-	-	1200 - 12000	3500 - 35000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C	2 / 2	29 J Z	62 J Z	19 - 20	190 - 200	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	1 / 1	22 J Z	22 J Z	20 - 20	200 - 200	ug/kg	SL-042-SA5DN	4 - 5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	1 / 1	26 J Z	26 J Z	20 - 20	200 - 200	ug/kg	SL-042-SA5DN	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	1 / 1	25 J Z	25 J Z	18 - 18	180 - 180	ug/kg	SL-170-SA5DN	4 - 5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	57 / 83	18 J Z	120 J Z	17 - 20	350 - 410	ug/kg	SL-070-SA5DN	9 - 10
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	1 / 8	22 J Z	22 J Z	17 - 20	170 - 200	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	Carbazole	86-74-8	8270C	2 / 313	25 J Z	26 J Z	17 - 180	170 - 1800	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Chrysene	218-01-9	8270C	2 / 2	34 J Z	68 J Z	19 - 20	190 - 200	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C	0 / 6	-	-	17 - 20	170 - 200	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C	0 / 6	-	-	17 - 20	170 - 200	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C	0 / 37	-	-	17 - 20	170 - 200	ug/kg		-
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	1 / 7	190	190	17 - 20	170 - 200	ug/kg	SL-017-SA5DN	7 - 8
Semivolatiles	Fluoranthene	206-44-0	8270C	1 / 2	27 J Z	27 J Z	20 - 20	200 - 200	ug/kg	SL-042-SA5DN	4 - 5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 313	-	-	69 - 710	170 - 1800	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 312	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C	1 / 1	20 J Z	20 J Z	18 - 18	180 - 180	ug/kg	SL-170-SA5DN	4 - 5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 313	-	-	170 - 1800	520 - 5300	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	1 / 1	69 J Z	69 J Z	19 - 19	190 - 190	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	Phenol	108-95-2	8270C	0 / 313	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	2 / 2	30 J Z	110 J Z	19 - 20	190 - 200	ug/kg	SL-044-SA5DN	12 - 13
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	5 / 313	0.76 J Z	48	0.69 - 16	1.7 - 39	ug/kg	SL-174-SA5DN	4 - 5
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	8 / 313	0.8 J Z	61	0.69 - 16	1.7 - 39	ug/kg	SL-174-SA5DN	4 - 5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	3 / 313	3.2	450	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	8 / 313	0.5 J Z	92	0.34 - 7.9	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Anthracene	120-12-7	8270C SIM	24 / 312	0.39 J Z	3400	0.34 - 7.9	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	44 / 311	0.78 J Z	10000	0.69 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	48 / 312	0.81 J Z	8500	0.69 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	66 / 312	0.76 J Z	12000	0.69 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	45 / 312	0.79 J Z	4900	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	39 / 313	0.8 J Z	7300	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	71 / 233	6.4 J Z	120	6.2 - 36	19 - 110	ug/kg	SL-198-SA5DN	4 - 5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	11 / 306	7.3 J Z	12 J Z	6.2 - 140	19 - 420	ug/kg	SL-028-SA5DN	11.5 - 12.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	85 / 311	0.39 J FD, Q, Z J Z	12000	0.34 - 160	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	20 / 313	0.77 J Z	1900	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	1 / 307	12 J Z	12 J Z	6.2 - 140	19 - 420	ug/kg	SL-162-SA5DN	4 - 5
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	1 / 307	9.8 J Z	9.8 J Z	6.2 - 140	19 - 420	ug/kg	SL-162-SA5DN	4 - 5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	22 / 276	8.3 J Z	56 J Z	6.2 - 140	19 - 420	ug/kg	SL-180-SA5DN	9 - 10
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	26 / 306	6.9 J Z	31	6.2 - 140	19 - 420	ug/kg	SL-011-SA5DN	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	51 / 312	0.77 J Z	16000	0.69 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Fluorene	86-73-7	8270C SIM	10 / 313	1 J Z	290	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	29 / 312	0.75 J Z	5200	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	9 / 313	0.78 J Z	43	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	1 / 313	2.1	2.1	0.69 - 16	1.7 - 39	ug/kg	SL-162-SA5DN	4 - 5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	44 / 312	0.83 J Z	4200	0.69 - 16	1.7 - 39	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Pyrene	129-00-0	8270C SIM	55 / 311	0.78 J Z	15000	0.69 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	0 / 126	-	-	0.42 - 4.7	1.3 - 14	mg/kg		-
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	18 / 126	0.49 J Z	70	0.42 - 4.7	1.3 - 14	mg/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	56 / 126	0.47 J Z	540	0.42 - 4.7	1.3 - 14	mg/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	85 / 126	0.44 J Z	300	0.42 - 4.7	1.3 - 14	mg/kg	SL-039-SA5DN	11.5 - 12.5
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	2 / 126	0.5 J Z	0.54 J FD, Q, Z	0.42 - 4.7	1.3 - 14	mg/kg	SL-033-SA5DN	4 - 5
Volatiles	GRO (C5-C12)	GROC5C12	8015M	3 / 126	0.2 J Z	0.3 J Z	0.2 - 0.3	0.9 - 1.3	mg/kg	SL-015-SA5DN SL-047-SA5DN	4 - 5 4 5
Volatiles	1,1,1,2-Tetrachloroethane	630-20-6	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	1,1,1-Trichloroethane	71-55-6	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	1,1,2,2-Tetrachloroethane	79-34-5	8260B	0 / 204	-	-	0.21 - 0.3	3.7 - 5.2	ug/kg		-
Volatiles	1,1,2-Trichloroethane	79-00-5	8260B	0 / 204	-	-	0.25 - 0.35	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloroethane	75-34-3	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloroethene	75-35-4	8260B	0 / 204	-	-	0.36 - 0.51	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloropropene	563-58-6	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	1,2,3-Trichlorobenzene	87-61-6	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	1,2,3-Trichloropropane	96-18-4	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	1,2,4-Trichlorobenzene	120-82-1	8260B	0 / 204	-	-	0.16 - 0.24	3.7 - 5.2	ug/kg		-
Volatiles	1,2,4-Trimethylbenzene	95-63-6	8260B	0 / 204	-	-	0.37 - 0.53	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dibromo-3-chloropropane	96-12-8	8260B	0 / 204	-	-	0.64 - 0.92	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dibromoethane	106-93-4	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichlorobenzene	95-50-1	8260B	0 / 204	-	-	0.08 - 0.12	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichloroethane	107-06-2	8260B	0 / 204	-	-	0.14 - 0.2	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichloropropane	78-87-5	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	1,3,5-Trimethylbenzene	108-67-8	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	1,3-Dichlorobenzene	541-73-1	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	1,3-Dichloropropane	142-28-9	8260B	0 / 204	-	-	0.07 - 0.11	3.7 - 5.2	ug/kg		-
Volatiles	1,4-Dichlorobenzene	106-46-7	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	2,2-Dichloropropane	594-20-7	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	2-Butanone	78-93-3	8260B	2 / 204	3.2 J Z	3.9 J Z	1.1 - 1.6	7.3 - 10	ug/kg	SL-003-SA5DN	0.5 - 1.5
Volatiles	2-Chloroethyl Vinyl Ether	110-75-8	8260B	0 / 204	-	-	0.27 - 0.39	3.7 - 5.2	ug/kg		-
Volatiles	2-Chlorotoluene	95-49-8	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	2-Hexanone	591-78-6	8260B	0 / 204	-	-	1.5 - 2.1	7.3 - 10	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Volatiles	4-Chlorotoluene	106-43-4	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	4-Methyl-2-Pentanone	108-10-1	8260B	0 / 204	-	-	0.36 - 0.51	7.3 - 10	ug/kg		-
Volatiles	Acetone	67-64-1	8260B	58 / 204	7.3 J Z	50	6.1 - 8.8	7.3 - 10	ug/kg	SL-181-SA5DN	4 - 5
Volatiles	Benzene	71-43-2	8260B	3 / 204	0.17 J Z	0.21 J Z	0.09 - 0.13	3.7 - 5.2	ug/kg	SL-003-SA5DN	0.5 - 1.5
Volatiles	Bromobenzene	108-86-1	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	Bromochloromethane	74-97-5	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	Bromodichloromethane	75-27-4	8260B	0 / 204	-	-	0.07 - 0.11	3.7 - 5.2	ug/kg		-
Volatiles	Bromoform	75-25-2	8260B	0 / 204	-	-	0.37 - 0.53	3.7 - 5.2	ug/kg		-
Volatiles	Bromomethane	74-83-9	8260B	0 / 204	-	-	0.23 - 0.33	3.7 - 5.2	ug/kg		-
Volatiles	Carbon tetrachloride	56-23-5	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	Chlorobenzene	108-90-7	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	Chloroethane	75-00-3	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	Chloroform	67-66-3	8260B	6 / 204	0.13 J Z	0.19 J Z	0.11 - 0.16	3.7 - 5.2	ug/kg	SL-053-SA5DN	4 - 5
Volatiles	Chloromethane	74-87-3	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	Chlorotrifluoroethene	79-38-9	8260B	0 / 204	-	-	0.46 - 0.66	4.6 - 6.6	ug/kg		-
Volatiles	cis-1,2-Dichloroethene	156-59-2	8260B	0 / 204	-	-	0.17 - 0.25	3.7 - 5.2	ug/kg		-
Volatiles	cis-1,3-Dichloropropene	10061-01-5	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	Dibromochloromethane	124-48-1	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	Dibromomethane	74-95-3	8260B	0 / 204	-	-	0.22 - 0.32	3.7 - 5.2	ug/kg		-
Volatiles	Dichlorodifluoromethane	75-71-8	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	Ethylbenzene	100-41-4	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Freon 113	76-13-1	8260B	1 / 204	0.19 J FD, Z	0.19 J FD, Z	0.1 - 0.14	3.7 - 5.2	ug/kg	SL-014-SA5DN	4 - 5
Volatiles	Freon 113a	75-88-7	8260B	0 / 204	-	-	0.46 - 0.66	4.6 - 6.6	ug/kg		-
Volatiles	Hexachlorobutadiene	87-68-3	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	Isopropylbenzene	98-82-8	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Isopropyltoluene	99-87-6	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	m,p-Xylene	179601-23-1	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	Methyl tert-Butyl Ether	1634-04-4	8260B	0 / 204	-	-	0.19 - 0.28	3.7 - 5.2	ug/kg		-
Volatiles	Methylene chloride	75-09-2	8260B	31 / 204	4.5	130 J L	0.22 - 0.32	3.7 - 5.2	ug/kg	SL-158-SA5DN	4 - 5
Volatiles	N-Butylbenzene	104-51-8	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	N-Propylbenzene	103-65-1	8260B	0 / 204	-	-	0.06 - 0.09	3.7 - 5.2	ug/kg		-
Volatiles	o-Xylene	95-47-6	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	sec-Butylbenzene	135-98-8	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Styrene	100-42-5	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	tert-Butylbenzene	98-06-6	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	Tetrachloroethene	127-18-4	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	Toluene	108-88-3	8260B	82 / 204	0.08 J Z	0.47 J Z	0.07 - 0.11	3.7 - 5.2	ug/kg	SL-035-SA5DN	4 - 5
Volatiles	trans-1,2-Dichloroethene	156-60-5	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	trans-1,3-Dichloropropene	10061-02-6	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	Trichloroethene	79-01-6	8260B	0 / 204	-	-	0.14 - 0.2	3.7 - 5.2	ug/kg		-
Volatiles	Trichlorofluoromethane	75-69-4	8260B	0 / 204	-	-	0.27 - 0.38	3.7 - 5.2	ug/kg		-
Volatiles	Vinyl Chloride	75-01-4	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	1,4-Dioxane	123-91-1	8260B SIM	0 / 204	-	-	4.4 - 7.9	13 - 24	ug/kg		-

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limit

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Percent Moisture	MOIST	160.3M	498 / 498	1.2	45.9	0.5 - 0.5	0.5 - 0.5	%	SL-042-SA5DN	0 - 0.5
Inorganic	Fluoride	16984-48-8	300.0	471 / 497	1.1 J Q J Q, Z J Z	29.6 J Q	0.81 - 1.5	1 - 1.8	mg/kg	SL-079-SA5DN	4 - 5
Inorganic	Nitrate	14797-55-8	300.0	197 / 209	0.94 J Z	56.1	0.81 - 4.9	1.5 - 9.2	mg/kg	SL-192-SA5DN	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314.0	1 / 497	52.6	52.6	9.1 - 16.6	30.4 - 55.5	ug/kg	SL-203-SA5DN	0 - 0.5
Inorganic	Perchlorate	14797-73-0	6850	9 / 73	2.4 J Z	4.8 J Z	2.1 - 6	5.1 - 6	ug/kg	SL-191-SA5DN	4 - 5
Inorganic	Chromium VI	18540-29-9	7199	338 / 497	0.23 J Z	11.8	0.2 - 0.37	1 - 1.8	mg/kg	SL-188-SA5DN	9 - 10
Inorganic	Mercury	7439-97-6	7471A	228 / 497	0.0034 J Z	53.8	0.0028 - 0.314	0.0965 - 10.9	mg/kg	SL-113-SA5DN	0 - 0.5
Inorganic	Cyanide	57-12-5	9012B	2 / 209	0.2 J Z	0.23 J Z	0.18 - 1	0.49 - 2.8	mg/kg	SL-192-SA5DN	0 - 0.5
Inorganic	pH	pH	9045M	497 / 497	6.14	10.7	0.01 - 0.01	0.01 - 0.01	pH unit	SL-165-SA5DN	9 - 10
Inorganic	Aluminum	7429-90-5	6010B	497 / 497	2970 J E	47700	4.92 - 28.5	19.6 - 113	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Boron	7440-42-8	6010B	359 / 497	1 J Z	27.5	0.352 - 5.04	4.89 - 28.3	mg/kg	SL-129-SA5DN	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	496 / 497	2500	122000 J E	2.47 - 33.7	19.6 - 118	mg/kg	SL-180-SA5DN	4 - 5
Inorganic	Iron	7439-89-6	6010B	496 / 497	4320	99800	2.58 - 43.1	19.6 - 183	mg/kg	SL-064-SA5DN	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	497 / 497	1.3 J Z	64.8	0.22 - 0.75	2 - 3.7	mg/kg	SL-153-SA5DN	7 - 8
Inorganic	Magnesium	7439-95-4	6010B	496 / 497	893	10500	0.435 - 4.65	9.78 - 18.3	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	497 / 497	126 J E	1590 J E	0.0356 - 0.412	0.489 - 2.64	mg/kg	SL-105-SA5DN	0 - 0.5
Inorganic	Phosphorus	7723-14-0	6010B	497 / 497	76.8 J Q	1570 J Q	0.346 - 3.17	9.78 - 56.6	mg/kg	SL-012-SA5DN	4 - 5
Inorganic	Potassium	7440-09-7	6010B	497 / 497	459 J Q	8590	11.2 - 102	48.9 - 283	mg/kg	SL-197-SA5DN	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	496 / 497	56.5 J Z	990	5.88 - 68.3	97.8 - 183	mg/kg	SL-066-SA5DN	9 - 10
Inorganic	Strontium	7440-24-6	6010B	497 / 497	14.1	147 J E	0.0247 - 0.113	0.489 - 0.915	mg/kg	SL-180-SA5DN	4 - 5
Inorganic	Tin	7440-31-5	6010B	1 / 497	13.5	13.5	0.316 - 1.83	9.88 - 18.3	mg/kg	SL-140-SA5DN	0 - 0.5
Inorganic	Titanium	7440-32-6	6010B	496 / 497	189	2030	0.0701 - 2.25	0.988 - 5.91	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	479 / 497	0.906 J Z	9.49	0.454 - 1.54	4.89 - 9.15	mg/kg	SL-200-SA5DN	9 - 10
Inorganic	Antimony	7440-36-0	6020	380 / 497	0.0646 J Q, Z	41.4 J Q	0.0581 - 0.109	0.194 - 0.362	mg/kg	SL-194-SA5DN	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	497 / 497	0.944 J Q	63	0.0775 - 0.145	0.388 - 0.725	mg/kg	SL-129-SA5DN	2.5 - 3.5
Inorganic	Barium	7440-39-3	6020	497 / 497	21	715 J E, A	0.106 - 0.63	0.392 - 2.38	mg/kg	SL-066-SA5DN	9 - 10
Inorganic	Beryllium	7440-41-7	6020	496 / 497	0.143 J Q	1.82 J Q	0.0155 - 0.0455	0.0969 - 0.285	mg/kg	SL-051-SA5DN	4 - 5
Inorganic	Cadmium	7440-43-9	6020	495 / 497	0.0535 J Q, Z	2.89 J Q, E	0.0388 - 0.0725	0.0969 - 0.181	mg/kg	SL-129-SA5DN	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	497 / 497	12.4 J Q	81.1 J E	0.116 - 0.217	0.388 - 0.725	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	497 / 497	1.99	56.5 J E, Q, A	0.0194 - 0.0362	0.0969 - 0.181	mg/kg	SL-045-SA5DN	0 - 0.5
Inorganic	Copper	7440-50-8	6020	497 / 497	2.61 J Q	121 J E, Q	0.0639 - 0.12	0.388 - 0.725	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Lead	7439-92-1	6020	497 / 497	1.54 J Q	122 J Q, E, A	0.0101 - 0.0317	0.194 - 0.609	mg/kg	SL-194-SA5DN	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	497 / 497	0.103 J Z	8.06	0.0484 - 0.0906	0.0969 - 0.181	mg/kg	SL-184-SA5DN	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	497 / 497	6.64 J Q	60 J E, Q, A	0.0969 - 0.181	0.388 - 0.725	mg/kg	SL-098-SA5DN	4 - 5
Inorganic	Selenium	7782-49-2	6020	421 / 497	0.0455 J Z	1.08	0.0388 - 0.0725	0.388 - 0.725	mg/kg	SL-013-SA5DN	0 - 0.5
Inorganic	Silver	7440-22-4	6020	489 / 497	0.0162 J Z	2.6	0.0116 - 0.0217	0.0969 - 0.181	mg/kg	SL-195-SA5DN	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	496 / 497	0.0642 J Z	0.807 J Q	0.0291 - 0.0538	0.0969 - 0.179	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	497 / 497	12.9	152 J E	0.0213 - 0.0399	0.0969 - 0.181	mg/kg	SL-042-SA5DN	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	497 / 497	10.1 J Q, A	370 J A	0.543 - 1.68	2.91 - 9.01	mg/kg	SL-090-SA5DN	0 - 0.5
Misc. Organics	2-Propanol	67-63-0	8015B	2 / 209	150 J Z	150 J Z	100 - 180	510 - 920	ug/kg	SL-140-SA5DN SL-066-SA5DN	0 - 0.5 0 - 0.5
Misc. Organics	Ethanol	64-17-5	8015B	0 / 209	-	-	100 - 180	510 - 920	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	6 / 209	130 J Z	630	100 - 180	510 - 920	ug/kg	SL-004-SA5DN	3.5 - 4.5
Misc. Organics	m-Terphenyl	92-06-8	8015B	1 / 209	5.3 J S	5.3 J S	1.5 - 17	3.5 - 39	mg/kg	SL-016-SA5DN	0 - 0.5
Misc. Organics	o-Terphenyl	84-15-1	8015B	1 / 209	1.9 J S, Z	1.9 J S, Z	1.5 - 17	3.5 - 39	mg/kg	SL-016-SA5DN	0 - 0.5
Misc. Organics	p-Terphenyl	92-94-4	8015B	4 / 209	2.2 J Q, E, Z	28 J Z	1.5 - 17	3.5 - 39	mg/kg	SL-121-SA5DN	0 - 0.5
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 209	-	-	5.1 - 9.2	10 - 18	mg/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	1 / 209	7 J Z	7 J Z	5.1 - 9.2	10 - 18	mg/kg	SL-197-SA5DN	4 - 5
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 209	-	-	5.1 - 9.2	10 - 18	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	13 / 209	660 J Z	6600	610 - 2600	1500 - 6400	ug/kg	SL-003-SA5DN	0.5 - 1.5
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 236	-	-	76 - 220	230 - 670	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 236	-	-	76 - 140	230 - 430	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 236	-	-	76 - 140	110 - 220	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 236	-	-	94 - 180	110 - 220	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 236	-	-	57 - 110	110 - 220	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 236	-	-	76 - 140	110 - 220	ug/kg		-
Misc. Organics	HMX	2691-41-0	8330A	0 / 236	-	-	94 - 180	280 - 540	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	9 / 236	43 J Z	78 J Z	38 - 72	110 - 220	ug/kg	SL-018-SA5DN	7.5 - 8.5
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 236	-	-	38 - 72	110 - 220	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 236	-	-	760 - 1400	2300 - 4300	ug/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 236	-	-	760 - 1400	2300 - 4300	ug/kg		-
Misc. Organics	RDX	121-82-4	8330A	3 / 236	68 J Z	140	47 - 150	110 - 220	ug/kg	SL-084-SA5DN	0 - 0.5
Misc. Organics	Tetryl	479-45-8	8330A	0 / 236	-	-	58 - 110	110 - 220	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	257 / 497	1.08 J Z	10500 J #	0.0127 - 0.85	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	220 / 497	0.293 J Z	642	0.00411 - 0.192	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	100 / 497	0.0449 J Z	48.1	0.00942 - 0.383	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	248 / 497	0.0116 J Z	59	0.00842 - 0.43	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	189 / 497	0.0875 J Z	25.9	0.00651 - 0.264	4.95 - 9.18	ng/kg	SL-207-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	256 / 497	0.059 J Z	222	0.00885 - 0.45	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	166 / 497	0.0519 J Z	13.3	0.00491 - 0.224	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	240 / 497	0.0781 J Z	136	0.0081 - 0.429	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	227 / 497	0.0363 J Z	5.05 J Z	0.00655 - 0.356	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	198 / 497	0.0176 J Z	31.4	0.00896 - 0.368	4.95 - 9.18	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	236 / 497	0.031 J Z	108	0.00469 - 0.172	4.95 - 9.18	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	149 / 497	0.0503 J Z	17.9	0.00549 - 0.237	4.95 - 9.18	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	155 / 497	0.0374 J Z	75.7	0.00458 - 0.183	4.95 - 9.18	ng/kg	SL-091-SA5DN	4 - 5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	148 / 497	0.0112 J Z	3.55	0.0084 - 0.322	0.99 - 1.84	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	245 / 497	0.0113 J Z	10.9	0.008 - 0.337	0.99 - 1.84	ng/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	342 / 497	2.76 J Z	180000 J #	0.01 - 1.32	9.9 - 18.4	ng/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	224 / 497	0.14 J FD, Z	2350	0.0147 - 0.774	9.9 - 18.4	ng/kg	SL-090-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 497	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 497	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 497	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	1 / 497	0.86 J Z	0.86 J Z	0.33 - 190	1.7 - 970	ug/kg	SL-003-SA5DN	8 - 9
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	2 / 497	1.1 J Z	120 J #	0.33 - 190	1.7 - 970	ug/kg	SL-028-SA5DN	11.5 - 12.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	65 / 497	0.42 J Z	1300	0.33 - 190	1.7 - 970	ug/kg	SL-007-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	179 / 497	0.45 J Z	300 J C	0.39 - 220	1.7 - 970	ug/kg	SL-207-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	1 / 497	4.4	4.4	0.33 - 190	1.7 - 970	ug/kg	SL-045-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 497	-	-	0.33 - 190	1.7 - 970	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 497	-	-	1 - 570	3.3 - 1900	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	1 / 497	15	15	1 - 570	3.3 - 1900	ug/kg	SL-130-SA5DN	0 - 0.5
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	122 / 497	1.3 J L, Z J Z J Z, C	43	1 - 570	3.3 - 1900	ug/kg	SL-055-SA5DN	0 - 0.5
Pesticides	4,4'-DDD	72-54-8	8081A	9 / 183	0.076 J Z	1.5 J S	0.067 - 2.7	0.34 - 3.7	ug/kg	SL-105-SA5DN	0 - 0.5
Pesticides	4,4'-DDE	72-55-9	8081A	104 / 183	0.093 J S, Z	77	0.067 - 4.9	0.34 - 18	ug/kg	SL-123-SA5DN	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	147 / 183	0.1 J S, Z	63	0.067 - 5.5	0.34 - 9.1	ug/kg	SL-207-SA5DN	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	1 / 183	0.11 J S, Z	0.11 J S, Z	0.067 - 0.18	0.17 - 0.45	ug/kg	SL-180-SA5DN	0 - 0.5
Pesticides	Alpha-BHC	319-84-6	8081A	2 / 183	0.04 J FD, Z	0.045 J S, Z	0.034 - 0.091	0.17 - 0.45	ug/kg	SL-098-SA5DN	0 - 0.5
Pesticides	Beta-BHC	319-85-7	8081A	19 / 183	0.1 J Z	2.7	0.061 - 0.32	0.17 - 0.87	ug/kg	SL-133-SA5DN	0 - 0.5
Pesticides	Chlordane	57-74-9	8081A	114 / 183	0.95 J S, Z	15	0.27 - 28	3.4 - 38	ug/kg	SL-024-SA5DN	0 - 0.5

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Pesticides	Delta-BHC	319-86-8	8081A	25 / 183	0.042 J Z, C, #	1.2	0.036 - 0.48	0.17 - 0.48	ug/kg	SL-196-SA5DN	0 - 0.5
Pesticides	Dieldrin	60-57-1	8081A	36 / 183	0.1 J Z	11	0.067 - 18	0.34 - 18	ug/kg	SL-180-SA5DN	0 - 0.5
Pesticides	Endosulfan I	959-98-8	8081A	4 / 183	0.064 J Z, C	0.33	0.044 - 0.47	0.17 - 1.8	ug/kg	SL-005-SA5DN	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	10 / 183	0.074 J Z	1.3 J S	0.067 - 1.8	0.34 - 3.7	ug/kg	SL-049-SA5DN	0 - 0.5
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	1 / 183	0.27 J Z	0.27 J Z	0.067 - 1.4	0.34 - 7.3	ug/kg	SL-092-SA5DN	0 - 0.5
Pesticides	Endrin	72-20-8	8081A	2 / 183	0.099 J S, L, Z	0.12 J Z	0.067 - 8.2	0.34 - 8.2	ug/kg	SL-005-SA5DN	0 - 0.5
Pesticides	Endrin Aldehyde	7421-93-4	8081A	18 / 183	0.081 J S, Z	21 J #	0.067 - 2.1	0.34 - 9.1	ug/kg	SL-207-SA5DN	0 - 0.5
Pesticides	Endrin Ketone	53494-70-5	8081A	11 / 183	0.084 J Z J Z, C	0.37 J S, Z	0.067 - 1.4	0.34 - 7.3	ug/kg	SL-045-SA5DN	0 - 0.5
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	16 / 183	0.041 J S, Z	0.15 J Z	0.034 - 0.096	0.17 - 0.45	ug/kg	SL-203-SA5DN	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	8 / 183	0.1 J FD, Z J S, Z	0.31	0.061 - 0.31	0.17 - 0.86	ug/kg	SL-090-SA5DN	0 - 0.5
Pesticides	Heptachlor Epoxide	1024-57-3	8081A	19 / 183	0.035 J S, Z	0.33	0.034 - 4.3	0.17 - 4.3	ug/kg	SL-203-SA5DN	0 - 0.5
Pesticides	Methoxychlor	72-43-5	8081A	1 / 183	0.49 J L, Z	0.49 J L, Z	0.34 - 7.3	1.7 - 35	ug/kg	SL-107-SA5DN	0 - 0.5
Pesticides	Mirex	2385-85-5	8081A	22 / 183	0.074 J Z, C, #	2.2 J S	0.067 - 5.7	0.34 - 7.3	ug/kg	SL-183-SA5DN	0 - 0.5
Pesticides	Toxaphene	8001-35-2	8081A	1 / 183	4.3 J Z	4.3 J Z	2.2 - 19	6.7 - 36	ug/kg	SL-090-SA5DN	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 183	-	-	4.4 - 8.1	9.1 - 17	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	15 / 183	1.2 J Z	110	0.63 - 29	1.7 - 29	ug/kg	SL-192-SA5DN	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	5 / 183	0.1 J Z	0.4	0.083 - 0.32	0.17 - 0.32	ug/kg	SL-034-SA5DN	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	42 / 183	0.08 J Z	0.44	0.076 - 0.82	0.17 - 1.9	ug/kg	SL-064-SA5DN	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	7 / 183	1.7 J Z	2.4 J Z	1.2 - 7.9	3.6 - 7.9	ug/kg	SL-040-SA5DN	0 - 0.5
Pesticides	Dicamba	1918-00-9	8151A	6 / 183	0.46 J Z, #	0.72 J Z	0.4 - 0.74	1.2 - 2.2	ug/kg	SL-065-SA5DN	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	11 / 183	0.87 J Z	2.9	0.81 - 2.8	1.7 - 3.1	ug/kg	SL-131-SA5DN	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	0 / 183	-	-	0.81 - 7	2.4 - 7	ug/kg		-
Pesticides	MCPA	94-74-6	8151A	84 / 183	97 J Z	2400 J S	77 - 1300	250 - 1300	ug/kg	SL-066-SA5DN	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	9 / 183	88 J Z	350 J S	76 - 830	250 - 2800	ug/kg	SL-066-SA5DN SL-074-SA5DN	0 - 0.5 0 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	78 / 214	18.4 J Z	1040	16.7 - 308	33.4 - 616	ng/kg	SL-140-SA5DN	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C	1 / 1	26 J Z	26 J Z	17 - 17	170 - 170	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 497	-	-	330 - 3500	1000 - 11000	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	2 / 497	46 J Z	48 J Z	33 - 350	170 - 1800	ug/kg	SL-077-SA5DN	9 - 10
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C	1 / 2	31 J Z	31 J Z	17 - 19	170 - 190	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 496	-	-	100 - 1100	330 - 3500	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 496	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 497	-	-	67 - 710	170 - 1800	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 497	-	-	33 - 350	170 - 1800	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 497	-	-	67 - 710	170 - 1800	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C	4 / 5	21 J Z	370	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C	1 / 1	45 J Z	45 J Z	19 - 19	190 - 190	ug/kg	SL-197-SA5DN	0 - 0.5
Semivolatiles	Aniline	62-53-3	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	9 / 9	19 J Z	590	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 497	-	-	1200 - 12000	3300 - 35000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C	25 / 25	18 J L, Z	2900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	26 / 26	22 J Z J L, Z	3100	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	26 / 26	19 J Z	3400	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	27 / 27	19 J Z	2200	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C	15 / 15	21 J Z	1600	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	164 / 219	18 J L, Z J Z	1200	17 - 84	340 - 1700	ug/kg	SL-197-SA5DN	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	10 / 88	19 J Z	740	17 - 31	170 - 310	ug/kg	SL-056-SA5DN	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	12 / 497	20 J Z	360	17 - 180	170 - 1800	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C	36 / 36	19 J L, Z	3000	17 - 31	170 - 310	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C	10 / 10	22 J Z	590	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	1 / 497	150 J Z	150 J Z	17 - 180	170 - 1800	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Diethylphthalate	84-66-2	8270C	0 / 83	-	-	17 - 31	170 - 310	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C	1 / 84	42 J Z	42 J Z	17 - 31	170 - 310	ug/kg	SL-067-SA5DN	0 - 0.5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C	6 / 114	19 J Z	680	17 - 31	170 - 310	ug/kg	SL-049-SA5DN	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	3 / 82	25 J Z	230	17 - 31	170 - 310	ug/kg	SL-188-SA5DN	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C	31 / 32	19 J Z	3100	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C	2 / 2	21 J Z	260	17 - 19	170 - 190	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 497	-	-	67 - 710	170 - 1800	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 496	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C	19 / 19	20 J Z	1900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C	1 / 1	37 J Z	37 J Z	17 - 17	170 - 170	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 497	-	-	170 - 1800	500 - 5300	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	17 / 17	21 J Z	2900	17 - 21	170 - 210	ug/kg	SL-180-SA5DN	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	0 / 497	-	-	17 - 180	170 - 1800	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	35 / 35	18 J L, Z	2900	17 - 21	170 - 210	ug/kg	SL-187-SA5DN	0 - 0.5
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	27 / 496	0.73 J Z	48	0.66 - 19	1.7 - 48	ug/kg	SL-174-SA5DN	4 - 5
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	40 / 496	0.7 J Z	61	0.66 - 19	1.7 - 48	ug/kg	SL-174-SA5DN	4 - 5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	21 / 493	0.74 J Z	450	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	25 / 496	0.35 J Z	92	0.33 - 9.6	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Anthracene	120-12-7	8270C SIM	94 / 488	0.37 J Z	3400	0.33 - 9.6	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	148 / 472	0.75 J Z	10000	0.66 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	166 / 471	0.76 J Z	8500	0.66 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	208 / 471	0.76 J Z	12000	0.66 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	154 / 470	0.77 J Z	4900	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	155 / 482	0.73 J Z	7300	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	111 / 285	6.4 J Z	700	6 - 130	18 - 380	ug/kg	SL-143-SA5DN	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	25 / 415	6.9 J Z	36 J Z	6 - 140	18 - 420	ug/kg	SL-033-SA5DN	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	225 / 462	0.39 J FD, Q, Z J Z	12000	0.33 - 160	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	80 / 487	0.76 J Z	1900	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	3 / 418	7.1 J Z	12 J Z	6 - 140	18 - 420	ug/kg	SL-162-SA5DN	4 - 5
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	2 / 417	9.8 J Z	14 J Q, E, Z	6 - 140	18 - 420	ug/kg	SL-072-SA5DN	0 - 0.5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	37 / 387	6.7 J Z	71 J Z	6 - 140	18 - 420	ug/kg	SL-036-SA5DN	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	40 / 419	6.9 J Z	51 J Z	6 - 140	18 - 420	ug/kg	SL-009-SA5DN	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	179 / 466	0.77 J Z	16000	0.66 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Fluorene	86-73-7	8270C SIM	40 / 495	0.75 J Z	290	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	122 / 478	0.75 J Z	5200	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	64 / 496	0.71 J Z	43	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	1 / 497	2.1	2.1	0.66 - 19	1.7 - 48	ug/kg	SL-162-SA5DN	4 - 5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	159 / 480	0.82 J Z	4200	0.66 - 19	1.7 - 48	ug/kg	SL-016-SA5DN	4 - 5
Semivolatiles	Pyrene	129-00-0	8270C SIM	183 / 463	0.77 J Z	15000	0.66 - 310	1.7 - 790	ug/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	1 / 209	0.98 J Z	0.98 J Z	0.42 - 22	1.3 - 66	mg/kg	SL-191-SA5DN	0 - 0.5
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	86 / 209	0.49 J Z	70	0.42 - 22	1.3 - 66	mg/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	139 / 209	0.47 J Z	540	0.42 - 22	1.3 - 66	mg/kg	SL-016-SA5DN	4 - 5
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	167 / 209	0.44 J Z	1200	0.42 - 22	1.3 - 66	mg/kg	SL-051-SA5DN	0 - 0.5
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	4 / 209	0.5 J Z	1.9 J Z	0.42 - 22	1.3 - 66	mg/kg	SL-197-SA5DN	0 - 0.5
Volatiles	GRO (C5-C12)	GROC5C12	8015M	3 / 126	0.2 J Z	0.3 J Z	0.2 - 0.3	0.9 - 1.3	mg/kg	SL-015-SA5DN SL-047-SA5DN	4 - 5 4 5
Volatiles	1,1,1,2-Tetrachloroethane	630-20-6	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	1,1,1-Trichloroethane	71-55-6	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	1,1,2,2-Tetrachloroethane	79-34-5	8260B	0 / 204	-	-	0.21 - 0.3	3.7 - 5.2	ug/kg		-
Volatiles	1,1,2-Trichloroethane	79-00-5	8260B	0 / 204	-	-	0.25 - 0.35	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloroethane	75-34-3	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloroethene	75-35-4	8260B	0 / 204	-	-	0.36 - 0.51	3.7 - 5.2	ug/kg		-
Volatiles	1,1-Dichloropropene	563-58-6	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	1,2,3-Trichlorobenzene	87-61-6	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	1,2,3-Trichloropropane	96-18-4	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	1,2,4-Trichlorobenzene	120-82-1	8260B	0 / 204	-	-	0.16 - 0.24	3.7 - 5.2	ug/kg		-
Volatiles	1,2,4-Trimethylbenzene	95-63-6	8260B	0 / 204	-	-	0.37 - 0.53	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dibromo-3-chloropropane	96-12-8	8260B	0 / 204	-	-	0.64 - 0.92	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dibromoethane	106-93-4	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichlorobenzene	95-50-1	8260B	0 / 204	-	-	0.08 - 0.12	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichloroethane	107-06-2	8260B	0 / 204	-	-	0.14 - 0.2	3.7 - 5.2	ug/kg		-
Volatiles	1,2-Dichloropropane	78-87-5	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	1,3,5-Trimethylbenzene	108-67-8	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	1,3-Dichlorobenzene	541-73-1	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	1,3-Dichloropropane	142-28-9	8260B	0 / 204	-	-	0.07 - 0.11	3.7 - 5.2	ug/kg		-
Volatiles	1,4-Dichlorobenzene	106-46-7	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	2,2-Dichloropropane	594-20-7	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	2-Butanone	78-93-3	8260B	2 / 204	3.2 J Z	3.9 J Z	1.1 - 1.6	7.3 - 10	ug/kg	SL-003-SA5DN	0.5 - 1.5
Volatiles	2-Chloroethyl Vinyl Ether	110-75-8	8260B	0 / 204	-	-	0.27 - 0.39	3.7 - 5.2	ug/kg		-
Volatiles	2-Chlorotoluene	95-49-8	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	2-Hexanone	591-78-6	8260B	0 / 204	-	-	1.5 - 2.1	7.3 - 10	ug/kg		-
Volatiles	4-Chlorotoluene	106-43-4	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	4-Methyl-2-Pentanone	108-10-1	8260B	0 / 204	-	-	0.36 - 0.51	7.3 - 10	ug/kg		-
Volatiles	Acetone	67-64-1	8260B	58 / 204	7.3 J Z	50	6.1 - 8.8	7.3 - 10	ug/kg	SL-181-SA5DN	4 - 5

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Volatiles	Benzene	71-43-2	8260B	3 / 204	0.17 J Z	0.21 J Z	0.09 - 0.13	3.7 - 5.2	ug/kg	SL-003-SA5DN	0.5 - 1.5
Volatiles	Bromobenzene	108-86-1	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	Bromochloromethane	74-97-5	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	Bromodichloromethane	75-27-4	8260B	0 / 204	-	-	0.07 - 0.11	3.7 - 5.2	ug/kg		-
Volatiles	Bromoform	75-25-2	8260B	0 / 204	-	-	0.37 - 0.53	3.7 - 5.2	ug/kg		-
Volatiles	Bromomethane	74-83-9	8260B	0 / 204	-	-	0.23 - 0.33	3.7 - 5.2	ug/kg		-
Volatiles	Carbon tetrachloride	56-23-5	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	Chlorobenzene	108-90-7	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	Chloroethane	75-00-3	8260B	0 / 204	-	-	0.12 - 0.17	3.7 - 5.2	ug/kg		-
Volatiles	Chloroform	67-66-3	8260B	6 / 204	0.13 J Z	0.19 J Z	0.11 - 0.16	3.7 - 5.2	ug/kg	SL-053-SA5DN	4 - 5
Volatiles	Chloromethane	74-87-3	8260B	0 / 204	-	-	0.3 - 0.43	3.7 - 5.2	ug/kg		-
Volatiles	Chlorotrifluoroethene	79-38-9	8260B	0 / 204	-	-	0.46 - 0.66	4.6 - 6.6	ug/kg		-
Volatiles	cis-1,2-Dichloroethene	156-59-2	8260B	0 / 204	-	-	0.17 - 0.25	3.7 - 5.2	ug/kg		-
Volatiles	cis-1,3-Dichloropropene	10061-01-5	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	Dibromochloromethane	124-48-1	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	Dibromomethane	74-95-3	8260B	0 / 204	-	-	0.22 - 0.32	3.7 - 5.2	ug/kg		-
Volatiles	Dichlorodifluoromethane	75-71-8	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	Ethylbenzene	100-41-4	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Freon 113	76-13-1	8260B	1 / 204	0.19 J FD, Z	0.19 J FD, Z	0.1 - 0.14	3.7 - 5.2	ug/kg	SL-014-SA5DN	4 - 5
Volatiles	Freon 113a	75-88-7	8260B	0 / 204	-	-	0.46 - 0.66	4.6 - 6.6	ug/kg		-
Volatiles	Hexachlorobutadiene	87-68-3	8260B	0 / 204	-	-	0.13 - 0.18	3.7 - 5.2	ug/kg		-
Volatiles	Isopropylbenzene	98-82-8	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Isopropyltoluene	99-87-6	8260B	0 / 204	-	-	0.1 - 0.14	3.7 - 5.2	ug/kg		-
Volatiles	m,p-Xylene	179601-23-1	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	Methyl tert-Butyl Ether	1634-04-4	8260B	0 / 204	-	-	0.19 - 0.28	3.7 - 5.2	ug/kg		-
Volatiles	Methylene chloride	75-09-2	8260B	31 / 204	4.5	130 J L	0.22 - 0.32	3.7 - 5.2	ug/kg	SL-158-SA5DN	4 - 5
Volatiles	N-Butylbenzene	104-51-8	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	N-Propylbenzene	103-65-1	8260B	0 / 204	-	-	0.06 - 0.09	3.7 - 5.2	ug/kg		-
Volatiles	o-Xylene	95-47-6	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	sec-Butylbenzene	135-98-8	8260B	0 / 204	-	-	0.05 - 0.08	3.7 - 5.2	ug/kg		-
Volatiles	Styrene	100-42-5	8260B	0 / 204	-	-	0.09 - 0.13	3.7 - 5.2	ug/kg		-
Volatiles	tert-Butylbenzene	98-06-6	8260B	0 / 204	-	-	0.15 - 0.21	3.7 - 5.2	ug/kg		-
Volatiles	Tetrachloroethene	127-18-4	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	Toluene	108-88-3	8260B	82 / 204	0.08 J Z	0.47 J Z	0.07 - 0.11	3.7 - 5.2	ug/kg	SL-035-SA5DN	4 - 5
Volatiles	trans-1,2-Dichloroethene	156-60-5	8260B	0 / 204	-	-	0.11 - 0.16	3.7 - 5.2	ug/kg		-
Volatiles	trans-1,3-Dichloropropene	10061-02-6	8260B	0 / 204	-	-	0.16 - 0.22	3.7 - 5.2	ug/kg		-
Volatiles	Trichloroethene	79-01-6	8260B	0 / 204	-	-	0.14 - 0.2	3.7 - 5.2	ug/kg		-
Volatiles	Trichlorofluoromethane	75-69-4	8260B	0 / 204	-	-	0.27 - 0.38	3.7 - 5.2	ug/kg		-
Volatiles	Vinyl Chloride	75-01-4	8260B	0 / 204	-	-	0.18 - 0.26	3.7 - 5.2	ug/kg		-
Volatiles	1,4-Dioxane	123-91-1	8260B SIM	0 / 204	-	-	4.4 - 7.9	13 - 24	ug/kg		-

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria
A - Serial dilution results outside of criteria

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D North

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration

F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limit

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Fluoride	16984-48-8	300	21 / 32	0.93 J Q, Z	4.6 J Q	0.79 - 0.9	0.99 - 1.1	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314	1 / 32	683	683	9.1 - 10	30.2 - 33.4	ug/kg	SL-016-SA5DS	0 - 0.5
Inorganic	Perchlorate	14797-73-0	6850	1 / 3	2.3 J Z	2.3 J Z	2.1 - 2.2	5.1 - 5.1	ug/kg	SL-040-SA5DS	0 - 0.5
Inorganic	Chromium VI	18540-29-9	7199	20 / 32	0.21 J Z	1.7	0.19 - 0.22	0.97 - 1.1	mg/kg	SL-020-SA5DS	0 - 0.5
Inorganic	Percent Moisture	MOIST	160.3M	32 / 32	0.56	10.3	0.5 - 0.5	0.5 - 0.5	%	SL-006-SA5DS	0 - 0.5
Inorganic	Mercury	7439-97-6	7471A	18 / 32	0.0074 J Z	0.0877 J Z	0.0066 - 0.0078	0.0945 - 0.111	mg/kg	SL-038-SA5DS	0 - 0.5
Inorganic	pH	pH	9045M	32 / 32	5.66	7.61	0.01 - 0.01	0.01 - 0.01	pH unit	SL-034-SA5DS	0 - 0.5
Inorganic	Antimony	7440-36-0	6020	32 / 32	0.0922 J Q, Z	0.436 J Q	0.0715 - 0.0817	0.193 - 0.221	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	32 / 32	2.8 J Q	9.83 J Q	0.0774 - 0.0883	0.387 - 0.442	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Barium	7440-39-3	6020	32 / 32	42.5	182	0.102 - 0.272	0.387 - 1.03	mg/kg	SL-034-SA5DS	0 - 0.5
Inorganic	Beryllium	7440-41-7	6020	32 / 32	0.243	1.16	0.0155 - 0.0177	0.0967 - 0.11	mg/kg	SL-034-SA5DS	0 - 0.5
Inorganic	Cadmium	7440-43-9	6020	32 / 32	0.125 J Q	0.362 J Q	0.0425 - 0.0486	0.0967 - 0.11	mg/kg	SL-028-SA5DS	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	32 / 32	16.6 J Q	68.5 J A	0.116 - 0.132	0.387 - 0.442	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	32 / 32	5.49	16.8	0.0193 - 0.0221	0.0967 - 0.11	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Copper	7440-50-8	6020	32 / 32	3.69	25.6 J Q	0.0774 - 0.0883	0.387 - 0.442	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Lead	7439-92-1	6020	32 / 32	5.33 J Q	40.1 J A	0.0099 - 0.0113	0.193 - 0.221	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	32 / 32	0.313	0.839 J Q	0.0483 - 0.0552	0.0967 - 0.11	mg/kg	SL-013-SA5DS	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	32 / 32	9.08	34.2 J Q, A	0.0967 - 0.11	0.387 - 0.442	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	32 / 32	0.0809 J Z	0.515 J Q	0.0561 - 0.064	0.387 - 0.442	mg/kg	SL-032-SA5DS	0 - 0.5
Inorganic	Silver	7440-22-4	6020	32 / 32	0.0152 J Z	0.351 J Q	0.0137 - 0.0157	0.0967 - 0.11	mg/kg	SL-028-SA5DS	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	32 / 32	0.102	0.616 J Q	0.029 - 0.0331	0.0967 - 0.11	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	32 / 32	34.9	136 J A	0.0213 - 0.0243	0.0967 - 0.11	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	32 / 32	43.2	138 J A	0.541 - 0.618	2.9 - 3.31	mg/kg	SL-030-SA5DS SL-031-SA5DS	0 - 0.5 0 - 0.5
Inorganic	Aluminum	7429-90-5	6010B	32 / 32	9970	31900	5.91 - 6.42	19.5 - 21.2	mg/kg	SL-034-SA5DS	0 - 0.5
Inorganic	Boron	7440-42-8	6010B	32 / 32	4.38 J Z	17.3	0.351 - 0.382	4.88 - 5.31	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	32 / 32	2820	29800	2.44 - 2.65	19.5 - 21.2	mg/kg	SL-033-SA5DS	0 - 0.5
Inorganic	Iron	7439-89-6	6010B	32 / 32	17900	39000	2.55 - 13.5	19.5 - 104	mg/kg	SL-031-SA5DS	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	32 / 32	13.8	55.1	0.61 - 0.66	2 - 2.1	mg/kg	SL-029-SA5DS	0 - 0.5
Inorganic	Magnesium	7439-95-4	6010B	32 / 32	4310	10200	0.43 - 0.467	9.76 - 10.6	mg/kg	SL-029-SA5DS	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	32 / 32	227	399	0.0351 - 0.0382	0.488 - 0.531	mg/kg	SL-021-SA5DS	0 - 0.5
Inorganic	Phosphorus	7723-14-0	6010B	32 / 32	340	878	0.342 - 0.372	9.76 - 10.6	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Potassium	9-7-7440	6010B	32 / 32	1470	7340	11 - 12	48.8 - 53.1	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	32 / 32	69.5 J Z	199	5.81 - 6.32	97.6 - 106	mg/kg	SL-026-SA5DS	0 - 0.5
Inorganic	Strontium	7440-24-6	6010B	32 / 32	10.8	65.3	0.0244 - 0.0265	0.488 - 0.531	mg/kg	SL-033-SA5DS	0 - 0.5
Inorganic	Tin	7440-31-5	6010B	0 / 32	-	-	0.312 - 0.34	9.76 - 10.6	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	32 / 32	750	1710	0.0693 - 0.0754	0.976 - 1.06	mg/kg	SL-031-SA5DS	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	31 / 32	0.97 J Z	12.5	0.449 - 0.488	4.88 - 5.31	mg/kg	SL-001-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	1 / 32	0.72 J Z	0.72 J Z	0.33 - 33	1.7 - 170	ug/kg	SL-038-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	25 / 32	0.51 J Z	1500	0.33 - 33	1.7 - 170	ug/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	19 / 32	0.52 J Z	9.3 J S	0.39 - 40	1.7 - 170	ug/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 32	-	-	0.33 - 33	1.7 - 170	ug/kg		-

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 32	-	-	1 - 100	3.3 - 330	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 32	-	-	1 - 100	3.3 - 330	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	20 / 32	1.2 J Z	5.9 J S	1 - 100	3.3 - 330	ug/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	31 / 32	0.444 J Z	13.6	0.026 - 0.373	4.83 - 49.2	ng/kg	SL-001-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	26 / 32	0.542 J Z	5.02 J Z	0.0153 - 0.315	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	7 / 32	0.128 J Z	4.1 J Z	0.021 - 0.32	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	27 / 32	0.0334 J Z	0.341 J Z	0.0227 - 0.285	4.83 - 49.2	ng/kg	SL-040-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	23 / 32	0.112 J Z	11.3 J Z	0.0139 - 0.498	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	28 / 32	0.0828 J Z	1.02 J Z	0.0223 - 0.283	4.83 - 49.2	ng/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	19 / 32	0.111 J Z	3.91 J Z	0.0127 - 0.433	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	28 / 32	0.127 J Z	1.32 J Z	0.0244 - 0.277	4.83 - 49.2	ng/kg	SL-010-SA5DS SL-006-SA5DS	0 - 0.5 0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	28 / 32	0.0578 J Z	3.86 J Z	0.018 - 0.406	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	27 / 32	0.049 J Z	0.412 J Z	0.0265 - 0.401	4.83 - 49.2	ng/kg	SL-004-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	28 / 32	0.13 J Z	3.87 J Z	0.0176 - 0.442	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	19 / 32	0.0401 J Z	4.4 J Z	0.0139 - 0.379	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	17 / 32	0.228 J Z	9.93 J Z	0.0168 - 0.396	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	11 / 32	0.0367 J Z	0.148 J Z	0.0271 - 0.426	0.967 - 9.85	ng/kg	SL-004-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	29 / 32	0.0574 J Z	1.1 J Z	0.029 - 0.791	0.967 - 9.85	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	32 / 32	2.21 J Z	146	0.0176 - 0.406	9.67 - 98.5	ng/kg	SL-014-SA5DS	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	31 / 32	0.613 J Z	8.98 J Z	0.0227 - 0.436	9.67 - 98.5	ng/kg	SL-026-SA5DS	0 - 0.5
Pesticides	4,4'-DDD	72-54-8	8081A	0 / 32	-	-	0.066 - 6.7	0.34 - 34	ug/kg		-
Pesticides	4,4'-DDE	72-55-9	8081A	19 / 32	0.1 J FD, Z	2.8	0.066 - 270	0.34 - 270	ug/kg	SL-002-SA5DS	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	19 / 32	0.22 J FD, Z	7	0.066 - 33	0.34 - 170	ug/kg	SL-028-SA5DS	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	0 / 32	-	-	0.066 - 6.7	0.17 - 17	ug/kg		-
Pesticides	Alpha-BHC	319-84-6	8081A	2 / 32	0.076 J Z	0.09 J Z	0.034 - 3.4	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Beta-BHC	319-85-7	8081A	4 / 32	0.078 J Z	0.14 J Z	0.06 - 6.1	0.17 - 17	ug/kg	SL-002-SA5DS	0 - 0.5
Pesticides	Chlordane	57-74-9	8081A	25 / 32	0.9 J FD, Z	10 J Z	0.81 - 510	3.4 - 510	ug/kg	SL-028-SA5DS	0 - 0.5
Pesticides	Delta-BHC	319-86-8	8081A	6 / 32	0.038 J Z	0.35	0.036 - 3.7	0.17 - 17	ug/kg	SL-029-SA5DS	0 - 0.5
Pesticides	Dieldrin	60-57-1	8081A	0 / 32	-	-	0.067 - 50	0.34 - 50	ug/kg		-
Pesticides	Endosulfan I	959-98-8	8081A	1 / 32	0.089 J Z	0.089 J Z	0.044 - 4.5	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	1 / 32	0.4	0.4	0.067 - 46	0.34 - 46	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	0 / 32	-	-	0.066 - 6.7	0.34 - 34	ug/kg		-
Pesticides	Endrin	72-20-8	8081A	0 / 32	-	-	0.066 - 59	0.34 - 59	ug/kg		-
Pesticides	Endrin Aldehyde	7421-93-4	8081A	7 / 32	0.086 J Z	0.99 J S	0.066 - 28	0.34 - 34	ug/kg	SL-017-SA5DS	0 - 0.5
Pesticides	Endrin Ketone	53494-70-5	8081A	1 / 32	0.097 J Z	0.097 J Z	0.067 - 6.7	0.34 - 34	ug/kg	SL-022-SA5DS	0 - 0.5
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	5 / 32	0.038 J FD, Z	0.18	0.034 - 3.4	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	1 / 32	0.077 J Z	0.077 J Z	0.06 - 6.1	0.17 - 17	ug/kg	SL-016-SA5DS	0 - 0.5
Pesticides	Heptachlor Epoxide	1024-57-3	8081A	0 / 32	-	-	0.034 - 83	0.17 - 83	ug/kg		-
Pesticides	Methoxychlor	72-43-5	8081A	1 / 32	0.81 J Z	0.81 J Z	0.34 - 34	1.7 - 170	ug/kg	SL-032-SA5DS	0 - 0.5
Pesticides	Mirex	2385-85-5	8081A	0 / 32	-	-	0.067 - 31	0.34 - 34	ug/kg		-
Pesticides	Toxaphene	8001-35-2	8081A	4 / 32	2.6 J Z	15	2.2 - 1400	6.7 - 1400	ug/kg	SL-002-SA5DS	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 31	-	-	4.4 - 4.6	9 - 9.4	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	8 / 31	1.7 J Z	8.8	0.62 - 100	1.7 - 100	ug/kg	SL-022-SA5DS	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	4 / 31	0.15 J Z	1.9	0.082 - 0.85	0.17 - 0.85	ug/kg	SL-024-SA5DS	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	15 / 31	0.09 J Z	0.78	0.075 - 0.25	0.17 - 0.25	ug/kg	SL-025-SA5DS	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	1 / 31	4.2	4.2	1.2 - 3.6	3.6 - 3.8	ug/kg	SL-022-SA5DS	0 - 0.5

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Pesticides	Dicamba	1918-00-9	8151A	1 / 31	0.61 J Z	0.61 J Z	0.4 - 0.97	1.2 - 1.3	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	2 / 31	1 J Z	1.6 J Z	0.8 - 1.3	1.7 - 1.8	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	1 / 31	0.86 J L, Z	0.86 J L, Z	0.8 - 0.84	2.4 - 2.5	ug/kg	SL-026-SA5DS	0 - 0.5
Pesticides	MCPA	94-74-6	8151A	2 / 31	120 J Z	870	76 - 170	250 - 260	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	0 / 31	-	-	75 - 130	250 - 260	ug/kg		-
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 32	-	-	330 - 17000	1000 - 50000	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 32	-	-	100 - 5000	330 - 17000	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 32	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 32	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 32	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Benzidine	92-87-5	8270C	0 / 32	-	-	1200 - 58000	3300 - 170000	ug/kg		-
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	1 / 1	1400 J Z	1400 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	1 / 1	1400 J Z	1400 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	1 / 1	1100 J Z	1100 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	3 / 3	18 J Z	19 J Z	17 - 17	340 - 340	ug/kg	SL-005-SA5DS	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C	1 / 1	1500 J Z	1500 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Fluoranthene	206-44-0	8270C	2 / 2	36 J Z	1100 J Z	17 - 830	170 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 32	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Isophorone	78-59-1	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 32	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 32	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	1 / 1	35 J Z	35 J Z	17 - 17	170 - 170	ug/kg	SL-001-SA5DS	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	4 / 32	18 J Z	20 J Z	17 - 830	170 - 8300	ug/kg	SL-031-SA5DS	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C	2 / 2	24 J Z	1300 J Z	17 - 830	170 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	2 / 32	0.78 J Z	0.84 J Z	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-032-SA5DS	0 - 0.5
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	4 / 32	0.7 J Z	1.2 J Z	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-004-SA5DS	0 - 0.5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	1 / 32	11	11	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	2 / 32	0.48 J Z	2.9	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Anthracene	120-12-7	8270C SIM	2 / 32	0.57 J Z	25	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	16 / 32	0.68 J Z	180	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	21 / 31	0.74 J Z	6.8	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-032-SA5DS	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	29 / 31	0.96 J Z	34	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-027-SA5DS	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	9 / 31	0.68 J Z	1.4 J Z	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-025-SA5DS	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	7 / 32	0.72 J Z	150	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	24 / 29	6.5 J Z	130	6 - 30	18 - 90	ug/kg	SL-014-SA5DS	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	9 / 32	6.6 J Z	200	6 - 30	18 - 90	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	28 / 31	0.36 J Z	20	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-027-SA5DS	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	2 / 32	1 J Z	27	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	0 / 32	-	-	6 - 30	18 - 90	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 32	-	-	6 - 30	18 - 90	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	0 / 32	-	-	6 - 30	18 - 90	ug/kg		-
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	5 / 32	6.9 J FD, Z	25	6 - 30	18 - 90	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	24 / 30	0.86 J Z	12	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-032-SA5DS	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	5 / 32	0.81 J Z	6.7	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	10 / 32	0.67 J Z	78	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	19 / 32	0.69 J Z	3.5	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-004-SA5DS	0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 32	-	-	0.66 - 3.3	1.7 - 8.4	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	22 / 31	0.75 J Z	99	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	25 / 30	0.82 J Z	12	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-032-SA5DS	0 - 0.5

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limit

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration

L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Fluoride	16984-48-8	300	27 / 27	1.2 J Q	25 J Q	0.85 - 0.96	1.1 - 1.2	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Nitrate	14797-55-8	300	3 / 3	3	3.6	0.85 - 0.9	1.6 - 1.7	mg/kg	SL-010-SA5DS	2 - 3
Inorganic	Perchlorate	14797-73-0	314	0 / 27	-	-	9.5 - 10.6	31.7 - 35.5	ug/kg		-
Inorganic	Perchlorate	14797-73-0	6850	1 / 3	4.1 J L, Z	4.1 J L, Z	2.3 - 2.3	5.4 - 5.5	ug/kg	SL-028-SA5DS	1.9 - 2.9
Inorganic	Chromium VI	18540-29-9	7199	17 / 27	0.23 J Z	3.2	0.21 - 0.24	1.1 - 1.2	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Percent Moisture	MOIST	160.3M	27 / 27	5.3	15.4	0.5 - 0.5	0.5 - 0.5	%	SL-037-SA5DS	9 - 10
Inorganic	Mercury	7439-97-6	7471A	2 / 27	0.0091 J Z	0.0157 J Z	0.007 - 0.0079	0.0994 - 0.112	mg/kg	SL-021-SA5DS	2 - 3
Inorganic	Cyanide	57-12-5	9012B	0 / 3	-	-	0.19 - 0.19	0.52 - 0.54	mg/kg		-
Inorganic	pH	pH	9045M	27 / 27	5.9	8.59	0.01 - 0.01	0.01 - 0.01	pH unit	SL-039-SA5DS	3 - 4
Inorganic	Antimony	7440-36-0	6020	18 / 27	0.0827 J Q, Z	0.378 J Q	0.0747 - 0.204	0.202 - 0.55	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Arsenic	7440-38-2	6020	27 / 27	4.26	10.4	0.0808 - 0.22	0.404 - 1.1	mg/kg	SL-036-SA5DS	4 - 5
Inorganic	Barium	7440-39-3	6020	27 / 27	38.2 J E	199 J A	0.107 - 0.292	0.404 - 1.1	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Beryllium	7440-41-7	6020	27 / 27	0.469 J E, Q	1.27	0.0162 - 0.044	0.101 - 0.275	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Cadmium	7440-43-9	6020	26 / 27	0.0551 J Z	0.214	0.0444 - 0.121	0.101 - 0.275	mg/kg	SL-002-SA5DS	1.8 - 2.8
Inorganic	Chromium	7440-47-3	6020	27 / 27	27.9 J Q, A	51.3 J Q, E	0.121 - 0.33	0.404 - 1.1	mg/kg	SL-005-SA5DS	1 - 2
Inorganic	Cobalt	7440-48-4	6020	27 / 27	3.85 J E	25.6	0.0202 - 0.055	0.101 - 0.275	mg/kg	SL-034-SA5DS	9 - 10
Inorganic	Copper	7440-50-8	6020	27 / 27	3.83 J Q, E	32.6 J A	0.0808 - 0.22	0.404 - 1.1	mg/kg	SL-036-SA5DS	4 - 5
Inorganic	Lead	7439-92-1	6020	27 / 27	4.57 J E	17.3 J Q, A	0.0103 - 0.0281	0.202 - 0.55	mg/kg	SL-036-SA5DS	4 - 5
Inorganic	Molybdenum	7439-98-7	6020	24 / 27	0.165	0.872	0.0505 - 0.138	0.101 - 0.275	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Nickel	7440-02-0	6020	27 / 27	9.74 J Q, E	30.5 J A	0.101 - 0.275	0.404 - 1.1	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Selenium	7782-49-2	6020	27 / 27	0.103 J E, Z	0.344 J Z	0.0586 - 0.0672	0.404 - 0.464	mg/kg	SL-026-SA5DS	9 - 10
Inorganic	Silver	7440-22-4	6020	22 / 27	0.0159 J Q, E, Z	0.0479 J Z	0.0143 - 0.0391	0.101 - 0.275	mg/kg	SL-037-SA5DS	4 - 5
Inorganic	Thallium	7440-28-0	6020	27 / 27	0.101 J Q, E, Z	0.594	0.0303 - 0.0826	0.101 - 0.275	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Vanadium	7440-62-2	6020	27 / 27	56.7 J A	99.3 J E	0.0222 - 0.0605	0.101 - 0.275	mg/kg	SL-034-SA5DS	4 - 5
Inorganic	Zinc	7440-66-6	6020	27 / 27	37.3 J Q, E	109	0.566 - 1.54	3.03 - 8.26	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Aluminum	7429-90-5	6010B	27 / 27	14800	40000	6.2 - 6.94	20.5 - 23	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Boron	7440-42-8	6010B	21 / 27	2 J Z	20	0.369 - 0.413	5.13 - 5.74	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Calcium	7440-70-2	6010B	27 / 27	2690	34600	2.56 - 2.87	20.5 - 23	mg/kg	SL-038-SA5DS	4 - 5
Inorganic	Iron	7439-89-6	6010B	27 / 27	23800	44600 J Q	2.68 - 14.9	20.5 - 114	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Lithium	7439-93-2	6010B	27 / 27	13	52.9	0.64 - 0.71	2.1 - 2.3	mg/kg	SL-026-SA5DS	9 - 10
Inorganic	Magnesium	7439-95-4	6010B	27 / 27	3710	10700	0.451 - 0.505	10.3 - 11.5	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Manganese	7439-96-5	6010B	27 / 27	164	3560	0.0369 - 0.189	0.513 - 2.62	mg/kg	SL-021-SA5DS	2 - 3
Inorganic	Phosphorus	7723-14-0	6010B	27 / 27	152	868	0.359 - 0.402	10.3 - 11.5	mg/kg	SL-005-SA5DS	1 - 2
Inorganic	Potassium	9-7-7440	6010B	27 / 27	1160	6250 J Q	11.6 - 13	51.3 - 57.4	mg/kg	SL-026-SA5DS	9 - 10
Inorganic	Sodium	7440-23-5	6010B	27 / 27	85.6 J Z	903	6.1 - 6.83	103 - 115	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Strontium	7440-24-6	6010B	27 / 27	17.7	91	0.0256 - 0.0287	0.513 - 0.574	mg/kg	SL-039-SA5DS	3 - 4
Inorganic	Tin	7440-31-5	6010B	1 / 27	22	22	0.328 - 0.367	10.3 - 11.5	mg/kg	SL-028-SA5DS	1.9 - 2.9
Inorganic	Titanium	7440-32-6	6010B	27 / 27	827	1870	0.0728 - 0.0815	1.03 - 1.15	mg/kg	SL-034-SA5DS	9 - 10
Inorganic	Zirconium	7440-67-7	6010B	27 / 27	4.05 J Z	15	0.472 - 0.528	5.13 - 5.74	mg/kg	SL-010-SA5DS	2 - 3
Misc. Organics	2-Propanol	67-63-0	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	0 / 3	-	-	630 - 670	1600 - 1700	ug/kg		-
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 3	-	-	83 - 89	250 - 270	ug/kg		-

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 3	-	-	83 - 89	250 - 270	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 3	-	-	83 - 89	120 - 130	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 3	-	-	100 - 110	120 - 130	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 3	-	-	62 - 67	120 - 130	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 3	-	-	83 - 89	120 - 130	ug/kg		-
Misc. Organics	HMX	2691-41-0	8330A	0 / 3	-	-	100 - 110	310 - 330	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 3	-	-	830 - 890	2500 - 2700	ug/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 3	-	-	830 - 890	2500 - 2700	ug/kg		-
Misc. Organics	RDX	121-82-4	8330A	0 / 3	-	-	52 - 56	120 - 130	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 3	-	-	64 - 68	120 - 130	ug/kg		-
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	5 / 27	0.65 J L, Z	9.8 J S	0.35 - 0.39	1.8 - 2	ug/kg	SL-029-SA5DS	3.5 - 4.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	1 / 27	0.95 J Z	0.95 J Z	0.41 - 0.46	1.8 - 2	ug/kg	SL-028-SA5DS	1.9 - 2.9
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 27	-	-	0.35 - 0.39	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 27	-	-	1.1 - 1.2	3.5 - 3.9	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 27	-	-	1.1 - 1.2	3.5 - 3.9	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	0 / 27	-	-	1.1 - 1.2	3.5 - 3.9	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	0 / 27	-	-	0.0181 - 0.0359	5.21 - 5.83	ng/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	0 / 27	-	-	0.00919 - 0.0171	5.21 - 5.83	ng/kg		-
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	0 / 27	-	-	0.0134 - 0.0234	5.21 - 5.83	ng/kg		-
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	4 / 27	0.0219 J Z	0.03 J Z	0.0171 - 0.0364	5.21 - 5.83	ng/kg	SL-010-SA5DS	2 - 3
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	6 / 27	0.0316 J Z	0.145 J Z	0.0115 - 0.0264	5.21 - 5.83	ng/kg	SL-028-SA5DS	1.9 - 2.9
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	14 / 27	0.023 J Z	0.286 J Z	0.0171 - 0.0369	5.21 - 5.83	ng/kg	SL-036-SA5DS	9 - 10
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	3 / 27	0.117 J Z	0.281 J Z	0.00986 - 0.0235	5.21 - 5.83	ng/kg	SL-036-SA5DS	4 - 5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	11 / 27	0.0841 J Z	0.69 J Z	0.0171 - 0.036	5.21 - 5.83	ng/kg	SL-036-SA5DS	9 - 10
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	4 / 27	0.222 J Z	0.725 J Z	0.012 - 0.0258	5.21 - 5.83	ng/kg	SL-036-SA5DS	9 - 10
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	8 / 27	0.0265 J Z	0.391 J Z	0.0207 - 0.045	5.21 - 5.83	ng/kg	SL-036-SA5DS	4 - 5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	6 / 27	0.0832 J Z	0.479 J Z	0.00997 - 0.0343	5.21 - 5.83	ng/kg	SL-036-SA5DS	4 - 5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	0 / 27	-	-	0.00986 - 0.0213	5.21 - 5.83	ng/kg		-
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	2 / 27	0.285 J Z	0.357 J Z	0.00954 - 0.032	5.21 - 5.83	ng/kg	SL-036-SA5DS	4 - 5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	7 / 27	0.0258 J Z	0.114 J Z	0.0243 - 0.0568	1.04 - 1.17	ng/kg	SL-037-SA5DS	4 - 5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	12 / 27	0.0249 J Z	0.242 J Z	0.0187 - 0.0688	1.04 - 1.17	ng/kg	SL-028-SA5DS	1.9 - 2.9
PCBs and Dioxins	OCDD	3268-87-9	1613B	9 / 27	1.92 J Z	6.06 J Z	0.0194 - 0.0418	10.4 - 11.7	ng/kg	SL-005-SA5DS	1 - 2
PCBs and Dioxins	OCDF	39001-02-0	1613B	0 / 27	-	-	0.0233 - 0.0579	10.4 - 11.7	ng/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	0 / 3	-	-	17.6 - 18.4	35.2 - 36.8	ng/kg		-
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 27	-	-	350 - 390	1000 - 1200	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 27	-	-	100 - 120	350 - 390	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 27	-	-	69 - 78	170 - 190	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 27	-	-	35 - 39	170 - 190	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 27	-	-	69 - 78	170 - 190	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	Benzidine	92-87-5	8270C	0 / 27	-	-	1200 - 1400	3500 - 3900	ug/kg		-
Semivolatiles	Benzoic Acid	65-85-0	8270C	3 / 27	200 J Z	1200	170 - 190	520 - 580	ug/kg	SL-013-SA5DS	4 - 5
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	1 / 1	27 J Z	27 J Z	19 - 19	390 - 390	ug/kg	SL-037-SA5DS	9 - 10
Semivolatiles	Carbazole	86-74-8	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 27	-	-	69 - 78	170 - 190	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Isophorone	78-59-1	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 27	-	-	170 - 190	520 - 580	ug/kg		-
Semivolatiles	Phenol	108-95-2	8270C	0 / 27	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	0 / 27	-	-	0.69 - 0.79	1.7 - 2	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	0 / 27	-	-	0.69 - 0.79	1.7 - 2	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	1 / 27	1 J S, Z	1 J S, Z	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	1 / 27	0.9 J S, Z	0.9 J S, Z	0.35 - 0.39	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Anthracene	120-12-7	8270C SIM	4 / 27	0.43 J Z	11 J S	0.35 - 0.39	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	2 / 27	2.6	15 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	2 / 27	2.3	12 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	4 / 27	0.72 J Z	13 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	2 / 27	1.8	10 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	2 / 27	2.8	13 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	16 / 26	7.1 J Z	27 J S	6.2 - 6.9	19 - 21	ug/kg	SL-022-SA5DS	4 - 5

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	5 / 27	8.5 J Z	17 J S, Z	6.2 - 7.1	19 - 21	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Chrysene	218-01-9	8270C SIM	6 / 27	0.53 J Z	14 J S	0.35 - 0.39	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	2 / 27	1.7 J Z	11 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	1 / 27	10 J S, Z	10 J S, Z	6.2 - 7.1	19 - 21	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	1 / 27	6.3 J S, Z	6.3 J S, Z	6.2 - 7.1	19 - 21	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	5 / 27	7.7 J Z	19 J S	6.2 - 7.1	19 - 21	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	2 / 27	9.5 J Z	18 J S, Z	6.2 - 7.1	19 - 21	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	4 / 27	0.89 J Z	15 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Fluorene	86-73-7	8270C SIM	2 / 27	0.71 J Z	4.1 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	2 / 27	1.7 J Z	11 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	1 / 27	0.83 J Z	0.83 J Z	0.69 - 0.79	1.7 - 2	ug/kg	SL-031-SA5DS	9 - 10
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 27	-	-	0.69 - 0.79	1.7 - 2	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	3 / 27	0.85 J Z	10 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Pyrene	129-00-0	8270C SIM	4 / 27	0.73 J Z	12 J S	0.69 - 0.79	1.7 - 2	ug/kg	SL-022-SA5DS	4 - 5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	2 / 3	1.2 J Z	3.3	0.42 - 0.45	1.3 - 1.3	mg/kg	SL-005-SA5DS	1 - 2
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	3 / 3	1.6	8.5	0.42 - 0.45	1.3 - 1.3	mg/kg	SL-005-SA5DS	1 - 2
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	GRO (C5-C12)	GROC5C12	8015M	0 / 3	-	-	0.2 - 0.4	1.2 - 2.2	mg/kg		-

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limi

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Inorganic	Fluoride	16984-48-8	300	48 / 59	0.93 J Q, Z	25 J Q	0.79 - 0.96	0.99 - 1.2	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Nitrate	14797-55-8	300	3 / 3	3	3.6	0.85 - 0.9	1.6 - 1.7	mg/kg	SL-010-SA5DS	2 - 3
Inorganic	Perchlorate	14797-73-0	6850	2 / 6	2.3 J Z	4.1 J L, Z	2.1 - 2.3	5.1 - 5.5	ug/kg	SL-028-SA5DS	1.89999998 - 2.9
Inorganic	Perchlorate	14797-73-0	314	1 / 59	683	683	9.1 - 10.6	30.2 - 35.5	ug/kg	SL-016-SA5DS	0 - 0.5
Inorganic	Mercury	7439-97-6	7471A	20 / 59	0.0074 J Z	0.0877 J Z	0.0066 - 0.0079	0.0945 - 0.112	mg/kg	SL-038-SA5DS	0 - 0.5
Inorganic	Cyanide	57-12-5	9012B	0 / 3	-	-	0.19 - 0.19	0.52 - 0.54	mg/kg		-
Inorganic	Chromium VI	18540-29-9	7199	37 / 59	0.21 J Z	3.2	0.19 - 0.24	0.97 - 1.2	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Percent Moisture	MOIST	160.3M	59 / 59	0.56	15.4	0.5 - 0.5	0.5 - 0.5	%	SL-037-SA5DS	9 - 10
Inorganic	pH	pH	9045M	59 / 59	5.66	8.59	0.01 - 0.01	0.01 - 0.01	pH unit	SL-039-SA5DS	3 - 4
Inorganic	Antimony	7440-36-0	6020	50 / 59	0.0827 J Q, Z	0.436 J Q	0.0715 - 0.204	0.193 - 0.55	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	59 / 59	2.8 J Q	10.4	0.0774 - 0.22	0.387 - 1.1	mg/kg	SL-036-SA5DS	4 - 5
Inorganic	Barium	7440-39-3	6020	59 / 59	38.2 J E	199 J A	0.102 - 0.292	0.387 - 1.1	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Beryllium	7440-41-7	6020	59 / 59	0.243	1.27	0.0155 - 0.044	0.0967 - 0.275	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Cadmium	7440-43-9	6020	58 / 59	0.0551 J Z	0.362 J Q	0.0425 - 0.121	0.0967 - 0.275	mg/kg	SL-028-SA5DS	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	59 / 59	16.6 J Q	68.5 J A	0.116 - 0.33	0.387 - 1.1	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	59 / 59	3.85 J E	25.6	0.0193 - 0.055	0.0967 - 0.275	mg/kg	SL-034-SA5DS	9 - 10
Inorganic	Copper	7440-50-8	6020	59 / 59	3.69	32.6 J A	0.0774 - 0.22	0.387 - 1.1	mg/kg	SL-036-SA5DS	4 - 5
Inorganic	Lead	7439-92-1	6020	59 / 59	4.57 J E	40.1 J A	0.0099 - 0.0281	0.193 - 0.55	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	56 / 59	0.165	0.872	0.0483 - 0.138	0.0967 - 0.275	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Nickel	7440-02-0	6020	59 / 59	9.08	34.2 J Q, A	0.0967 - 0.275	0.387 - 1.1	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	59 / 59	0.0809 J Z	0.515 J Q	0.0561 - 0.0672	0.387 - 0.464	mg/kg	SL-032-SA5DS	0 - 0.5
Inorganic	Silver	7440-22-4	6020	54 / 59	0.0152 J Z	0.351 J Q	0.0137 - 0.0391	0.0967 - 0.275	mg/kg	SL-028-SA5DS	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	59 / 59	0.101 J Q, E, Z	0.616 J Q	0.029 - 0.0826	0.0967 - 0.275	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	59 / 59	34.9	136 J A	0.0213 - 0.0605	0.0967 - 0.275	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	59 / 59	37.3 J Q, E	138 J A	0.541 - 1.54	2.9 - 8.26	mg/kg	SL-030-SA5DS SL-031-SA5DS	0 - 0.5 0 - 0.5
Inorganic	Aluminum	7429-90-5	6010B	59 / 59	9970	40000	5.91 - 6.94	19.5 - 23	mg/kg	SL-037-SA5DS	9 - 10
Inorganic	Boron	7440-42-8	6010B	53 / 59	2 J Z	20	0.351 - 0.413	4.88 - 5.74	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Calcium	7440-70-2	6010B	59 / 59	2690	34600	2.44 - 2.87	19.5 - 23	mg/kg	SL-038-SA5DS	4 - 5
Inorganic	Iron	7439-89-6	6010B	59 / 59	17900	44600 J Q	2.55 - 14.9	19.5 - 114	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Lithium	7439-93-2	6010B	59 / 59	13	55.1	0.61 - 0.71	2 - 2.3	mg/kg	SL-029-SA5DS	0 - 0.5
Inorganic	Magnesium	7439-95-4	6010B	59 / 59	3710	10700	0.43 - 0.505	9.76 - 11.5	mg/kg	SL-031-SA5DS	9 - 10
Inorganic	Manganese	7439-96-5	6010B	59 / 59	164	3560	0.0351 - 0.189	0.488 - 2.62	mg/kg	SL-021-SA5DS	2 - 3
Inorganic	Phosphorus	7723-14-0	6010B	59 / 59	152	878	0.342 - 0.402	9.76 - 11.5	mg/kg	SL-001-SA5DS	0 - 0.5
Inorganic	Potassium	9-7-7440	6010B	59 / 59	1160	7340	11 - 13	48.8 - 57.4	mg/kg	SL-030-SA5DS	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	59 / 59	69.5 J Z	903	5.81 - 6.83	97.6 - 115	mg/kg	SL-040-SA5DS	4 - 5
Inorganic	Strontium	7440-24-6	6010B	59 / 59	10.8	91	0.0244 - 0.0287	0.488 - 0.574	mg/kg	SL-039-SA5DS	3 - 4
Inorganic	Tin	7440-31-5	6010B	1 / 59	22	22	0.312 - 0.367	9.76 - 11.5	mg/kg	SL-028-SA5DS	1.89999998 - 2.9
Inorganic	Titanium	7440-32-6	6010B	59 / 59	750	1870	0.0693 - 0.0815	0.976 - 1.15	mg/kg	SL-034-SA5DS	9 - 10
Inorganic	Zirconium	7440-67-7	6010B	58 / 59	0.97 J Z	15	0.449 - 0.528	4.88 - 5.74	mg/kg	SL-010-SA5DS	2 - 3
Misc. Organics	2-Propanol	67-63-0	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	0 / 3	-	-	110 - 110	530 - 560	ug/kg		-
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	0 / 3	-	-	1.6 - 1.7	3.7 - 3.9	mg/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 3	-	-	5.3 - 5.6	11 - 11	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	0 / 3	-	-	630 - 670	1600 - 1700	ug/kg		-
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 3	-	-	83 - 89	250 - 270	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 3	-	-	83 - 89	250 - 270	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 3	-	-	83 - 89	120 - 130	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 3	-	-	100 - 110	120 - 130	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 3	-	-	62 - 67	120 - 130	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 3	-	-	83 - 89	120 - 130	ug/kg		-
Misc. Organics	HMX	2691-41-0	8330A	0 / 3	-	-	100 - 110	310 - 330	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 3	-	-	42 - 45	120 - 130	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 3	-	-	830 - 890	2500 - 2700	ug/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 3	-	-	830 - 890	2500 - 2700	ug/kg		-
Misc. Organics	RDX	121-82-4	8330A	0 / 3	-	-	52 - 56	120 - 130	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 3	-	-	64 - 68	120 - 130	ug/kg		-
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	1 / 59	0.72 J Z	0.72 J Z	0.33 - 33	1.7 - 170	ug/kg	SL-038-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	30 / 59	0.51 J Z	1500	0.33 - 33	1.7 - 170	ug/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	20 / 59	0.52 J Z	9.3 J S	0.39 - 40	1.7 - 170	ug/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 59	-	-	0.33 - 33	1.7 - 170	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 59	-	-	1 - 100	3.3 - 330	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 59	-	-	1 - 100	3.3 - 330	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	20 / 59	1.2 J Z	5.9 J S	1 - 100	3.3 - 330	ug/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	31 / 59	0.444 J Z	13.6	0.0181 - 0.373	4.83 - 49.2	ng/kg	SL-001-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	26 / 59	0.542 J Z	5.02 J Z	0.00919 - 0.315	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	7 / 59	0.128 J Z	4.1 J Z	0.0134 - 0.32	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	31 / 59	0.0219 J Z	0.341 J Z	0.0171 - 0.285	4.83 - 49.2	ng/kg	SL-040-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	29 / 59	0.0316 J Z	11.3 J Z	0.0115 - 0.498	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	42 / 59	0.023 J Z	1.02 J Z	0.0171 - 0.283	4.83 - 49.2	ng/kg	SL-017-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	22 / 59	0.111 J Z	3.91 J Z	0.00986 - 0.433	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	39 / 59	0.0841 J Z	1.32 J Z	0.0171 - 0.277	4.83 - 49.2	ng/kg	SL-006-SA5DS SL-010-SA5DS	0 - 0.5 0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	32 / 59	0.0578 J Z	3.86 J Z	0.012 - 0.406	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	35 / 59	0.0265 J Z	0.412 J Z	0.0207 - 0.401	4.83 - 49.2	ng/kg	SL-004-SA5DS	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	34 / 59	0.0832 J Z	3.87 J Z	0.00997 - 0.442	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	19 / 59	0.0401 J Z	4.4 J Z	0.00986 - 0.379	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	19 / 59	0.228 J Z	9.93 J Z	0.00954 - 0.396	4.83 - 49.2	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	18 / 59	0.0258 J Z	0.148 J Z	0.0243 - 0.426	0.967 - 9.85	ng/kg	SL-004-SA5DS	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	41 / 59	0.0249 J Z	1.1 J Z	0.0187 - 0.791	0.967 - 9.85	ng/kg	SL-026-SA5DS	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	41 / 59	1.92 J Z	146	0.0176 - 0.406	9.67 - 98.5	ng/kg	SL-014-SA5DS	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	31 / 59	0.613 J Z	8.98 J Z	0.0227 - 0.436	9.67 - 98.5	ng/kg	SL-026-SA5DS	0 - 0.5
Pesticides	4,4'-DDD	72-54-8	8081A	0 / 32	-	-	0.066 - 6.7	0.34 - 34	ug/kg		-
Pesticides	4,4'-DDE	72-55-9	8081A	19 / 32	0.1 J FD, Z	2.8	0.066 - 270	0.34 - 270	ug/kg	SL-002-SA5DS	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	19 / 32	0.22 J FD, Z	7	0.066 - 33	0.34 - 170	ug/kg	SL-028-SA5DS	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	0 / 32	-	-	0.066 - 6.7	0.17 - 17	ug/kg		-
Pesticides	Alpha-BHC	319-84-6	8081A	2 / 32	0.076 J Z	0.09 J Z	0.034 - 3.4	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Beta-BHC	319-85-7	8081A	4 / 32	0.078 J Z	0.14 J Z	0.06 - 6.1	0.17 - 17	ug/kg	SL-002-SA5DS	0 - 0.5

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Pesticides	Chlordane	57-74-9	8081A	25 / 32	0.9 J FD, Z	10 J Z	0.81 - 510	3.4 - 510	ug/kg	SL-028-SA5DS	0 - 0.5
Pesticides	Delta-BHC	319-86-8	8081A	6 / 32	0.038 J Z	0.35	0.036 - 3.7	0.17 - 17	ug/kg	SL-029-SA5DS	0 - 0.5
Pesticides	Dieldrin	60-57-1	8081A	0 / 32	-	-	0.067 - 50	0.34 - 50	ug/kg		-
Pesticides	Endosulfan I	959-98-8	8081A	1 / 32	0.089 J Z	0.089 J Z	0.044 - 4.5	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	1 / 32	0.4	0.4	0.067 - 46	0.34 - 46	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	0 / 32	-	-	0.066 - 6.7	0.34 - 34	ug/kg		-
Pesticides	Endrin	72-20-8	8081A	0 / 32	-	-	0.066 - 59	0.34 - 59	ug/kg		-
Pesticides	Endrin Aldehyde	7421-93-4	8081A	7 / 32	0.086 J Z	0.99 J S	0.066 - 28	0.34 - 34	ug/kg	SL-017-SA5DS	0 - 0.5
Pesticides	Endrin Ketone	53494-70-5	8081A	1 / 32	0.097 J Z	0.097 J Z	0.067 - 6.7	0.34 - 34	ug/kg	SL-022-SA5DS	0 - 0.5
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	5 / 32	0.038 J FD, Z	0.18	0.034 - 3.4	0.17 - 17	ug/kg	SL-030-SA5DS	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	1 / 32	0.077 J Z	0.077 J Z	0.06 - 6.1	0.17 - 17	ug/kg	SL-016-SA5DS	0 - 0.5
Pesticides	Heptachlor Epoxide	1024-57-3	8081A	0 / 32	-	-	0.034 - 83	0.17 - 83	ug/kg		-
Pesticides	Methoxychlor	72-43-5	8081A	1 / 32	0.81 J Z	0.81 J Z	0.34 - 34	1.7 - 170	ug/kg	SL-032-SA5DS	0 - 0.5
Pesticides	Mirex	2385-85-5	8081A	0 / 32	-	-	0.067 - 31	0.34 - 34	ug/kg		-
Pesticides	Toxaphene	8001-35-2	8081A	4 / 32	2.6 J Z	15	2.2 - 1400	6.7 - 1400	ug/kg	SL-002-SA5DS	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 31	-	-	4.4 - 4.6	9 - 9.4	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	8 / 31	1.7 J Z	8.8	0.62 - 100	1.7 - 100	ug/kg	SL-022-SA5DS	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	4 / 31	0.15 J Z	1.9	0.082 - 0.85	0.17 - 0.85	ug/kg	SL-024-SA5DS	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	15 / 31	0.09 J Z	0.78	0.075 - 0.25	0.17 - 0.25	ug/kg	SL-025-SA5DS	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	1 / 31	4.2	4.2	1.2 - 3.6	3.6 - 3.8	ug/kg	SL-022-SA5DS	0 - 0.5
Pesticides	Dicamba	1918-00-9	8151A	1 / 31	0.61 J Z	0.61 J Z	0.4 - 0.97	1.2 - 1.3	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	2 / 31	1 J Z	1.6 J Z	0.8 - 1.3	1.7 - 1.8	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	1 / 31	0.86 J L, Z	0.86 J L, Z	0.8 - 0.84	2.4 - 2.5	ug/kg	SL-026-SA5DS	0 - 0.5
Pesticides	MCPA	94-74-6	8151A	2 / 31	120 J Z	870	76 - 170	250 - 260	ug/kg	SL-038-SA5DS	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	0 / 31	-	-	75 - 130	250 - 260	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	0 / 3	-	-	17.6 - 18.4	35.2 - 36.8	ng/kg		-
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 59	-	-	330 - 17000	1000 - 50000	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 59	-	-	100 - 5000	330 - 17000	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 59	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 59	-	-	33 - 1700	170 - 8300	ug/kg		-

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 59	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Benzidine	92-87-5	8270C	0 / 59	-	-	1200 - 58000	3300 - 170000	ug/kg		-
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	1 / 1	1400 J Z	1400 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	1 / 1	1400 J Z	1400 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	1 / 1	1100 J Z	1100 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	3 / 59	200 J Z	1200	170 - 8300	500 - 25000	ug/kg	SL-013-SA5DS	4 - 5
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	4 / 4	18 J Z	27 J Z	17 - 19	340 - 390	ug/kg	SL-037-SA5DS	9 - 10
Semivolatiles	Carbazole	86-74-8	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C	1 / 1	1500 J Z	1500 J Z	830 - 830	8300 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Fluoranthene	206-44-0	8270C	2 / 2	36 J Z	1100 J Z	17 - 830	170 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 59	-	-	66 - 3300	170 - 8300	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Isophorone	78-59-1	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 59	-	-	17 - 830	170 - 8300	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 59	-	-	170 - 8300	500 - 25000	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	1 / 1	35 J Z	35 J Z	17 - 17	170 - 170	ug/kg	SL-001-SA5DS	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	4 / 59	18 J Z	20 J Z	17 - 830	170 - 8300	ug/kg	SL-031-SA5DS	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C	2 / 2	24 J Z	1300 J Z	17 - 830	170 - 8300	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	2 / 59	0.78 J Z	0.84 J Z	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-032-SA5DS	0 - 0.5
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	4 / 59	0.7 J Z	1.2 J Z	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-004-SA5DS	0 - 0.5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	2 / 59	1 J S, Z	11	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	3 / 59	0.48 J Z	2.9	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Anthracene	120-12-7	8270C SIM	6 / 59	0.43 J Z	25	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	18 / 59	0.68 J Z	180	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	23 / 58	0.74 J Z	12 J S	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	33 / 58	0.72 J Z	34	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-027-SA5DS	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	11 / 58	0.68 J Z	10 J S	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	9 / 59	0.72 J Z	150	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	40 / 55	6.5 J Z	130	6 - 30	18 - 90	ug/kg	SL-014-SA5DS	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	14 / 59	6.6 J Z	200	6 - 30	18 - 90	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	34 / 58	0.36 J Z	20	0.33 - 1.7	1.7 - 8.4	ug/kg	SL-027-SA5DS	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	4 / 59	1 J Z	27	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	1 / 59	10 J S, Z	10 J S, Z	6 - 30	18 - 90	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	1 / 59	6.3 J S, Z	6.3 J S, Z	6 - 30	18 - 90	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	5 / 59	7.7 J Z	19 J S	6 - 30	18 - 90	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	7 / 59	6.9 J FD, Z	25	6 - 30	18 - 90	ug/kg	SL-030-SA5DS	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	28 / 57	0.86 J Z	15 J S	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-022-SA5DS	4 - 5
Semivolatiles	Fluorene	86-73-7	8270C SIM	7 / 59	0.71 J Z	6.7	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	12 / 59	0.67 J Z	78	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Naphthalene	91-20-3	8270C SIM	20 / 59	0.69 J Z	3.5	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-004-SA5DS	0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 59	-	-	0.66 - 3.3	1.7 - 8.4	ug/kg		-

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils - HSA - 5D South

Group	Chemical	CAS No	Analytic Method	Detection Frequency	Minimum Concentration	Maximum Concentration	Range of Method Detection Limit	Range of Method Reporting Limit	Unit	Location of Maximum Concentration	Depth of Maximum Concentration
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	25 / 58	0.75 J Z	99	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-026-SA5DS	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	29 / 57	0.73 J Z	12 J S	0.66 - 3.3	1.7 - 8.4	ug/kg	SL-022-SA5DS SL-032-SA5DS	4 - 5 0 - 0.5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	2 / 3	1.2 J Z	3.3	0.42 - 0.45	1.3 - 1.3	mg/kg	SL-005-SA5DS	1 - 2
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	3 / 3	1.6	8.5	0.42 - 0.45	1.3 - 1.3	mg/kg	SL-005-SA5DS	1 - 2
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	0 / 3	-	-	0.42 - 0.45	1.3 - 1.3	mg/kg		-
Volatiles	GRO (C5-C12)	GROC5C12	8015M	0 / 3	-	-	0.2 - 0.4	1.2 - 2.2	mg/kg		-

ug/kg- microgram per kilogram
mg/kg - milligram per kilogram
ng/kg - nanogram per kilogram
J - Result is an estimated value
H - Holding times exceeded
S - Surrogates outside of criteria
C - Calibration recoveries outside of criteria
R - Calibration relative response factors outside of criteria
B - Method blank contamination
L - Laboratory control sample recoveries outside of criteria
Q - Matrix spike recoveries outside of criteria
E - Laboratory control sample and or matrix spike relative percent differences outside of criteria
I - Internal standards outside of criteria
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limi

Section 4
Data Usability Assessment

The purpose of the DUAR provided in Appendix C and summarized here is to: (1) describe the data validation processes performed on the data sets and (2) determine whether the sample results meet the data quality objectives (DQOs) outlined in the *Master Work Plan/Field Sampling and Analysis Plan Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (CDM 2011a).

4.1 Usability Summary

For the Subareas 5D North and 5D South data usability assessment, 117 data sets, or SDGs were reviewed. An SDG consists of 20 or fewer samples grouped together for analyses depending on the date and time the samples were received by the laboratory. The analyses performed are discussed in Section 2.5.

Samples were collected and analyzed in accordance with the WP/FSAP (CDM 2011a), and WP/FSAP Addendums for Subareas 5D North and 5D South (CDM 2011b and CDM 2011c) with the exception of deviations during the field investigation as stated in Section 2.7.

The validated data for Subareas 5D North and 5D South samples are usable as reported, with the exception of the rejected data. One fluoride result, one antimony result, one ethanol result, one m-terphenyl result, one p-terphenyl result, three EFH results, 72 pesticide results, ten PCB results, 50 herbicide results, 11 SVOC results, and 30 explosives results were rejected for Subarea 5D North sample data. For all Subarea 5D North data, 0.18 percent of the results were rejected. For Subarea 5D South data one pesticide result, 16 herbicide results, and four SVOC results were rejected. For all Subarea 5D South data, 0.23 percent of the results were rejected. These rejected data do not impact project objectives and goals. Specific details are provided in the validation reports in Appendix C and Section 4.7.

4.2 Data Validation Procedures

Data were validated by the independent data validation firm Laboratory Data Consultants, Inc. All data validation was conducted in accordance with *EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 2004), *EPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (EPA 2008), and *EPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data Review* (EPA 2005).

The data validation strategy was to validate 10 percent of the data according to EPA Level IV protocols (all QC parameters and raw data) and the remaining 90 percent according to EPA Level III protocols (all QC parameters except calibrations and raw data).

Table 4-1 shows all SDGs that include Subareas 5D North and 5D South soil samples and those SDGs that were validated as Level III or Level IV. Some SDGs contain samples from other subareas, but all samples in an SDG were validated together. An index of samples associated with each SDG is presented at the beginning of Appendix C.

Table 4-1 Sample Delivery Groups and Validation Levels for Subareas 5D North and 5D South

Sample Delivery Group	Level of Validation Performed	CDM Review
5D North		
DE151	Level III	
DE152	Level III	
DE153	Level III	
DE154	Level III	
DE155	Level III	
DE156	Level III	
DE157	Level III	
DE158	Level IV	Yes
DE159	Level III	
DE160	Level III	
DE161	Level III	
DE162	Level III	
DE163	Level III	
DE164	Level III	
DE166	Level III	
DE167	Level III	
DE168	Level III	Yes
DE169	Level III	
DE170	Level III	
DE171	Level III	
DE172	Level III	
DE173	Level IV	
DE174	Level III	
DE175	Level III	
DE176	Level IV	Yes
DE177	Level III	
DE178	Level III	
DE179	Level III	
DE180	Level III	
DE181	Level III	
DE182	Level III	
DE184	Level III	
DE185	Level III	
DE186	Level III	
DE187	Level III	Yes
DE188	Level III	
DE189	Level III	
DE190	Level III	
DE191	Level III	
DE192	Level III	
DE193	Level III	
DE194	Level III	
DE195	Level III	
DE196	Level III	
DE197	Level III	Yes
DE210	Level III	
DE211	Level III	
DE212	Level III	
DE213	Level III	
DE214	Level III	

Table 4-1 Sample Delivery Groups and Validation Levels for Subareas 5D North and 5D South

Sample Delivery Group	Level of Validation Performed	CDM Review
5D North (cont.)		
DE215	Level III	
DE216	Level III	
DE218	Level III	
DE219	Level III	Yes
DE220	Level III	
DE221	Level III	
DE222	Level III	
DE229	Level III	
DX081	Level III	
DX082	Level III	
DX083	Level III	
DX084	Level III	Yes
DX085	Level III	
DX086	Level III	
DX087	Level III	
DX088	Level III	
DX089	Level III	
DX090	Level IV	
DX091	Level III	
DX093	Level III	
DX094	Level III	
DX095	Level III	
DX096	Level III	
DX097	Level IV	Yes
DX098	Level III	
DX099	Level III	
DX100	Level IV	
DX101	Level III	
DX102	Level III	
DX103	Level III	
DX104	Level III	
DX105	Level III	
DX106	Level III	
DX107	Level III	
DX108	Level III	Yes
DX109	Level III	
DX110	Level III	
DX120	Level III	
DX121	Level III	
DX123	Level III	
DX124	Level III	
DX125	Level III	
DX126	Level IV	Yes
DX127	Level III	
DX129	Level III	
Sample Delivery Group	**Level of Validation Performed**	**CDM Review**
5D South		
DE253	Level III	
DE256	Level III	Yes

Table 4-1 Sample Delivery Groups and Validation Levels for Subareas 5D North and 5D South

Sample Delivery Group	Level of Validation Performed	CDM Review
5D South cont'd		
DE257	Level III	
DE269	Level III	
DE270	Level III	
DE271	Level III	
DE272	Level IV	Yes
DE273	Level III	
DE282	Level III	
DE283	Level IV	
DE284	Level III	
DE285	Level III	
DE286	Level III	
DX142	Level III	
DX143	Level IV	Yes
DX144	Level III	
DX146	Level III	
DX149	Level III	
DX150	Level III	
DX151	Level III	
DX154	Level III	
DX155	Level III	

Note: Some SDGs contain samples from other subareas, but all samples in an SDG were validated together.

In order to evaluate the quality of the laboratory and the validation firm, CDM chemists reviewed 10 percent of the Subareas 5D North and 5D South soil sample SDGs. The purpose of the review was to identify any laboratory QC issues not identified by the validation firm or any discrepancies in validation procedures by the validation firm. No additional qualifiers were applied to the data based on CDM's review. The results of this review are provided in Section 4.8.

4.3 Quality Assurance Objectives

Quality assurance (QA) objectives for measurement data are expressed in terms of precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). The QA objectives provide a mechanism for evaluating and measuring data quality.

A review of the collected data is necessary to determine if DQOs established in the WP/FSAP (CDM 2011a) have been met. The following data measurement tasks were evaluated:

- Specification and adherence to analytical method and reporting detection limit requirements
- Identification of the appropriate laboratory analytical QC requirements and verification of whether these QC requirements were met
- Verification that measurement performance criteria (representativeness and completeness) for the data were met
- Verification that field procedures were followed, deviations were documented, and determination of impact on data quality as a result of these deviations

The data validation review determines if the collected data are of sufficient quality (except for the rejected results) to support their intended use.

4.4 Summary of Field and Laboratory QA Activities

CDM completed sampling activities in Subareas 5D North and 5D South in accordance with the approved WP/FSAP (CDM 2011a) and Addendums to the WP/FSAP (CDM 2011b, CDM 2011c)). A total of 498 soil samples were collected and analyzed from 13 drainage locations, 73 surface locations, and 186 soil boring locations in Subarea 5D North. For Subarea 5D South 59 soil samples were collected and analyzed from two drainage locations, 30 surface locations, and 20 soil boring locations. Table 2-1 and Table 2-2 provide a summary of the samples collected and the laboratory analyses requested.

4.5 Field Quality QA/QC

The field QC samples were collected at a frequency of one per 20 samples (5 percent) for MS/MSDs and field duplicates. MS/MSD and field duplicate samples were collected by CDM at 25 sample locations for Subarea 5D North and four sample locations for Subarea 5D South and analyzed by LLI. MS/MSD and field duplicate samples met the frequency requirements detailed in the WP/FSAP (CDM 2011a).

As discussed in Section 2.4.2, 24 equipment rinsate blank samples were collected for Subarea 5D North and three were collected for Subarea 5D South. A field blank sample is collected with each batch of ASTM water used by HGL for decontamination. No field blanks were collected during sampling for 5D North and 5D South. The field blank associated with this ASTM decontamination water has been applied to the 5D North and 5D South samples accordingly. The equipment rinsate blank results are presented in Appendix C and a summary of the detected results is presented in Tables 4-2 and 4-3.

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only

EB01-SA5DN-SS-051711 EB01-SA5DN 05/17/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.032/0.051	J
2-Methylnaphthalene	µg/L	0.032/0.051	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.3/1	J
Di-n-Butylphthalate	µg/L	0.17/1	J
Di-N-Octyl Phthalate	µg/L	0.26/1	J
Naphthalene	µg/L	0.2/0.051	
EB02-SA5DN-SS-051811 EB02-SA5DN 05/18/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
N-Nitrosodimethylamine	ng/L	2.25/1.01	
EB03-SA5DN-SS-051911 EB03-SA5DN 05/19/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.033/0.053	J
2-Methylnaphthalene	µg/L	0.033/0.053	J
Methylene chloride	µg/L	3/5	J
Naphthalene	µg/L	0.28/0.053	
EB04-SA5DN-SS-051911 EB04-SA5DN 05/19/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.032/0.054	J
2-Methylnaphthalene	µg/l	0.032/0.054	J
Di-N-Octyl Phthalate	µg/L	0.33/1.1	J
Lead	mg/L	0.000056/0.001	J
Naphthalene	µg/L	0.21/0.054	
Zinc	mg/L	0.0213/0.015	
EB05-SA5DN-SS-052311 EB05-SA5DN 05/23/11			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.034/0.049	J
2,3,7,8-TCDD	pg/L	1.19/1.96	J
2-Methylnaphthalene	µg/L	0.034/0.049	J
Naphthalene	µg/L	0.23/0.049	
N-Nitrosodimethylamine	ng/L	2.07/0.985	

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only (cont.)

EB06-SA5DN-SS-052411 EB06-SA5DN 05/24/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.019/0.052	J
2-Methylnaphthalene	µg/L	0.019/0.052	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.2/1	J
Naphthalene	µg/L	0.13/0.052	
EB07-SA5DN-SS-052511 EB07-SA5DN 05/25/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1,2,3,4,7,8-HxCDD	pg/L	0.241/10.5	J
1-Methylnaphthalene	µg/L	0.028/0.049	J
2,3,7,8-TCDD	µg/L	0.234/2.09	J
2-Methylnaphthalene	µg/L	0.028/0.049	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.21/0.98	J
Di-n-Butylphthalate	µg/L	0.063/0.98	J
Manganese	mg/L	0.001/0.005	J
Naphthalene	µg/L	0.16/0.049	
EB08- SA5DN -SB-052511 EB08- SA5DN 05/25/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Methylene chloride	µg/L	2/5	J
EB09-SA5DN-SS-052611 EB09-SA5DN 05/26/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.032/0.049	J
2-Methylnaphthalene	µg/L	0.032/0.049	J
Di-n-Butylphthalate	µg/L	0.065/0.98	J
Heptachlor	µg/L	0.0088/0.01	J
Naphthalene	µg/L	0.22/0.049	
RDX	µg/L	0.58/0.6	J

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only (cont.)

EB10- SA5DN-SS-053111 EB10- SA5DN 05/31/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.028/0.054	J
2-Methylnaphthalene	µg/L	0.03/0.054	J
Di-n-Butylphthalate	µg/L	0.062/1.1	J
Heptachlor	µg/L	0.0088/0.01	J
Naphthalene	µg/L	0.15/0.054	
EB11-SA5DN-SB-05311 EB11-SA5DN 05/31/11			
Analyte	**Analyte**	**Analyte**	**Analyte**
1-Methylnaphthalene	µg/L	0.023/0.053	J
2-Methylnaphthalene	µg/L	0.024/0.053	J
Benzene	µg/L	0.9/5	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.082/1.1	J
Di-n-Butylphthalate	µg/L	0.07/1.1	J
Heptachlor	µg/L	0.0084/0.01	J
Lead	mg/L	0.000062/0.001	J
Naphthalene	µg/L	0.14/0.053	
EB12-SA5DN-SS-060211 EB12-SA5DN 06/02/11			
1-Methylnaphthalene	µg/L	0.029/0.052	J
2-Methylnaphthalene	µg/L	0.029/0.052	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.22/1	J
Di-n-Butylphthalate	µg/L	0.082/1	J
Heptachlor	µg/L	0.0099/0.01	J
Lead	mg/L	0.000074/0.01	J
Naphthalene	µg/L	0.17/0.052	
EB13-SA5DN-SS-060311 EB13-SA5DN 06/03/11			
1-Methylnaphthalene	µg/L	0.026/0.053	J
2-Methylnaphthalene	µg/L	0.026/0.053	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.055/1.1	J
Di-n-Butylphthalate	µg/L	0.065/1.1	J
Heptachlor	µg/L	0.0086/0.01	J
Lead	mg/L	0.000062/0.001	J
Naphthalene	µg/L	0.16/0.053	

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only (cont.)

EB14-SA5DN-SB-060311 EB14-SA5DN 06/03/11			
1-Methylnaphthalene	µg/L	0.028/0.051	J
2-Methylnaphthalene	µg/L	0.026/0.051	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.057/1	J
Di-n-Butylphthalate	µg/L	0.067/1	J
Lead	mg/L	0.000064/0.001	J
Naphthalene	µg/L	0.15/0.051	
EB15-SA5DN-SB-060711 EB15-SA5DN 06/07/11			
Methanol	µg/L	230/1000	J
RDX	µg/L	0.6/0.6	
EB16-SA5DN-SB-060911 EB16-SA5DN 06/09/11			
Methanol	µg/L	210/1000	J
RDX	µg/L	2.3/0.6	
EB17-SA5DN-SB-061411 EB17-SA5DN 06/14/11			
1-Methylnaphthalene	µg/L	0.014/0.05	J
2,3,7,8-TCDF	µg/L	0.212/2.05	J
2-Methylnaphthalene	µg/L	0.015/0.05	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.2/1	J
Di-n-Butylphthalate	µg/L	0.081/1	J
Methylene chloride	µg/L	10/5	
Naphthalene	µg/L	0.12/0.05	
Toluene	µg/L	1/5	J
EB18-SA5DN-SB-061511 EB18-SA5DN 06/15/11			
1-Methylnaphthalene	µg/L	0.013/0.05	J
2,3,7,8-TCDF	µg/L	0.436/2.02	J
2-Methylnaphthalene	µg/L	0.014/0.05	J
Di-n-Butylphthalate	µg/L	0.11/1	J
Methylene chloride	µg/L	9/5	
Naphthalene	µg/L	0.11/0.05	
N-Nitrosodimethylamine	ng/L	3.37/1.06	
RDX	µg/L	0.95/0.6	
Toluene	µg/L	0.8/5	J

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only (cont.)

EB19-SA5DN-SB-062211 EB19-SA5DN 06/22/11			
1-Methylnaphthalene	µg/L	0.012/0.048	J
2-Methylnaphthalene	µg/L	0.012/0.048	J
Methylene chloride	µg/L	7/5	
Naphthalene	µg/L	0.096/0.048	
N-Nitrosodimethylamine	ng/L	3.39/1.02	
RDX	µg/L	2.1/0.6	
Zirconium	mg/L	0.0078/0.05	J
EB20-SA5DN-SB-062911 EB20-SA5DN 06/29/11			
2-Methylnaphthalene	µg/L	0.021/0.099	J
Butylbenzylphthalate	µg/L	0.18/2	J
Di-n-Butylphthalate	µg/L	0.2/2	J
Di-N-Octyl Phthalate	µg/L	0.35/2	J
Methylene chloride	µg/L	5/5	
Naphthalene	µg/L	0.2/0.099	
N-Nitrosodimethylamine	ng/L	3.67/1.04	
N-Nitrosodimethylamine	µg/L	0.1/0.099	
EB21-SA5DN-SB-070711 EB21-SA5DN 07/07/11			
Calcium	mg/L	0.0768/0.2	J
Iron	mg/L	0.0221/0.2	J
Methylene chloride	µg/L	3/5	J
Naphthalene	µg/L	0.084/0.051	
EB22-SA5DN-SB-070811 EB22-SA5DN 07/08/11			
N-Nitrosodimethylamine	ng/L	6.16/1.97	

Table 4-2 Equipment Blanks for Subarea 5D North Soil Samples – Detected Results Only (cont.)

EB23-SA5DN-SB-080311 EB23-SA5DN 08/03/11			
1,2,3,4,7,8-HxCDD	pg/L	0.216/11.2	J
1,2,3,6,7,8-HxCDF	pg/L	0.263/11.2	J
4-Amino-2,6-Dinitrololuene	µg/L	0.54/0.6	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.11/1.1	J
Butylbenzylphthalate	µg/L	0.14/1.1	J
Diethylphthalate	µg/L	0.091/1.1	J
Di-n-Butylphthalate	µg/L	0.32/1.1	J
Di-N-Octyl Phthalate	µg/L	0.22/1.1	J
Naphthalene	µg/L	0.063/0.055	
N-Nitrosodimethylamine	ng/L	4.4/1.02	J
RDX	µg/L	1.7/0.6	
Zinc	mg/L	0.0172/0.015	
EB-SA5DN-SB-081111 EB-SA5DN 08/11/11			
4-Amino-2,6-Dinitrololuene	µg/L	0.41/0.6	J
Butylbenzylphthalate	µg/L	0.14/1.1	J
Diethylphthalate	µg/L	0.13/1.1	J
Di-n-Butylphthalate	µg/L	0.71/1.1	J
Lead	mg/L	0.00011/0.001	J
Naphthalene	µg/L	0.097/0.054	J
RDX	µg/L	1.2/0.6	

Notes:
Blank result greater than RL
RL = Reporting Limit
µg/L = microgram per liter
mg/L = milligram per liter
pg/L = picogram per liter
ng/L = nanogram per liter
RDX = 1,3,5-Trinitroperhydro-1,3,5-triazine

Table 4-3 Equipment Blank for Subarea 5D South Soil Samples – Detected Results Only

EB-SA5DS-SB-101811 EB-SA5DS 10/18/11			
1,2,3,7,8-PeCDD	pg/L	0.332/10.2	J
Boron	mg/L	0.0034/0.05	J
Di-n-Butylphthalate	µg/L	0.14/2	J
N-Nitrosodimethylamine	ng/L	4.42/1.04	
RDX	µg/L	1.6/0.6	
EB-SA5DS-SB-110811 EB-SA5DS 11/08/11			
N-Nitrosodimethylamine	ng/L	1.57/0.972	J
EB-SA5DS-SB-110911 EB-SA5DS 11/09/11			
N-Nitrosodimethylamine	ng/L	1.96/1.09	
EB-SA5DS-SB-111011 EB-SA5DS 11/10/11			
2,3,7,8-TCDF	µg/L	0.363/2.01	J
Diethylphthalate	µg/L	0.097/1	J
Di-n-Butylphthalate	µg/L	0.36/1	J
Formaldehyde	µg/L	78/50	
N-Nitrosodimethylamine	ng/L	2.12/1.03	
RDX	µg/L	0.76/0.6	
EB-SA5DS-SS-092811 EB-SA5DS 09/28/11			
Bis(2-Ethylhexyl) phthalate	µg/L	0.11/1.1	J
Boron	mg/L	0.0025/0.05	J
Cadmium	mg/L	0.00022/0.0005	J
Diethylphthalate	µg/L	0.36/1.1	J
Di-n-Butylphthalate	µg/L	0.74/1.1	J
Di-N-Octyl Phthalate	µg/L	0.12/1.1	J
Lead	mg/L	0.0026/0.001	
Naphthalene	µg/L	0.057/0.053	

Notes:
Blank result greater than RL
RL = Reporting Limit
µg/L = microgram per liter
pg/L = picogram per liter

Forty-six trip blank samples were shipped with the Subarea 5D North soil samples and eight trip blank samples were shipped with the Subarea 5D South soil samples. The results for these samples are presented in Appendix C and a summary of the detected results is presented in Table 4-4 and Table 4-

5. Data qualifications based on blank detections and impacts to the data due to contaminants detected in the blanks are discussed in Section 4.7.3 and in the Appendix C validation reports.

Table 4-4 Trip Blanks for Subarea 5D North Soil Samples – Detected Results Only

TB-052711 05/27/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Benzene	µg/L	1/5	J
Toluene	µg/L	0.7/5	J

Notes:
RL = Reporting Limit
µg/L = microgram per liter

Table 4-5 Trip Blanks for Subarea 5D South Soil Samples – Detected Results Only

TB-052711 05/27/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
N-Nitrosodimethylamine	ng/kg	105/33.2	J

Notes:
Blank result greater than RL
RL = Reporting Limit
ng/L = nanogram per liter
ng/kg = nanogram per kilogram

Temperature blanks were to be included with each shipment of samples. Based on validation results, all temperature blanks for 5D North and 5D South met criteria.

The number of field QC samples collected satisfies the minimum requirements for the Subareas 5D North and 5D South sampling programs.

Field QA/QC objectives were attained through the use of appropriate sampling techniques and collection of the required number and frequency of QC samples.

4.6 Laboratory Quality QA/QC

Analytical QA/QC was assessed by laboratory QC checks, method blanks, sample custody tracking, sample preservation, adherence to holding times, LCSs, MSs, calibration recoveries, surrogates, tuning criteria, second column confirmations, internal standards, serial dilutions, laboratory duplicates, and interference check standards. The majority of the laboratory QC sample criteria met project requirements as indicated in the data validation reports in Appendix C with the appropriate qualifiers applied. One hundred and eighty-one individual analyte results for samples from Subarea 5D North (0.18 percent of all the analytes) and 21 individual analyte results for samples from Subarea 5D South (0.23 percent of all analytes) were rejected as discussed in Section 4.7 and in Appendix C.

4.7 Data Quality Indicators

This section summarizes the validation performed. Individual SDG validation reports with specific sample detail are provided in Appendix C.

Achievement of the DQOs was determined in part by the use of data quality indicators (DQIs) described in the DUAR in Appendix C. These DQIs for measurement data are expressed in terms of PARCCS. The DQIs provide a mechanism for ongoing control to evaluate and measure data quality throughout the project. These criteria are defined in the sections below.

4.7.1 Precision

Precision is the measurement of the ability to obtain the same value on re-analysis of a sample through the entire analytical process. The closer the measurement results to each other, the greater the precision. Precision has nothing to do with accuracy or true values of the sample. Instead, it is focused on random errors inherent in the analysis that stem from the measurement process and are compounded by the non-homogeneous nature of some samples. Precision is measured by analyzing two portions of the sample (sample and duplicate) and then comparing the results. This comparison can be expressed in terms of relative percent difference (RPD). RPD is calculated as the absolute difference between the two measurements divided by the average of the two measurements.

$$RPD = \frac{[(A-B)/\underline{A+B}]}{2} \times 100$$

The problem with this formula is that it depends on the average of the two measurements and the magnitude of the calculated RPD is intimately linked to the magnitude of the results. When sample results are close to the RL, the RPD is greater but does not necessarily indicate that the precision is out of control limits, just that the sample concentrations are low.

RPD as a measure of precision works very well in those cases where the same level of analyte is present in all samples; however, it does not work well as a quantitative tool when varying levels are present. Analysis of sample duplicates is valuable as a quantitative measure of precision but is not useful as a quantitative measure in environmental sample analyses. Another option that is used for evaluating the differences between sample results that are close to the RL is calculating the absolute difference between the results. In this situation, the difference between the sample results is compared to the RL (2 times the RL for soils) and if the difference is greater, the sample results are qualified as estimated "J."

Because of these problems, precision is normally calculated on spike samples, either on an MS and MSD or on a LCS and laboratory control sample duplicate (LCSD). In this case, a known concentration of analyte has been created in each sample and long and short term evaluations of RPD can be made that are applicable to the reality of the measurement. The drawback is that the precision measurement is only applicable to the particular spike level used.

For the Subareas 5D North and 5D South soil data sets, precision was evaluated by reviewing RPD results for MS/MSDs, LCS/LCSDs, laboratory duplicates, and field duplicates.

Laboratory RPD control limits are presented in the WP/FSAP (CDM 2011a) or are laboratory specific. For laboratory duplicates, if one or both of the sample results were less than two times the RL, a control limit of the absolute difference value equal to the RL was used for comparison.

The field duplicate RPD criterion is 50 percent. Field duplicates for this project were validated as follows: If one result is non-detect and the other result is above the RL, the RPD result is reported at 200 percent and the field duplicate sample and parent sample results are qualified as estimated "J" for a detect value or "UJ" for a non-detect value. If the field duplicate RPD is above the 50 percent criterion

(and both sample results are above the RL) the field duplicate and parent sample results for that analyte are qualified as estimated "J."

Qualifiers were applied to applicable sample analyte results during the validation process based on laboratory and field duplicate precision results. Details of the validation and the number of analytes qualified are provided in the DUAR and laboratory validation reports in Appendix C.

The following Subarea 5D North individual analyte results were qualified as estimated "J/UJ" based on precision criteria:

- Some of the dioxin, fluoride/nitrate, metals, mercury, alcohols and terphenyls, PCBs/PCTs, SVOC SIM and energetic analyte results due to laboratory precision criteria
- Some of the dioxin, pesticide, PCB/PCT and herbicide analyte results as RPD results between the two columns were outside of criteria

The following Subarea 5D South individual analyte results were qualified as estimated "J/UJ" based on precision criteria:

- Some of the fluoride/nitrate, metals and PCB/PCT analyte results due to laboratory precision criteria
- Some of the PCB/PCT analyte results as RPD results between the two columns were outside of criteria

Field duplicate precision criteria required the qualification of some results for dioxins, NDMA, fluoride/nitrate, various metal analytes, hexavalent chromium, mercury, alcohols and terphenyls, TPH and glycols, pesticides, PCB/PCTs, herbicides, VOCs, SVOCs, and SVOC SIM for Subarea 5D North samples. For Subarea 5D South samples, some dioxin results, various metal analyte results, hexavalent chromium results, pesticide results, PCB/PCT results, herbicide results, SVOC results and SVOC SIM results were also qualified as estimated “J/UJ” based on field duplicate precision criteria. No results were rejected based on field duplicate precision criteria. All field duplicate RPD results are presented in Appendix C. In summary, sample results that have been qualified as estimated "J/UJ" due to precision criteria are usable for project decisions with a degree of caution.

There was no discernable pattern or reason for the laboratory and field duplicate sample RPD exceedances identified. No field sampling issues were identified that would cause the RPD results that were outside of criteria. These exceedances are reasonable for this type of sampling activity.

4.7.2 Accuracy

Accuracy is a concept from quantitative analysis that attempts to address the question of how close the analytical result is to the true value of the analyte in the sample. Accuracy is determined through a spike procedure, where a known amount of the target analyte is added to a portion of the sample then the sample and the spiked sample are analyzed. The quantitative measure of accuracy is percent recovery (%R) calculated as follows:

$$\textbf{Percent Recovery} = \frac{\textbf{(Total Analyte Found – Analyte Originally Present)} \times 100}{\textbf{Analyte Added}}$$

Each measurement performed on a sample is subject to random and systematic error. Accuracy is related to the systematic error. Attempts to assess systematic error are always complicated by the inherent random error of the measurement.

Analytical accuracy for the entire data collection activity is difficult to assess because several sources of error exist. Errors can be introduced by any of the following:

- Sampling procedure
- Field contamination
- Sample preservation and handling
- Sample matrix
- Sample preparation
- Analytical techniques

Accuracy is maintained to the extent possible by adhering to the EPA method and approved field and analytical standard operating procedures.

The following QC samples are used to assess laboratory accuracy:

Matrix Spikes: MSs are samples with a known amount of a target analyte added. Analysis of the spiked sample and comparison with the unspiked sample results (background) provides information about the ability of the test procedure to generate a correct result from the sample.

Reporting Limit Matrix Spikes: RL-MSs are samples to which a known amount of a target analyte has been added at the reporting limit concentration. Analysis of the spiked sample and comparison with the unspiked sample results (background) provides information about the ability of the test procedure to generate a correct result. The RL-MS is designed to verify the laboratory methods ability to accurately quantitate the spiked compound at the RL in the site matrix. The RL-MS is an extra QC sample used for the modified methods shown in Table 2-3.

Post Digestion Spikes: Post digestion spikes are performed after the sample has been prepared and are ready for analysis. These are also termed "analytical spikes." The technique is used in conjunction with a MS to provide data that can separate interferences produced as part of the sample preparation from interferences that are innate qualities of the sample.

Laboratory Control Samples: LCSs consist of a portion of analyte-free water or solid phase sample that is spiked with target analytes at a known concentration.

Reporting Limit Laboratory Control Samples: RL-LCSs consist of a portion of analyte-free water or solid phase sample that is spiked at the reporting limit with target analytes at a known concentration. The difference between the RL-LCS and the standard LCS is the concentration spiked into the matrix. Standard LCS samples are spiked at levels 3-5 times above the RL. The RL-LCS is spiked at the RL. The RL-LCS is designed to verify the laboratory methods ability to accurately quantitate the spiked compound at the RL. The RL-LCS is an extra QC sample used for the modified methods identified in Table 2-3.

Surrogates: Surrogate recovery is a QC measure limited to use in organics analysis. Surrogates are compounds added to every sample at the beginning of the sample preparation to monitor the success of the sample preparation and analytical procedures on an individual sample basis. Individual compounds used as surrogates are selected based on their ability to mimic the behavior of specific target analytes held to be particularly sensitive to the sample preparation manipulations.

Interference Check Samples: Interference check sample analysis is a QC measure unique to metals analysis using inductively coupled plasma atomic emission spectrometry. This QC sample verifies the analytical instrument's ability to overcome interferences typical of those found in samples.

Calibrations: Method requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable quantitative data for metals. Initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical run. Continuing calibrations demonstrate that the initial calibration is still valid by checking the performance of the instrument on a continuing basis.

Internal Standards: Internal standard performance criteria ensures that gas chromatograph/ mass spectrometer sensitivity and response are stable during each analysis.

Serial Dilution: Serial dilutions are performed on at least one sample from every batch of analyses for metals to determine if physical or chemical interferences exist in the analyte determinations.

For the Subareas 5D North and 5D South soil data sets, accuracy was evaluated by reviewing the %R values of initial and continuing calibration (percent difference or percent drift [%D] for organic analyses), internal standards, surrogate spikes (organic analyses only), MS/MSD, LCS/LCSD, inductively coupled plasma (ICP) interferences, and by performing serial dilution checks during metals analyses, in conjunction with method blank, calibration blank, equipment rinsate blank, and trip blank results. These QC results assist in identifying the type and magnitude of effects that may have contributed to system error introduced from field and/or laboratory procedures.

Qualifiers were applied to applicable sample results during the validation process based on laboratory accuracy results. Details of the validation and the number of analytes qualified are discussed in detail in the DUAR and laboratory validation reports in Appendix C. No qualifiers were applied to applicable sample results based on the accuracy results of the RL-LCS and RL-MS samples. These QC samples are intended to evaluate the effects of the method modifications on the RLs program wide. A statistically robust population of RL-LCS and RL-MS samples has not yet been achieved. When enough data has been collected, decisions regarding the accuracy and precision of these RLs will be addressed by all parties, including possible changes to the RLs.

The following Subarea 5D North individual analyte results were qualified as estimated "J/UJ" based on accuracy criteria:

- Some of the results for dioxins, NDMA, fluoride/nitrate, perchlorates, metals, mercury, alcohols and terphenyls, TPHs and glycols, pesticides, herbicides, VOCs, SVOCs, SVOC SIM, formaldehyde and energetics due to MSs

- Some of the results for metals, TPHs and glycols, pesticides, PCB/PCTs, herbicides, VOCs, SVOCs, SVOC SIM, formaldehyde and energetics due to LCSs
- Some of the results for NDMA, alcohols and terphenyls, pesticides, PCB/PCTs, herbicides, SVOC SIM, and formaldehyde due to surrogates
- Some of the results for pesticides, PCB/PCTs and VOCs due to calibrations
- Some of the metal analyte results due to serial dilutions
- One NDMA result and some of the herbicide results due to holding times

The following individual analyte results were rejected "R" based on accuracy criteria:

- One fluoride result based on MS
- One antimony result based on MS
- Three alcohol and terphenyl results (ethanol, m-terphenyl, and p-terphenyl) based on MS
- Three TPH results (EFH [C12-C14], EFH [C15-C20] and EFH [C8-C11]) based on MS
- Sixty-two pesticide results (from four samples) based on surrogates
- Ten pesticide results (from six samples) based on MSs
- Ten PCB/PCT results (from one sample) based on surrogates
- One herbicide result (dalaphon) (from one sample) based on MS
- Forty-nine herbicide results (dinoseb) (from 49 samples) based on LCSs
- Eleven SVOC results (from 11 samples) based on MSs
- Thirty energetics results (2,4-diamino-6-nitrotoluene and 2,6-diamino-4-nitrotoluene) (from 15 samples) based on LCSs

The following Subarea 5D South individual analyte results were qualified as estimated "J/UJ" based on accuracy criteria:

- Some of the results for dioxins, fluoride/nitrate, metals, pesticides, herbicides, SVOCs and SVOC SIM due to MSs
- Some of the results for perchlorates, PCB/PCTs, herbicides and SVOCs due to LCSs
- Some of the results for pesticides, PCB/PCTs and SVOC SIM due to surrogates
- Some of the metal analyte results due to serial dilutions
- Some of the PCB/PCT results and SVOC results due to calibrations

The following individual analyte results were rejected "R" based on accuracy criteria:

- One pesticide result (4'4-DDD) based on MS
- Sixteen herbicide results (nine for dinoseb and one each for 2,4,5-TP Silvex, 2,4-DB, dalaphon, diacamba, dichloroprop, MCPA and MCPP) based on MSs

- Four SVOC results (benzidine) based on MSs

Sample preservation, handling, and holding times are additional measures of accuracy of the data. Holding times are defined as the amount of time that elapses between collection of the sample in the field to the start of the analysis. Preservation is defined as techniques used to maintain the target analytes at concentrations representative of the source sampled. Published holding times are viewed as valid as long as the associated preservation and container requirements have been met. All holding times, sample preservation and handling criteria were met except for those discussed above and in the DUAR and laboratory validation reports in Appendix C.

In summary, sample results that have been qualified as estimated "J/UJ" due to accuracy criteria are usable for project decisions. Results that have been rejected are not usable.

4.7.3 Blank Contamination

Blanks are used to determine the level of laboratory and field contamination introduced into the samples, independent of the level of target analytes found in the sample source. Sources of sample contamination can include the containers and equipment used to collect the sample, preservatives added to the sample, other samples in transport coolers and laboratory sample storage refrigerators, standards and solutions used to calibrate instruments, glassware and reagents used to process samples, airborne contamination in the laboratory preparation area and the analytical instrument sample introduction equipment. Each analyte group has its own particular suite of common laboratory contaminants. Active measures must be performed to continually measure the ambient contamination level and steps taken to discover the source of the contamination to eliminate or minimize the levels. Random spot contamination can also occur from analytes that are not common laboratory problems but that can arise as a problem for a specific project or over a short period of time. Sample equipment decontamination practices are discussed in Section 2.4.4. Field blanks, equipment blanks, trip blanks and laboratory method blanks are analyzed to identify possible sources of contamination. The DUAR and laboratory validation reports in Appendix C discuss the results that were qualified based on field and laboratory blank contamination.

For Subarea 5D North samples, some dioxins, NDMA, metals, hexavalent chromium, mercury, alcohols and terphenyls, TPH and glycols, PCBs/PCTs, VOCs, SVOCs and SVOC SIM results were qualified as non-detect due to laboratory blank contamination criteria. Some results for NDMA, metals, mercury, VOCs, and SVOC SIM analytes were also qualified based on field blank contamination. For Subarea 5D South samples, some dioxins, metals and mercury analytes were qualified as non-detect due to laboratory blank contamination criteria. Some results for mercury were also qualified based on field blank contamination. The percentage of results qualified as non-detect based on laboratory blank contamination was less than 5 percent, as discussed in Appendix C, for all these analyses except for the following analytes: 50 percent of the dioxins for Subarea 5D North; 40 percent of the dioxins for Subarea 8 South; 11 percent of the NDMA results for Subarea 5D North; and eight percent of the mercury results for Subarea 5D North. These results were qualified as non-detect "U" due to laboratory blank contamination.

For the dioxins, estimated detection limits (EDLs) are calculated for each sample. The EDLs for this analysis are very low, reported in nanogram per kilogram (ng/kg) or parts per trillion, resulting in numerous results qualified as estimated "J" values because they are below the RL. Many of these estimated values have been subsequently qualified as non-detect "U" because the compound was detected in related laboratory blanks. The laboratory blank results correlate to the sample EDLs and

low level detections of dioxin analytes are somewhat inevitable because of the nature and universal extent of the compounds. The dioxin levels found in the blanks were well below site-related action levels. Therefore, the resulting qualification of associated sample results as not detected or "U" qualified data do not falsely diminish identification of site-related contaminants.

The other reported analytes that had blank qualifications greater than 5 percent do not indicate a laboratory blank contamination problem as the overall sample counts for those analytes were low. For example, there were only 214 NDMA samples analyzed for Subarea 5D North and out of those samples 24 NDMA results were qualified due to blank contamination.

Tables 4-2 through 4-5 provide a summary of analytes observed in equipment and trip blank samples. Most of the equipment blanks and trip blanks detected compounds were below the RLs but above the MDLs. Compounds detected above the RL in equipment and trip blanks are highlighted yellow in the associated tables. The ASTM Type II water used to generate the equipment and travel blanks was previously analyzed as a field blank on April 27, 2011. This field blank (source water) had a detect of of naphthalene (above the RL) indicating inherent low level contamination in the source water used.

ASTM Type II water is not typically certified “clean” to the low RLs established for the low level methods used for the co-located sampling program. A review of the ASTM Type II field blanks for all Phase 1 sampling showed one detect of heptachlor, three detects of naphthalene, and one detect of RDX above their respective RL. One field blank had detects above the RLs for four metal analytes and one field blank had detects above the RLs for a variety of VOC analytes. A review of ASTM Type II water field blanks will continue to monitor for detected concentrations of analytes throughout the sampling program.

A review of all Phase 1 equipment blanks was also performed. In general, a variety of analytes were detected above their respective RLs. The most frequently detected analytes were naphthalene, NDMA and RDX. Napthalene was detected in 28 percent of the equipment blanks, NDMA in 27 percent of the equipment blanks and RDX in 26 percent of the equipment blanks. Other analytes were detected in the equipment blanks with methylene chloride being detected in eight percent of the equipment blanks. All other analytes were detected in less than five percent of the equipment blank samples.

Further review of the equipment blanks is being conducted and all Phase 3 equipment blanks collected to-date are being evaluated to determine if these low level detections are consistent indicating a possible deficiency in decontamination procedures and/or source water impacts that need to be addressed and corrected. Associated sample results were qualified accordingly during the validation process regarding field blank contamination. No sample results were rejected due to detected concentrations in field blanks or laboratory blanks.

4.7.4 Representativeness, Comparability, and Sensitivity

Representativeness, comparability, and sensitivity are achieved by using EPA-approved sampling procedures and analytical methodologies. By following the procedures described in the WP/FSAP for this sampling event and future sampling events, sample analysis should yield results representative of environmental conditions at the time of sampling. Similarly, reasonable comparability of analytical results for this and future sampling events can be achieved if approved EPA analytical methods and standardized reporting units are employed.

4.7.4.1 Representativeness

Representativeness is a qualitative term that expresses the degree to which the sample data accurately and precisely represent the environmental conditions corresponding to the location and depth interval of sample collection. Requirements and procedures for sample collection are designed to maximize sample representativeness.

Representativeness also can be monitored by reviewing field documentation and/or performing field audits. For the data associated with this report, a detailed review was performed on the CoC forms, laboratory sample confirmation logs, and data validation packages. Laboratory QA/QC requirements were included in the WP/FSAP (CDM 2011a) and laboratory statements of work (SOWs) to ensure that the laboratory analytical results were representative of true field conditions.

The most significant measure of representativeness is the accuracy of the sampling network and selection of appropriate locations and depths, etc. Field sampling accuracy was attained through adherence to the approved WP/FSAP for sample location and collection and by using approved standard operating procedures for field data collection. Therefore the data should represent, as near as possible, the actual field conditions at the time of sampling.

Representativeness has been achieved by the performed field work and laboratory analyses. The generated analytical data that have not been rejected are viewed to be a representative characterization of the project area.

4.7.4.2 Comparability

Comparability is a qualitative term that expresses the confidence with which a data set can be compared with another. Strict adherence to standard sample collection procedures, analytical detection limits, reporting units and analytical methods assures that data from like samples and sample conditions are comparable. This comparability is independent of laboratory personnel, data reviewers, or sampling personnel. Comparability criteria are met for the project if, based on data review, the sample collection and analytical procedures are determined to have been followed, or defined to show that variations did not affect the values reported.

To ensure comparability of data generated for the site, standard sample collection procedures and DTSC-reviewed analytical methods were utilized by CDM. The sample analyses were performed by LLI. Utilizing such procedures and methods enables the current data to be comparable with previous and future data sets generated using similar methods.

4.7.4.3 Sensitivity

Sensitivity is related to the ability to compare analytical results with project-specific levels of interest, such as risk-based screening levels or action levels. Analytical detection limits for the various sample analytes should be below the level of interest to allow an effective comparison.

Detection Limits

The MDL attempts to answer the question, "What is the lowest level of analyte in a sample that will result in a signal different than zero"? The study is based upon repetitive analysis of an interference-free sample spiked with a known amount of the target analyte. The MDL is a measure of the ability of the test procedure to generate a positive response for the target analyte in the absence of any other interferences from the sample.

The RL is generally defined as the lowest concentration at which an analyte can be detected in a sample and its concentration reported with a reasonable degree of accuracy and precision. For samples that do not pose a particular matrix problem, the RL is typically about three to five times higher than the MDL.

Laboratory results are reported according to rules that provide established certainty of detection and RLs. The result for an analyte is flagged with a "U" if that analyte was not detected, or qualified with a "J" flag if blank or other QC results fall outside the appropriate tolerance limits.

If an analyte is present at a concentration between the MDL and the RL, the analytical result is flagged with a "J," indicating an estimated quantity. Qualifying the result as an estimated concentration reflects increased uncertainty in the reported value.

RLs for the modified methods identified in Table 2-3 are evaluated through the analysis of RL-LCS and RL-MS samples created by LLI. The evaluation of these QC samples is ongoing throughout all subareas and recommendations regarding program-wide sample qualification based on the RL-LCS and RL-MS QC results have not been finalized. Qualification of individual sample results for Subareas 5D North and 5D South, based on the current RL-LCS and RL-MS QC sample results, was not performed.

Qualifiers were applied to applicable sample results by the laboratory and identified during the validation process based on sample results being reported as detected below the RL/MDL. Details of the validation and the number of results qualified are discussed in detail in the DUAR and laboratory validation reports in Appendix C.

In summary, for all methods analyzed for Subarea 5D North, results for some of the analytes were qualified as estimated due to RL criteria except for perchlorate and VOC SIM results. For all methods analyzed for Subarea 5D South, results for some of the analytes were qualified as estimated due to RL criteria except results for NDMA, perchlorates, alcohols and terphenyls, formaldehyde, energetics, and cyanide.

In general, for the data validated in this TM, RLs for the sample results were low enough to compare to the RLs stated in the WP/FSAP (CDM 2011a). The RLs for this project are lower than "normal" environmental data analyses for some classes of compounds. Some analytical laboratory methods were modified in order to achieve the lowest practicable RLs in an attempt to comply with the AOC. All modified analyses are undergoing further studies evaluating the effect of the modifications on precision and accuracy. An independent study evaluating the precision and accuracy of the modified herbicide method has been completed. Review of the herbicide results indicate that the method modifications did not achieve precision and accuracy goals at this lower reporting limit for some of the analytes. Data are currently under further review and it is likely that reporting limits may be elevated for some analytes. These results are still considered usable for project decisions.

4.8 Review of Selected Validation Reports

CDM performed a review of the validation reports identified in Table 4-1. This review involved comparing the validation report results against the laboratory data packages as well as the validation guidance documents. All validation report results were verified against the laboratory data packages and validation guidance documents were followed as required.

4.9 Data Completeness

Completeness of the data collection program is defined as the percentage of locations planned to be sampled versus the actual number of locations sampled during the field program (see equation A).

Completeness for acceptable data is defined as the percentage of acceptable data obtained judged to be valid versus the total quantity of data generated (see equation B). Acceptable data include both data that pass all the QC criteria (unqualified data) and data that may not pass all the QC criteria but had appropriate corrective actions taken (qualified but usable data).

Equation A.

$$\%\text{Completeness} = C \times \frac{100}{n}$$

Where:

C = actual number of locations sampled
n = total number of locations planned

Equation B.

$$\%\text{Completeness} = V \times \frac{100}{n'}$$

Where:

V = number of measurements judged valid
n' = total number of measurements made

The overall completeness goal, as defined in the WP/FSAP (CDM 2011a), for this sampling event is 90 percent for each analytical test for all project data.

A total of 523 Subarea 5D North and 63 Subarea 5D South soil samples including the field duplicates were collected and analyzed. As discussed in Section 2.7, 201 locations were to be sampled in Subarea 5D North and 36 locations in Subarea 5D South. Some locations required only a subsurface sample while other locations required both a surface (or drainage) and subsurface sample. The number of subsurface samples to be collected at each location is not pre-determined because the total depth of each boring varies depending on the local geology. Of the locations to be sampled in Subareas 5D North and 5D South, only two locations (SL-63 and SL-147) in Subarea 5D North and one location (SL-35) in Subarea 5D South had no samples (surface, drainage, or subsurface) collected . The remaining deviations from the proposed sample collection plan for Subareas 5D North and 5D South were due to shallow refusal on bedrock (see Section 2.7). A surface sample was collected at each of these locations.

As discussed in Section 2.7, the sampling deviations do not impact completeness objectives for this sampling program. Ninety-nine percent of the sample locations identified in the WP/FSAP Addendums for Subareas 5D North and 5D South were sampled meeting the completeness goal for the number of locations sampled versus number of locations planned to be sampled.

The completeness goal achieved for acceptable data was 99.82 percent of the number of measurements judged to be valid versus the total number of measurements made for all Subarea 5D North and 99.77 percent for Subarea 5D South samples analyzed. Tables 4-6 and 4-7 summarize all results that were estimated or rejected.

The following Subarea 5D North individual analyte results were rejected per analyses:

- Method 300
  - One out of 706 fluoride results (0.14 percent)
- Method 6020
  - One out of 7,952 antimony results (0.01 percent)
- Method 8015B
  - Three out of 1,254 alcohol/terphenyl individual analyte results (0.24 percent)
- Method 8015M
  - Three out of 1,798 TPH individual analyte results (0.17 percent)
- Method 8081A
  - Seventy-two out of 3,843 individual pesticide analyte results (1.87 percent)
- Method 8082
  - Ten out of 5,964 individual PCB/PCT analyte results (0.17 percent)
- Method 8151A
  - Fifty out of 1,830 individual herbicide analyte results (2.7 percent)
- Method 8270C
  - Eleven out of 24,315 individual SVOC analyte results (0.05 percent)
- Method 8330A
  - Thirty out of 4,248 individual energetic analyte results (0.71 percent)

The following Subarea 5D South individual analyte results were rejected per analyses:

- Method 8081A
  - One out of 672 individual pesticide analyte results (0.15 percent)
- Method 8151A
  - Sixteen out of 310 individual herbicide analyte results (5.16 percent)
- Method 8270C
  - Four out of 2,788 individual SVOC analyte results (0.14 percent)

Table 4-6 Summary of Data Completeness Following Data Validation – Subarea 5D North

	Number of Analyte Detections Without Qualifiers	Number of Estimated Results	Number of Rejected Results	Number of Nondetect Results	Number of Estimated Nondetect Results	Total Analytes Detect and Nondetect	Percent of Analyte Results Judged Valid Versus Total Analyte Results Collected
Dioxins	777	2823		4735	114	8449	100
NDMA	37	41		131	5	214	100
Formaldehyde	5	8		184	12	209	100
Cyanide		2		207		209	100
Fluoride, Nitrate	199	469	1	17	20	706	99.86
Hexavalent Chromium	24	314		156	3	497	100
Mercury	36	192		258	11	497	100
Metals – 6010B	4719	1582		655	2	6958	100
Metals – 6020	2227	5520	1	102	102	7952	99.99
Perchlorate-314	1			493	3	497	100
Perchlorate-6850		9		64		73	100
Alcohols, terphenyls	1	13	3	1215	22	1254	99.76
Energetics	1	11	30	4160	46	4248	99.29
Total Petroleum Hydrocarbons, glycols	278	123	3	1356	38	1798	99.83
PCBs/PCTs	148	223	10	5442	141	5964	99.83
Pesticides	180	390	72	2612	589	3843	98.13
Semivolatiles	64	421	11	23407	412	24315	99.95
Herbicides	82	97	50	1586	15	1830	97.3
Semivolatiles SIM	1116	1193		9102	89	11500	100
Volatiles	79	104		13388	97	13668	100
Volatiles SIM				204		204	100
Completeness Total for All Subarea 5D North Samples Collected and Judged Valid							**99.82**

Table 4-7 Summary of Data Completeness Following Data Validation – Subarea 5D South

	Number of Analyte Detections Without Qualifiers	Number of Estimated Results	Number of Rejected Results	Number of Nondetect Results	Number of Estimated Nondetect Results	Total Analytes Detect and Nondetect	Percent of Analyte Results Judged Valid Versus Total Analyte Results Collected
Dioxins	39	458		485	21	1003	100
Fluoride, Nitrate	16	35		3	8	62	100
NDMA				3		3	100
Formaldehyde				3		3	100
Cyanide				3		3	100
Hexavalent Chromium	8	29		20	2	59	100
Mercury		20		39		59	100
Metals – 6010B	647	114		65		826	100
Metals – 6020	327	599		9	9	944	100
Perchlorate-314	1			58		59	100
Perchlorate-6850		2		4		6	100
PCBs/PCTs	16	55		596	41	708	100
Alcohols, terphenyls				18		18	100
Energetics				54		54	100
Total Petroleum Hydrocarbons, glycols	4	1		22		27	100
Pesticides	35	61	1	537	38	672	99.85
Herbicides	24	10	16	260		310	94.84
Semivolatiles	1	19	4	2748	16	2788	99.86
Semivolatiles SIM	108	230		1113	11	1462	100
Completeness Total for All Subarea 5D South Samples Collected and Judged Valid							**99.77**

The completeness goals for both the locations sampled and the number of measurements judged to be valid were met.

Sampling deviations from procedures described in the WP/FSAP (CDM 2011a) are discussed in Section 2.7 of this TM. Deviations did not impact DQOs for this sampling event. The data reported and not rejected are suitable for their intended use for characterization of Area IV of SSFL. The DQIs identified in the WP/FSAP (CDM 2011a) met appropriate criteria. The achievement of the completeness goals for the data indicates a sufficient amount of usable data has been generated on which to base project decisions.

4.10 Assessment of Data Usability and Reconciliation with WP/FSAP Goals

Over 99 percent of the data validated for Subareas 5D North and 5D South, and reported in this TM, are suitable for their intended use for site characterization. Sample results that were rejected are not suitable for project use. The rejected analyte results do not impact achievement of the overall project objectives. The RLs reported generally met the expected limits proposed by the analytical laboratory in their contract agreement with CDM.

Sample results that were qualified as estimated are usable for project decisions. Numerous dioxin results were qualified as estimated and/or non-detect due to the low detection limits. This data is considered usable.

Field duplicate precision also met criteria a majority of the time. RPDs were outside criteria predominantly when the sample results were close to the RL and/or below the project required action limits. Decisions based on results close to the RL should be made with a degree of caution. The achievement of the completeness goals for locations sampled, and the number of sample results acceptable for use provides sufficient quality data to support project decisions.

Section 5
References

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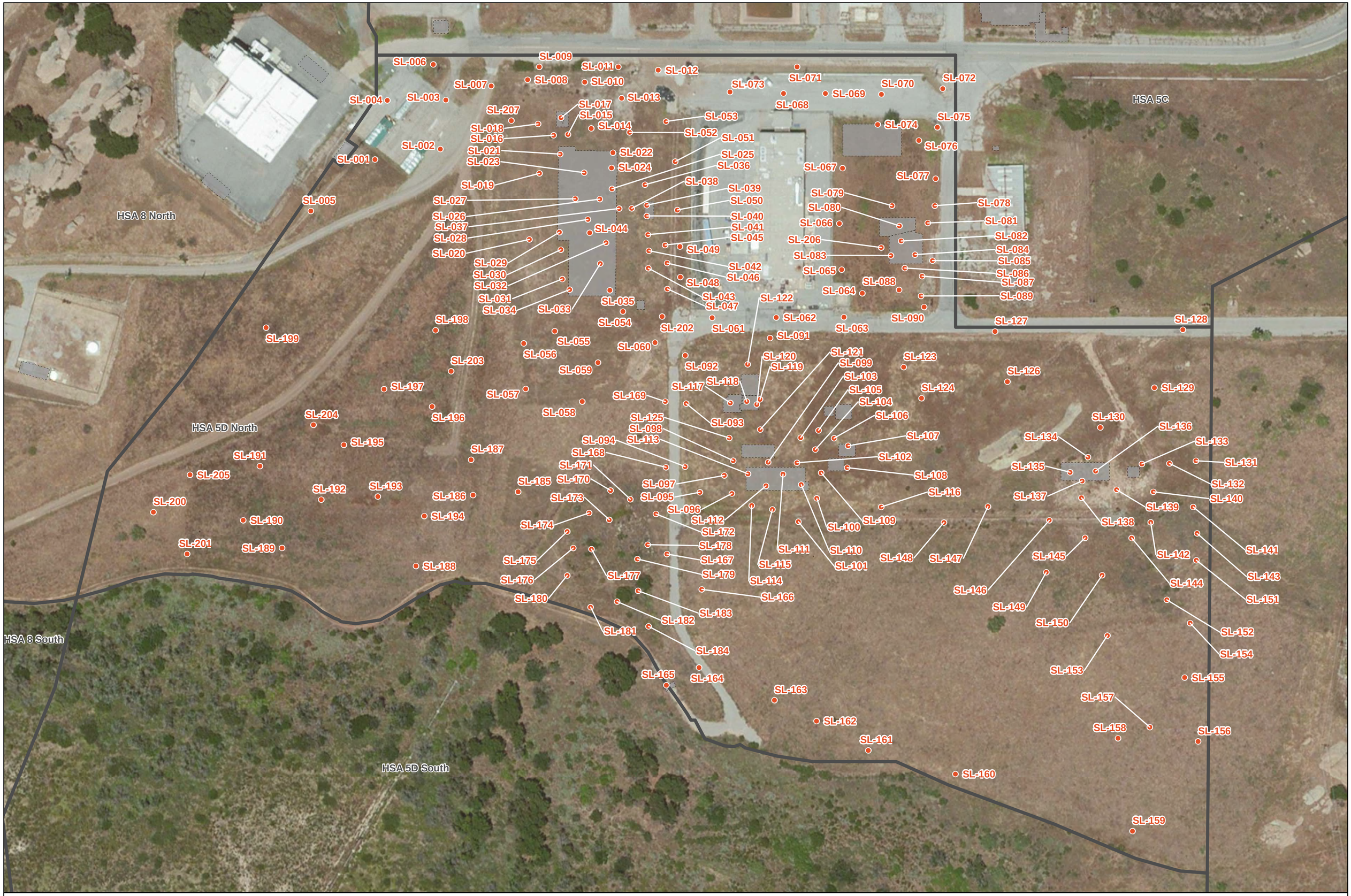

N

Legend

- Sample Location
- Area IV Subarea
- Removed Building

Aerial Source: Bing Maps, (c) 2010 Microsoft Corporation and its data suppliers

Subarea 5D North Sample Locations

0 40 80 160 240 Feet

Santa Susana Field Laboratory
Ventura County, California
Exhibit 1

CDM Smith

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HSA 8 North

HSA 5D North

HSA 8 South

HSA 5D South

SL-040
SL-039
SL-034
SL-035
SL-036
SL-032
SL-033
SL-037
SL-031
SL-030
SL-013
SL-029
SL-038
SL-014
SL-026
SL-015
SL-028
SL-009
SL-012
SL-027
SL-016
SL-007
SL-010
SL-011
SL-006
SL-017
SL-021
SL-002
SL-022
SL-005
SL-004
SL-023
SL-020
SL-008
SL-018
SL-019
SL-003
SL-001
SL-024
SL-025

Legend

- Sample Location
- Area IV Subarea
- Removed Building

Aerial Source: Bing Maps, (c) 2010 Microsoft Corporation and its data suppliers

Subarea 5D South Sample Locations

0 50 100 200 300 Feet

Santa Susana Field Laboratory
Ventura County, California
Exhibit 2

CDM Smith

Y:\SantaSusana\GIS\GIS_2011\MXD\SSFL_5DS_Sampling_Locations_18x24.mxd 5/4/2012