Technical Memorandum

Co-Located Chemical Sampling Results at Historical Site Assessment Subarea 8 North and 8 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.

Prepared by: _____ _____
Margaret Bloisa, P.G. Date
CDM Smith Geologist

Approved by: _____ _____
John Wondolleck Date
CDM Smith Project Manager

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/L	nanogram per liter
pg/L	picogram per liter
µg/L	micrograms per liter
AOC	Administrative Order on Consent
ASTM	American Society for Testing of 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
ng/kg	nanogram per kilogram
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
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 Smith] 2011a) (WP/FSAP) and *Revised Addendum No. 3 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 8N Soil Sampling* (CDM Smith 2011b) (WP/FSAP Addendum) and *Addendum No. 7 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 Smith 2011c).

This TM addresses sampling within U.S. Environmental Protection Agency (EPA) Historical Site Assessment (HSA) Subarea 8 North and 8 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 to 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 Smith. CDM Smith 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 the HSA Subarea 5A 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.

The *Subarea 8 North and 8 South FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study* (HGL 2011) was prepared by HGL to support the soil sampling field implementation program specific to Subarea 8 North and 8 South. The addendum provides the technical justification for location of the drainage, surface, and subsurface soil samples in Subarea 8 North and 8 South. CDM Smith obtained split soil samples for chemical analysis at each location where HGL collected soil samples for radionuclides analyses.

1.3 Geology

Subarea 8 North is predominately within the Chatsworth Formation and the Santa Susana Formation while Subarea 8 South is predominately in the Santa Susana Formation. The Chatsworth Formation is predominantly sandstone interbedded with siltstone and shale and the Santa Susana Formation is a greenish-brown siltstone interbedded with limestone. The overlaying native soils encountered in this area range from clayey sand and silts to clay mottled with calcium carbonate nodules with increasing depth. Disturbed locations comprise fill soils of unknown origin and debris such as concrete, asphalt, and quartzite gravel. The observed contact with the bedrock formations within Subarea 8 North and 8 South occurs between one and ten feet below ground surface (bgs).

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 8 North and 8 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 at surface and drainage locations in Subarea 8 North were collected from April 11, 2011 through April 21, 2011. Subsurface sampling was performed from April 21 through May 13, 2011 and on May 26 and 27, and June 6, 9, and 10, 2011. Locations SL-051, -054, -058, -059, -063, and -073 within the Former Sodium Disposal Facility excavation were sampled on June 17 and 20, 2011. All soil sample locations are shown on Figure 2-1.

Soil samples at surface and drainage locations in Subarea 8 South were collected from September 29, 2011 through September 30, 2011. Subsurface sampling was performed from October 20, 2011 through December 2, 2011. Locations SL-009, 010 and 012 within potentially contaminated areas from open storage activity conducted at the Former Sodium Disposal Facility were sampled from November 16, 2011 to November 18, 2011. All soil sample locations are shown on Figure 2-2.

Table 2-1 (8 North) and Table 2-2 (8 South) provide the rationale for sampling each location, sample number and date of collection for the soil samples; location description; description of any fill materials encountered; reasons for not sampling some of the locations proposed by EPA; and the required analytical protocol.

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 Subarea 8 North and 8 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 inches 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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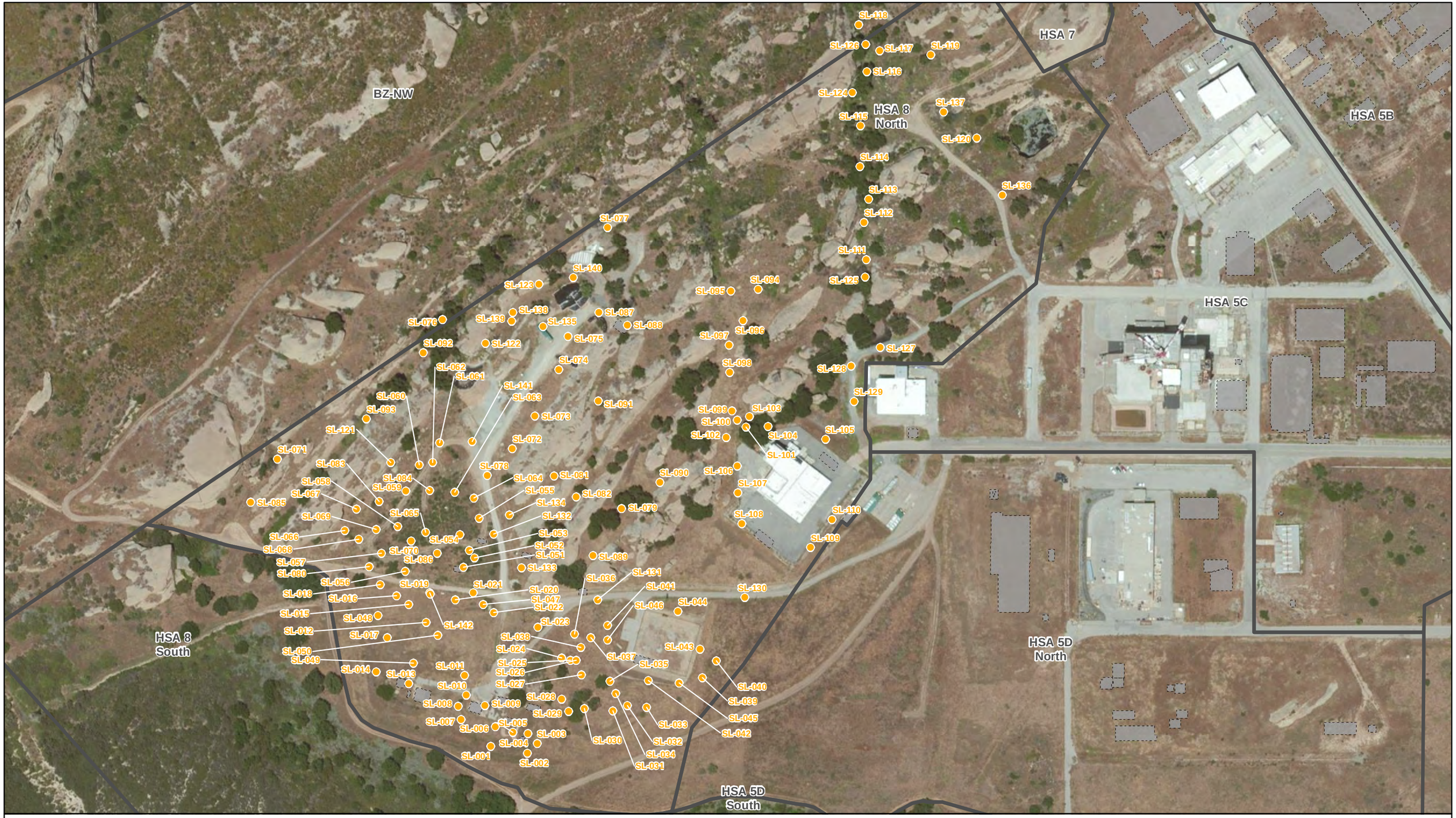

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Legend

- Sample Location
- Area IV Subarea
- Removed Building

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

Subarea 8 North Sample Locations

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

0 50 100 200 300 400 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 8 South Sample Locations

Santa Susana Field Laboratory
Ventura County, California

Figure 2-2

0 50 100 200 300 400 Feet

CDM Smith

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Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	None indicated	4/11/2011	Primary & Glycols	SL-001-SA8N-SS-0.0-0.5
Subsurface	1	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	10.0	None indicated	5/26/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-001-SA8N-SB-4.5 SL-001-SA8N-SB-4.0-5.0 SL-001-SA8N-SB-9.0-10.0
Surface	2	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	None indicated	4/11/2011	Primary & Glycols	SL-002-SA8N-SS-0.0-0.5
Subsurface	2	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	10.0	None indicated	5/26/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-002-SA8N-SB-4.5MS SL-002-SA8N-SB-4.0-5.0MS SL-002-SA8N-SB-9.0-10.0
Surface	3	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	None indicated	4/11/2011	Primary & Glycols	SL-003-SA8N-SS-0.0-0.5
Subsurface	3	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	10.0	None indicated	5/27/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-003-SA8N-SB-4.5 SL-003-SA8N-SB-4.0-5.0 SL-003-SA8N-SB-9.0-10.0
Surface	4	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	"trace gravel"	4/11/2011	Primary & Glycols/Energetics	SL-004-SA8N-SS-0.0-0.5
Subsurface	4	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	10.0	"25% medium angular gravel (fill rock)" from 1.0-2.0 ft	4/21/2011	VOCs/Dioxane Primary & Glycols/Energetics	SL-004-SA8N-SB-4.5 SL-004-SA8N-SB-4.0-5.0 SL-004-SA8N-SB-9.0-10.0
Surface	5	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	None indicated	4/11/2011	Primary & Glycols/Energetics	SL-005-SA8N-SS-0.0-0.5
Subsurface	5	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	9.0	None indicated	4/21/2011	VOCs/Dioxane Primary & Glycols/Energetics	SL-005-SA8N-SB-4.5 SL-005-SA8N-SB-4.0-5.0 SL-005-SA8N-SB-8.0-9.0
Surface	6	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	0.5	None indicated	4/11/2011	Primary & Glycols/Energetics	SL-006-SA8N-SS-0.0-0.5
Subsurface	6	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	9.0	"15% fine angular gravel" from 0 to 1 ft	4/21/2011	VOCs/Dioxane Primary & Glycols/Energetics	SL-006-SA8N-SB-4.5 SL-006-SA8N-SB-4.0-5.0 SL-006-SA8N-SB-8.0-9.0
Surface	7	ESADA Area Building 4314	Geophysical anomaly "Magnetometer".	0.5	None indicated	4/11/2011	Primary & Glycols	SL-007-SA8N-SS-0.0-0.5
Subsurface	7	ESADA Area Building 4314	Geophysical anomaly "Magnetometer".	10.0	None indicated	4/22/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-007-SA8N-SB-4.5 SL-007-SA8N-SB-4.0-5.0 SL-007-SA8N-SB-9.0-10.0
Surface	8	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	0.5	None indicated	4/11/2011	Primary & Glycols	SL-008-SA8N-SS-0.0-0.5
Subsurface	8	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	10.0	None indicated	5/26/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-008-SA8N-SB-4.5 SL-008-SA8N-SB-4.0-5.0 SL-008-SA8N-SB-9.0-10.0
Surface	9	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	0.5	None indicated	4/11/2011	Primary & Glycols/Energetics	SL-009-SA8N-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	9	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	1.0	"trace fine gravel"	No sample collected due to shallow refusal	NA	NA
Surface	10	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	0.5	None indicated	4/11/2011	Primary & Secondary	SL-010-SA8N-SS-0.0-0.5
Subsurface	10	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	10.0	None indicated	4/22/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-010-SA8N-SB-4.5 SL-010-SA8N-SB-4.0-5.0 SL-010-SA8N-SB-9.5 SL-010-SA8N-SB-9.0-10.0
Surface	11	ESADA Area north of Building 4314	Location of an aerial photography feature "Container".	0.5	None indicated	4/11/2011	Primary & Secondary	SL-011-SA8N-SS-0.0-0.5
Subsurface	11	ESADA Area north of Building 4315	Location of an aerial photography feature "Container".	10.0	"trace concrete" from 0 to 2.5 ft	4/22/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-011-SA8N-SB-4.5 SL-011-SA8N-SB-4.0-5.0 SL-011-SA8N-SB-9.5 SL-011-SA8N-SB-9.0-10.0
Surface	12	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	0.5	None indicated	4/12/2011	Primary & Secondary	SL-012-SA8N-SS-0.0-0.5
Subsurface	12	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	7.0	None indicated	5/2/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-012-SA8N-SB-4.5 SL-012-SA8N-SB-4.0-5.0
Surface	13	ESADA Area east of Building 4814	Location of an aerial photography feature "Trench".	0.5	None indicated	4/11/2011	Primary & Glycols	SL-013-SA8N-SS-0.0-0.5MS
Subsurface	13	ESADA Area east of Building 4814	Location of an aerial photography feature "Trench".	3.0	"5% fine gravel" from 0 to 1 ft	4/29/2011	VOCs/Dioxane Primary & Glycols	SL-013-SA8N-SB-2.5 SL-013-SA8N-SB-2.0-3.0
Surface	14	ESADA Area west of Building 4814	Location of an aerial photography feature "Trench".	0.5	None indicated	4/11/2011	Primary & Glycols	SL-014-SA8N-SS-0.0-0.5
Subsurface	14	ESADA Area west of Building 4814	Location of an aerial photography feature "Trench".	5.0	None indicated	4/29/2011	VOCs/Dioxane Primary & Glycols	SL-014-SA8N-SB-4.5 SL-014-SA8N-SB-4.0-5.0
Surface	15	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	0.5	None indicated	4/12/2011	Primary & Glycols	SL-015-SA8N-SS-0.0-0.5
Subsurface	15	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	6.0	None indicated	5/3/2011	VOCs/Dioxane Primary & Glycols	SL-015-SA8N-SB-4.5MS SL-015-SA8N-SB-4.0-5.0MS
Surface	16	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	0.5	None indicated	4/12/2011	Primary & Glycols	SL-016-SA8N-SS-0.0-0.5
Subsurface	16	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	4.0	None indicated	5/3/2011	VOCs/Dioxane Primary & Glycols	SL-016-SA8N-SB-3.5 SL-016-SA8N-SB-3.0-4.0
Surface	17	ESADA Area north of Building 4814	Location of an aerial photography feature "Trench".	0.5	None indicated	4/11/2011	Primary & Glycols	SL-017-SA8N-SS-0.0-0.5
Subsurface	17	ESADA Area north of Building 4814	Location of an aerial photography feature "Trench".	8.0	None indicated	4/29/2011	VOCs/Dioxane Primary & Glycols Primary & Glycols	SL-017-SA8N-SB-4.5 SL-017-SA8N-SB-4.0-5.0 SL-017-SA8N-SB-7.0-8.0

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	18	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	0.5	None indicated	4/12/2011	Primary	SL-018-SA8N-SS-0.0-0.5
Subsurface	18	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	5.5	None indicated	5/3/2011	VOCs/Dioxane Primary	SL-018-SA8N-SB-4.5 SL-018-SA8N-SB-4.0-5.0
Surface	19	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	0.5	None indicated	4/12/2011	Primary & Secondary	SL-019-SA8N-SS-0.0-0.5
Subsurface	19	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	5.0	None indicated	5/3/2011	VOCs/Dioxane/GRO Primary & Secondary	SL-019-SA8N-SB-4.5 SL-019-SA8N-SB-4.0-5.0
Surface	20	ESADA Area south of the Arness Fire Road	Aerial photo feature "Excavation". Underground Piping Building 4814 to Former Sodium Disposal Facility.	0.5	None indicated	4/12/2011	Primary & Secondary	SL-020-SA8N-SS-0.0-0.5
Subsurface	20	ESADA Area south of the Arness Fire Road	Aerial photo feature "Excavation". Underground Piping Building 4814 to Former Sodium Disposal Facility.	9.0	None indicated	5/3/2011	VOCs/Dioxane/GRO Primary & Secondary VOCs/Dioxane/GRO Primary & Secondary	SL-020-SA8N-SB-4.5 SL-020-SA8N-SB-4.0-5.0 SL-020-SA8N-SB-9.5 SL-020-SA8N-SB-9.0-10.0
Surface	21	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation and Ground Scar".	0.5	None indicated	4/12/2011	Primary & Secondary	SL-021-SA8N-SS-0.0-0.5
Subsurface	21	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation and Ground Scar".	10.0	None indicated	5/4/2011	VOCs/Dioxane/GRO Primary & Secondary VOCs/Dioxane/GRO Primary & Secondary	SL-021-SA8N-SB-4.5 SL-021-SA8N-SB-4.0-5.0 SL-021-SA8N-SB-9.5 SL-021-SA8N-SB-9.0-10.0
Surface	22	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation, Ground Scar, Trench".	0.5	None indicated	4/12/2011	Primary & Secondary	SL-022-SA8N-SS-0.0-0.5
Subsurface	22	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation, Ground Scar, Trench".	10.0	None indicated	5/2/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-022-SA8N-SB-4.5 SL-022-SA8N-SB-4.0-5.0 SL-022-SA8N-SB-9.5 SL-022-SA8N-SB-9.0-10.0
Surface	23	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench".	0.5	None indicated	4/12/2011	Primary	SL-023-SA8N-SS-0.0-0.5
Subsurface	23	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench".	10.0	None indicated	5/2/2011	VOCs/Dioxane Primary Primary	SL-023-SA8N-SB-4.5 SL-023-SA8N-SB-4.0-5.0 SL-023-SA8N-SB-9.0-10.0
Surface	27	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench" and Geophysical anomaly "Magnetometer".	0.5	"5% gravel"	4/13/2011	Primary TPH only	SL-027-SA8N-SS-0.0-0.5MS SL-027-SA8N-SS-0.0-0.5
Subsurface	27	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench" and Geophysical anomaly "Magnetometer".	10.0	None indicated	4/26/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-027-SA8N-SB-4.5 SL-027-SA8N-SB-4.0-5.0 SL-027-SA8N-SB-9.5 SL-027-SA8N-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	28	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	0.5	"trace sandstone + charcoal cobbles (2-3"), iron ring found, wire"	4/13/2011	Primary & TPH	SL-028-SA8N-SS-0.0-0.5
Subsurface	28	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	10.0	"trace fine angular gravel, trace charcoal" from 0 to 2 ft	4/26/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-028-SA8N-SB-4.5 SL-028-SA8N-SB-4.0-5.0 SL-028-SA8N-SB-9.5 SL-028-SA8N-SB-9.0-10.0
Surface	32	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	0.5	"5% gravel fill"	4/13/2011	Primary & TPH	SL-032-SA8N-SS-0.0-0.5
Subsurface	32	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	10.0	None indicated	4/27/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-032-SA8N-SB-4.5 SL-032-SA8N-SB-4.0-5.0 SL-032-SA8N-SB-9.5 SL-032-SA8N-SB-9.0-10.0
Surface	36	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	0.5	None indicated	4/12/2011	Primary & TPH	SL-036-SA8N-SS-0.0-0.5
Subsurface	36	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	10.0	None indicated	4/25/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-036-SA8N-SB-4.5 SL-036-SA8N-SB-4.0-5.0 SL-036-SA8N-SB-9.5 SL-036-SA8N-SB-9.0-10.0
Surface	40	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	0.5	"10% rock fragments (sandstone and asphalt)"	4/14/2011	Primary & TPH	SL-040-SA8N-SS-0.0-0.5
Subsurface	40	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	10.0	"trace asphalt" from 0 to 1.6 ft	4/29/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-040-SA8N-SB-4.5MS SL-040-SA8N-SB-4.0-5.0MS SL-040-SA8N-SB-9.5 SL-040-SA8N-SB-9.0-10.0
Subsurface	41	ESADA Area west of Building 4425	Potential radiological contamination below concrete drainage ditch.	10.0	None indicated	4/28/2011	VOCs/Dioxane/GRO Primary & TPH GRO only Primary & TPH	SL-041-SA8N-SB-4.5 SL-041-SA8N-SB-4.0-5.0 SL-041-SA8N-SB-9.5 SL-041-SA8N-SB-9.0-10.0
Drainage	46	ESADA Area west of Building 4425	Accumulated sediment within concrete drainage ditch.	0.5	None indicated	4/13/2011	Primary & TPH	SL-046-SA8N-SS-0.0-0.5
Drainage	47	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	0.5	None indicated	4/12/2011	Primary & Secondary	SL-047-SA8N-SS-0.0-0.5
Drainage	48	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	0.5	black plastic net/mesh in drainage"	4/12/2011	Primary & Glycols	SL-048-SA8N-SS-0.0-0.5
Surface	49	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	0.5	None indicated	4/11/2011	Primary & Secondary	SL-049-SA8N-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	49	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	9.0	None indicated	4/29/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-049-SA8N-SB-4.5 SL-049-SA8N-SB-4.0-5.0 SL-049-SA8N-SB-8.5 SL-049-SA8N-SB-8.0-9.0
Surface	50	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	0.5	None indicated	4/12/2011	Primary & Glycols	SL-050-SA8N-SS-0.0-0.5
Subsurface	50	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	10.0	None indicated	5/2/2011	VOCs/Dioxane Primary/Glycols Primary/Glycol	SL-050-SA8N-SB-4.5 SL-050-SA8N-SB-4.0-5.0 SL-050-SA8N-SB-9.0-10.0
Subsurface	51	Former Sodium Disposal Facility	Former concrete pool at Former Sodium Disposal Facility Building 4886.	8.8	" subangular quartzite gravel 3/4 diamter" at 3 ft	6/17/2011	VOCs/Dioxane Primary	SL-051-SA8N-SB-8.0 SL-051-SA8N-SB-7.5-8.5
Subsurface	54	Former Sodium Disposal Facility	Area of former Upper Pond	0.5	None indicated	6/17/2011	VOCs/Dioxane	SL-054-SA8N-SB-7.5
Surface	56	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	0.5	"trace gravel"	4/18/2011	Primary & Secondary	SL-056-SA8N-SS-0.0-0.5
Subsurface	56	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	9.0	None indicated	5/5/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-056-SA8N-SB-4.5 SL-056-SA8N-SB-4.0-5.0 SL-056-SA8N-SB-7.5 SL-056-SA8N-SB-7.0-8.0
Surface	57	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	0.5	None indicated	4/18/2011	Primary & Secondary	SL-057-SA8N-SS-0.0-0.5
Subsurface	57	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	8.0	None indicated	5/5/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-057-SA8N-SB-4.5 SL-057-SA8N-SB-4.0-5.0 SL-057-SA8N-SB-7.5 SL-057-SA8N-SB-7.0-8.0
Subsurface	58	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench" and geophysical anomaly "Conductivity".	7.5	None indicated	6/17/2011	VOCs/Dioxane	SL-058-SA8N-SB-7.0
Subsurface	59	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	7.5	"trace gravel fill" from 2 to 5 ft	6/17/2011	VOCs/Dioxane	SL-059-SA8N-SB-9.0
Surface	62	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	0.5	None indicated	4/15/2011	Primary & Secondary	SL-062-SA8N-SS-0.0-0.5
Subsurface	62	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	7.5	"trace gravel fill rocks" from 0 to 7.5 ft	5/5/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-062-SA8N-SB-4.5 SL-062-SA8N-SB-4.0-5.0
Subsurface	63	Former Sodium Disposal Facility	Former Lower Pond.	6.5	None indicated	6/17/2011	VOCs/Dioxane	SL-063-SA8N-SB-6.5
Surface	67	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	0.5	None indicated	4/15/2011	Primary & Secondary	SL-067-SA8N-SS-0.0-0.5
Subsurface	67	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	5.5	None indicated	5/4/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-067-SA8N-SB-4.5 SL-067-SA8N-SB-4.0-5.0
Surface	71	West of the Former Sodium Disposal Facility	Historical photograph.	0.5	None indicated	4/18/2011	Primary & Secondary	SL-071-SA8N-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	71	West of the Former Sodium Disposal Facility	Historical photograph.	2.8	None indicated	6/7/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-071-SA8N-SB-2.5 SL-071-SA8N-SB-2.0-3.0
Subsurface	73	Former Sodium Disposal Facility	Previous excavation.	5.0	None indicated	6/20/2011	VOCs/Dioxane	SL-073-SA8N-SB-5.0
Surface	75	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	0.5	"trace gravel fill fragments"	4/19/2011	Primary & Secondary	SL-075-SA8N-SS-0.0-0.5
Subsurface	75	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	1.5	"20% fine to medium angular gravel"	No sample collected due to shallow refusal	NA	NA
Surface	76	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-076-SA8N-SS-0.0-0.5
Subsurface	76	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	8.5	None indicated	6/8/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-076-SA8N-SB-4.5MS SL-076-SA8N-SB-4.0-5.0MS SL-076-SA8N-SB-8.0 SL-076-SA8N-SB-7.5-8.5
Drainage	77	Former Sodium Disposal Facility downgradient of Outfall 6	Sediment downgradient of Outfall 006.	0.5	"10% gravel fill"	4/19/2011	Primary & Secondary	SL-077-SA8N-SS-0.0-0.5
Surface	78	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	0.5	"trace fill gravel"	4/14/2011	Primary & Secondary	SL-078-SA8N-SS-0.0-0.5
Subsurface	78	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	6.0	"trace angular medium gravel (fill rock)" from 0 to 4.5 ft	5/9/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-078-SA8N-SB-4.5 SL-078-SA8N-SB-4.0-5.0
Surface	79	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	0.5	None indicated	4/14/2011	Primary & Secondary	SL-079-SA8N-SS-0.0-0.5
Subsurface	79	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	10.0	None indicated	6/6/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-079-SA8N-SB-4.5 SL-079-SA8N-SB-4.0-5.0 SL-079-SA8N-SB-9.5 SL-079-SA8N-SB-9.0-10.0
Surface	80	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	0.5	None indicated	4/18/2011	Primary & Secondary	SL-080-SA8N-SS-0.0-0.5
Subsurface	80	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	6.5	"5% angular fine to medium gravel (fill rock)" from 0 to 2.3 ft	5/4/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-080-SA8N-SB-4.5 SL-080-SA8N-SB-4.0-5.0
Surface	81	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	NA	NA	No sample collected-Archeological site	NA	NA

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	81	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	NA	NA	No sample collected-Archeological site	NA	NA
Surface	82	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	0.5	"5% sandstone rock fragments"	4/14/2011	Primary & Secondary	SL-082-SA8N-SS-0.0-0.5
Subsurface	82	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	0.7	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	85	West of the Former Sodium Disposal Facility	Past Environmental Data.	0.5	"trace rock fragments (sandstone)"	4/18/2011	Primary & Secondary	SL-085-SA8N-SS-0.0-0.5
Subsurface	85	West of the Former Sodium Disposal Facility	Past Environmental Data.	2.5	"trace gravel"	No sample collected due to shallow refusal	NA	NA
Surface	86	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	0.5	None indicated	4/18/2011	Primary	SL-086-SA8N-SS-0.0-0.5
Subsurface	86	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	7.5	"trace pieces of concrete on surface "1/2"-1")	5/6/2011	VOCs/Dioxane Primary	SL-086-SA8N-SB-7.0 SL-086-SA8N-SB-6.5-7.5
Subsurface	87	Former Sodium Disposal Facility south Of Outfall 7	Geophysical anamoly "Conductivity".	10.0	"trace pink marking paint at 8""	5/9/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-087-SA8N-SB-4.5 SL-087-SA8N-SB-4.0-5.0 SL-087-SA8N-SB-9.5 SL-087-SA8N-SB-9.0-10.0
Subsurface	88	Former Sodium Disposal Facility south Of Outfall 9	Geophysical anamoly "Conductivity and Ground Penetrating Radar".	4.0	None indicated	5/9/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-088-SA8N-SB-3.5 SL-088-SA8N-SB-3.0-4.0
Drainage	89	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	0.5	None indicated	4/14/2011	Primary & Secondary	SL-089-SA8N-SS-0.0-0.5
Drainage	90	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	0.5	None indicated	4/14/2011	Primary	SL-090-SA8N-SS-0.0-0.5
Drainage	91	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	0.5	None indicated	4/14/2011	Primary	SL-091-SA8N-SS-0.0-0.5
Drainage	92	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-092-SA8N-SS-0.0-0.5
Drainage	93	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-093-SA8N-SS-0.0-0.5
Surface	94	Building 4009	Geophysical anomaly "Conductivity"and Aerial Photo Feature "Fill Area".	0.5	None indicated	4/19/2011	Primary	SL-094-SA8N-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	94	Building 4009	Geophysical anomaly "Conductivity"and Aerial Photo Feature "Fill Area".	8.5	None indicated	5/13/2011	VOCs/Dioxane Primary Primary	SL-094-SA8N-SB-4.5 SL-094-SA8N-SB-4.0-5.0 SL-094-SA8N-SB-7.5-8.5
Surface	95	Building 4009	Geophysical anomaly "Conductivity"and Aerial Photo Feature "Fill Area".	0.5	None indicated	4/19/2011	Primary	SL-095-SA8N-SS-0.0-0.5
Subsurface	95	Building 4009	Geophysical anomaly "Conductivity"and Aerial Photo Feature "Fill Area".	6.0	None indicated	5/13/2011	VOCs/Dioxane Primary	SL-095-SA8N-SB-4.5 SL-095-SA8N-SB-4.0-5.0
Surface	96	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	0.5	None indicated	4/19/2011	Primary	SL-096-SA8N-SS-0.0-0.5
Subsurface	96	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	10.0	None indicated	5/13/2011	VOCs/Dioxane Primary Primary	SL-096-SA8N-SB-4.5 SL-096-SA8N-SB-4.0-5.0 SL-096-SA8N-SB-9.0-10.0
Surface	97	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	0.5	None indicated	4/19/2011	Primary	SL-097-SA8N-SS-0.0-0.5
Subsurface	97	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	7.0	None indicated	5/12/2011	VOCs/Dioxane Primary	SL-097-SA8N-SB-4.5 SL-097-SA8N-SB-4.0-5.0
Surface	98	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	0.5	None indicated	4/20/2011	Primary	SL-098-SA8N-SS-0.0-0.5
Subsurface	98	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	10.0	None indicated	5/12/2011	VOCs/Dioxane Primary Primary	SL-098-SA8N-SB-4.5 SL-098-SA8N-SB-4.0-5.0 SL-098-SA8N-SB-9.0-10.0
SubSurface	99	Building 4009	Geophysical anomaly "Conductivity" and north of the Building 4009 former leach field.	6.0	None indicated	5/12/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-099-SA8N-SB-4.5 SL-099-SA8N-SB-4.0-5.0
Surface	101	North of Building 4009	Former leach field north of Building 4009.	0.5	"trace sandstone rock fragments"	4/20/2011	Primary & Secondary	SL-101-SA8N-SS-0.0-0.5
Subsurface	101	North of Building 4009	Former leach field north of Building 4009.	8.0	None indicated	5/12/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-101-SA8N-SB-4.5 SL-101-SA8N-SB-4.0-5.0 SL-101-SA8N-SB-7.5 SL-101-SA8N-SB-7.0-8.0
Surface	102	North of Building 4009	Former leach field north of Building 4009.	0.5	None indicated	4/20/2011	Primary & Secondary	SL-102-SA8N-SS-0.0-0.5
Subsurface	102	North of Building 4009	Former leach field north of Building 4009.	1.5	None indicated	No sample collected due to shallow refusal	NA	NA
Subsurface	103	North of Building 4009	Former leach field north of Building 4009.	4.0	None indicated	5/12/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-103-SA8N-SB-3.5 SL-103-SA8N-SB-3.0-4.0
Subsurface	104	North of Building 4009	Geophysical anomaly "Manetometer" associated with former leach field.	10.0	None indicated	5/13/2011	VOCs/Dioxane Primary Primary	SL-104-SA8N-SB-4.5 SL-104-SA8N-SB-4.0-5.0 SL-104-SA8N-SB-9.0-10.0

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	105	Building 4009	Potential radiological contamination from holdup tank on the east side of Building 4009.	7.0	"5% grael fill" from 0 to 1 ft	5/10/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-105-SA8N-SB-4.5 SL-105-SA8N-SB-4.0-5.0
Subsurface	106	West side Building 4009	Potential radiological contamination below concrete drainage ditch.	3.5	None indicated	6/8/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-106-SA8N-SB-3.0 SL-106-SA8N-SB-2.5-3.5
Drainage	108	Building 4009	Accumulated sediment in concrete drainage Building 4009.	0.5	"5% asphalt and concrete pieces (1/4" diameter)"	4/20/2011	Primary & Secondary	SL-108-SA8N-SS-0.0-0.5
Subsurface	109	Building 4009	Potential radiological contamination below concrete drainage ditch.	10.0	"45% sand and weathered concrete" from 0 to 2 ft	6/8/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-109-SA8N-SB-4.5 SL-109-SA8N-SB-4.0-5.0 SL-109-SA8N-SB-9.5 SL-109-SA8N-SB-9.0-10.0
Surface	111	Drainage west of the Building 4056 Landfill	Potential leaching of radioactive contaminants 56 Landfill into drainage. Aerial Photo Feature "Fill Area".	0.5	None indicated	4/21/2011	Primary & Secondary	SL-111-SA8N-SS-0.0-0.5
Subsurface	111	Drainage west of the Building 4056 Landfill	Potential leaching of radioactive contaminants 56 Landfill into drainage. Aerial Photo Feature "Fill Area".	4.0	"trace pieces of brick and sandstone fragments" from 0 to 4 ft	6/10/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-111-SA8N-SB-3.5 SL-111-SA8N-SB-3.0-4.0
Surface	112	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	0.5	None indicated	4/21/2011	Primary & Secondary	SL-112-SA8N-SS-0.0-0.5
Subsurface	112	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	2.5	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	115	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	0.5	None indicated	4/21/2011	Primary & Secondary	SL-115-SA8N-SS-0.0-0.5
Subsurface	115	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	2.3	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	116	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	0.5	None indicated	4/21/2011	Primary & Secondary	SL-116-SA8N-SS-0.0-0.5
Subsurface	116	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	7.2	None indicated	6/9/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-116-SA8N-SB-4.5 SL-116-SA8N-SB-4.0-5.0
Surface	117	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	0.5	"5% rock fragments"	4/21/2011	Primary & Secondary	SL-117-SA8N-SS-0.0-0.5
Subsurface	117	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	1.2	"5% rock fragments (sandstone)"	No sample collected due to shallow refusal	NA	NA

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	118	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	0.5	"20% rock fragments (asphalt, sandstone)"	4/21/2011	Primary & Secondary	SL-118-SA8N-SS-0.0-0.5
Subsurface	118	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	1.0	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	119	North of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	0.5	"5% rock fragments-sandstone"	4/21/2011	Primary Secondary	SL-119-SA8N-SS-0.0-0.5MS SL-119-SA8N-SS-0.0-0.5
Subsurface	119	North of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	0.8	"15% sandstone rock fragments"	No sample collected due to shallow refusal	NA	NA
Surface	120	East of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	0.5	"15% rock fragments (sandstone)"	4/20/2011	Primary & Secondary	SL-120-SA8N-SS-0.0-0.5MS
Subsurface	120	East of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	10.0	"trace gravel fill and asphalt" from 1 to 3 ft "trace charcoal pieces" from 3 to 7 ft	5/11/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-120-SA8N-SB-4.5 SL-120-SA8N-SB-4.0-5.0 SL-120-SA8N-SB-9.5 SL-120-SA8N-SB-9.0-10.0
Surface	122	West side of the Former Sodium Disposal Facility	Suspect Potential Gamma Radiation Anomaly	0.5	None indicated	4/19/2011	Primary & Secondary	SL-122-SA8N-SS-0.0-0.5
Subsurface	122	West side of the Former Sodium Disposal Facility	Suspect Potential Gamma Radiation Anomaly	3.0	None indicated	6/7/2011	VOCs/Dioxane/GRO Primary/TPH	SL-122-SA8N-SB-2.5 SL-122-SA8N-SB-2.0-3.0
Surface	125	Drainage west of the Building 4056 Landfill	Suspect Potential Gamma Radiation Anomaly	0.5	10% sandstone rock fragments"	4/21/2011	Primary & Secondary	SL-125-SA8N-SS-0.0-0.5
Subsurface	125	Drainage west of the Building 4056 Landfill	Suspect Potential Gamma Radiation Anomaly	1.4	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	126	Drainage north of the Building 4056 Landfill	Suspect Potential Gamma Radiation Anomaly	0.5	None indicated	4/21/2011	Primary & Secondary	SL-126-SA8N-SS-0.0-0.5
Subsurface	126	Drainage north of the Building 4056 Landfill	Suspect Potential Gamma Radiation Anomaly	1.0	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	127	North of Building 4100	Surface water run-off into Outfall 7 and elevated gamma reading.	0.5	"15% sandstone rock fragments"	4/20/2011	Primary	SL-127-SA8N-SS-0.0-0.5
Subsurface	127	North of Building 4100	Surface water run-off into Outfall 7 and elevated gamma reading.	7.0	"trace gravel fill rocks" from 0 to 2.25 ft	5/10/2011	VOCs/Dioxane/GRO Primary/TPH	SL-127-SA8N-SB-4.5 SL-127-SA8N-SB-4.0-5.0
Surface	128	West of Building 4100	Surface water run-off into Outfall 7.	0.5	None indicated	4/20/2011	Primary	SL-128-SA8N-SS-0.0-0.5
Subsurface	128	West of Building 4100	Surface water run-off into Outfall 7.	3.5	"trace gravel fill" from 0 to 2 ft	5/10/2011	VOCs/Dioxane/GRO Primary/TPH	SL-128-SA8N-SB-3.0 SL-128-SA8N-SB-2.5-3.5
Surface	129	West of Building 4100	Surface water run-off into Outfall 7.	0.5	None indicated	4/20/2011	Primary	SL-129-SA8N-SS-0.0-0.5

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	129	West of Building 4100	Surface water run-off into Outfall 7.	7.5	None indicated	5/10/2011	VOCs/Dioxane/GRO Primary/TPH	SL-129-SA8N-SB-4.5 SL-129-SA8N-SB-4.0-5.0
Drainage	130	ESADA Area drainage ditch northeast of 4425	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	0.5	None indicated	4/14/2011	Primary	SL-130-SA8N-SS-0.0-0.5
Drainage	131	ESADA Area drainage ditch northwest of 4425	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	0.5	None indicated	4/12/2011	Primary	SL-131-SA8N-SS-0.0-0.5
Drainage	132	Drainage east of the Former Sodium Disposal Facility Upper Pond	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	0.5	"25% gravel fill rock and sandstone"	4/18/2011	Primary & Secondary	SL-132-SA8N-SS-0.0-0.5
Surface	133	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	0.5	"metal wire found"	4/14/2011	Primary Secondary	SL-133-SA8N-SS-0.0-0.5 SL-133-SA8N-SS-0.0-0.5MS
Subsurface	133	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	8.0	"trace concrete rock fragments and gravel rocks" from 0 to 1.5 ft	6/6/2011	VOCs/Dioxane/GRO Primary/Secondary VOCs/Dioxane/GRO Primary/Secondary	SL-133-SA8N-SB-4.5 SL-133-SA8N-SB-4.0-5.0 SL-133-SA8N-SB-7.5 SL-133-SA8N-SB-7.0-8.0
Surface	134	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	0.5	None indicated	4/14/2011	Primary & Secondary	SL-134-SA8N-SS-0.0-0.5
Subsurface	134	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	0.8	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	135	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.5	"10% gravel fill with trace sandstone fragments"	4/19/2011	Primary & Secondary	SL-135-SA8N-SS-0.0-0.5
Subsurface	135	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	3.0	"15% fine to coarse subrounded gravel (fill rock)"	5/9/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-135-SA8N-SB-2.5 SL-135-SA8N-SB-2.0-3.0
Surface	136	West of Building 4100	Surface water run-off into Outfall 7.	0.5	"20% rock fragments (sandstone)"	4/20/2011	Primary	SL-136-SA8N-SS-0.0-0.5
Subsurface	136	Southwest of the Building 4056 Excavation	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	10.0	"10% angular gravel" from 0 to 1.2 ft "5% angular gravel from 1.2 to 7 ft	5/11/2011	VOCs/Dioxane Primary Primary	SL-136-SA8N-SB-4.5 SL-136-SA8N-SB-4.0-5.0 SL-136-SA8N-SB-9.0-10.0
Surface	137	East side of the Building 4056 Landfill	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	0.5	"35% gravel fill and sandstone rock fragments"	4/20/2011	Primary	SL-137-SA8N-SS-0.0-0.5
Subsurface	137	East side of Building 4056 Landfill	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	10.0	"trace gravel fill" from 2.25 to 4 ft	5/10/2011	VOCs/Dioxane Primary Primary	SL-137-SA8N-SB-4.5 SL-137-SA8N-SB-4.0-5.0 SL-137-SA8N-SB-9.0-10.0
Surface	138	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-138-SA8N-SS-0.0-0.5MS

Table 2-1
Soil Samples Collected from HSA Subarea 8 North

Sample Type	EPA Location ID	EPA Location Description	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	138	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	1.4	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	139	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-139-SA8N-SS-0.0-0.5
Subsurface	139	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.6	None indicated	No sample collected due to shallow refusal	NA	NA
Surface	140	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.5	None indicated	4/19/2011	Primary & Secondary	SL-140-SA8N-SS-0.0-0.5
Subsurface	140	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	4.0	None indicated	6/7/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-140-SA8N-SB-3.5 SL-140-SA8N-SB-3.0-4.0
Surface	141	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	0.5	None indicated	4/15/2011	Primary & Secondary	SL-141-SA8N-SS-0.0-0.5
Subsurface	141	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility Ponds.	5.0	"trace angular medium to large gravel (fill rock)" from 0 to 2 ft "trace fine gravel from 2 to 5.5 ft	5/9/2011	VOCs/Dioxane/GRO Primary/Secondary	SL-141-SA8N-SB-4.5MS SL-141-SA8N-SB-4.0-5.0MS

Table 2-2
Soil Samples Collected from HSA Subarea 8 South

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	1	Southern most corner of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	5.5	None indicated	11/18/2011	Primary	SL-001-SA8S-SB-4.0-5.0
Surface	1	Southern most corner of Subarea 8-South.	Historical data show elevated levels of radionuclides.	0.5	"small glass fragment" (~3mm)	9/29/2011	Primary	SL-001-SA8S-SS-0.0-0.5
Subsurface	3	West side of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	1.0	None indicated Refusal on sandstone	No sampled collected due to shallow refusal < 2.5 ft bgs 11/17/2011	NA	NA
Surface	3	West side of Subarea 8-South.	Historical data show elevated levels of radionuclides.	0.5	None indicated	9/29/2011	Primary	SL-003-SA8S-SS-0.0-0.5MS
Subsurface	5	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	4.8	None indicated Refusal on sandstone	11/16/2011	Primary	SL-005-SA8S-SB-3.5-4.5
Surface	5	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/29/2011	Primary	SL-005-SA8S-SS-0.0-0.5
Subsurface	7	West side of Subarea 8-South, next to the Area IV boundary.	Historical data show elevated levels of radionuclides . Potential contamination from Open Storage activities associated with the FSDF.	5.1	None indicated Refusal on sandstone	11/16/2011	Primary	SL-007-SA8S-SB-4.0-5.0
Surface	7	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/29/2011	Primary	SL-007-SA8S-SS-0.0-0.5
Subsurface	8	West side of Subarea 8-South.	Historical data show elevated levels of radionuclides . Potential contamination from Open Storage activities associated with the FSDF.	3.0	None indicated Refusal on sandstone	11/17/2011	Primary	SL-008-SA8S-SB-2.0-3.0
Surface	8	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-008-SA8S-SS-0.0-0.5
Subsurface	9	West side of Subarea 8-South.	Potential contamination from Open Storage activity conducted at the FSDF.	8.1	"trace quartzite gravel trace CaCO3 deposits" from 1.0 to 2.0 ft Refusal on sandstone	11/16/2011	Primary	SL-009-SA8S-SB-4.0-5.0 SL-009-SA8S-SB-7.0-8.0
Surface	9	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-009-SA8S-SS-0.0-0.5
Subsurface	10	West side of Subarea 8-South.	Potential contamination from Open Storage activity conducted at the FSDF.	9.7	None indicated Refusal on sandstone	11/17/2011	Primary	SL-010-SA8S-SB-4.0-5.0 SL-010-SA8S-SB-8.5-9.5

Table 2-2
Soil Samples Collected from HSA Subarea 8 South

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	10	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-010-SA8S-SS-0.0-0.5
Subsurface	11	West side of Subarea 8-South.	Potential contamination from Open Storage activities associated with the FSDF.	5.0	"trace quartzite gravel" from 0 to 1.0 ft Refusal on sandstone	11/17/2011	Primary	SL-011-SA8S-SB-4.0-5.0
Surface	11	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-011-SA8S-SS-0.0-0.5
Subsurface	12	West side of Subarea 8-South.	Potential contamination from Open Storage activities associated with the FSDF.	6.2	None indicated Refusal on sandstone	11/18/2011	Primary	SL-012-SA8S-SB-4.0-5.0
Surface	12	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-012-SA8S-SS-0.0-0.5
Subsurface	13	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	7.5	None indicated Refusal on sandstone	11/14/2011	Primary	SL-013-SA8S-SB-4.0-5.0
Surface	13	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/29/2011	Primary	SL-013-SA8S-SS-0.0-0.5
Subsurface	14	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	8.0	"10% fine subangular gravel" from 0 to 3.0 ft Refusal on sandstone	10/21/2011	Primary Primary	SL-014-SA8S-SB-4.0-5.0 SL-014-SA8S-SB-7.0-8.0
Surface	14	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/29/2011	Primary	SL-014-SA8S-SS-0.0-0.5
Subsurface	15	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	10.0	"quartz crystals ~ 4mm diameter" at 3.0 ft	10/21/2011	Primary	SL-015-SA8S-SB-4.0-5.0 SL-015-SA8S-SB-9.0-10.0
Surface	15	Northwest portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/29/2011	NA	SL-015-SA8S-SS-0.0-0.5
Subsurface	16	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	6.8	None indicated Refusal on sandstone	10/20/2011	Primary	SL-016-SA8S-SB-4.0-5.0
Surface	16	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-016-SA8S-SS-0.0-0.5
Subsurface	17	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	5.0	None indicated Refusal on sandstone	10/21/2011	Primary Primary	SL-017-SA8S-Sb-4.0-5.0
Surface	17	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary Primary	SL-017-SA8S-SS-0.0-0.5

Table 2-2
Soil Samples Collected from HSA Subarea 8 South

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	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	8.5	None indicated Refusal on sandstone	10/21/2011	Primary Primary	SL-018-SA8S-SB-4.0-5.0MS SL-018-SA8S-SB-7.5-8.5
Surface	18	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-018-SA8S-SS-0.0-0.5
Subsurface	19	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	6.1	None indicated Refusal on sandstone	12/2/2011	Primary Primary	SL-019-SA8S-SB-4.0-5.0MS
Surface	19	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-019-SA8S-SS-0.0-0.5
Subsurface	20	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	10.0	None indicated	12/2/2011	Primary	SL-020-SA8S-SB-4.0-5.0 SL-020-SA8S-SB-9.0-10.0
Surface	20	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-020-SA8S-SS-0.0-0.5
Subsurface	21	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	10.0	None indicated	12/2/2011	Primary Primary	SL-021-SA8S-SB-4.0-5.0 SL-021-SA8S-SB-9.0-10.0
Surface	21	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	0.5	None indicated	9/30/2011	Primary	SL-021-SA8S-SS-0.0-0.5
Subsurface	22	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	8.8	None indicated Refusal on sandstone	12/1/2011	Primary Primary	SL-022-SA8S-SB-4.0-5.0 SL-022-SA8S-SB-8.0-9.0
Surface	22	Central portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	0.5	None indicated	9/30/2011	Primary	SL-022-SA8S-SS-0.0-0.5
Subsurface	23	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	9.8	None indicated Refusal on sandstone	12/1/2011	Primary Primary	SL-023-SA8S-SB-4.0-5.0 SL-023-SA8S-SB-9.0-10.0
Surface	23	Central portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	0.5	None indicated	9/30/2011	Primary	SL-023-SA8S-SS-0.0-0.5
Subsurface	24	West portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	8.2	None indicated Refusal on sandstone	11/16/2011	Primary Primary	SL-024-SA8S-SB-4.0-5.0 SL-024-SA8S-SB-7.0-8.0
Surface	24	West portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	0.5	None indicated	9/29/2011	Primary Primary	SL-024-SA8S-SS-0.0-0.5

FSDF - Former Sodium Disposal Facility
Notes:

All surface and drainage samples were analyzed for primary sample analytes (i.e., SVOCs, PAHs, metals [including mercury], hexavalent chromium, fluoride, PCBs/PCTs, dioxins, perchlorate, pesticides, and herbicides). Selected samples were analyzed for the secondary analytes (i.e., total petroleum hydrocarbons - extractable fuel hydrocarbons [TPH-EFH], TPH-gasoline range organics [TPH-GRO], nitrates, pH, formaldehyde, n-Nitrosodimethylamine [NDMA], energetics, cyanide, terphenyls, glycols, and alcohols) or a subset of them. Selected subsurface samples were also analyzed for volatile organic compounds (VOCs) and 1,4-dioxane.

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 Subarea 8 North and 8 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 Smith sampler at the default depths of 4 to 5 feet bgs and 9 to 10 feet bgs.

Soil for VOCs, 1,4-dioxane, and TPH-GRO analyses was collected from the 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 were not accessible by the Geoprobe® rig; therefore, 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 Smith for chemical analyses at approximately 4 to 5 feet bgs, or in some cases at a shallower depth (see Table 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 FSAP Addendum for Subarea 8 North and 8 South, this sampling method constitutes a variance from the FSAP (see Section 2.7.1).

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 Smith's Field Team Leader (FTL). The FTL ensured that the sample labels were completed legibly and correct. 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 Smith 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 one per 20 per parent soil sample 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 8 North, four duplicate/MS/MSD samples were collected in association with the surface samples and analyzed for primary analytes; two of these samples were also analyzed for secondary analytes. A fifth duplicate/MS/MSD sample was analyzed for the primary analytes and glycols only, and a sixth duplicate/MS/MSD sample was analyzed for secondary analytes only.

For the Subarea 8 North subsurface samples, duplicate/MS/MSD samples collected at two locations were analyzed for primary analytes, VOCs/1,4-dioxane, and glycols; at two other locations they were analyzed for primary and secondary analytes, and VOCs/1,4-dioxane. At a fifth location, the duplicate/MS/MSD samples were analyzed for primary analytes, VOCs/1,4-dioxane, and TPH only.

For Subarea 8 South, one duplicate/MS/MSD sample was collected in association with the surface samples and analyzed for primary analytes. All surface samples were collected and analyzed for primary analytes only.

For the Subarea 8 South subsurface samples, two duplicate/MS/MSD samples were collected and analyzed for primary analytes. All subsurface samples were collected and analyzed for primary analytes only.

2.4.2 Equipment Rinsate Blank Samples

Equipment rinsate blanks were prepared and submitted for chemical analysis at a minimum frequency of 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 8 North, five equipment blanks associated with the surface soil samples were collected and analyzed for the primary surface soil analytes; two of these equipment blanks were also analyzed for the secondary analytes. A sixth equipment blank was analyzed for glycols only and a seventh for secondary analytes only.

For Subarea 8 North, five equipment blanks associated with the subsurface soil samples were collected and analyzed for primary analytes and VOCs/1,4-dioxane. One of these five blanks was also analyzed for glycols only. Two equipment blanks were collected for secondary analyses only.

For Subarea 8 South, one equipment blank associated with the surface soil samples was collected and analyzed for the primary surface soil analytes.

For Subarea 8 South, one equipment blank associated with the subsurface soil samples was collected and analyzed for primary analytes. Two equipment blanks were collected for NDMA only.

2.4.3 Field Blank Samples

Field blanks were to be collected once for each lot number of American Society for Testing and Materials (ASTM) Type II water that HGL used for decontamination. One field blank was collected on April 27, 2011 during the period samples were collected in Subarea 8 North and one field blank sample was collected for Subarea 8 South on September 30, 2011 for NDMA only.

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 9045C
- 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)

Also included as primary analytes for all surface soil samples only are:

- 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

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.

2.5.2 Analytical Method Modifications

The analytical laboratory used for the Subarea 8 North and 8 South co-located soil sampling effort was Lancaster Laboratories, 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 the Subarea 8 North and 8 South sampling, CDM Smith 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 criteria 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 8151	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 9045C	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.

In a response to a 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.

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 Deviations from the WP/FSAP

During the field sampling and analytical programs, modifications from the procedures detailed in the WP/FSAP (CDM Smith 2011b) 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.

2.7.1 Field Sampling

Subarea 8 North Table 2-1 indicates a total of 103 locations were to be sampled at one or more depths. Fifteen sample locations were not sampled for subsurface due to shallow refusal at less than 2.5 feet (SL-009, -082, -085, -102,-112, -115, -117, -118, -119, -125, -126, -134, -138, and -139). One location, SL-081, was not sampled for surface or subsurface soils due to archeological findings.

As indicated in Table 2-2 for Subarea 8 South, 21 locations were to be sampled for surface and subsurface depths. One subsurface sample location, SL-003, was not collected due to shallow refusal at 1.0 feet bgs. A surface sample was collected for this location from 0.0 to 0.5 feet bgs. All other locations were collected at surface and subsurface depths and all samples were analyzed for primary analytes per CDM's Addendum No. 6 to the Master WP/FSAP (CDM Smith 2011b).

Pesticide and herbicide analyses were not checked off (i.e., requested) on the CoCs for the Subarea 8 North samples. Therefore, these analyses were not performed.

The following hand augered locations were sampled for VOCs and 1,4 dioxane: SL-001,-002,-003,-008,-058,-059, and -104. Locations were also hand augered and sampled for VOCs, 1,4 dioxane and TPH: SL-0071, -076, -079, -106, -109, -111, -116, -122, -133, and -140. SVOCs were analyzed for all submitted samples as part of the primary analytes.

As mentioned in Section 2.2, subsurface sampling using hand augers was not originally planned in the Master WP/FSAP or FSAP Addendum for Subarea 8 North and 8 South. The planned approach for subsurface sample collection was to obtain soil material from the soil core contained within the

acetate sleeve produced by the DPT rig. Samples for VOC and SVOC analyses were to be collected directly from the core with minimal disturbance to reduce the loss of VOCs and SVOCs. The process of hand augering soil and the subsequent transfer of the sample material into a plastic baggie had 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.

2.7.2 Analytical

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 RL-LCS and 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 Subarea 8 North and 8 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 8 North surface and drainage soil data. The tables detail 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. When screening criteria are developed to assess the presence/absence of contamination (above/below the applicable criteria) these Subarea 8 North and 8 South data will be combined with RFI data to better define the nature and extent of surface soil contamination throughout Subarea 8 North and 8 South.

Table 3-2 provides the same information for Subarea 8 North subsurface soil data. The tables also indicate at what depth the maximum concentrations were observed. Table 3-3 and provides a summary of the Subarea 8 North combined surface and subsurface datasets.

For Subarea 8 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.

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-8 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	Aluminum	7429-90-5	6010B	86 / 86	12000	28100	5.04 - 6.41	20.1 - 25.5	mg/kg	SL-006-SA8N	0 - 0.5
Inorganic	Antimony	7440-36-0	6020	71 / 86	0.0666 J Q, E, Z	87 J Q	0.0595 - 0.0756	0.198 - 0.252	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	86 / 86	3.29	78.4 J Q, E	0.0793 - 0.101	0.397 - 0.504	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Barium	7440-39-3	6020	86 / 86	78.2	213	0.107 - 0.286	0.397 - 1.06	mg/kg	SL-132-SA8N	0 - 0.5
Inorganic	Beryllium	7440-41-7	6020	86 / 86	0.331 J Q	1.08	0.0159 - 0.0202	0.0991 - 0.126	mg/kg	SL-094-SA8N	0 - 0.5
Inorganic	Boron	7440-42-8	6010B	65 / 86	2.16 J Z	23.6	0.892 - 1.13	5.01 - 6.37	mg/kg	SL-027-SA8N	0 - 0.5
Inorganic	Cadmium	7440-43-9	6020	86 / 86	0.119 J Q	1.47	0.0397 - 0.0504	0.0991 - 0.126	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	86 / 86	2180	59500	6.15 - 7.81	20.1 - 25.5	mg/kg	SL-080-SA8N	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	86 / 86	14.3 J #	57.1 J E, #	0.119 - 0.151	0.397 - 0.504	mg/kg	SL-133-SA8N	0 - 0.5
Inorganic	Chromium VI	18540-29-9	7199	50 / 86	0.37 J Q, Z	1.4 J Q	0.2 - 0.26	1 - 1.3	mg/kg	SL-116-SA8N	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	86 / 86	5.05	13.3 J Q	0.0198 - 0.0252	0.0991 - 0.126	mg/kg	SL-094-SA8N	0 - 0.5
Inorganic	Copper	7440-50-8	6020	86 / 86	8.84 J Q	57.3 J E	0.0654 - 0.083	0.397 - 0.503	mg/kg	SL-027-SA8N	0 - 0.5
Inorganic	Cyanide	57-12-5	9012B	6 / 47	0.21 J Z	0.4 J Z	0.18 - 0.23	0.5 - 0.65	mg/kg	SL-116-SA8N	0 - 0.5
Inorganic	Fluoride	16984-48-8	300	78 / 86	1.1 J Q	5.6 J Q	0.81 - 1	1 - 1.3	mg/kg	SL-049-SA8N	0 - 0.5
Inorganic	Iron	7439-89-6	6010B	86 / 86	16300	39800	4.72 - 26.9	20.1 - 114	mg/kg	SL-007-SA8N	0 - 0.5
Inorganic	Lead	7439-92-1	6020	86 / 86	5.91 J Q	9920 J Q	0.0103 - 2.69	0.198 - 51.8	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	86 / 86	13.6	31.1	0.22 - 0.28	2 - 2.5	mg/kg	SL-141-SA8N	0 - 0.5
Inorganic	Magnesium	7439-95-4	6010B	86 / 86	3470	9880	2.55 - 3.24	10 - 12.7	mg/kg	SL-004-SA8N	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	86 / 86	236	491 J #	0.0782 - 0.0994	0.501 - 0.637	mg/kg	SL-023-SA8N	0 - 0.5
Inorganic	Mercury	7439-97-6	7471A	71 / 86	0.0037 J FD, Z	3.77	0.0027 - 0.0153	0.0934 - 0.532	mg/kg	SL-093-SA8N	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	86 / 86	0.241	2.4	0.0496 - 0.063	0.0991 - 0.126	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	86 / 86	10.5 J #	44.8 J Q, #	0.0991 - 0.126	0.397 - 0.504	mg/kg	SL-133-SA8N	0 - 0.5
Inorganic	Nitrate	14797-55-8	300	44 / 47	1 J Z	51.6 J Q	0.81 - 4.6	1.5 - 8.7	mg/kg	SL-078-SA8N	0 - 0.5
Inorganic	Percent Moisture	MOIST	160.3M	86 / 86	1.1	22.3	0.5 - 0.5	0.5 - 0.5	%	SL-077-SA8N	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314	0 / 86	-	-	9.1 - 11.6	30.3 - 38.6	ug/kg		-
Inorganic	Perchlorate	14797-73-0	6850	2 / 11	3.2 J Z	3.8 J Z	2.3 - 2.6	5.4 - 6.2	ug/kg	SL-021-SA8N	0 - 0.5
Inorganic	pH	pH	9045M	86 / 86	5.75	8.47	0.01 - 0.01	0.01 - 0.01	pH unit	SL-009-SA8N	0 - 0.5
Inorganic	Phosphorus	7723-14-0	6010B	86 / 86	265	3620 J E	0.561 - 1.15	10 - 20.5	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Potassium	9/7/7440	6010B	86 / 86	2130 J Q	7430	18 - 22.9	50.1 - 63.7	mg/kg	SL-036-SA8N	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	86 / 86	0.0838 J Z	0.795	0.0397 - 0.0504	0.397 - 0.504	mg/kg	SL-056-SA8N	0 - 0.5
Inorganic	Silver	7440-22-4	6020	86 / 86	0.0146 J Z	0.515	0.0119 - 0.0151	0.0991 - 0.126	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	86 / 86	65 J Z	266	37.4 - 47.5	100 - 127	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Strontium	7440-24-6	6010B	86 / 86	14.7	111	0.0622 - 0.079	0.501 - 0.637	mg/kg	SL-027-SA8N	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	86 / 86	0.177	0.475 J Q	0.0297 - 0.0378	0.0991 - 0.126	mg/kg	SL-032-SA8N	0 - 0.5
Inorganic	Tin	7440-31-5	6010B	0 / 86	-	-	1 - 1.27	10 - 12.7	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	86 / 86	937	1530	0.381 - 0.484	1 - 1.27	mg/kg	SL-046-SA8N	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	86 / 86	29.5 J A	79.4 J Q	0.0218 - 0.0277	0.0991 - 0.126	mg/kg	SL-001-SA8N	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	86 / 86	50 J E	649 J A	0.561 - 2.78	3.01 - 14.9	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	64 / 86	0.929 J Z	7.09	0.842 - 1.07	5.01 - 6.37	mg/kg	SL-027-SA8N	0 - 0.5
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 51	-	-	81 - 100	240 - 300	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA-8 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 / 51	-	-	81 - 100	240 - 300	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 51	-	-	81 - 100	120 - 150	ug/kg		-
Misc. Organics	2-Propanol	67-63-0	8015B	1 / 47	340 J Z	340 J Z	100 - 130	510 - 640	ug/kg	SL-108-SA8N	0 - 0.5
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 51	-	-	100 - 130	120 - 150	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 51	-	-	60 - 76	120 - 150	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 51	-	-	81 - 100	120 - 150	ug/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 63	-	-	5.1 - 6.4	13 - 16	mg/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 47	-	-	100 - 130	510 - 640	ug/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 63	-	-	5.1 - 6.4	13 - 16	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	8 / 47	780 J Z	1700 J Z	610 - 1400	1500 - 3400	ug/kg	SL-125-SA8N	0 - 0.5
Misc. Organics	HMX	2691-41-0	8330A	0 / 51	-	-	100 - 130	300 - 380	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	0 / 47	-	-	100 - 130	510 - 640	ug/kg		-
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 47	-	-	1.6 - 3	3.6 - 7.1	mg/kg		-
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 51	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 51	-	-	810 - 1000	2400 - 3000	ug/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 47	-	-	1.6 - 3	3.6 - 7.1	mg/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 51	-	-	810 - 1000	2400 - 3000	ug/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 63	-	-	5.1 - 6.4	13 - 16	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	1 / 47	3 J Z	3 J Z	1.6 - 3	3.6 - 7.1	mg/kg	SL-108-SA8N	0 - 0.5
Misc. Organics	RDX	121-82-4	8330A	0 / 51	-	-	50 - 63	120 - 150	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 51	-	-	62 - 77	120 - 150	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	85 / 86	1.24 J Z	636	0.0224 - 0.272	5 - 6.33	ng/kg	SL-032-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	71 / 86	0.648 J Z	43.8	0.00881 - 0.123	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	30 / 86	0.241 J Z	3.08 J Z	0.0141 - 0.14	5 - 6.33	ng/kg	SL-032-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	52 / 86	0.0936 J Z	5.95	0.0146 - 0.165	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	71 / 86	0.24 J Z	4.98 J Z	0.0121 - 0.135	5 - 6.33	ng/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	73 / 86	0.236 J Z	31.1	0.0153 - 0.173	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	49 / 86	0.0915 J Z	12	0.0109 - 0.115	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	70 / 86	0.176 J Z	14.5	0.0142 - 0.159	5 - 6.33	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	41 / 86	0.185 J Z	2.96 J Z	0.015 - 0.107	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	40 / 86	0.0929 J Z	7.19	0.0118 - 0.158	5 - 6.33	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	67 / 86	0.133 J Z	11.5	0.0103 - 0.198	5 - 6.33	ng/kg	SL-016-SA8N	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	43 / 86	0.154 J Z	21.2	0.0118 - 0.119	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	59 / 86	0.383 J Z	27	0.0116 - 0.196	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	28 / 86	0.0161 J Z	3.11	0.0104 - 0.145	1 - 1.27	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	68 / 86	0.0753 J Z	28.5 Z	0.018 - 0.953	1 - 1.27	ng/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 86	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 86	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 86	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 86	-	-	0.33 - 400	1.7 - 2100	ug/kg		-

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA-8 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
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	1 / 86	1700	1700	0.33 - 400	1.7 - 2100	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	69 / 86	0.7 J Z	1500	0.33 - 400	1.7 - 2100	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	58 / 86	0.56 J Z	42	0.39 - 470	1.7 - 2100	ug/kg	SL-116-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 86	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	8 / 86	0.61 J Z	29 J S	0.33 - 400	1.7 - 2100	ug/kg	SL-010-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 86	-	-	1 - 1200	3.3 - 4000	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 86	-	-	1 - 1200	3.3 - 4000	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	50 / 86	1.3 J Z	5100	1 - 1200	3.3 - 4000	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	86 / 86	9.4 J Z	5190 J #	0.0202 - 0.203	10 - 12.7	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	77 / 86	1.18 J Z	75.9	0.017 - 0.123	10 - 12.7	ng/kg	SL-032-SA8N	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	6 / 86	0.96 J Z	2.4	0.7 - 4	1.7 - 10	ug/kg	SL-133-SA8N	0 - 0.5
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 86	-	-	340 - 1900	1000 - 5700	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	1 / 86	510	510	34 - 190	170 - 960	ug/kg	SL-092-SA8N	0 - 0.5
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	14 / 86	0.88 J Z	4 J Z	0.7 - 4	1.7 - 10	ug/kg	SL-091-SA8N	0 - 0.5
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 86	-	-	100 - 570	340 - 1900	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 86	-	-	69 - 380	170 - 960	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 86	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 86	-	-	69 - 380	170 - 960	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C	1 / 1	120 J Z	120 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	2 / 85	1.2 J Z	6.6	0.7 - 4	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	6 / 86	0.51 J Z	1.9 J Z	0.35 - 2	1.7 - 10	ug/kg	SL-108-SA8N	0 - 0.5

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA-8 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 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	1 / 1	190 J Z	190 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Anthracene	120-12-7	8270C SIM	23 / 85	0.4 J Z	15	0.35 - 2	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 86	-	-	1200 - 6700	3400 - 19000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C	3 / 3	20 J Z	1200	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	39 / 83	0.8 J Z	110	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	1 / 1	1200	1200	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	48 / 85	0.77 J FD, Z	140	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	6 / 6	17 J Z	1500	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	60 / 80	0.96 J Z	220 J C	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	5 / 5	23 J Z	980	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	46 / 81	0.87 J Z	90	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C	1 / 1	910	910	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	41 / 85	0.75 J Z	74	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	73 / 73	18 J Z	1000	17 - 86	340 - 1700	ug/kg	SL-048-SA8N	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	2 / 13	41 J FD	56	6.4 - 7.1	19 - 21	ug/kg	SL-119-SA8N	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	3 / 15	20 J Z	26 J L, Z	17 - 86	170 - 860	ug/kg	SL-126-SA8N	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	2 / 71	18 J Z	110	6.3 - 30	19 - 90	ug/kg	SL-108-SA8N	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	2 / 86	21 J Z	110 J Z	17 - 96	170 - 960	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C	7 / 7	21 J Z	1700	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	74 / 79	0.4 J Z	120	0.35 - 2	1.7 - 10	ug/kg	SL-131-SA8N SL-115-SA8N	0 - 0.5 0 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C	1 / 1	280 J Z	280 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	9 / 85	0.98 J Z	25	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C	0 / 13	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	1 / 73	8.9 J FD, Q, Z	8.9 J FD, Q, Z	6.3 - 30	19 - 90	ug/kg	SL-119-SA8N	0 - 0.5
Semivolatiles	Dimethylphthalate	131-11-3	8270C	0 / 13	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 73	-	-	6.3 - 30	19 - 90	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C	5 / 17	22 J Z	1100	17 - 86	170 - 860	ug/kg	SL-127-SA8N	0 - 0.5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	3 / 69	7.5 J Z	72	6.3 - 7.7	19 - 23	ug/kg	SL-004-SA8N	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	0 / 12	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	9 / 74	9.1 J Z	230	6.3 - 35	19 - 100	ug/kg	SL-108-SA8N	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C	6 / 6	23 J Z	2200	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	60 / 80	0.93 J Z	200	0.7 - 4	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	10 / 86	0.82 J Z	6.3	0.7 - 4	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 86	-	-	69 - 380	170 - 960	ug/kg		-

Table 3-1
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA-8 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	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C	1 / 1	790 J Z	790 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	45 / 85	0.79 J Z	88	0.7 - 4	1.7 - 10	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	44 / 86	0.81 J Z	6.1 J Z	0.7 - 4	1.7 - 10	ug/kg	SL-091-SA8N	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	22 / 47	19.2 J Z	685	17.5 - 337	34.9 - 674	ng/kg	SL-010-SA8N	0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 86	-	-	0.7 - 4	1.7 - 10	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	1 / 86	26 J Z	26 J Z	17 - 96	170 - 960	ug/kg	SL-004-SA8N	0 - 0.5
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 86	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	3 / 3	21 J Z	1200	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	56 / 83	0.76 J Z	110	0.7 - 4	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	0 / 86	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	8 / 8	21 J Z	2600	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	56 / 78	0.89 J Z	170	0.7 - 4	1.7 - 10	ug/kg	SL-131-SA8N	0 - 0.5
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	1 / 56	0.48 J Z	0.48 J Z	0.42 - 59	1.2 - 180	mg/kg	SL-049-SA8N	0 - 0.5
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	45 / 56	0.85 J Z	61 J Z	0.42 - 59	1.2 - 180	mg/kg	SL-108-SA8N	0 - 0.5
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	56 / 56	0.7 J Z	640	0.42 - 59	1.2 - 180	mg/kg	SL-117-SA8N	0 - 0.5
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	56 / 56	2.4	2800	0.42 - 59	1.2 - 180	mg/kg	SL-117-SA8N	0 - 0.5
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	0 / 56	-	-	0.42 - 59	1.2 - 180	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 limit

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	Aluminum	7429-90-5	6010B	106 / 106	9400	37500	5.21 - 6.94	20.7 - 24.7	mg/kg	SL-032-SA8N	4 - 5
Inorganic	Antimony	7440-36-0	6020	90 / 106	0.0689 J Z	1.9 J Q	0.0614 - 0.0855	0.205 - 0.248	mg/kg	SL-005-SA8N	8 - 9
Inorganic	Arsenic	7440-38-2	6020	106 / 106	2.54 J Q	11.6 J E	0.0819 - 0.0994	0.409 - 0.497	mg/kg	SL-076-SA8N	7.5 - 8.5
Inorganic	Barium	7440-39-3	6020	106 / 106	49.6	204	0.111 - 0.134	0.409 - 0.497	mg/kg	SL-041-SA8N	4 - 5
Inorganic	Beryllium	7440-41-7	6020	106 / 106	0.321 J Q	1.22	0.0164 - 0.0199	0.102 - 0.124	mg/kg	SL-041-SA8N	4 - 5
Inorganic	Boron	7440-42-8	6010B	88 / 106	1.04 J Z	20.2	0.373 - 1.1	5.18 - 6.18	mg/kg	SL-133-SA8N	4 - 5
Inorganic	Cadmium	7440-43-9	6020	99 / 106	0.0449 J Z	0.497	0.0409 - 0.0508	0.102 - 0.124	mg/kg	SL-005-SA8N	4 - 5
Inorganic	Calcium	7440-70-2	6010B	106 / 106	1080	233000	2.67 - 37.9	20.7 - 124	mg/kg	SL-032-SA8N	9 - 10
Inorganic	Chromium	7440-47-3	6020	106 / 106	8.73 J Q	49 J Q, A	0.123 - 0.149	0.409 - 0.497	mg/kg	SL-004-SA8N	4 - 5
Inorganic	Chromium VI	18540-29-9	7199	57 / 106	0.28 J Z	1.5	0.21 - 0.25	1 - 1.2	mg/kg	SL-076-SA8N	7.5 - 8.5
Inorganic	Cobalt	7440-48-4	6020	106 / 106	2.75	17.7 J Q, E, #	0.0205 - 0.0248	0.102 - 0.124	mg/kg	SL-027-SA8N	4 - 5
Inorganic	Copper	7440-50-8	6020	106 / 106	3.91 J Q	94 J E, Q	0.0675 - 0.378	0.409 - 2.29	mg/kg	SL-021-SA8N	4 - 5
Inorganic	Cyanide	57-12-5	9012B	0 / 48	-	-	0.19 - 0.22	0.53 - 0.6	mg/kg		-
Inorganic	Fluoride	16984-48-8	300	104 / 106	1.2 J Q	13.1	0.84 - 0.99	1 - 1.2	mg/kg	SL-017-SA8N	7 - 8
Inorganic	Iron	7439-89-6	6010B	106 / 106	15700	38800	2.8 - 28.7	20.7 - 122	mg/kg	SL-003-SA8N SL-049-SA8N	4 - 5 8 9
Inorganic	Lead	7439-92-1	6020	106 / 106	3.95 J E	115 J Q	0.0106 - 0.0282	0.205 - 0.543	mg/kg	SL-005-SA8N	8 - 9
Inorganic	Lithium	7439-93-2	6010B	106 / 106	15.2	41	0.23 - 0.71	2.1 - 2.5	mg/kg	SL-049-SA8N	8 - 9
Inorganic	Magnesium	7439-95-4	6010B	106 / 106	2990	8580	0.47 - 3.14	10.4 - 12.4	mg/kg	SL-049-SA8N	8 - 9
Inorganic	Manganese	7439-96-5	6010B	106 / 106	115 J E	685 J E	0.0385 - 0.0964	0.518 - 0.618	mg/kg	SL-133-SA8N	4 - 5
Inorganic	Mercury	7439-97-6	7471A	18 / 106	0.0042 J Z	0.031 J Z	0.0028 - 0.0081	0.0973 - 0.122	mg/kg	SL-057-SA8N	4 - 5
Inorganic	Molybdenum	7439-98-7	6020	106 / 106	0.113	1.39 J E	0.0512 - 0.0621	0.102 - 0.124	mg/kg	SL-056-SA8N	4 - 5
Inorganic	Nickel	7440-02-0	6020	106 / 106	5.61 J Q	29.1 J Q, A	0.102 - 0.124	0.409 - 0.497	mg/kg	SL-050-SA8N	4 - 5
Inorganic	Nitrate	14797-55-8	300	47 / 48	1.1 J Z	21.9	0.86 - 0.98	1.6 - 1.8	mg/kg	SL-080-SA8N	4 - 5
Inorganic	Percent Moisture	MOIST	160.3M	109 / 109	4.2	19.5	0.5 - 0.5	0.5 - 0.5	%	SL-036-SA8N	9 - 10
Inorganic	Perchlorate	14797-73-0	314	3 / 106	17.3 J Z	199	9.4 - 11.2	31.3 - 37.3	ug/kg	SL-021-SA8N	4 - 5
Inorganic	Perchlorate	14797-73-0	6850	3 / 10	3.1 J Z	180	2.3 - 2.6	5.4 - 6.2	ug/kg	SL-021-SA8N	4 - 5
Inorganic	pH	pH	9045M	106 / 106	5.39	8.83	0.01 - 0.01	0.01 - 0.01	pH unit	SL-005-SA8N	8 - 9
Inorganic	Phosphorus	7723-14-0	6010B	106 / 106	96	647	0.374 - 0.692	10.4 - 12.4	mg/kg	SL-141-SA8N	4 - 5
Inorganic	Potassium	9/7/7440	6010B	106 / 106	1320 J Q	5720	12.1 - 22.2	51.8 - 61.8	mg/kg	SL-141-SA8N	4 - 5
Inorganic	Selenium	7782-49-2	6020	85 / 106	0.0498 J Z	0.493	0.0409 - 0.067	0.409 - 0.497	mg/kg	SL-103-SA8N	3 - 4
Inorganic	Silver	7440-22-4	6020	102 / 106	0.0133 J Q, E, Z	0.13 J Q	0.0123 - 0.0164	0.102 - 0.124	mg/kg	SL-076-SA8N SL-133-SA8N	7.5 - 8.5 7 8
Inorganic	Sodium	7440-23-5	6010B	106 / 106	61 J Z	699	6.36 - 46.1	104 - 124	mg/kg	SL-017-SA8N	4 - 5
Inorganic	Strontium	7440-24-6	6010B	106 / 106	10.3	268	0.0267 - 0.0766	0.518 - 0.618	mg/kg	SL-032-SA8N	9 - 10
Inorganic	Thallium	7440-28-0	6020	106 / 106	0.179	0.47	0.0307 - 0.0373	0.102 - 0.124	mg/kg	SL-094-SA8N SL-041-SA8N	4 - 5 4 5
Inorganic	Tin	7440-31-5	6010B	0 / 106	-	-	0.342 - 1.24	10.4 - 12.4	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	106 / 106	726	1560	0.0742 - 0.47	1.04 - 1.24	mg/kg	SL-133-SA8N	4 - 5
Inorganic	Vanadium	7440-62-2	6020	106 / 106	21.1 J Q	85.1 J E	0.0225 - 0.0273	0.102 - 0.124	mg/kg	SL-086-SA8N	6.5 - 7.5
Inorganic	Zinc	7440-66-6	6020	106 / 106	35.3	198 J A	0.573 - 1.58	3.07 - 8.44	mg/kg	SL-013-SA8N	2 - 3
Inorganic	Zirconium	7440-67-7	6010B	104 / 106	0.93 J Z	8.41	0.492 - 1.04	5.18 - 6.18	mg/kg	SL-022-SA8N	9 - 10
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 54	-	-	81 - 97	240 - 290	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	2,6-Diamino-4-nitrotoluene	59229-75-3	8330A	0 / 54	-	-	81 - 97	240 - 290	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 54	-	-	81 - 97	120 - 140	ug/kg		-
Misc. Organics	2-Propanol	67-63-0	8015B	0 / 48	-	-	110 - 120	540 - 610	ug/kg		-
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 54	-	-	100 - 120	120 - 140	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 54	-	-	61 - 72	120 - 140	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 54	-	-	81 - 97	120 - 140	ug/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 72	-	-	5.4 - 7.1	11 - 15	mg/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 48	-	-	110 - 120	540 - 610	ug/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 72	-	-	5.4 - 6.2	11 - 15	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	2 / 48	2700	3100	650 - 740	1600 - 1800	ug/kg	SL-109-SA8N	9 - 10
Misc. Organics	HMX	2691-41-0	8330A	0 / 54	-	-	100 - 120	300 - 360	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	0 / 48	-	-	110 - 120	540 - 610	ug/kg		-
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 48	-	-	1.6 - 1.8	3.8 - 4.3	mg/kg		-
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 54	-	-	41 - 48	120 - 140	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 54	-	-	810 - 3600	2400 - 3600	ug/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 48	-	-	1.6 - 1.8	3.8 - 4.3	mg/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 54	-	-	810 - 970	2400 - 2900	ug/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 72	-	-	5.4 - 6.2	11 - 15	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	0 / 48	-	-	1.6 - 1.8	3.8 - 4.3	mg/kg		-
Misc. Organics	RDX	121-82-4	8330A	0 / 54	-	-	51 - 60	120 - 140	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 54	-	-	62 - 74	120 - 140	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	17 / 106	1.27 J Z	33	0.015 - 0.101	5.07 - 6.14	ng/kg	SL-120-SA8N	4 - 5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	13 / 106	0.539 J Z	4.68 J Z	0.00701 - 0.0436	5.07 - 6.14	ng/kg	SL-120-SA8N	4 - 5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	2 / 106	0.404 J Z	0.614 J Z	0.0113 - 0.0558	5.07 - 6.14	ng/kg	SL-021-SA8N	9 - 10
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	24 / 106	0.0155 J Z	0.422 J Z	0.011 - 0.076	5.07 - 6.14	ng/kg	SL-005-SA8N	8 - 9
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	13 / 106	0.227 J Z	1.27 J Z	0.00717 - 0.0604	5.07 - 6.14	ng/kg	SL-137-SA8N	9 - 10
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	21 / 106	0.157 J Z	1.46 J Z	0.0114 - 0.078	5.07 - 6.14	ng/kg	SL-005-SA8N	8 - 9
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	20 / 106	0.0214 J Z	0.956 J Z	0.00671 - 0.0543	5.07 - 6.14	ng/kg	SL-137-SA8N	9 - 10
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	42 / 106	0.0355 J Z	1.68 J Z	0.0108 - 0.0738	5.07 - 6.14	ng/kg	SL-071-SA8N	2 - 3
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	19 / 106	0.0492 J Z	1.47 J Z	0.00821 - 0.0696	5.07 - 6.14	ng/kg	SL-094-SA8N	4 - 5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	30 / 106	0.0196 J Z	0.5 J Z	0.0127 - 0.0692	5.07 - 6.14	ng/kg	SL-135-SA8N	2 - 3
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	31 / 106	0.114 J Z	1.49 J Z	0.00636 - 0.0703	5.07 - 6.14	ng/kg	SL-067-SA8N	4 - 5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	7 / 106	0.091 J Z	1.25 J Z	0.00677 - 0.0582	5.07 - 6.14	ng/kg	SL-137-SA8N	9 - 10
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	10 / 106	0.0491 J Z	1.34 J Z	0.00601 - 0.074	5.07 - 6.14	ng/kg	SL-137-SA8N	9 - 10
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	15 / 106	0.0146 J Z	0.118 J Z	0.013 - 0.0367	1.01 - 1.23	ng/kg	SL-020-SA8N	9 - 10
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	40 / 106	0.0162 J Z	1.17 Z	0.011 - 0.127	1.01 - 1.23	ng/kg	SL-051-SA8N	7.5 - 8.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	1 / 106	1.9 J Z	1.9 J Z	0.34 - 1.9	1.8 - 9.7	ug/kg	SL-133-SA8N	4 - 5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	12 / 106	0.93 J Z	37	0.34 - 1.9	1.8 - 9.7	ug/kg	SL-056-SA8N	4 - 5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	6 / 106	0.5 J Z	4.2	0.41 - 2.2	1.8 - 9.7	ug/kg	SL-051-SA8N	7.5 - 8.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 106	-	-	0.34 - 1.9	1.8 - 9.7	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 106	-	-	1 - 5.7	3.4 - 19	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 106	-	-	1 - 5.7	3.4 - 19	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	5 / 106	1.4 J L, Z	4.4	1 - 5.7	3.4 - 19	ug/kg	SL-116-SA8N	4 - 5
PCBs and Dioxins	OCDD	3268-87-9	1613B	39 / 106	2 J Z	503	0.019 - 0.0871	10.1 - 12.3	ng/kg	SL-120-SA8N	4 - 5
PCBs and Dioxins	OCDF	39001-02-0	1613B	13 / 106	1.02 J Z	9.27 J Z	0.0173 - 0.0903	10.1 - 12.3	ng/kg	SL-120-SA8N	4 - 5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	1 / 106	1 J Z	1 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-057-SA8N	7 - 8
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 106	-	-	350 - 1800	1000 - 5400	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	2 / 106	0.83 J Z	0.96 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-057-SA8N	7 - 8
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 106	-	-	100 - 540	350 - 1800	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 106	-	-	69 - 360	170 - 900	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 106	-	-	35 - 180	170 - 900	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 106	-	-	69 - 360	170 - 900	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	0 / 106	-	-	0.69 - 7.2	1.7 - 18	ug/kg		-
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	0 / 106	-	-	0.35 - 3.6	1.7 - 18	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	0 / 1	-	-	18 - 18	180 - 180	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C SIM	2 / 105	0.39 J Z	0.42 J Z	0.35 - 3.6	1.7 - 18	ug/kg	SL-133-SA8N	7 - 8
Semivolatiles	Benzidine	92-87-5	8270C	0 / 106	-	-	1200 - 6300	3500 - 18000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	1 / 106	0.97 J Z	0.97 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-137-SA8N	4 - 5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	3 / 106	0.78 J Z	0.9 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-120-SA8N	9 - 10
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	17 / 106	0.76 J Z	37	0.69 - 7.2	1.7 - 18	ug/kg	SL-120-SA8N	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	3 / 106	1.2 J Z	13 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-120-SA8N	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	3 / 106	0.96 J Z	2	0.69 - 7.2	1.7 - 18	ug/kg	SL-122-SA8N	2 - 3
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	18 / 32	19 J Z	26 J Z	18 - 20	350 - 410	ug/kg	SL-005-SA8N SL-120-SA8N	8 - 9 9 10
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	22 / 77	6.7 J Z	16 J Z	6.2 - 65	19 - 200	ug/kg	SL-016-SA8N	3 - 4
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	1 / 106	19 J Z	19 J Z	6.2 - 65	19 - 200	ug/kg	SL-021-SA8N	9 - 10
Semivolatiles	Carbazole	86-74-8	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C	0 / 1	-	-	18 - 18	180 - 180	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C SIM	11 / 105	0.47 J Z	22	0.35 - 3.6	1.7 - 18	ug/kg	SL-120-SA8N	4 - 5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	1 / 106	2.2	2.2	0.69 - 7.2	1.7 - 18	ug/kg	SL-008-SA8N	9 - 10
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	0 / 106	-	-	6.2 - 65	19 - 200	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 106	-	-	6.2 - 65	19 - 200	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	7 / 106	7.1 J Z	13 J Z	6.2 - 65	19 - 200	ug/kg	SL-136-SA8N	4 - 5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	0 / 3	-	-	18 - 20	180 - 200	ug/kg		-
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	24 / 103	8.6 J Z	11 J Z	6.2 - 65	19 - 200	ug/kg	SL-017-SA8N	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	5 / 106	1 J Z	10 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-120-SA8N	4 - 5
Semivolatiles	Fluorene	86-73-7	8270C SIM	0 / 106	-	-	0.69 - 7.2	1.7 - 18	ug/kg		-
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 106	-	-	69 - 360	170 - 900	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	1 / 106	2.2	2.2	0.69 - 7.2	1.7 - 18	ug/kg	SL-008-SA8N	9 - 10
Semivolatiles	Isophorone	78-59-1	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	10 / 106	0.81 J Z	1.2 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-135-SA8N	2 - 3
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	33 / 48	19.7 J Z	201	17.7 - 200	35.3 - 401	ng/kg	SL-012-SA8N	4 - 5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 106	-	-	0.69 - 7.2	1.7 - 18	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 106	-	-	170 - 900	520 - 2700	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	0 / 2	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	2 / 104	1.4 J Z	1.7 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-137-SA8N	4 - 5
Semivolatiles	Phenol	108-95-2	8270C	0 / 106	-	-	17 - 90	170 - 900	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C SIM	7 / 106	0.84 J Z	11 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-120-SA8N	4 - 5
Volatiles	1,1,1,2-Tetrachloroethane	630-20-6	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	1,1,1-Trichloroethane	71-55-6	8260B	0 / 87	-	-	0.18 - 0.25	3.6 - 5	ug/kg		-
Volatiles	1,1,2,2-Tetrachloroethane	79-34-5	8260B	0 / 87	-	-	0.21 - 0.29	3.6 - 5	ug/kg		-
Volatiles	1,1,2-Trichloroethane	79-00-5	8260B	0 / 87	-	-	0.24 - 0.34	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloroethane	75-34-3	8260B	0 / 87	-	-	0.09 - 0.12	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloroethene	75-35-4	8260B	0 / 87	-	-	0.35 - 0.49	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloropropene	563-58-6	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	1,2,3-Trichlorobenzene	87-61-6	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	1,2,3-Trichloropropane	96-18-4	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	1,2,4-Trichlorobenzene	120-82-1	8260B	0 / 87	-	-	0.16 - 0.22	3.6 - 5	ug/kg		-
Volatiles	1,2,4-Trimethylbenzene	95-63-6	8260B	1 / 87	0.57 J Z	0.57 J Z	0.36 - 0.5	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	1,2-Dibromo-3-chloropropane	96-12-8	8260B	0 / 87	-	-	0.63 - 0.87	3.6 - 5	ug/kg		-
Volatiles	1,2-Dibromoethane	106-93-4	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	1,2-Dichlorobenzene	95-50-1	8260B	0 / 87	-	-	0.08 - 0.11	3.6 - 5	ug/kg		-

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	1,2-Dichloroethane	107-06-2	8260B	0 / 87	-	-	0.14 - 0.19	3.6 - 5	ug/kg		-
Volatiles	1,2-Dichloropropane	78-87-5	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	1,3,5-Trimethylbenzene	108-67-8	8260B	1 / 87	0.36 J Z	0.36 J Z	0.09 - 0.12	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	1,3-Dichlorobenzene	541-73-1	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	1,3-Dichloropropane	142-28-9	8260B	0 / 87	-	-	0.07 - 0.1	3.6 - 5	ug/kg		-
Volatiles	1,4-Dichlorobenzene	106-46-7	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	1,4-Dioxane	123-91-1	8260B SIM	0 / 87	-	-	4.5 - 6.1	14 - 18	ug/kg		-
Volatiles	2,2-Dichloropropane	594-20-7	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	2-Butanone	78-93-3	8260B	2 / 87	2.5 J Z	2.5 J Z	1.1 - 1.5	7.2 - 10	ug/kg	SL-109-SA8N SL-109-SA8N	4 - 5 9 10
Volatiles	2-Chloroethyl Vinyl Ether	110-75-8	8260B	0 / 87	-	-	0.27 - 0.37	3.6 - 5	ug/kg		-
Volatiles	2-Chlorotoluene	95-49-8	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	2-Hexanone	591-78-6	8260B	0 / 87	-	-	1.4 - 2	7.2 - 10	ug/kg		-
Volatiles	4-Chlorotoluene	106-43-4	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	4-Methyl-2-Pentanone	108-10-1	8260B	1 / 87	0.88 J Z	0.88 J Z	0.35 - 0.49	7.2 - 10	ug/kg	SL-027-SA8N	4 - 5
Volatiles	Acetone	67-64-1	8260B	12 / 87	7.2 J Z	15	6.1 - 8.3	7.2 - 10	ug/kg	SL-105-SA8N	4 - 5
Volatiles	Benzene	71-43-2	8260B	1 / 87	0.11 J Z	0.11 J Z	0.09 - 0.12	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Bromobenzene	108-86-1	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	Bromochloromethane	74-97-5	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	Bromodichloromethane	75-27-4	8260B	0 / 87	-	-	0.07 - 0.1	3.6 - 5	ug/kg		-
Volatiles	Bromoform	75-25-2	8260B	0 / 87	-	-	0.36 - 0.5	3.6 - 5	ug/kg		-
Volatiles	Bromomethane	74-83-9	8260B	0 / 87	-	-	0.23 - 0.31	3.6 - 5	ug/kg		-
Volatiles	Carbon tetrachloride	56-23-5	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	Chlorobenzene	108-90-7	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	Chloroethane	75-00-3	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	Chloroform	67-66-3	8260B	11 / 87	0.13 J Z	1.9 J Z	0.11 - 0.15	3.6 - 5	ug/kg	SL-051-SA8N	7.5 - 8.5
Volatiles	Chloromethane	74-87-3	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	Chlorotrifluoroethene	79-38-9	8260B	0 / 87	-	-	0.45 - 0.62	4.5 - 6.2	ug/kg		-
Volatiles	cis-1,2-Dichloroethene	156-59-2	8260B	0 / 87	-	-	0.17 - 0.24	3.6 - 5	ug/kg		-
Volatiles	cis-1,3-Dichloropropene	10061-01-5	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	Dibromochloromethane	124-48-1	8260B	0 / 87	-	-	0.18 - 0.25	3.6 - 5	ug/kg		-
Volatiles	Dibromomethane	74-95-3	8260B	0 / 87	-	-	0.22 - 0.3	3.6 - 5	ug/kg		-
Volatiles	Dichlorodifluoromethane	75-71-8	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	0 / 63	-	-	0.43 - 0.92	1.3 - 2.7	mg/kg		-
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	9 / 63	0.49 J Z	6.7	0.43 - 0.92	1.3 - 2.7	mg/kg	SL-057-SA8N	7 - 8
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	30 / 63	0.45 J Z	17	0.43 - 0.92	1.3 - 2.7	mg/kg	SL-120-SA8N	9 - 10
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	53 / 63	0.5 J Z	100	0.43 - 0.92	1.3 - 2.7	mg/kg	SL-120-SA8N	9 - 10
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	0 / 63	-	-	0.43 - 0.92	1.3 - 2.7	mg/kg		-
Volatiles	Ethylbenzene	100-41-4	8260B	1 / 87	0.46 J Z	0.46 J Z	0.05 - 0.07	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Freon 113	76-13-1	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	Freon 113a	75-88-7	8260B	0 / 87	-	-	0.45 - 0.62	4.5 - 6.2	ug/kg		-
Volatiles	GRO (C5-C12)	GROC5C12	8015M	1 / 63	0.2 J Z	0.2 J Z	0.2 - 0.3	0.9 - 1.4	mg/kg	SL-040-SA8N	9 - 10
Volatiles	Hexachlorobutadiene	87-68-3	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	Isopropylbenzene	98-82-8	8260B	0 / 87	-	-	0.05 - 0.07	3.6 - 5	ug/kg		-
Volatiles	Isopropyltoluene	99-87-6	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	m,p-Xylene	179601-23-1	8260B	1 / 87	1.6 J Z	1.6 J Z	0.15 - 0.21	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Methyl tert-Butyl Ether	1634-04-4	8260B	0 / 87	-	-	0.19 - 0.26	3.6 - 5	ug/kg		-
Volatiles	Methylene chloride	75-09-2	8260B	53 / 87	4.6	44	0.22 - 0.3	3.6 - 5	ug/kg	SL-028-SA8N	4 - 5

Table 3-2
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	N-Butylbenzene	104-51-8	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	N-Propylbenzene	103-65-1	8260B	0 / 87	-	-	0.06 - 0.09	3.6 - 5	ug/kg		-
Volatiles	o-Xylene	95-47-6	8260B	1 / 87	0.49 J Z	0.49 J Z	0.15 - 0.21	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	sec-Butylbenzene	135-98-8	8260B	0 / 87	-	-	0.05 - 0.07	3.6 - 5	ug/kg		-
Volatiles	Styrene	100-42-5	8260B	0 / 87	-	-	0.09 - 0.12	3.6 - 5	ug/kg		-
Volatiles	tert-Butylbenzene	98-06-6	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	Tetrachloroethene	127-18-4	8260B	1 / 87	0.52 J Z	0.52 J Z	0.18 - 0.25	3.6 - 5	ug/kg	SL-051-SA8N	7.5 - 8.5
Volatiles	Toluene	108-88-3	8260B	16 / 87	0.08 J Z	1.5 J Z	0.07 - 0.1	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	trans-1,2-Dichloroethene	156-60-5	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	trans-1,3-Dichloropropene	10061-02-6	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	Trichloroethene	79-01-6	8260B	6 / 87	0.26 J Z	17 J FD, Q	0.14 - 0.19	3.6 - 5	ug/kg	SL-141-SA8N	4 - 5
Volatiles	Trichlorofluoromethane	75-69-4	8260B	0 / 87	-	-	0.26 - 0.36	3.6 - 5	ug/kg		-
Volatiles	Vinyl Chloride	75-01-4	8260B	1 / 87	0.27 J Z	0.27 J Z	0.18 - 0.25	3.6 - 5	ug/kg	SL-020-SA8N	9 - 10

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-8 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	Aluminum	7429-90-5	6010B	192 / 192	9400	37500	5.04 - 6.94	20.1 - 25.5	mg/kg	SL-032-SA8N	4 - 5
Inorganic	Antimony	7440-36-0	6020	161 / 192	0.0666 J Q, E, Z	87 J Q	0.0595 - 0.0855	0.198 - 0.252	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	192 / 192	2.54 J Q	78.4 J Q, E	0.0793 - 0.101	0.397 - 0.504	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Barium	7440-39-3	6020	192 / 192	49.6	213	0.107 - 0.286	0.397 - 1.06	mg/kg	SL-132-SA8N	0 - 0.5
Inorganic	Beryllium	7440-41-7	6020	192 / 192	0.321 J Q	1.22	0.0159 - 0.0202	0.0991 - 0.126	mg/kg	SL-041-SA8N	4 - 5
Inorganic	Boron	7440-42-8	6010B	153 / 192	1.04 J Z	23.6	0.373 - 1.13	5.01 - 6.37	mg/kg	SL-027-SA8N	0 - 0.5
Inorganic	Cadmium	7440-43-9	6020	185 / 192	0.0449 J Z	1.47	0.0397 - 0.0508	0.0991 - 0.126	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	192 / 192	1080	233000	2.67 - 37.9	20.1 - 124	mg/kg	SL-032-SA8N	9 - 10
Inorganic	Chromium	7440-47-3	6020	192 / 192	8.73 J Q	57.1 J E, #	0.119 - 0.151	0.397 - 0.504	mg/kg	SL-133-SA8N	0 - 0.5
Inorganic	Chromium VI	18540-29-9	7199	107 / 192	0.28 J Z	1.5	0.2 - 0.26	1 - 1.3	mg/kg	SL-076-SA8N	7.5 - 8.5
Inorganic	Cobalt	7440-48-4	6020	192 / 192	2.75	17.7 J Q, E, #	0.0198 - 0.0252	0.0991 - 0.126	mg/kg	SL-027-SA8N	4 - 5
Inorganic	Copper	7440-50-8	6020	192 / 192	3.91 J Q	94 J E, Q	0.0654 - 0.378	0.397 - 2.29	mg/kg	SL-021-SA8N	4 - 5
Inorganic	Cyanide	57-12-5	9012B	6 / 95	0.21 J Z	0.4 J Z	0.18 - 0.23	0.5 - 0.65	mg/kg	SL-116-SA8N	0 - 0.5
Inorganic	Fluoride	16984-48-8	300	182 / 192	1.1 J Q	13.1	0.81 - 1	1 - 1.3	mg/kg	SL-017-SA8N	7 - 8
Inorganic	Iron	7439-89-6	6010B	192 / 192	15700	39800	2.8 - 28.7	20.1 - 122	mg/kg	SL-007-SA8N	0 - 0.5
Inorganic	Lead	7439-92-1	6020	192 / 192	3.95 J E	9920 J Q	0.0103 - 2.69	0.198 - 51.8	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	192 / 192	13.6	41	0.22 - 0.71	2 - 2.5	mg/kg	SL-049-SA8N	8 - 9
Inorganic	Magnesium	7439-95-4	6010B	192 / 192	2990	9880	0.47 - 3.24	10 - 12.7	mg/kg	SL-004-SA8N	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	192 / 192	115 J E	685 J E	0.0385 - 0.0994	0.501 - 0.637	mg/kg	SL-133-SA8N	4 - 5
Inorganic	Mercury	7439-97-6	7471A	89 / 192	0.0037 J FD, Z	3.77	0.0027 - 0.0153	0.0934 - 0.532	mg/kg	SL-093-SA8N	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	192 / 192	0.113	2.4	0.0496 - 0.063	0.0991 - 0.126	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	192 / 192	5.61 J Q	44.8 J Q, #	0.0991 - 0.126	0.397 - 0.504	mg/kg	SL-133-SA8N	0 - 0.5
Inorganic	Nitrate	14797-55-8	300	91 / 95	1 J Z	51.6 J Q	0.81 - 4.6	1.5 - 8.7	mg/kg	SL-078-SA8N	0 - 0.5
Inorganic	Percent Moisture	MOIST	160.3M	195 / 195	1.1	22.3	0.5 - 0.5	0.5 - 0.5	%	SL-077-SA8N	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314	3 / 192	17.3 J Z	199	9.1 - 11.6	30.3 - 38.6	ug/kg	SL-021-SA8N	4 - 5
Inorganic	Perchlorate	14797-73-0	6850	5 / 21	3.1 J Z	180	2.3 - 2.6	5.4 - 6.2	ug/kg	SL-021-SA8N	4 - 5
Inorganic	pH	pH	9045M	192 / 192	5.39	8.83	0.01 - 0.01	0.01 - 0.01	pH unit	SL-005-SA8N	8 - 9
Inorganic	Phosphorus	7723-14-0	6010B	192 / 192	96	3620 J E	0.374 - 1.15	10 - 20.5	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Potassium	9/7/7440	6010B	192 / 192	1320 J Q	7430	12.1 - 22.9	50.1 - 63.7	mg/kg	SL-036-SA8N	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	171 / 192	0.0498 J Z	0.795	0.0397 - 0.067	0.397 - 0.504	mg/kg	SL-056-SA8N	0 - 0.5
Inorganic	Silver	7440-22-4	6020	188 / 192	0.0133 J Q, E, Z	0.515	0.0119 - 0.0164	0.0991 - 0.126	mg/kg	SL-005-SA8N	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	192 / 192	61 J Z	699	6.36 - 47.5	100 - 127	mg/kg	SL-017-SA8N	4 - 5
Inorganic	Strontium	7440-24-6	6010B	192 / 192	10.3	268	0.0267 - 0.079	0.501 - 0.637	mg/kg	SL-032-SA8N	9 - 10
Inorganic	Thallium	7440-28-0	6020	192 / 192	0.177	0.475 J Q	0.0297 - 0.0378	0.0991 - 0.126	mg/kg	SL-032-SA8N	0 - 0.5
Inorganic	Tin	7440-31-5	6010B	0 / 192	-	-	0.342 - 1.27	10 - 12.7	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	192 / 192	726	1560	0.0742 - 0.484	1 - 1.27	mg/kg	SL-133-SA8N	4 - 5
Inorganic	Vanadium	7440-62-2	6020	192 / 192	21.1 J Q	85.1 J E	0.0218 - 0.0277	0.0991 - 0.126	mg/kg	SL-086-SA8N	6.5 - 7.5
Inorganic	Zinc	7440-66-6	6020	192 / 192	35.3	649 J A	0.561 - 2.78	3.01 - 14.9	mg/kg	SL-108-SA8N	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	168 / 192	0.929 J Z	8.41	0.492 - 1.07	5.01 - 6.37	mg/kg	SL-022-SA8N	9 - 10
Misc. Organics	1,3,5-Trinitrobenzene	99-35-4	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2,4,6-Trinitrotoluene	118-96-7	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2,4-Diamino-6-nitrotoluene	6629-29-4	8330A	0 / 105	-	-	81 - 100	240 - 300	ug/kg		-
Misc. Organics	2,4-Dinitrotoluene	121-14-2	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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 / 105	-	-	81 - 100	240 - 300	ug/kg		-
Misc. Organics	2,6-Dinitrotoluene	606-20-2	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2-Amino-4,6-Dinitrotoluene	35572-78-2	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	2-Nitrotoluene	88-72-2	8330A	0 / 105	-	-	81 - 100	120 - 150	ug/kg		-
Misc. Organics	2-Propanol	67-63-0	8015B	1 / 95	340 J Z	340 J Z	100 - 130	510 - 640	ug/kg	SL-108-SA8N	0 - 0.5
Misc. Organics	3-Nitrotoluene	99-08-1	8330A	0 / 105	-	-	100 - 130	120 - 150	ug/kg		-
Misc. Organics	4-Amino-2,6-Dinitrotoluene	19406-51-0	8330A	0 / 105	-	-	60 - 76	120 - 150	ug/kg		-
Misc. Organics	4-Nitrotoluene	99-99-0	8330A	0 / 105	-	-	81 - 100	120 - 150	ug/kg		-
Misc. Organics	Diethylene Glycol	111-46-6	8015M	0 / 135	-	-	5.1 - 7.1	11 - 16	mg/kg		-
Misc. Organics	Ethanol	64-17-5	8015B	0 / 95	-	-	100 - 130	510 - 640	ug/kg		-
Misc. Organics	Ethylene Glycol	107-21-1	8015M	0 / 135	-	-	5.1 - 6.4	11 - 16	mg/kg		-
Misc. Organics	Formaldehyde	50-00-0	8315A	10 / 95	780 J Z	3100	610 - 1400	1500 - 3400	ug/kg	SL-109-SA8N	9 - 10
Misc. Organics	HMX	2691-41-0	8330A	0 / 105	-	-	100 - 130	300 - 380	ug/kg		-
Misc. Organics	m-Dinitrobenzene	99-65-0	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	Methanol	67-56-1	8015B	0 / 95	-	-	100 - 130	510 - 640	ug/kg		-
Misc. Organics	m-Terphenyl	92-06-8	8015B	0 / 95	-	-	1.6 - 3	3.6 - 7.1	mg/kg		-
Misc. Organics	Nitrobenzene	98-95-3	8330A	0 / 105	-	-	40 - 50	120 - 150	ug/kg		-
Misc. Organics	Nitroglycerin	55-63-0	8330A	0 / 105	-	-	810 - 3600	2400 - 3600	ug/kg		-
Misc. Organics	o-Terphenyl	84-15-1	8015B	0 / 95	-	-	1.6 - 3	3.6 - 7.1	mg/kg		-
Misc. Organics	PETN	78-11-5	8330A	0 / 105	-	-	810 - 1000	2400 - 3000	ug/kg		-
Misc. Organics	Propylene glycol	57-55-6	8015M	0 / 135	-	-	5.1 - 6.4	11 - 16	mg/kg		-
Misc. Organics	p-Terphenyl	92-94-4	8015B	1 / 95	3 J Z	3 J Z	1.6 - 3	3.6 - 7.1	mg/kg	SL-108-SA8N	0 - 0.5
Misc. Organics	RDX	121-82-4	8330A	0 / 105	-	-	50 - 63	120 - 150	ug/kg		-
Misc. Organics	Tetryl	479-45-8	8330A	0 / 105	-	-	62 - 77	120 - 150	ug/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	102 / 192	1.24 J Z	636	0.015 - 0.272	5 - 6.33	ng/kg	SL-032-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	84 / 192	0.539 J Z	43.8	0.00701 - 0.123	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	32 / 192	0.241 J Z	3.08 J Z	0.0113 - 0.14	5 - 6.33	ng/kg	SL-032-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	76 / 192	0.0155 J Z	5.95	0.011 - 0.165	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	84 / 192	0.227 J Z	4.98 J Z	0.00717 - 0.135	5 - 6.33	ng/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	94 / 192	0.157 J Z	31.1	0.0114 - 0.173	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	69 / 192	0.0214 J Z	12	0.00671 - 0.115	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	112 / 192	0.0355 J Z	14.5	0.0108 - 0.159	5 - 6.33	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	60 / 192	0.0492 J Z	2.96 J Z	0.00821 - 0.107	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	70 / 192	0.0196 J Z	7.19	0.0118 - 0.158	5 - 6.33	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	98 / 192	0.114 J Z	11.5	0.00636 - 0.198	5 - 6.33	ng/kg	SL-016-SA8N	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	50 / 192	0.091 J Z	21.2	0.00677 - 0.119	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	69 / 192	0.0491 J Z	27	0.00601 - 0.196	5 - 6.33	ng/kg	SL-005-SA8N	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	43 / 192	0.0146 J Z	3.11	0.0104 - 0.145	1 - 1.27	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	108 / 192	0.0162 J Z	28.5 Z	0.011 - 0.953	1 - 1.27	ng/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 192	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 192	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 192	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 192	-	-	0.33 - 400	1.7 - 2100	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	2 / 192	1.9 J Z	1700	0.33 - 400	1.7 - 2100	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	81 / 192	0.7 J Z	1500	0.33 - 400	1.7 - 2100	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	64 / 192	0.5 J Z	42	0.39 - 470	1.7 - 2100	ug/kg	SL-116-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 192	-	-	0.33 - 400	1.7 - 2100	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	8 / 192	0.61 J Z	29 J S	0.33 - 400	1.7 - 2100	ug/kg	SL-010-SA8N	0 - 0.5
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 192	-	-	1 - 1200	3.3 - 4000	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 192	-	-	1 - 1200	3.3 - 4000	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	55 / 192	1.3 J Z	5100	1 - 1200	3.3 - 4000	ug/kg	SL-133-SA8N	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	125 / 192	2 J Z	5190 J #	0.019 - 0.203	10 - 12.7	ng/kg	SL-028-SA8N	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	90 / 192	1.02 J Z	75.9	0.017 - 0.123	10 - 12.7	ng/kg	SL-032-SA8N	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 192	-	0	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	7 / 192	0.96 J Z	2.4	0.69 - 7.2	1.7 - 18	ug/kg	SL-133-SA8N	0 - 0.5
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 192	-	-	340 - 1900	1000 - 5700	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	1 / 192	510	510	34 - 190	170 - 960	ug/kg	SL-092-SA8N	0 - 0.5
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	16 / 192	0.83 J Z	4 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-091-SA8N	0 - 0.5
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 192	-	-	100 - 570	340 - 1900	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 192	-	-	69 - 380	170 - 960	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 192	-	-	34 - 190	170 - 960	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 192	-	-	69 - 380	170 - 960	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C	1 / 1	120 J Z	120 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	2 / 191	1.2 J Z	6.6	0.69 - 7.2	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	6 / 192	0.51 J Z	1.9 J Z	0.35 - 3.6	1.7 - 18	ug/kg	SL-108-SA8N	0 - 0.5

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C	1 / 2	190 J Z	190 J Z	18 - 86	180 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Anthracene	120-12-7	8270C SIM	25 / 190	0.39 J Z	15	0.35 - 3.6	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 192	-	-	1200 - 6700	3400 - 19000	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C	3 / 3	20 J Z	1200	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	40 / 189	0.8 J Z	110	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C	1 / 1	1200	1200	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	51 / 191	0.77 J FD, Z	140	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C	6 / 6	17 J Z	1500	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	77 / 186	0.76 J Z	220 J C	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C	5 / 5	23 J Z	980	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	49 / 187	0.87 J Z	90	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C	1 / 1	910	910	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	44 / 191	0.75 J Z	74	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	91 / 105	18 J Z	1000	17 - 86	340 - 1700	ug/kg	SL-048-SA8N	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	24 / 90	6.7 J Z	56	6.2 - 65	19 - 200	ug/kg	SL-119-SA8N	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	3 / 15	20 J Z	26 J L, Z	17 - 86	170 - 860	ug/kg	SL-126-SA8N	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	3 / 177	18 J Z	110	6.2 - 65	19 - 200	ug/kg	SL-108-SA8N	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	2 / 192	21 J Z	110 J Z	17 - 96	170 - 960	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C	7 / 8	21 J Z	1700	17 - 86	170 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Chrysene	218-01-9	8270C SIM	85 / 184	0.4 J Z	120	0.35 - 3.6	1.7 - 18	ug/kg	SL-131-SA8N SL-115-SA8N	0 - 0.5 0 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C	1 / 1	280 J Z	280 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	10 / 191	0.98 J Z	25	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C	0 / 13	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	1 / 179	8.9 J FD, Q, Z	8.9 J FD, Q, Z	6.2 - 65	19 - 200	ug/kg	SL-119-SA8N	0 - 0.5
Semivolatiles	Dimethylphthalate	131-11-3	8270C	0 / 13	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 179	-	-	6.2 - 65	19 - 200	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C	5 / 17	22 J Z	1100	17 - 86	170 - 860	ug/kg	SL-127-SA8N	0 - 0.5
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	10 / 175	7.1 J Z	72	6.2 - 65	19 - 200	ug/kg	SL-004-SA8N	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C	0 / 15	-	-	17 - 86	170 - 860	ug/kg		-
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	33 / 177	8.6 J Z	230	6.2 - 65	19 - 200	ug/kg	SL-108-SA8N	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C	6 / 6	23 J Z	2200	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	65 / 186	0.93 J Z	200	0.69 - 7.2	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	10 / 192	0.82 J Z	6.3	0.69 - 7.2	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 192	-	-	69 - 380	170 - 960	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C	1 / 1	790 J Z	790 J Z	86 - 86	860 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	46 / 191	0.79 J Z	88	0.69 - 7.2	1.7 - 18	ug/kg	SL-115-SA8N	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	54 / 192	0.81 J Z	6.1 J Z	0.69 - 7.2	1.7 - 18	ug/kg	SL-091-SA8N	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	1625C	55 / 95	19.2 J Z	685	17.5 - 337	34.9 - 674	ng/kg	SL-010-SA8N	0 - 0.5
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 192	-	-	0.69 - 7.2	1.7 - 18	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	1 / 192	26 J Z	26 J Z	17 - 96	170 - 960	ug/kg	SL-004-SA8N	0 - 0.5
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 192	-	-	170 - 960	520 - 2900	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	3 / 5	21 J Z	1200	18 - 86	180 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	58 / 187	0.76 J Z	110	0.69 - 7.2	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	0 / 192	-	-	17 - 96	170 - 960	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	8 / 8	21 J Z	2600	19 - 86	190 - 860	ug/kg	SL-137-SA8N	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	63 / 184	0.84 J Z	170	0.69 - 7.2	1.7 - 18	ug/kg	SL-131-SA8N	0 - 0.5
Volatiles	1,1,1,2-Tetrachloroethane	630-20-6	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	1,1,1-Trichloroethane	71-55-6	8260B	0 / 87	-	-	0.18 - 0.25	3.6 - 5	ug/kg		-
Volatiles	1,1,2,2-Tetrachloroethane	79-34-5	8260B	0 / 87	-	-	0.21 - 0.29	3.6 - 5	ug/kg		-
Volatiles	1,1,2-Trichloroethane	79-00-5	8260B	0 / 87	-	-	0.24 - 0.34	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloroethane	75-34-3	8260B	0 / 87	-	-	0.09 - 0.12	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloroethene	75-35-4	8260B	0 / 87	-	-	0.35 - 0.49	3.6 - 5	ug/kg		-
Volatiles	1,1-Dichloropropene	563-58-6	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	1,2,3-Trichlorobenzene	87-61-6	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	1,2,3-Trichloropropane	96-18-4	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	1,2,4-Trichlorobenzene	120-82-1	8260B	0 / 87	-	-	0.16 - 0.22	3.6 - 5	ug/kg		-
Volatiles	1,2,4-Trimethylbenzene	95-63-6	8260B	1 / 87	0.57 J Z	0.57 J Z	0.36 - 0.5	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	1,2-Dibromo-3-chloropropane	96-12-8	8260B	0 / 87	-	-	0.63 - 0.87	3.6 - 5	ug/kg		-
Volatiles	1,2-Dibromoethane	106-93-4	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	1,2-Dichlorobenzene	95-50-1	8260B	0 / 87	-	-	0.08 - 0.11	3.6 - 5	ug/kg		-
Volatiles	1,2-Dichloroethane	107-06-2	8260B	0 / 87	-	-	0.14 - 0.19	3.6 - 5	ug/kg		-
Volatiles	1,2-Dichloropropane	78-87-5	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	1,3,5-Trimethylbenzene	108-67-8	8260B	1 / 87	0.36 J Z	0.36 J Z	0.09 - 0.12	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	1,3-Dichlorobenzene	541-73-1	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	1,3-Dichloropropane	142-28-9	8260B	0 / 87	-	-	0.07 - 0.1	3.6 - 5	ug/kg		-
Volatiles	1,4-Dichlorobenzene	106-46-7	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	1,4-Dioxane	123-91-1	8260B SIM	0 / 87	-	-	4.5 - 6.1	14 - 18	ug/kg		-
Volatiles	2,2-Dichloropropane	594-20-7	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	2-Butanone	78-93-3	8260B	2 / 87	2.5 J Z	2.5 J Z	1.1 - 1.5	7.2 - 10	ug/kg	SL-109-SA8N SL-109-SA8N	4 - 5 9 10
Volatiles	2-Chloroethyl Vinyl Ether	110-75-8	8260B	0 / 87	-	-	0.27 - 0.37	3.6 - 5	ug/kg		-
Volatiles	2-Chlorotoluene	95-49-8	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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	2-Hexanone	591-78-6	8260B	0 / 87	-	-	1.4 - 2	7.2 - 10	ug/kg		-
Volatiles	4-Chlorotoluene	106-43-4	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	4-Methyl-2-Pentanone	108-10-1	8260B	1 / 87	0.88 J Z	0.88 J Z	0.35 - 0.49	7.2 - 10	ug/kg	SL-027-SA8N	4 - 5
Volatiles	Acetone	67-64-1	8260B	12 / 87	7.2 J Z	15	6.1 - 8.3	7.2 - 10	ug/kg	SL-105-SA8N	4 - 5
Volatiles	Benzene	71-43-2	8260B	1 / 87	0.11 J Z	0.11 J Z	0.09 - 0.12	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Bromobenzene	108-86-1	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	Bromochloromethane	74-97-5	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	Bromodichloromethane	75-27-4	8260B	0 / 87	-	-	0.07 - 0.1	3.6 - 5	ug/kg		-
Volatiles	Bromoform	75-25-2	8260B	0 / 87	-	-	0.36 - 0.5	3.6 - 5	ug/kg		-
Volatiles	Bromomethane	74-83-9	8260B	0 / 87	-	-	0.23 - 0.31	3.6 - 5	ug/kg		-
Volatiles	Carbon tetrachloride	56-23-5	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	Chlorobenzene	108-90-7	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	Chloroethane	75-00-3	8260B	0 / 87	-	-	0.12 - 0.16	3.6 - 5	ug/kg		-
Volatiles	Chloroform	67-66-3	8260B	11 / 87	0.13 J Z	1.9 J Z	0.11 - 0.15	3.6 - 5	ug/kg	SL-051-SA8N	7.5 - 8.5
Volatiles	Chloromethane	74-87-3	8260B	0 / 87	-	-	0.3 - 0.41	3.6 - 5	ug/kg		-
Volatiles	Chlorotrifluoroethene	79-38-9	8260B	0 / 87	-	-	0.45 - 0.62	4.5 - 6.2	ug/kg		-
Volatiles	cis-1,2-Dichloroethene	156-59-2	8260B	0 / 87	-	-	0.17 - 0.24	3.6 - 5	ug/kg		-
Volatiles	cis-1,3-Dichloropropene	10061-01-5	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	Dibromochloromethane	124-48-1	8260B	0 / 87	-	-	0.18 - 0.25	3.6 - 5	ug/kg		-
Volatiles	Dibromomethane	74-95-3	8260B	0 / 87	-	-	0.22 - 0.3	3.6 - 5	ug/kg		-
Volatiles	Dichlorodifluoromethane	75-71-8	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	EFH (C12-C14)	PHCC12C14	8015M	1 / 119	0.48 J Z	0.48 J Z	0.42 - 59	1.2 - 180	mg/kg	SL-049-SA8N	0 - 0.5
Volatiles	EFH (C15-C20)	PHCC15C20	8015M	54 / 119	0.49 J Z	61 J Z	0.42 - 59	1.2 - 180	mg/kg	SL-108-SA8N	0 - 0.5
Volatiles	EFH (C21-C30)	PHCC21C30	8015M	86 / 119	0.45 J Z	640	0.42 - 59	1.2 - 180	mg/kg	SL-117-SA8N	0 - 0.5
Volatiles	EFH (C30-C40)	PHCC30C40	8015M	109 / 119	0.5 J Z	2800	0.42 - 59	1.2 - 180	mg/kg	SL-117-SA8N	0 - 0.5
Volatiles	EFH (C8-C11)	PHCC8C11	8015M	0 / 119	-	-	0.42 - 59	1.2 - 180	mg/kg		-
Volatiles	Ethylbenzene	100-41-4	8260B	1 / 87	0.46 J Z	0.46 J Z	0.05 - 0.07	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Freon 113	76-13-1	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	Freon 113a	75-88-7	8260B	0 / 87	-	-	0.45 - 0.62	4.5 - 6.2	ug/kg		-
Volatiles	GRO (C5-C12)	GROC5C12	8015M	1 / 63	0.2 J Z	0.2 J Z	0.2 - 0.3	0.9 - 1.4	mg/kg	SL-040-SA8N	9 - 10
Volatiles	Hexachlorobutadiene	87-68-3	8260B	0 / 87	-	-	0.13 - 0.17	3.6 - 5	ug/kg		-
Volatiles	Isopropylbenzene	98-82-8	8260B	0 / 87	-	-	0.05 - 0.07	3.6 - 5	ug/kg		-
Volatiles	Isopropyltoluene	99-87-6	8260B	0 / 87	-	-	0.1 - 0.14	3.6 - 5	ug/kg		-
Volatiles	m,p-Xylene	179601-23-1	8260B	1 / 87	1.6 J Z	1.6 J Z	0.15 - 0.21	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	Methyl tert-Butyl Ether	1634-04-4	8260B	0 / 87	-	-	0.19 - 0.26	3.6 - 5	ug/kg		-
Volatiles	Methylene chloride	75-09-2	8260B	53 / 87	4.6	44	0.22 - 0.3	3.6 - 5	ug/kg	SL-028-SA8N	4 - 5
Volatiles	N-Butylbenzene	104-51-8	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	N-Propylbenzene	103-65-1	8260B	0 / 87	-	-	0.06 - 0.09	3.6 - 5	ug/kg		-
Volatiles	o-Xylene	95-47-6	8260B	1 / 87	0.49 J Z	0.49 J Z	0.15 - 0.21	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	sec-Butylbenzene	135-98-8	8260B	0 / 87	-	-	0.05 - 0.07	3.6 - 5	ug/kg		-
Volatiles	Styrene	100-42-5	8260B	0 / 87	-	-	0.09 - 0.12	3.6 - 5	ug/kg		-
Volatiles	tert-Butylbenzene	98-06-6	8260B	0 / 87	-	-	0.15 - 0.2	3.6 - 5	ug/kg		-
Volatiles	Tetrachloroethene	127-18-4	8260B	1 / 87	0.52 J Z	0.52 J Z	0.18 - 0.25	3.6 - 5	ug/kg	SL-051-SA8N	7.5 - 8.5

Table 3-3
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA-8 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	Toluene	108-88-3	8260B	16 / 87	0.08 J Z	1.5 J Z	0.07 - 0.1	3.6 - 5	ug/kg	SL-086-SA8N	6.5 - 7.5
Volatiles	trans-1,2-Dichloroethene	156-60-5	8260B	0 / 87	-	-	0.11 - 0.15	3.6 - 5	ug/kg		-
Volatiles	trans-1,3-Dichloropropene	10061-02-6	8260B	0 / 87	-	-	0.15 - 0.21	3.6 - 5	ug/kg		-
Volatiles	Trichloroethene	79-01-6	8260B	6 / 87	0.26 J Z	17 J FD, Q	0.14 - 0.19	3.6 - 5	ug/kg	SL-141-SA8N	4 - 5
Volatiles	Trichlorofluoromethane	75-69-4	8260B	0 / 87	-	-	0.26 - 0.36	3.6 - 5	ug/kg		-
Volatiles	Vinyl Chloride	75-01-4	8260B	1 / 87	0.27 J Z	0.27 J Z	0.18 - 0.25	3.6 - 5	ug/kg	SL-020-SA8N	9 - 10

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 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA - 8 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	Aluminum	7429-90-5	6010B	21 / 21	11100	30400	5.95 - 6.48	19.7 - 21.4	mg/kg	SL-012-SA8S	0 - 0.5
Inorganic	Antimony	7440-36-0	6020	20 / 21	0.0723 J Q, Z	0.225 J Q	0.0721 - 0.0793	0.195 - 0.214	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	21 / 21	4.49 J E, Q	8.6 J E, Q	0.0779 - 0.0857	0.39 - 0.429	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Barium	7440-39-3	6020	21 / 21	63.6 J A	138 J A	0.103 - 0.114	0.39 - 0.429	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Beryllium	7440-41-7	6020	21 / 21	0.418	0.853	0.0156 - 0.0171	0.0974 - 0.107	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Boron	7440-42-8	6010B	21 / 21	1.7 J Z	14.5	0.354 - 0.386	4.92 - 5.36	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Cadmium	7440-43-9	6020	21 / 21	0.153	0.402	0.0428 - 0.0472	0.0974 - 0.107	mg/kg	SL-018-SA8S	0 - 0.5
Inorganic	Calcium	7440-70-2	6010B	21 / 21	3480 J E	242000	2.46 - 13.4	19.7 - 107	mg/kg	SL-007-SA8S	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	21 / 21	14.3 J Q, A	47.4 J Q	0.117 - 0.129	0.39 - 0.429	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Chromium VI	18540-29-9	7199	15 / 21	0.34 J Z	2.2	0.2 - 0.22	1 - 1.1	mg/kg	SL-007-SA8S	0 - 0.5
Inorganic	Cobalt	7440-48-4	6020	21 / 21	4.85 J Q, A	12.2 J Q, A J A	0.0195 - 0.0214	0.0974 - 0.107	mg/kg	SL-001-SA8S SL-012-SA8S	0 - 0.5 0 0.5
Inorganic	Copper	7440-50-8	6020	21 / 21	7.44 J A	23.5 J E, Q	0.0779 - 0.0857	0.39 - 0.429	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Fluoride	16984-48-8	300	5 / 20	0.92 J Q, Z	1 J Q	0.81 - 0.87	1 - 1.1	mg/kg	SL-022-SA8S	0 - 0.5
Inorganic	Iron	7439-89-6	6010B	21 / 21	11100	37700	2.57 - 13.8	19.7 - 106	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Lead	7439-92-1	6020	21 / 21	6.61 J A	26.1 J A	0.0099 - 0.0109	0.195 - 0.214	mg/kg	SL-010-SA8S	0 - 0.5
Inorganic	Lithium	7439-93-2	6010B	21 / 21	12.7	31.2	0.61 - 0.66	2 - 2.1	mg/kg	SL-012-SA8S	0 - 0.5
Inorganic	Magnesium	7439-95-4	6010B	21 / 21	3930	9210	0.433 - 0.472	9.83 - 10.7	mg/kg	SL-012-SA8S	0 - 0.5
Inorganic	Manganese	7439-96-5	6010B	21 / 21	167	497	0.0354 - 0.0386	0.492 - 0.536	mg/kg	SL-017-SA8S	0 - 0.5
Inorganic	Mercury	7439-97-6	7471A	16 / 21	0.0074 J Z	0.0414 J Z	0.0068 - 0.0075	0.0965 - 0.107	mg/kg	SL-008-SA8S	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	21 / 21	0.13	2.03 J Q	0.0487 - 0.0536	0.0974 - 0.107	mg/kg	SL-013-SA8S	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	21 / 21	9.48 J A	25.7 J Q	0.0974 - 0.107	0.39 - 0.429	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Percent Moisture	MOIST	160.3M	21 / 21	2.2	7.2	0.5 - 0.5	0.5 - 0.5	%	SL-017-SA8S	0 - 0.5
Inorganic	Perchlorate	14797-73-0	314	0 / 21	-	-	9.2 - 9.7	30.7 - 32.3	ug/kg		-
Inorganic	pH	pH	9045M	21 / 21	6.52	8.31	0.01 - 0.01	0.01 - 0.01	pH unit	SL-007-SA8S	0 - 0.5
Inorganic	Phosphorus	7723-14-0	6010B	21 / 21	228	864	0.344 - 0.375	9.83 - 10.7	mg/kg	SL-017-SA8S	0 - 0.5
Inorganic	Potassium	9/7/7440	6010B	21 / 21	1460 J Q	6450	11.1 - 12.1	49.2 - 53.6	mg/kg	SL-016-SA8S	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	21 / 21	0.125 J Z	0.631	0.0565 - 0.0622	0.39 - 0.429	mg/kg	SL-024-SA8S	0 - 0.5
Inorganic	Silver	7440-22-4	6020	11 / 21	0.0234 J Z	0.0746 J Z	0.0138 - 0.0152	0.0974 - 0.107	mg/kg	SL-017-SA8S	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	21 / 21	57.7 J Z	121	5.85 - 6.38	98.3 - 107	mg/kg	SL-003-SA8S	0 - 0.5
Inorganic	Strontium	7440-24-6	6010B	21 / 21	8.34	182	0.0246 - 0.0268	0.492 - 0.536	mg/kg	SL-005-SA8S	0 - 0.5
Inorganic	Thallium	7440-28-0	6020	21 / 21	0.123 J Q	0.42 J Q	0.0292 - 0.0322	0.0974 - 0.107	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Tin	7440-31-5	6010B	0 / 21	-	-	0.315 - 0.343	9.83 - 10.7	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	21 / 21	542	1490	0.0706 - 0.0761	0.994 - 1.07	mg/kg	SL-012-SA8S	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	21 / 21	30.6 J A	86.2 J E	0.0214 - 0.0236	0.0974 - 0.107	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Zinc	7440-66-6	6020	21 / 21	27.9	90.9	0.545 - 0.6	2.92 - 3.22	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Zirconium	7440-67-7	6010B	21 / 21	1.5 J Z	4.98 J Z	0.452 - 0.493	4.92 - 5.36	mg/kg	SL-022-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	20 / 21	1.64 J Z	6.2	0.0245 - 0.059	5 - 5.34	ng/kg	SL-014-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	13 / 21	0.474 J Z	1.5 J Z	0.0156 - 0.0323	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	2 / 21	0.211 J Z	0.617 J Z	0.0189 - 0.0515	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	19 / 21	0.0315 J Z	0.224 J Z	0.0252 - 0.0487	5 - 5.34	ng/kg	SL-013-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	12 / 21	0.0398 J Z	6.21	0.0195 - 0.076	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	13 / 21	0.169 J Z	0.43 J Z	0.027 - 0.049	5 - 5.34	ng/kg	SL-010-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	5 / 21	0.133 J Z	1.61 J Z	0.017 - 0.0614	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	16 / 21	0.0989 J Z	0.35 J Z	0.0238 - 0.069	5 - 5.34	ng/kg	SL-016-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	4 / 21	0.0642 J Z	0.718 J Z	0.0178 - 0.0889	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA - 8 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	1,2,3,7,8-PeCDD	40321-76-4	1613B	17 / 21	0.044 J Z	0.188 J Z	0.0234 - 0.0668	5 - 5.34	ng/kg	SL-013-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	11 / 21	0.0992 J Z	8.38	0.0178 - 0.11	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	4 / 21	0.183 J Z	1.4 J Z	0.0153 - 0.0674	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	12 / 21	0.165 J Z	5.72	0.0171 - 0.122	5 - 5.34	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	7 / 21	0.0343 J Z	0.0659 J Z	0.0258 - 0.0471	1 - 1.07	ng/kg	SL-016-SA8S	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	15 / 21	0.058 J Z	9.38	0.0312 - 0.112	1 - 1.07	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	3 / 21	1.1 J Z	500	0.34 - 34	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	11 / 21	1.2 J Z	1500	0.34 - 34	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	11 / 21	0.55 J Z	220	0.4 - 41	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 21	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 21	-	-	1 - 100	3.4 - 340	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 21	-	-	1 - 100	3.4 - 340	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	9 / 21	1.4 J Z	5.5	1 - 100	3.4 - 340	ug/kg	SL-010-SA8S	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	21 / 21	5.28 J Z	86.6	0.0209 - 0.0762	10 - 10.7	ng/kg	SL-015-SA8S	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	14 / 21	1.15 J Z	2.83 J Z	0.0247 - 0.092	10 - 10.7	ng/kg	SL-021-SA8S	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 21	-	-	4.5 - 4.7	9.2 - 9.7	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	5 / 21	0.94 J Z	4	0.63 - 1.6	1.7 - 1.8	ug/kg	SL-019-SA8S	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	1 / 21	0.22	0.22	0.084 - 0.28	0.17 - 0.28	ug/kg	SL-005-SA8S	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	3 / 21	0.2 J L	0.26 J L	0.077 - 0.15	0.17 - 0.18	ug/kg	SL-013-SA8S	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	0 / 21	-	-	1.2 - 1.3	3.7 - 3.9	ug/kg		-
Pesticides	4,4'-DDD	72-54-8	8081A	0 / 21	-	-	0.067 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	4,4'-DDE	72-55-9	8081A	18 / 21	0.44	8.8	0.067 - 59	0.35 - 59	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	17 / 21	0.29 J H, Z	4.9	0.067 - 74	0.35 - 74	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	0 / 21	-	-	0.067 - 1.4	0.17 - 3.5	ug/kg		-
Pesticides	Alpha-BHC	319-84-6	8081A	0 / 21	-	-	0.035 - 0.71	0.17 - 3.5	ug/kg		-
Pesticides	Beta-BHC	319-85-7	8081A	0 / 21	-	-	0.061 - 1.3	0.17 - 3.5	ug/kg		-
Pesticides	Chlordane	57-74-9	8081A	16 / 21	1.2 J S, Z	6	0.82 - 51	3.5 - 71	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	Delta-BHC	319-86-8	8081A	11 / 21	0.04 J Z	12	0.037 - 1.4	0.17 - 3.5	ug/kg	SL-023-SA8S	0 - 0.5
Pesticides	Dicamba	1918-00-9	8151A	2 / 21	0.45 J Z	0.61 J Z	0.41 - 0.43	1.2 - 1.3	ug/kg	SL-019-SA8S	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	0 / 21	-	-	0.82 - 0.86	1.7 - 1.8	ug/kg		-
Pesticides	Dieldrin	60-57-1	8081A	1 / 21	0.33 J Z	0.33 J Z	0.068 - 25	0.35 - 25	ug/kg	SL-016-SA8S	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	0 / 21	-	-	0.82 - 0.86	2.5 - 2.6	ug/kg		-
Pesticides	Endosulfan I	959-98-8	8081A	1 / 21	0.12 J Z	0.12 J Z	0.045 - 0.92	0.17 - 3.5	ug/kg	SL-016-SA8S	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	0 / 21	-	-	0.067 - 12	0.35 - 12	ug/kg		-
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	0 / 21	-	-	0.068 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	Endrin	72-20-8	8081A	0 / 21	-	-	0.068 - 8.1	0.35 - 8.1	ug/kg		-
Pesticides	Endrin Aldehyde	7421-93-4	8081A	0 / 21	-	-	0.068 - 6.7	0.35 - 7.1	ug/kg		-
Pesticides	Endrin Ketone	53494-70-5	8081A	0 / 21	-	-	0.068 - 1.4	0.34 - 7.1	ug/kg		-
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	2 / 21	0.06 J H, Z	0.072 J H, S, Z	0.035 - 0.71	0.17 - 3.5	ug/kg	SL-001-SA8S	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	0 / 21	-	-	0.062 - 1.3	0.17 - 3.5	ug/kg		-
Pesticides	Heptachlor Epoxide	1024-57-3	8081A	2 / 21	0.11 J Z	0.4 J Z	0.035 - 9.6	0.17 - 9.6	ug/kg	SL-023-SA8S	0 - 0.5

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA - 8 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	MCPA	94-74-6	8151A	5 / 21	300	1900 J L	78 - 340	260 - 340	ug/kg	SL-001-SA8S	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	3 / 21	110 J Z	280 J FD, L	77 - 200	260 - 270	ug/kg	SL-003-SA8S	0 - 0.5
Pesticides	Methoxychlor	72-43-5	8081A	0 / 21	-	-	0.35 - 7.1	1.7 - 35	ug/kg		-
Pesticides	Mirex	2385-85-5	8081A	0 / 21	-	-	0.068 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	Toxaphene	8001-35-2	8081A	2 / 21	4.7 J Z	17	2.3 - 140	6.8 - 140	ug/kg	SL-008-SA8S	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	0 / 21	-	-	0.68 - 0.71	1.7 - 1.8	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 21	-	-	340 - 360	1000 - 1100	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	0 / 21	-	-	0.68 - 0.71	1.7 - 1.8	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 21	-	-	100 - 110	340 - 360	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 21	-	-	68 - 72	170 - 180	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 21	-	-	34 - 36	170 - 180	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 21	-	-	68 - 72	170 - 180	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	0 / 21	-	-	0.68 - 0.71	1.7 - 1.8	ug/kg		-
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	7 / 21	0.37 J Z	5.5 J S	0.34 - 0.36	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Aniline	62-53-3	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C SIM	2 / 21	0.42 J Z	0.56 J Z	0.34 - 0.36	1.7 - 1.8	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 21	-	-	1200 - 1300	3400 - 3600	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	6 / 21	1 J Z	19 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	10 / 21	0.75 J Z	7.6 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	14 / 21	0.93 J Z	16	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-014-SA8S	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	7 / 21	0.8 J Z	1.8	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	12 / 21	0.72 J Z	33 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA - 8 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	Benzyl Alcohol	100-51-6	8270C	1 / 21	230 J Z	230 J Z	170 - 180	510 - 540	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	5 / 5	19 J Z	36 J Z	17 - 18	340 - 360	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	1 / 16	300 J S	300 J S	6.1 - 6.4	18 - 19	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	4 / 4	210	260	17 - 18	170 - 180	ug/kg	SL-023-SA8S	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	13 / 17	6.4 J Z	220	6.1 - 64	18 - 190	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C SIM	14 / 21	0.46 J Z	18	0.34 - 0.36	1.7 - 1.8	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	2 / 21	1.5 J Z	2.2 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	0 / 21	-	-	6.1 - 6.4	18 - 19	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 21	-	-	6.1 - 6.4	18 - 19	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	1 / 21	8 J Z	8 J Z	6.1 - 6.4	18 - 19	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	0 / 21	-	-	6.1 - 6.4	18 - 19	ug/kg		-
Semivolatiles	Fluoranthene	206-44-0	8270C	1 / 1	19 J Z	19 J Z	18 - 18	180 - 180	ug/kg	SL-010-SA8S	0 - 0.5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	11 / 20	1.3 J Z	14 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	5 / 21	0.74 J Z	5.2 J S	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 21	-	-	68 - 72	170 - 180	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	4 / 21	0.79 J Z	1.2 J Z	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	4 / 21	0.75 J Z	1 J S, Z	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 21	-	-	0.68 - 0.71	1.7 - 1.8	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 21	-	-	17 - 18	170 - 180	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 21	-	-	170 - 180	510 - 540	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	9 / 21	0.73 J Z	3.4	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	1 / 21	30 J Z	30 J Z	17 - 18	170 - 180	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C SIM	11 / 21	0.8 J Z	11	0.68 - 0.71	1.7 - 1.8	ug/kg	SL-011-SA8S	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

Table 3-4
Summary of Analytical Results for Chemicals - Validated Data
Surface Soils
HSA - 8 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

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 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	Aluminum	7429-90-5	6010B	30 / 30	10700	30600 J E	6.24 - 6.81	20.6 - 22.5	mg/kg	SL-018-SA8S	4 - 5
Inorganic	Antimony	7440-36-0	6020	18 / 30	0.0773 J Q, Z	0.196 J Q, E, Z	0.0766 - 0.0836	0.207 - 0.226	mg/kg	SL-010-SA8S	4 - 5
Inorganic	Arsenic	7440-38-2	6020	30 / 30	4.88	16 J E	0.0828 - 0.0904	0.414 - 0.452	mg/kg	SL-010-SA8S	8.5 - 9.5
Inorganic	Barium	7440-39-3	6020	30 / 30	60 J E	189 J A	0.11 - 0.287	0.414 - 1.08	mg/kg	SL-021-SA8S	9 - 10
Inorganic	Beryllium	7440-41-7	6020	30 / 30	0.49 J E, Q	1.14 J Q, E	0.0166 - 0.0181	0.104 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Boron	7440-42-8	6010B	29 / 30	3.99 J Z	17.6	0.371 - 0.405	5.15 - 5.63	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Cadmium	7440-43-9	6020	29 / 30	0.0592 J FD, Z	0.472	0.0455 - 0.0497	0.104 - 0.113	mg/kg	SL-021-SA8S	9 - 10
Inorganic	Calcium	7440-70-2	6010B	30 / 30	3680 J E	177000	2.63 - 14	21.1 - 112	mg/kg	SL-009-SA8S	7 - 8
Inorganic	Chromium	7440-47-3	6020	30 / 30	12.7 J Q, A	57.9 J Q, E, A	0.124 - 0.136	0.414 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Chromium VI	18540-29-9	7199	23 / 30	0.24 J Z J FD, Z	3.1	0.21 - 0.23	1 - 1.2	mg/kg	SL-016-SA8S	4 - 5
Inorganic	Cobalt	7440-48-4	6020	30 / 30	5.53 J E, Q	22.6 J Q, E, A	0.0207 - 0.0226	0.104 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Copper	7440-50-8	6020	30 / 30	6.42 J A	59 J E, Q	0.0828 - 0.0904	0.414 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Fluoride	16984-48-8	300	26 / 30	0.94 J Z	8.8 J Q	0.85 - 0.93	1.1 - 1.2	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Iron	7439-89-6	6010B	30 / 30	14500 J Q	43200	2.69 - 14.7	20.6 - 113	mg/kg	SL-010-SA8S	4 - 5
Inorganic	Lead	7439-92-1	6020	30 / 30	4.81 J Q, A	26.8 J E, Q	0.0106 - 0.0115	0.207 - 0.226	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Lithium	7439-93-2	6010B	30 / 30	9.8	43.9	0.64 - 0.7	2.1 - 2.3	mg/kg	SL-022-SA8S	8 - 9
Inorganic	Magnesium	7439-95-4	6010B	30 / 30	3170	10900	0.454 - 0.495	10.3 - 11.3	mg/kg	SL-022-SA8S	8 - 9
Inorganic	Manganese	7439-96-5	6010B	30 / 30	179	516	0.0371 - 0.0405	0.515 - 0.563	mg/kg	SL-009-SA8S	7 - 8
Inorganic	Mercury	7439-97-6	7471A	5 / 30	0.008 J Z	0.0188 J Z	0.0069 - 0.008	0.0985 - 0.114	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Molybdenum	7439-98-7	6020	14 / 30	0.317	0.68	0.0518 - 0.0565	0.104 - 0.113	mg/kg	SL-021-SA8S	9 - 10
Inorganic	Nickel	7440-02-0	6020	30 / 30	7.43 J A	44.6 J Q, E	0.104 - 0.113	0.414 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Percent Moisture	MOIST	160.3M	30 / 30	5	13.4	0.5 - 0.5	0.5 - 0.5	%	SL-007-SA8S	4 - 5
Inorganic	Perchlorate	14797-73-0	314	0 / 30	-	-	9.5 - 10.4	31.6 - 34.6	ug/kg		-
Inorganic	Perchlorate	14797-73-0	6850	0 / 1	-	-	2.4 - 2.4	5.6 - 5.6	ug/kg		-
Inorganic	pH	pH	9045M	30 / 30	6.89	9.23	0.01 - 0.01	0.01 - 0.01	pH unit	SL-005-SA8S	3.5 - 4.5
Inorganic	Phosphorus	7723-14-0	6010B	30 / 30	187	608 J Q	0.361 - 0.394	10.3 - 11.3	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Potassium	9/7/7440	6010B	30 / 30	1680 J Q	4210	11.6 - 12.7	51.5 - 56.3	mg/kg	SL-022-SA8S	8 - 9
Inorganic	Selenium	7782-49-2	6020	26 / 30	0.0647 J Z	0.508	0.06 - 0.0656	0.414 - 0.452	mg/kg	SL-010-SA8S	4 - 5
Inorganic	Silver	7440-22-4	6020	21 / 30	0.0154 J Z	0.0463 J Q, E, Z	0.0147 - 0.016	0.104 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Sodium	7440-23-5	6010B	30 / 30	63.9 J Z	1030	6.13 - 6.69	103 - 113	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Strontium	7440-24-6	6010B	30 / 30	7.27	256	0.0258 - 0.0281	0.515 - 0.563	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Thallium	7440-28-0	6020	29 / 30	0.22	0.76 J Q, E	0.0311 - 0.0339	0.104 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Tin	7440-31-5	6010B	0 / 30	-	-	0.33 - 0.36	10.3 - 11.3	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	30 / 30	374	1290	0.0732 - 0.0799	1.03 - 1.13	mg/kg	SL-022-SA8S SL-023-SA8S	8 - 9 4 5
Inorganic	Vanadium	7440-62-2	6020	30 / 30	31.5 J A	123 J Q, E	0.0228 - 0.0249	0.104 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Zinc	7440-66-6	6020	30 / 30	34.7 J E, A	186 J E, A	0.58 - 0.633	3.11 - 3.39	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Zirconium	7440-67-7	6010B	30 / 30	2.17 J Z	9.49	0.474 - 0.518	5.15 - 5.63	mg/kg	SL-023-SA8S	4 - 5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	0 / 30	-	-	0.00997 - 0.0294	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	0 / 30	-	-	0.00439 - 0.0163	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	1 / 30	0.0393 J Z	0.0393 J Z	0.00664 - 0.0266	5.25 - 5.65	ng/kg	SL-015-SA8S	4 - 5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	0 / 30	-	-	0.00877 - 0.0263	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	1 / 30	0.0636 J Z	0.0636 J Z	0.00591 - 0.0346	5.25 - 5.65	ng/kg	SL-016-SA8S	4 - 5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	0 / 30	-	-	0.00911 - 0.0251	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	0 / 30	-	-	0.005 - 0.0257	5.25 - 5.65	ng/kg		-

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	0 / 30	-	-	0.00855 - 0.0249	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	0 / 30	-	-	0.00598 - 0.0244	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	5 / 30	0.0375 J Z	0.142 J Z	0.00852 - 0.0425	5.25 - 5.65	ng/kg	SL-015-SA8S	4 - 5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	0 / 30	-	-	0.00466 - 0.0193	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	0 / 30	-	-	0.00551 - 0.0195	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	0 / 30	-	-	0.00477 - 0.0181	5.25 - 5.65	ng/kg		-
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	4 / 30	0.0439 J Z	0.0695 J Z	0.00911 - 0.0606	1.05 - 1.13	ng/kg	SL-009-SA8S	4 - 5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	7 / 30	0.0343 J Z	0.0609 J Z	0.0106 - 0.0401	1.05 - 1.13	ng/kg	SL-011-SA8S	4 - 5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	2 / 30	0.49 J Z	0.51 J FD, S, L, Z	0.35 - 0.38	1.8 - 2	ug/kg	SL-018-SA8S	4 - 5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	3 / 30	0.59 J L, Z	5.5 J S, L	0.35 - 0.38	1.8 - 2	ug/kg	SL-018-SA8S	7.5 - 8.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	2 / 30	0.8 J FD, S, L, Z	1.1 J S, L, Z	0.41 - 0.45	1.8 - 2	ug/kg	SL-018-SA8S	7.5 - 8.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 30	-	-	0.35 - 0.38	1.8 - 2	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 30	-	-	1.1 - 1.2	3.5 - 3.8	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 30	-	-	1.1 - 1.2	3.5 - 3.8	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	0 / 30	-	-	1.1 - 1.2	3.5 - 3.8	ug/kg		-
PCBs and Dioxins	OCDD	3268-87-9	1613B	2 / 30	2.43 J Z	3.28 J Z	0.00979 - 0.0498	10.5 - 11.3	ng/kg	SL-010-SA8S	4 - 5
PCBs and Dioxins	OCDF	39001-02-0	1613B	0 / 30	-	-	0.00886 - 0.0594	10.5 - 11.3	ng/kg		-
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 30	-	-	350 - 380	1100 - 1200	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 30	-	-	110 - 120	350 - 380	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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-Chloro-3-Methylphenol	59-50-7	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 30	-	-	70 - 77	180 - 190	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 30	-	-	35 - 38	180 - 190	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 30	-	-	70 - 77	180 - 190	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	0 / 30	-	-	0.35 - 0.38	1.8 - 1.9	ug/kg		-
Semivolatiles	Aniline	62-53-3	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C SIM	0 / 30	-	-	0.35 - 0.38	1.8 - 1.9	ug/kg		-
Semivolatiles	Benzidine	92-87-5	8270C	0 / 30	-	-	1200 - 1300	3500 - 3800	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	1 / 30	1 J Z	1 J Z	0.7 - 0.76	1.8 - 1.9	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	1 / 30	0.82 J Z	0.82 J Z	0.7 - 0.76	1.8 - 1.9	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Benzoic Acid	65-85-0	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	3 / 3	19 J Z	23 J Z	18 - 19	370 - 370	ug/kg	SL-012-SA8S	4 - 5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	10 / 27	6.8 J Z	34	6.3 - 6.8	19 - 20	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	4 / 30	10 J Z	23	6.3 - 6.8	19 - 20	ug/kg	SL-012-SA8S	4 - 5
Semivolatiles	Carbazole	86-74-8	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C SIM	0 / 30	-	-	0.35 - 0.38	1.8 - 1.9	ug/kg		-
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	0 / 30	-	-	6.3 - 6.8	19 - 20	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 30	-	-	6.3 - 6.8	19 - 20	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	1 / 30	8.2 J Z	8.2 J Z	6.3 - 6.8	19 - 20	ug/kg	SL-016-SA8S	4 - 5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	3 / 30	9.1 J Z	50	6.3 - 6.8	19 - 20	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C	1 / 1	49 J Z	49 J Z	19 - 19	190 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	0 / 29	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Fluorene	86-73-7	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 30	-	-	70 - 77	180 - 190	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	1 / 30	0.87 J Z	0.87 J Z	0.7 - 0.76	1.8 - 1.9	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 30	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-

Table 3-5
Summary of Analytical Results for Chemicals - Validated Data
Subsurface Soils
HSA - 8 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	Pentachlorophenol	87-86-5	8270C	0 / 30	-	-	180 - 190	530 - 580	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	1 / 1	52 J Z	52 J Z	19 - 19	190 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	0 / 29	-	-	0.7 - 0.76	1.8 - 1.9	ug/kg		-
Semivolatiles	Phenol	108-95-2	8270C	0 / 30	-	-	18 - 19	180 - 190	ug/kg		-
Semivolatiles	Pyrene	129-00-0	8270C	1 / 1	35 J Z	35 J Z	19 - 19	190 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Pyrene	129-00-0	8270C SIM	0 / 29	-	-	0.7 - 0.76	1.8 - 1.9	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 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA - 8 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	Aluminum	7429-90-5	6010B	51 / 51	10700	30600 J E	5.95 - 6.81	19.7 - 22.5	mg/kg	SL-018-SA8S	4 - 5
Inorganic	Antimony	7440-36-0	6020	38 / 51	0.0723* J Q, Z	0.225* J Q	0.0721 - 0.0836	0.195 - 0.226	mg/kg	SL-001-SA8S	0 - 0.5
Inorganic	Arsenic	7440-38-2	6020	51 / 51	4.49 J E, Q	16 J E	0.0779 - 0.0904	0.39 - 0.452	mg/kg	SL-010-SA8S	8.5 - 9.5
Inorganic	Barium	7440-39-3	6020	51 / 51	60 J E	189 J A	0.103 - 0.287	0.39 - 1.08	mg/kg	SL-021-SA8S	9 - 10
Inorganic	Beryllium	7440-41-7	6020	51 / 51	0.418	1.14 J Q, E	0.0156 - 0.0181	0.0974 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Boron	7440-42-8	6010B	50 / 51	1.70* J Z	17.6*	0.354 - 0.405	4.92 - 5.63	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Cadmium	7440-43-9	6020	50 / 51	0.0592* J FD, Z	0.472*	0.0428 - 0.0497	0.0974 - 0.113	mg/kg	SL-021-SA8S	9 - 10
Inorganic	Calcium	7440-70-2	6010B	51 / 51	3480 J E	242000	2.46 - 14	19.7 - 112	mg/kg	SL-007-SA8S	0 - 0.5
Inorganic	Chromium	7440-47-3	6020	51 / 51	12.7 J Q, A	57.9 J Q, E, A	0.117 - 0.136	0.39 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Chromium VI	18540-29-9	7199	38 / 51	0.24* J Z J FD, Z	3.1*	0.2 - 0.23	1 - 1.2	mg/kg	SL-016-SA8S	4 - 5
Inorganic	Cobalt	7440-48-4	6020	51 / 51	4.85 J Q, A	22.6 J Q, E, A	0.0195 - 0.0226	0.0974 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Copper	7440-50-8	6020	51 / 51	6.42 J A	59 J E, Q	0.0779 - 0.0904	0.39 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Fluoride	16984-48-8	300	31 / 50	0.92* J Q, Z	8.8* J Q	0.81 - 0.93	1 - 1.2	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Iron	7439-89-6	6010B	51 / 51	11100	43200	2.57 - 14.7	19.7 - 113	mg/kg	SL-010-SA8S	4 - 5
Inorganic	Lead	7439-92-1	6020	51 / 51	4.81 J Q, A	26.8 J E, Q	0.0099 - 0.0115	0.195 - 0.226	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Lithium	7439-93-2	6010B	51 / 51	9.8	43.9	0.61 - 0.7	2 - 2.3	mg/kg	SL-022-SA8S	8 - 9
Inorganic	Magnesium	7439-95-4	6010B	51 / 51	3170	10900	0.433 - 0.495	9.83 - 11.3	mg/kg	SL-022-SA8S	8 - 9
Inorganic	Manganese	7439-96-5	6010B	51 / 51	167	516	0.0354 - 0.0405	0.492 - 0.563	mg/kg	SL-009-SA8S	7 - 8
Inorganic	Mercury	7439-97-6	7471A	21 / 51	0.0074* J Z	0.0414* J Z	0.0068 - 0.008	0.0965 - 0.114	mg/kg	SL-008-SA8S	0 - 0.5
Inorganic	Molybdenum	7439-98-7	6020	35 / 51	0.130*	2.03* J Q	0.0487 - 0.0565	0.0974 - 0.113	mg/kg	SL-013-SA8S	0 - 0.5
Inorganic	Nickel	7440-02-0	6020	51 / 51	7.43 J A	44.6 J Q, E	0.0974 - 0.113	0.39 - 0.452	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Percent Moisture	MOIST	160.3M	51 / 51	2.2	13.4	0.5 - 0.5	0.5 - 0.5	%	SL-007-SA8S	4 - 5
Inorganic	Perchlorate	14797-73-0	314	0 / 51	-	-	9.2 - 10.4	30.7 - 34.6	ug/kg		-
Inorganic	Perchlorate	14797-73-0	6850	0 / 1	-	-	2.4 - 2.4	5.6 - 5.6	ug/kg		-
Inorganic	pH	pH	9045M	51 / 51	6.52	9.23	0.01 - 0.01	0.01 - 0.01	pH unit	SL-005-SA8S	3.5 - 4.5
Inorganic	Phosphorus	7723-14-0	6010B	51 / 51	187	864	0.344 - 0.394	9.83 - 11.3	mg/kg	SL-017-SA8S	0 - 0.5
Inorganic	Potassium	9/7/7440	6010B	51 / 51	1460 J Q	6450	11.1 - 12.7	49.2 - 56.3	mg/kg	SL-016-SA8S	0 - 0.5
Inorganic	Selenium	7782-49-2	6020	47 / 51	0.0647* J Z	0.631*	0.0565 - 0.0656	0.39 - 0.452	mg/kg	SL-024-SA8S	0 - 0.5
Inorganic	Silver	7440-22-4	6020	32 / 51	0.0154* J Z	0.0746* J Z	0.0138 - 0.016	0.0974 - 0.113	mg/kg	SL-017-SA8S	0 - 0.5
Inorganic	Sodium	7440-23-5	6010B	51 / 51	57.7 J Z	1030	5.85 - 6.69	98.3 - 113	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Strontium	7440-24-6	6010B	51 / 51	7.27	256	0.0246 - 0.0281	0.492 - 0.563	mg/kg	SL-005-SA8S	3.5 - 4.5
Inorganic	Thallium	7440-28-0	6020	50 / 51	0.123* J Q	0.760* J Q, E	0.0292 - 0.0339	0.0974 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Tin	7440-31-5	6010B	0 / 51	-	-	0.315 - 0.36	9.83 - 11.3	mg/kg		-
Inorganic	Titanium	7440-32-6	6010B	51 / 51	374	1490	0.0706 - 0.0799	0.994 - 1.13	mg/kg	SL-012-SA8S	0 - 0.5
Inorganic	Vanadium	7440-62-2	6020	51 / 51	30.6 J A	123 J Q, E	0.0214 - 0.0249	0.0974 - 0.113	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Zinc	7440-66-6	6020	51 / 51	27.9	186 J E, A	0.545 - 0.633	2.92 - 3.39	mg/kg	SL-023-SA8S	4 - 5
Inorganic	Zirconium	7440-67-7	6010B	51 / 51	1.5 J Z	9.49	0.452 - 0.518	4.92 - 5.63	mg/kg	SL-023-SA8S	4 - 5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDD	35822-46-9	1613B	20 / 51	1.64* J Z	6.20*	0.00997 - 0.059	5 - 5.65	ng/kg	SL-014-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,6,7,8-HpCDF	67562-39-4	1613B	13 / 51	0.474* J Z	1.50* J Z	0.00439 - 0.0323	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8,9-HpCDF	55673-89-7	1613B	3 / 51	0.0393* J Z	0.617* J Z	0.00664 - 0.0515	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDD	39227-28-6	1613B	19 / 51	0.0315* J Z	0.224* J Z	0.00877 - 0.0487	5 - 5.65	ng/kg	SL-013-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,4,7,8-HxCDF	70648-26-9	1613B	13 / 51	0.0398* J Z	6.21*	0.00591 - 0.076	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDD	57653-85-7	1613B	13 / 51	0.169* J Z	0.430* J Z	0.00911 - 0.049	5 - 5.65	ng/kg	SL-010-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,6,7,8-HxCDF	57117-44-9	1613B	5 / 51	0.133* J Z	1.61* J Z	0.005 - 0.0614	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8,9-HxCDD	19408-74-3	1613B	16 / 51	0.0989* J Z	0.350* J Z	0.00855 - 0.069	5 - 5.65	ng/kg	SL-016-SA8S	0 - 0.5

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA - 8 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	1,2,3,7,8,9-HxCDF	72918-21-9	1613B	4 / 51	0.0642* J Z	0.718* J Z	0.00598 - 0.0889	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDD	40321-76-4	1613B	22 / 51	0.0375* J Z	0.188* J Z	0.00852 - 0.0668	5 - 5.65	ng/kg	SL-013-SA8S	0 - 0.5
PCBs and Dioxins	1,2,3,7,8-PeCDF	57117-41-6	1613B	11 / 51	0.0992* J Z	8.38*	0.00466 - 0.11	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,4,6,7,8-HxCDF	60851-34-5	1613B	4 / 51	0.183* J Z	1.40* J Z	0.00551 - 0.0674	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,4,7,8-PeCDF	57117-31-4	1613B	12 / 51	0.165* J Z	5.72*	0.00477 - 0.122	5 - 5.65	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	2,3,7,8-TCDD	1746-01-6	1613B	11 / 51	0.0343* J Z	0.0695* J Z	0.00911 - 0.0606	1 - 1.13	ng/kg	SL-009-SA8S	4 - 5
PCBs and Dioxins	2,3,7,8-TCDF	51207-31-9	1613B	22 / 51	0.0343* J Z	9.38*	0.0106 - 0.112	1 - 1.13	ng/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1016	12674-11-2	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1221	11104-28-2	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1232	11141-16-5	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1242	53469-21-9	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1248	12672-29-6	8082	5 / 51	0.49* J Z	500*	0.34 - 34	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1254	11097-69-1	8082	14 / 51	0.59* J L, Z	1500*	0.34 - 34	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1260	11096-82-5	8082	13 / 51	0.55* J Z	220*	0.4 - 41	1.7 - 180	ug/kg	SL-018-SA8S	0 - 0.5
PCBs and Dioxins	Aroclor 1262	37324-23-5	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 1268	11100-14-4	8082	0 / 51	-	-	0.34 - 34	1.7 - 180	ug/kg		-
PCBs and Dioxins	Aroclor 5432	63496-31-1	8082	0 / 51	-	-	1 - 100	3.4 - 340	ug/kg		-
PCBs and Dioxins	Aroclor 5442	12642-23-8	8082	0 / 51	-	-	1 - 100	3.4 - 340	ug/kg		-
PCBs and Dioxins	Aroclor 5460	11126-42-4	8082	9 / 51	1.4* J Z	5.5*	1 - 100	3.4 - 340	ug/kg	SL-010-SA8S	0 - 0.5
PCBs and Dioxins	OCDD	3268-87-9	1613B	23 / 51	2.43* J Z	86.6*	0.00979 - 0.0762	10 - 11.3	ng/kg	SL-015-SA8S	0 - 0.5
PCBs and Dioxins	OCDF	39001-02-0	1613B	14 / 51	1.15* J Z	2.83* J Z	0.00886 - 0.092	10 - 11.3	ng/kg	SL-021-SA8S	0 - 0.5
Pesticides	2,2-Dichlor-Propionic Acid	75-99-0	8151A	0 / 21	-	-	4.5 - 4.7	9.2 - 9.7	ug/kg		-
Pesticides	2,4 DB	94-82-6	8151A	5 / 21	0.94* J Z	4.0*	0.63 - 1.6	1.7 - 1.8	ug/kg	SL-019-SA8S	0 - 0.5
Pesticides	2,4,5-T	93-76-5	8151A	1 / 21	0.22*	0.22*	0.084 - 0.28	0.17 - 0.28	ug/kg	SL-005-SA8S	0 - 0.5
Pesticides	2,4,5-TP	93-72-1	8151A	3 / 21	0.20* J L	0.26* J L	0.077 - 0.15	0.17 - 0.18	ug/kg	SL-013-SA8S	0 - 0.5
Pesticides	2,4-D	94-75-7	8151A	0 / 21	-	-	1.2 - 1.3	3.7 - 3.9	ug/kg		-
Pesticides	4,4'-DDD	72-54-8	8081A	0 / 21	-	-	0.067 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	4,4'-DDE	72-55-9	8081A	18 / 21	0.44*	8.8*	0.067 - 59	0.35 - 59	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	4,4'-DDT	50-29-3	8081A	17 / 21	0.29* J H, Z	4.9*	0.067 - 74	0.35 - 74	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	Aldrin	309-00-2	8081A	0 / 21	-	-	0.067 - 1.4	0.17 - 3.5	ug/kg		-
Pesticides	Alpha-BHC	319-84-6	8081A	0 / 21	-	-	0.035 - 0.71	0.17 - 3.5	ug/kg		-
Pesticides	Beta-BHC	319-85-7	8081A	0 / 21	-	-	0.061 - 1.3	0.17 - 3.5	ug/kg		-
Pesticides	Chlordane	57-74-9	8081A	16 / 21	1.2* J S, Z	6.0*	0.82 - 51	3.5 - 71	ug/kg	SL-008-SA8S	0 - 0.5
Pesticides	Delta-BHC	319-86-8	8081A	11 / 21	0.040* J Z	12*	0.037 - 1.4	0.17 - 3.5	ug/kg	SL-023-SA8S	0 - 0.5
Pesticides	Dicamba	1918-00-9	8151A	2 / 21	0.45* J Z	0.61* J Z	0.41 - 0.43	1.2 - 1.3	ug/kg	SL-019-SA8S	0 - 0.5
Pesticides	Dichlorprop	120-36-5	8151A	0 / 21	-	-	0.82 - 0.86	1.7 - 1.8	ug/kg		-
Pesticides	Dieldrin	60-57-1	8081A	1 / 21	0.33* J Z	0.33* J Z	0.068 - 25	0.35 - 25	ug/kg	SL-016-SA8S	0 - 0.5
Pesticides	Dinitrobutyl Phenol	88-85-7	8151A	0 / 21	-	-	0.82 - 0.86	2.5 - 2.6	ug/kg		-
Pesticides	Endosulfan I	959-98-8	8081A	1 / 21	0.12* J Z	0.12* J Z	0.045 - 0.92	0.17 - 3.5	ug/kg	SL-016-SA8S	0 - 0.5
Pesticides	Endosulfan II	33213-65-9	8081A	0 / 21	-	-	0.067 - 12	0.35 - 12	ug/kg		-
Pesticides	Endosulfan Sulfate	1031-07-8	8081A	0 / 21	-	-	0.068 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	Endrin	72-20-8	8081A	0 / 21	-	-	0.068 - 8.1	0.35 - 8.1	ug/kg		-
Pesticides	Endrin Aldehyde	7421-93-4	8081A	0 / 21	-	-	0.068 - 6.7	0.35 - 7.1	ug/kg		-
Pesticides	Endrin Ketone	53494-70-5	8081A	0 / 21	-	-	0.068 - 1.4	0.34 - 7.1	ug/kg		-
Pesticides	Gamma-BHC (Lindane)	58-89-9	8081A	2 / 21	0.060* J H, Z	0.072* J H, S, Z	0.035 - 0.71	0.17 - 3.5	ug/kg	SL-001-SA8S	0 - 0.5
Pesticides	Heptachlor	76-44-8	8081A	0 / 21	-	-	0.062 - 1.3	0.17 - 3.5	ug/kg		-

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA - 8 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	Heptachlor Epoxide	1024-57-3	8081A	2 / 21	0.11* J Z	0.40* J Z	0.035 - 9.6	0.17 - 9.6	ug/kg	SL-023-SA8S	0 - 0.5
Pesticides	MCPA	94-74-6	8151A	5 / 21	300*	1900* J L	78 - 340	260 - 340	ug/kg	SL-001-SA8S	0 - 0.5
Pesticides	MCPP	93-65-2	8151A	3 / 21	110* J Z	280* J FD, L	77 - 200	260 - 270	ug/kg	SL-003-SA8S	0 - 0.5
Pesticides	Methoxychlor	72-43-5	8081A	0 / 21	-	-	0.35 - 7.1	1.7 - 35	ug/kg		-
Pesticides	Mirex	2385-85-5	8081A	0 / 21	-	-	0.068 - 1.4	0.35 - 7.1	ug/kg		-
Pesticides	Toxaphene	8001-35-2	8081A	2 / 21	4.7* J Z	17*	2.3 - 140	6.8 - 140	ug/kg	SL-008-SA8S	0 - 0.5
Semivolatiles	1,2,4-Trichlorobenzene	120-82-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,2-Dichlorobenzene	95-50-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,2-Diphenylhydrazine	122-66-7	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,3-Dichlorobenzene	541-73-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1,4-Dichlorobenzene	106-46-7	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	1-Methylnaphthalene	90-12-0	8270C SIM	0 / 51	-	-	0.68 - 0.76	1.7 - 1.9	ug/kg		-
Semivolatiles	2,4,5-Trichlorophenol	95-95-4	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	2,4,6-Trichlorophenol	88-06-2	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	2,4-Dichlorophenol	120-83-2	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2,4-Dimethylphenol	105-67-9	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	2,4-Dinitrophenol	51-28-5	8270C	0 / 51	-	-	340 - 380	1000 - 1200	ug/kg		-
Semivolatiles	2,4-Dinitrotoluene	121-14-2	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	2,6-Dinitrotoluene	606-20-2	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Chloronaphthalene	91-58-7	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Chlorophenol	95-57-8	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Methylnaphthalene	91-57-6	8270C SIM	0 / 51	-	-	0.68 - 0.76	1.7 - 1.9	ug/kg		-
Semivolatiles	2-Methylphenol	95-48-7	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	2-Nitroaniline	88-74-4	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	2-Nitrophenol	88-75-5	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	3,3`-Dichlorobenzidine	91-94-1	8270C	0 / 51	-	-	100 - 120	340 - 380	ug/kg		-
Semivolatiles	3,5-Dimethylphenol	108-68-9	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	3-Nitroaniline	99-09-2	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	4,6-Dinitro-2-Methylphenol	534-52-1	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	4-Bromophenyl Phenyl Ether	101-55-3	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	4-Chloro-3-Methylphenol	59-50-7	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	4-Chloroaniline	106-47-8	8270C	0 / 51	-	-	68 - 77	170 - 190	ug/kg		-
Semivolatiles	4-Chlorophenyl Phenylether	7005-72-3	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	4-Methylphenol	106-44-5	8270C	0 / 51	-	-	34 - 38	170 - 190	ug/kg		-
Semivolatiles	4-Nitroaniline	100-01-6	8270C	0 / 51	-	-	68 - 77	170 - 190	ug/kg		-
Semivolatiles	4-Nitrophenol	100-02-7	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	Acenaphthene	83-32-9	8270C SIM	0 / 51	-	-	0.68 - 0.76	1.7 - 1.9	ug/kg		-
Semivolatiles	Acenaphthylene	208-96-8	8270C SIM	7 / 51	0.37* J Z	5.5* J S	0.34 - 0.38	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Aniline	62-53-3	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	Anthracene	120-12-7	8270C SIM	2 / 51	0.42* J Z	0.56* J Z	0.34 - 0.38	1.7 - 1.9	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Benzidine	92-87-5	8270C	0 / 51	-	-	1200 - 1300	3400 - 3800	ug/kg		-
Semivolatiles	Benzo(a)anthracene	56-55-3	8270C SIM	6 / 51	1.0* J Z	19* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Benzo(a)pyrene	50-32-8	8270C SIM	10 / 51	0.75* J Z	7.6* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Benzo(b)fluoranthene	205-99-2	8270C SIM	15 / 51	0.93* J Z	16*	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-014-SA8S	0 - 0.5
Semivolatiles	Benzo(g,h,i)perylene	191-24-2	8270C SIM	8 / 51	0.80* J Z	1.8*	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Benzo(k)fluoranthene	207-08-9	8270C SIM	12 / 51	0.72* J Z	33* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA - 8 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	Benzoic Acid	65-85-0	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	Benzyl Alcohol	100-51-6	8270C	1 / 51	230* J Z	230* J Z	170 - 190	510 - 580	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Bis(2-Chloroethoxy) methane	111-91-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Bis(2-Chloroethyl) ether	111-44-4	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	bis(2-Chloroisopropyl) ether	39638-32-9	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C	8 / 8	19 J Z	36 J Z	17 - 19	340 - 370	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Bis(2-Ethylhexyl) phthalate	117-81-7	8270C SIM	11 / 43	6.8* J Z	300* J S	6.1 - 6.8	18 - 20	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C	4 / 4	210	260	17 - 18	170 - 180	ug/kg	SL-023-SA8S	0 - 0.5
Semivolatiles	Butylbenzylphthalate	85-68-7	8270C SIM	17 / 47	6.4* J Z	220*	6.1 - 64	18 - 190	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Carbazole	86-74-8	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Chrysene	218-01-9	8270C SIM	14 / 51	0.46* J Z	18*	0.34 - 0.38	1.7 - 1.9	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Dibenzo(a,h)anthracene	53-70-3	8270C SIM	2 / 51	1.5* J Z	2.2* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Dibenzofuran	132-64-9	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Diethylphthalate	84-66-2	8270C SIM	0 / 51	-	-	6.1 - 6.8	18 - 20	ug/kg		-
Semivolatiles	Dimethylphthalate	131-11-3	8270C SIM	0 / 51	-	-	6.1 - 6.8	18 - 20	ug/kg		-
Semivolatiles	Di-n-Butylphthalate	84-74-2	8270C SIM	2 / 51	8.0* J Z	8.2* J Z	6.1 - 6.8	18 - 20	ug/kg	SL-016-SA8S	4 - 5
Semivolatiles	Di-N-Octyl Phthalate	117-84-0	8270C SIM	3 / 51	9.1* J Z	50*	6.1 - 6.8	18 - 20	ug/kg	SL-017-SA8S	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C	2 / 2	19 J Z	49 J Z	18 - 19	180 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Fluoranthene	206-44-0	8270C SIM	11 / 49	1.3* J Z	14* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Fluorene	86-73-7	8270C SIM	5 / 51	0.74* J Z	5.2* J S	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Hexachlorobenzene	118-74-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Hexachlorobutadiene	87-68-3	8270C	0 / 51	-	-	68 - 77	170 - 190	ug/kg		-
Semivolatiles	Hexachlorocyclopentadiene	77-47-4	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	Hexachloroethane	67-72-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Indeno(1,2,3-Cd)Pyrene	193-39-5	8270C SIM	5 / 51	0.79* J Z	1.2* J Z	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Isophorone	78-59-1	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Naphthalene	91-20-3	8270C SIM	4 / 51	0.75* J Z	1.0* J S, Z	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-021-SA8S	0 - 0.5
Semivolatiles	Nitrobenzene	98-95-3	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	N-Nitrosodimethylamine	62-75-9	8270C SIM	0 / 51	-	-	0.68 - 0.76	1.7 - 1.9	ug/kg		-
Semivolatiles	N-Nitroso-Di-N-Propylamine	621-64-7	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	N-Nitrosodiphenylamine	86-30-6	8270C	0 / 51	-	-	17 - 19	170 - 190	ug/kg		-
Semivolatiles	Pentachlorophenol	87-86-5	8270C	0 / 51	-	-	170 - 190	510 - 580	ug/kg		-
Semivolatiles	Phenanthrene	85-01-8	8270C	1 / 1	52 J Z	52 J Z	19 - 19	190 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Phenanthrene	85-01-8	8270C SIM	9 / 50	0.73* J Z	3.4*	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-011-SA8S	0 - 0.5
Semivolatiles	Phenol	108-95-2	8270C	1 / 51	30* J Z	30* J Z	17 - 19	170 - 190	ug/kg	SL-016-SA8S	0 - 0.5
Semivolatiles	Pyrene	129-00-0	8270C	1 / 1	35 J Z	35 J Z	19 - 19	190 - 190	ug/kg	SL-020-SA8S	4 - 5
Semivolatiles	Pyrene	129-00-0	8270C SIM	11 / 50	0.80* J Z	11*	0.68 - 0.76	1.7 - 1.9	ug/kg	SL-011-SA8S	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

Table 3-6
Summary of Analytical Results for Chemicals - Validated Data
Combined Subsurface and Surface Soils
HSA - 8 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
A - Serial dilution results outside of criteria
F - Field blank contamination
Z - Analytes reported below the reporting limits and above the method detection limit

Section 4
Data Usability Assessment

The purposes of the DUAR provided in Appendix C and summarized here are 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 Smith 2011a).

4.1 Usability Summary

For the Subarea 8 North and 8 South data usability assessment, 72 data sets were reviewed. A data set consists of 20 or fewer samples grouped together by analytical method for analyses depending on the time and date the samples were received by the laboratory. A data set is called a SDG. The analyses performed are discussed in Sections 2.5.1 and 2.5.2.

Samples were collected and analyzed in accordance with the WP/FSAP (CDM Smith 2011a), with the exception of deviations during the field investigation as stated in Section 2.7.

The data generated for the Subarea 8 North and 8 South samples, together with the added data validation qualifiers are usable as reported, with the exception of five individual analyte results (0.01 percent of all analytes) that were rejected for Subarea 8 North data (five SVOC results) and 31 individual analyte results (two pesticide results, 24 herbicide results and five SVOC results) (0.40 percent of all analytes) that were rejected for Subarea 8 South data. 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 Subarea 8 North and 8 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.

Table 4-1 Sample Delivery Groups and Validation Levels for Subarea 8 North and 8 South

Sample Delivery Group	Level of Validation Performed	CDM Smith Review
8 North		
DE124	Level III	
DE125	Level IV	
DE126	Level III	
DE127	Level III	
DE129	Level III	
DE130	Level IV	
DE131	Level III	
DE132	Level III	
DE134	Level IV	Yes
DE135	Level III	
DE136	Level III	
DE137	Level III	
DE138	Level III	
DE139	Level III	
DE140	Level III	
DE141	Level III	
DE142	Level III	
DE143	Level III	
DE144	Level III	Yes
DE145	Level III	
DE146	Level III	
DE147	Level III	
DE148	Level III	
DE149	Level III	
DE150	Level III	
DE165	Level III	
DE166	Level III	
DE167	Level III	
DE174	Level III	
DE175	Level III	Yes
DE176	Level IV	
DE177	Level III	
DE178	Level III	
DE183	Level III	
DX068	Level III	
DX069	Level III	
DX070	Level III	
DX071	Level III	
DX072	Level IV	Yes
DX073	Level III	
DX074	Level III	
DX076	Level III	
DX077	Level III	
DX078	Level IV	
DX079	Level III	
DX080	Level III	
DX081	Level III	
DX091	Level III	Yes
DX093	Level III	
DX094	Level III	

Table 4-1 Sample Delivery Groups and Validation Levels for Subarea 8 North and 8 South

Sample Delivery Group	Level of Validation Performed	CDM Smith Review
8 North (cont.)		
DX099	Level III	
DX100	Level IV	
DX101	Level III	
DX103	Level III	
Sample Delivery Group	**Level of Validation Performed**	**CDM Smith Review**
8 South		
DE258	Level III	
DE259	Level III	
DE273	Level III	
DE277	Level III	
DE286	Level III	
DE287	Level III	Yes
DE288	Level III	
DE289	Level III	
DE291	Level III	
DE292	Level III	
DX145	Level III	
DX146	Level III	
DX147	Level IV	Yes
DX150	Level III	
DX152	Level III	
DX155	Level III	
DX156	Level III	
DX157	Level IV	

Note: During sampling in Subarea 8 North and 8 South, subsurface samples were still being collected from Subarea 5A, and sampling began in Subarea 5D North. Thus some sample delivery groups may also contain results for samples from Subareas 5A and/or 5D North.

An index of samples associated with each SDG is presented at the beginning of Appendix C. The WP/FSAP (CDM Smith 2011a) defined the procedures to be followed and the data quality requirements for the field sampling.

In order to evaluate the quality of the laboratory and the validation firm, CDM Smith chemists reviewed 10 percent of the Subarea 8 North and 8 South soil sample SDGs. The purpose of the review was to identify any QC issues with the laboratory 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 Smith'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 Smith 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 Smith completed sampling activities in Subarea 8 North and 8 South in accordance with the approved WP/FSAP (CDM Smith 2011a) and Addendum to the WP/FSAP (CDM Smith 2011b). A total of 202 soil samples were collected and analyzed from 13 drainage locations, 73 surface locations, and 89 soil boring locations for Subarea 8 North. For Subarea 8 South 54 soil samples were collected and analyzed from 21 surface locations, and 21 soil boring locations. Table 2-1 and Table 2-2 provide a summary of the samples collected and the laboratory analyses requested.

An index of samples associated with each SDG is presented at the beginning of Appendix C. The WP/FSAP (CDM Smith 2011a) defined the procedures to be followed and the data quality requirements for the field sampling.

4.5 Field Quality QA/QC

The field QC samples were collected at a frequency of 1 per 20 samples (5 percent) for MS/MSDs and field duplicates. MS/MSD and field duplicate samples were collected by CDM Smith at 11 sample locations for Subarea 8 North and 3 sample locations for Subarea 8 South and analyzed by LLI. MS/MSD and field duplicate samples met the frequency requirements detailed in the WP/FSAP (CDM Smith 2011a).

As discussed in Section 2.4.2, 15 equipment rinsate blank samples were collected for Subarea 8 North and two were collected for Subarea 8 South. One field blank sample was collected for Subarea 8 North. No field blank samples were collected for Subarea 8 South. The equipment rinsate blank and field blank results are presented in Appendix C and a summary of the detected results is presented in Tables 4-2 through 4-4.

Table 4-2 Equipment Blanks for Subarea 8 North Soil Samples – Detected Results Only

EB01-SA8N-041211 EB01-SA8N 04/12/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Bis(2-Ethylhexyl) phthalate	µg/L	4.9/5	
Diethylphthalate	µg/L	0.13/1.1	J
Di-N-Butylphthalate	µg/L	0.51/1.1	J
Di-N-Octyl Phthalate	µg/L	4.7/5	J
FB02-SA8N-SS-041311 EB02-SA8N 04/13/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Bis(2-Ethylhexyl) phthalate	µg/L	3.2/5	
Diethylphthalate	µg/L	0.13/1	J
Di-N-Butylphthalate	µg/L	0.53/1	J
Di-N-Octyl Phthalate	µg/L	3/5	J
Naphthalene	µg/L	0.034/0.05	J
Phenanthrene	µg/L	0.018/0.05	J
EB05-SA8N-SS-041811 EB05-SA8N 04/18/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Bis(2-Ethylhexyl) phthalate	µg/L	0.72/5	J
Butylbenzylphthalate	µg/L	0.33/1	J
Calcium	µg/L	0.0949/0.2	J
Di-N-Butylphthalate	µg/L	0.37/1.9	J
Di-N-Octyl Phthalate	µg/L	0.52/1.9	J
EB06-SA8N-SS-041911 EB06-SA8N 04/19/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Bis(2-Ethylhexyl) phthalate	µg/L	0.13/5	J
Calcium	mg/l	0.0796/0.2	J
Diethylphthalate	µg/L	0.057/1	J
Di-N-Butylphthalate	µg/L	0.3/1	J
Di-N-Octyl Phthalate	µg/L	0.25/1	J
Formaldehyde	µg/L	15/50	J
EB07-SA8N-SS-042011 EB07-SA8N 04/20/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/L	0.596/9.76	J
1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	pg/L	0.389/9.76	J
Bis(2-Ethylhexyl) phthalate	µg/L	0.16/5	J
Calcium	mg/L	0.08/0.2	J
Diethylphthalate	µg/L	0.074/0.99	J
Di-N-Butylphthalate	µg/L	0.31/0.99	J
Naphthalene	µg/L	0.033/0.05	J

Table 4-2 Equipment Blanks for Subarea 8 North Soil Samples – Detected Results Only (cont.)

EB09-SA8N-SB-051011 EB09-SA8N 05/10/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1,2,3,7,8-Pentachlorodibenzofuran	pg/L	0.148/10.3	J
Diethylphthalate	µg/L	0.12/1	J
Naphthalene	µg/L	0.032/0.05	J
EB10-SA8N-SB-051111 EB10-SA8N 05/11/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
RDX	µg/L	0.61/0.6	
EB11-SA8N-SB-052611 EB11-SA8N 05/26/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.033/0.052	J
2-Methylnaphthalene	µg/L	0.034/0.052	J
Benzene	µg/L	1/5	J
Di-N-Butylphthalate	µg/L	0.065/0.97	J
Naphthalene	µg/L	0.25/0.052	
Toluene	µg/L	0.7/5	J
EB16-SA8N-SB-060811 EB16-SA8N 06/08/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
Diethylphthalate	µg/L	0.3/1	J
Di-N-Butylphthalate	µg/L	0.71/1	J
Lead	mg/L	0.000066/0.001	J
Naphthalene	µg/L	0.06/0.052	J
EB17-SA8N-SB-060911 EB17-SA8N 06/09/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
RDX	µg/L	0.43/0.6	J

Notes:
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 8 South Soil Samples – Detected Results Only

EB-SA8S-SB-111711 11/17/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1,2,3,7,8,9-HxCDF	pg/L	0.276/10.5	J
1,2,3,7,8-PeCDD	pg/L	0.347/10.5	J
2-Methylnaphthalene	µg/L	0.012/0.053	J
Diethylphthalate	µg/L	0.066/1.1	J
Di-n-Butylphthalate	µg/L	0.31/1.1	J
Di-N-Octyl Phthalate	µg/L	0.084/1.1	J
Naphthalene	µg/L	0.066/0.053	

Note:
RL = Reporting Limit
µg/L = microgram per liter
pg/L = picogram per liter

Table 4-4 Field Blanks for Subarea 8 North Soil Samples – Detected Results Only

FB07-SA8N-QC-042711 FB07-SA8N 04/27/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
1-Methylnaphthalene	µg/L	0.026/0.05	J
2-Methylnaphthalene	µg/L	0.030/0.05	J
Naphthalene	µg/L	0.22/0.05	

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

Thirty trip blank samples were shipped with the Subarea 8 North samples and two trip blank samples were shipped with the Subarea 8 South samples. The results for these samples are presented in Appendix C and a summary of the detected results is presented in Table 4-5 and Table 4-6. Data qualifications based on blank detections and impacts to the data due to contaminants detected in the field blanks are discussed in Section 4.7.3 and in the Appendix C validation reports.

Table 4-5 Trip Blanks for Subarea 8 North Soil Samples – 8N 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

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

Table 4-6 Trip Blanks for Subarea 8 South Soil Samples – 8S Detected Results Only

TB-052711 05/27/2011			
Analyte	**Units**	**Concentration/RL**	**Final Qualifier**
N-Nitrosodimethylamine	ng/L	4.12/0.991	J

Note:
RL = Reporting Limit
ng/L = nanogram per liter

Temperature blanks were included with each shipment of samples. If a temperature blank was inadvertently left out of a cooler, the laboratory took the temperature of the cooler immediately upon receipt.

The number of field QC samples collected satisfies the minimum requirements for the Subarea 8 North and 8 South sampling events.

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. Five individual analyte results for 8 North (0.01 percent of all the analytes) and 31 individual analyte results for 8 South (0.4 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, the greater is 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.

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

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 Subarea 8 North and 8 South soil data set, 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 Smith 2011a) or are laboratory specific. For laboratory duplicates, if one or both of the sample results were less than 2 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 using the following: 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 nondetect value. If the field duplicate RPD is above the 50 percent criterion (and both sample results were 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 8 North individual analyte results were qualified as estimated "J/UJ" based on precision criteria:

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

The following Subarea 8 South individual analyte results were qualified as estimated "J/UJ" based on precision criteria:

- Some of the metals and PCB/PCT analyte results due to laboratory precision criteria

Field duplicate precision criteria required the qualification of some dioxin results, NDMA results, fluoride/nitrate results, various metal analyte results, hexavalent chromium results, mercury results, TPH and glycol results, PCB/PCT results, VOC results, SVOC results, and SVOC SIM results for Subarea 8 North samples. For 8 South samples, some dioxin results, fluoride/nitrate results, various metal analyte results, hexavalent chromium results, pesticide results, PCB/PCT results and herbicide results were also qualified based on field duplicate precision criteria. The associated results were qualified as estimated "J/UJ" due to field duplicate precision criteria. No results were rejected based on field duplicate precision criteria. All field duplicate RPD results are presented in Appendix C.

There was no discernable pattern or reason for the laboratory and field 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. Sample results that have been qualified as estimated "J/UJ" due to precision criteria are usable for project decisions with a degree of caution.

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:

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

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 to them. Analysis of the sample that has been spiked and comparison with the results from the unspiked sample (background) gives 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 to the sample at the reporting limit concentration. Analysis of the sample that has been spiked and comparison with the results from the unspiked sample (background) gives information about the ability of the test procedure to generate a correct result from the sample. The RL-MS is designed to verify the laboratory methods ability to accurately quantitate the spiked compound at the RL in site matrix. The RL-MS is an extra QC sample used for the modified methods identified 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 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 Subarea 8 North and 8 South soil data set, 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 and possible changes to the RLs may occur.

The following Subarea 8 North individual analyte results were qualified as estimated "J/UJ" based on accuracy criteria:

- Some of the dioxin results, NDMA results, fluoride/nitrate results, metals, hexavalent chromium results, mercury results, alcohol and terphenyl results, TPH and glycol results, VOC results, SVOC results, SVOC SIM results and energetic results due to MSs
- Some of the metals, TPH and glycol results, PCB/PCT results, VOC results, SVOC results, SVOC SIM results and formaldehyde results due to LCSs
- Some of the NDMA results, alcohol and terphenyl results, PCB/PCT results, SVOC SIM results and formaldehyde results due to surrogates
- Some of the PCB/PCT results, VOC results, SVOC results, SVOC SIM results and energetic results due to calibrations
- Some of the metal analyte results due to serial dilutions

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

- Five SVOC results (benzidine) based on MSs

The following Subarea 8 South individual analyte results were qualified as estimated "J/UJ" based on accuracy criteria:

- Some of the fluoride/nitrate results, metal results, pesticide results, herbicide results, SVOC results and SVOC SIM results due to MSs
- Some of the metals, PCB/PCT results, pesticide results and SVOC results due to LCSs

- Some of the pesticide results, PCB/PCT results, SVOC SIM results due to surrogates
- Some of the metal analyte results due to serial dilutions

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

- Two pesticide results (endosulfan sulfate and endrin ketone) based on MSs and holding times
- Twenty-four herbicide results (two for dalapon; one for dicamba; and 21 for dinoseb) based on MSs and LCSs
- Five SVOC results (three for benzidine; one for 2,4-dinitrophenol; and one for benzoic acid) 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 the collection of the sample from the field source to the beginning 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 in the DUAR and laboratory validation reports in Appendix C.

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.

In summary, for Subarea 8 North samples, some dioxins, NDMA, metals, mercury, TPH and glycols, VOCs, SVOCs and SVOC SIM results were qualified as non-detect due to laboratory blank contamination criteria. Some results for metals, mercury and SVOC SIM analytes were also qualified based on field blank contamination. For Subarea 8 South samples, some dioxins, metals, mercury and SVOC SIM analytes were qualified as non-detect due to laboratory blank contamination criteria. 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:
51 percent of the dioxins for Subarea 8 North; 64 percent of the dioxins for Subarea 8 South; 9 percent

of the NDMA results for Subarea 8 North; and 15 percent of the mercury results for Subarea 8 South. 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 nondetect "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 95 NDMA samples analyzed for Subarea 8 North and out of those samples nine NDMA results were qualified due to blank contamination.

Tables 4-2 through 4-6 provide a summary of analytes observed in equipment and trip blank samples. Almost all equipment blank and trip blank detected concentrations of analytes were below the RLs. A couple of detected field blank analyte concentrations were above the RL (e.g., naphthalene; 0.22 µg/L versus 0.05 µg/L for the RL). The associated sample results were qualified accordingly during the validation process.

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 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 Smith 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 analytical data generated and 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 Smith. 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 8 North and 8 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 8 North, results for some of the analytes were qualified as estimated due to RL criteria except for VOC SIM results and energetic results. For all methods analyzed for Subarea 8 South, results for some of the analytes were qualified as estimated due to RL criteria except for perchlorate results.

In general, for the data validated in this report, RLs for the sample results were low enough to compare to the RLs stated in the WP/FSAP (CDM Smith 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 Smith 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 samples planned for collection as listed in the WP/FSAP (CDM Smith 2011a) versus the actual number of samples collected 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.

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

Where:

C = actual number of samples collected
n = total number of samples planned

Equation B.

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

Where:

V = number of measurements judged valid

n' = total number of measurements made

The overall completeness goal for this sampling event was 90 percent for all project data.

A total of 202 Subarea 8 North and 54 Subarea 8 South soil samples including the field duplicates were collected and analyzed. As discussed in Section 2.7, 102 locations were to be sampled in Subarea 8 North and 24 locations in Subarea 8 South. Some locations required only a subsurface sample while other locations required both a surface 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. Hence, the completeness calculation defined in Equation A above is more accurately reflected by identifying whether all the locations were sampled at versus the actual number of samples collected since that is not pre-determined. Of all the locations indicated for collection in Subareas 8 North and 8 South, only one location in Subarea 8 North was not collected due to archeology significance, as cited in Table 2-1 and stated in Section 2.7. The remaining deviations from the proposed sample collection for Subareas 8 North and 8 South were due to shallow refusal on bedrock. For all of these locations, a surface sample was successfully collected.

As discussed in Section 2.7, the sampling deviations do not impact completeness objectives for this sampling event. As the sampling program progresses, it may be determined during the Phase 3 Data Gap Investigation that Phase 1 locations not affected by archeological findings that were not sampled, or methods were inadvertently left off of the CoCs (pesticides and herbicides for the Subarea 8 North samples) may be sampled during Phase 3 sampling. Ninety-nine percent of the sample locations identified in the WP/FSAP Addendum were collected 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 99.9 percent of the number of measurements judged to be valid versus the total number of measurements made for all Subarea 8 North and 99.6 percent for Subarea 8 South samples analyzed. Tables 4-7 and 4-8, show a summary of all results that were estimated or rejected.

The following Subarea 8 North individual analyte results were rejected per analyses:

- Method 8270C
  - 5 individual SVOC analyte results out of 9250 results (0.01 percent)

The following Subarea 8 South individual analyte results were rejected per analyses:

- Method 8081A
  - 2 individual pesticide analyte results out of 441 results (0.45 percent)
- Method 8151A
  - 24 individual herbicide analyte results out of 210 results (11 percent)
- Method 8270C
  - 5 individual SVOC analyte results out of 2413 results (0.21 percent)

Table 4-7 Summary of Data Completeness Following Data Validation – Subarea 8 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	242	1124		1864	34	3264	100
NDMA	24	31		35	5	95	100
Formaldehyde	2	8		82	3	95	100
Cyanide		6		89		95	100
Fluoride, Nitrate	111	162		5	9	287	100
Hexavalent Chromium	7	100		85		192	100
Mercury	4	85		100	3	192	100
Metals – 6010B	1922	511		254	1	2688	100
Metals – 6020	889	2120		28	35	3072	100
Perchlorate-314	2	1		189		192	100
Perchlorate-6850	2	3		16		21	100
Alcohols, terphenyls		2		557	11	570	100
Energetics				1877	13	1890	100
Total Petroleum Hydrocarbons, glycols	183	68		787	25	1063	100
PCBs/PCTs	91	119		2057	37	2304	100
Pesticides							
Semivolatiles	13	134	5	8970	128	9250	99.95
Semivolatiles SIM	273	506		3710	88	4577	100
Volatiles	60	49		5703	17	5829	100
Volatiles SIM				87		87	100
Completeness Total for All Subarea 8 North Samples Collected and Judged Valid							**99.99**

Table 4-8 Summary of Data Completeness Following Data Validation – Subarea 8 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	27	198		630	12	867	100
Fluoride, Nitrate	11	20		9	10	50	100
Hexavalent Chromium	6	32		13		51	100
Mercury		21		30		51	100
Metals – 6010B	528	134		52		714	100
Metals – 6020	183	579		29	25	816	100
Perchlorate-314				51		51	100
Perchlorate-6850				1		1	100
PCBs/PCTs	18	23		501	70	612	100
Pesticides	31	39	2	227	142	441	99.55
Herbicides	6	13	24	141	26	210	89
Semivolatiles	4	14	5	2355	35	2413	99.8
Semivolatiles SIM	53	101		1082	23	1259	100
Completeness Total for All Subarea 8 South Samples Collected and Judged Valid							**99.6**

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

Sampling deviations from procedures described in the WP/FSAP (CDM Smith 2011a) are discussed in Section 2.7 of this report. 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 Smith 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 8 North and 8 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 Smith.

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 number of samples collected, and the number of sample results acceptable for use provides sufficient quality data to support project decisions.

Section 5
References

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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 8 North Sample Locations

0 50 100 200 300 Feet

Santa Susana Field Laboratory
Ventura County, California
Exhibit 1

CDM Smith

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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 8 South Sample Locations

0 50 100 200 300 Feet

Santa Susana Field Laboratory
Ventura County, California
Exhibit 1

CDM Smith

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