Addendum No. 4 to
Master Field Sampling Plan for Chemical Data Gap Investigation
Phase 3 Soil Chemical Sampling at Area IV
Santa Susana Field Laboratory
Ventura County, California

Subarea 5A

Prepared for:

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Prepared under:

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

August 2012

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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: _____ August 30, 2011
Margaret Bloisa, P.G. **Date**
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Introduction

This document supports implementation of the soil sampling program described in the *Master Field Sampling Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (Master FSP, CDM Smith 2012a). The Master FSP addresses soil sampling within Area IV of the Santa Susana Field Laboratory (SSFL) as required under the *Administrative Order on Consent for Remedial Action* (Docket Number HSA-CO 10/11-037) (AOC) signed by the California Department of Toxic Substances Control (DTSC) and the Department of Energy (DOE). The Master FSP includes field Standard Operating Procedures (SOPs) describing the details of sampling activities and sample management at SSFL. For all samples collected at locations within Subarea 5A, the Master FSP and the SSFL SOPs dictate the procedures pertaining to:

- locating and verifying sampling points
- surface soil sampling techniques
- subsurface soil sampling techniques using a direct push technology (DPT) rig and a hand auger and slide hammer for those locations not accessible by the DPT rig
- sampling of trenches and test pits
- sample handling and shipping
- analytical, quality control, and data review
- instrument calibration and maintenance

The AOC between DTSC and DOE was signed on December 6, 2010. The AOC is a legally binding order that 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 stipulates that during Phase 1 of the chemical investigation activities, DOE was to analyze a soil sample for chemical constituents at locations where EPA collected a sample for radiological analysis. Phase 1 co-located sampling with EPA in Subarea 5A was completed in April 2011. Phase 2, which was random co-located sampling with EPA in the Northern Buffer Zone was also completed in April 2012.

Phase 3 of the AOC is the data gap investigation, which includes an assessment of data adequacy using the data collected under the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) program, the results of co-located soil samples collected during Phase 1 of the AOC, and multiple lines of evidence as described in the *Work Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (CDM 2012b) (Phase 3 Work Plan). The purpose of the data gap investigation is to identify

additional soil chemical data needed to support the Soil Remedial Action Implementation Plan for Area IV. The sampling that will be performed under this FSP Addendum is based on the results of the data gap investigation.

The Phase 3 sampling within Subarea 5A is governed by the Phase 3 Work Plan and its elements including the Master FSP, Phase 3 Quality Assurance Project Plan (CDM Smith 2012c) (QAPP), Worker Health and Safety Plan (CDM Smith 2012d), and the Phase 3 SSFL SOPs (attachments to the Master FSP and QAPP). These documents are incorporated into this FSP Addendum by reference.

Purpose of FSP Addendum

This FSP Addendum addresses Phase 3 sampling in Subarea 5A. Figure 1 of the Subarea 5A FSP Addendum illustrates the location of Subarea 5A within Area IV of SSFL. The rationale for sample location and chemical analytes is provided in the document *Subarea 5A Phase 3 Data Gap Analysis Technical Memorandum, Santa Susana Field Laboratory, Ventura County, California* (MWH 2012[1]) (*Subarea 5A Data Gap TM*). The *Subarea 5A Data Gap TM* is included as an attachment to this FSP Addendum. It illustrates the proposed sample locations and includes a table providing the sampling rationale for each location. Figure 1 of the *Subarea 5A Data Gap TM* (MWH 2012) provides soil sample locations in the northern portion of Subarea 5A that were identified through the data gap investigation and Figure 2 shows the soil sample locations in the southern portion of Subarea 5A. Table 1 of the *Subarea 5A Data Gap TM* provides the sampling rationale. Table 1 of the Subarea 5A FSP Addendum, included at the request of DTSC, provides additional information beyond the rationale in Table 1 of the *Subarea 5A Data GAP TM* for sample locations that target four different conditions that will be encountered in the field. This information will be useful during sample staking and collection.

For Subarea 5A, surface, subsurface, and trench/test pit soil samples will be collected. For surface soil samples, only the top 6-inches of soil (surface soil) will be collected. The majority of sample locations will involve collection of subsurface samples. A direct push technology (DPT) rig will be used to sample subsurface soil at all locations except those inaccessible due to terrain constraints. Areas inaccessible to the DPT rig will be sampled using a hand auger and slide hammer as described in the Phase 3 SSFL SOPs.

CDM Smith will be responsible for all aspects of the field sampling program under Phase 3 of the AOC. This includes locating in the field the sample locations selected during the data gap investigation and that were initially generated and displayed electronically using Geographic Information System (GIS) coordinates. The GIS coordinates are downloaded into a Geographic Position System (GPS) unit for

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[1] MWH prepared this Technical Memorandum under contract with The Boeing Company, which is under direct contract with DOE. Through this contractual relationship and under the regulatory oversight of DTSC, MWH has represented DOE in conducting the Chemical Data Gap Analysis and in the preparation of this Technical Memorandum.

physically locating the samples in the field. SSFL SOP 1 provides the process for verifying that the sample locations initially identified by GIS review reflect the targeted feature described in Table 1 and are consistent with the GPS coordinates generated in the field. If necessary the sample location will be adjusted in the field so the targeted feature is sampled. Adjusted and all final sample location coordinates will be provided back to the GIS managers so that the GIS database can be updated.

CDM Smith will be responsible for the physical collection of all samples per the procedures and controls specified in the Master FSP. CDM Smith personnel will be responsible for the sample container preparation, sample handling and documentation, sample shipment, laboratory coordination, chemical analyses of the samples, and chemical data review. Soil samples collected by CDM Smith will be analyzed for chemical analytes identified in Table 1 of the *Subarea 5A Data Gap TM* (MWH 2012). Analytical methods and quality control criteria to be used are stipulated in Table 8-3 (Quality Control Objectives for Analytical Methods) of the QAPP (CDM Smith 2012c) and Table 6-1 (Analytical Methods, Containers, Preservatives, and Holding Times) of the Master FSP (CDM Smith 2012a).

Table 1 of the *Subarea 5A Data Gap TM* also identifies proposed target depths for sample collection. Samples will also be collected from depth intervals (until refusal) that exhibit evidence of staining, odor, debris, or photoionization detector (PID) readings above background.

This FSP Addendum only addresses the collection of surface soil and subsurface soil to the bedrock interface. The sampling of soil gas or other media will be addressed in a future sampling plan.

Sample Analytes

Table 1 of the *Subarea 5A Data Gap TM* (MWH 2012) provides the chemical analyses (analytes) for each sample proposed for collection under this FSP Addendum and the respective rationale for sample location and chemical analyses. The chemical analyses by location were identified through the data gap investigation process.

Field Locating Soil Sample Locations

CDM Smith will be responsible for determining the precise position of soil sample locations in the field in accordance with SSFL SOP 1. At the same time, each sample location will also be cleared for buried utilities, and assessing the presence of cultural and biological resources for their protection.

Surface Soil Sampling

Surface soil samples will be collected at each location as proposed in Table 1. Surface soil samples will be collected in accordance with SSFL SOP 2. A slide hammer with stainless steel sleeve will be used to collect the soil sample to be analyzed for semi-

volatile organic compounds and polychlorinated biphenyls. Volatile organic compounds and total petroleum hydrocarbon samples will be collected using Encore samplers. Soil for all other sample analytes will be place in one or more glass jars.

Subsurface Soil Sampling

Subsurface soil samples will be primarily collected through the use of a DPT rig. SSFL SOP 4 describes the DPT sampling procedures. Sampling will be conducted through the use of 5-foot long acetate sleeves placed within the DPT sampling tool. All cores will be screened using a PID instrument for volatiles and via a Micro R gamma detection instrument and a dual phosphor alpha/beta detection instrument (SSFL SOPs 6 and 7, respectively). Soil samples will be collected at the depths specified in Table 1 of the *Subarea 5A Data Gap TM* (MWH 2012) and/or at locations where instrument readings, soil staining, or evidence of debris is observed.

To determine depth of contamination at locations where prior data indicates contamination at the surface but depth has not been defined, the core will be divided into one-foot long samples and prepared for shipment to the laboratory. The laboratory will be requested to analyze the shallowest interval first (e.g., 1 to 2 foot interval) and provide results in an expedited turnaround time. If chemicals are detected above the interim screening levels, the lab will be instructed to analyze the next interval (e.g., 2 to 3 foot interval) and provide results under expedited analytical turnaround time. This process may be repeated depending on results. To address holding time concerns, the lab may be instructed to extract each interval and hold the extract until the prior interval results are available. Table 1 identifies the locations where the depth analysis process is proposed.

There are proposed sampling locations that the DPT rig will not be able to access. At those locations, subsurface samples will be collected using a hand auger to access the sample depth and a slide hammer sampler with stainless steel sleeve to collect the actual sample. SSFL SOP 3 describes the hand auger sampling procedure.

The soil logging of all samples, surface and subsurface, will be conducted following SSFL SOP 9.

Trenching and Test Pit Sampling

The investigation of Subarea 5A will include the characterization of debris and fill areas through backhoe trenching. Figures 1 and 2 of the *Subarea 5A Data Gap TM* identify the trench locations. The primary purpose of the trenches will be to visually characterize fill material and to sample subsurface soil within the trench.

Prior to any trenching, geophysical surveys of the trenching locations will be conducted to identify potential buried debris and to assist in targeting trench locations. The geophysical surveys will include ground penetrating radar, electromagnetic surveys, and soil density surveys. Procedures for the geophysical surveys are described in SSFL SOP 14. The firm selected to perform the surveys will

prepare a detailed plan of their procedures for DTSC review prior to conducting the surveys.

Where sampling can be performed safely, soil samples will be collected from the side wall of the trench/pit to 5 feet below ground surface (bgs) using an impact sampler with extended rod. Soil samples deeper than 5 feet below ground surface (or when samples cannot be collected safely at 5 feet bgs) will be collected directly from the backhoe bucket using the impact sampler. SSFL SOP 5 describes the test pit sampling procedure.

Sampling of Locations with Sustained Instrument Readings, Odor, or Staining

For any locations where PID instrument readings remain above measured background readings, there is an odor, or the soil appears to be stained with hydrocarbons, samples will be collected at the sample depth interval and analyzed for VOCs, 1,4-dioxane, and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) using Encore samplers, in addition to the target analytes specified in Table 1 of the *Subarea 5A Data Gap TM*. Any sustained instrument readings above background (PID, Micro R gamma detection and dual phosphor alpha/beta detection instruments) will be immediately reported to DOE by the CDM Smith Field Team Leader and DOE will contact Boeing with this information in accordance with the Worker Health and Safety Plan requirements. The monitoring instruments will be operated per SSFL SOPs 6 (volatile organics) and 7 (radiation).

Decontamination of Sampling Equipment

Equipment that comes in contact with sample material will be decontaminated per SSFL SOP 12. Investigation derived waste will be handled per SSFL SOP 13.

Sample Handling, Recording, and Shipment

SSFL SOPs 10 and 11 describe the sample custody, handling, information recording, preservation, and shipping procedures. Photographic documentation of sampling activities will be performed per SSFL SOP 15.

Instrument Calibration and Maintenance

All instruments used to screen samples for volatile organics and radioactivity will be calibrated and maintained per SSFL SOP 16.

Laboratory Sample Preparation (Homogenization)

Soil samples intended for chemical analyses of non-volatile and non-semivolatile constituents (e.g. metals, PCBs, and dioxins) will be homogenized by the analytical laboratory in the laboratory in accordance with SSFL SOP 17.

Schedule

Soil sampling activities under this FSP Addendum will most likely start the first week of September, 2012, following DTSC approval of this 5A Subarea FSP Addendum, with the locating and staking of proposed sample locations and utilities clearance. Surface soil sampling will start mid October 2012, and subsurface soil borings (hand-auger and DPT) will start on October 29, 2012. It is anticipated that 40 surface samples, 32 shallow hand auger samples, and 32 DPT boring samples will be collected each week. As a budget saving measure, geophysical surveys, test pits, and trenching for Subareas 5C, 5B, and 5A will be performed at one time. Therefore test pits and trenching will not occur until after completion of the surface, DPT, and hand auger sampling proposed in this Subarea 5A addendum. A plan for conducting the geophysical surveys will be provided to DTSC in September. Each trench/test pit will take one day to dig, describe, sample, and backfill.

References

CDM Smith. 2012a. *Master Field Sampling Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California.* April.

CDM Smith. 2012b. *Work Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California.* April.

CDM Smith. 2012c. *Quality Assurance Project Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California.* April.

CDM Smith. 2012d. *Worker Health and Safety Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California.* April.

MWH 2012. *Subarea 5A Phase 3 Data Gap Analysis Technical Memorandum Santa Susana Field Laboratory, Ventura County, California.* August.

Santa Susana Field Laboratory Site
Ventura County, California

Figure 1-1
Area IV and Northern Buffer Zone Subarea Designation Santa Susana Field Laboratory

EPA Region 9

NORTHERN BUFFER ZONE
BZ-NE
Subarea 3
Subarea 6
Subarea 7
BZ-NW
NORTHERN BUFFER ZONE
Subarea 5A
Subarea 5C
Subarea 5B
Subarea 8-North
Subarea 5D-North
Subarea 8-South
Subarea 5D-South

Legend

- Subarea
- Area IV & Northern Buffer Zones

0 250 500 1,000 1,500 2,000 Feet

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

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Table 1
Additional Information for Selected Sample Locations

Potential Dredge Piles/Hummocky Areas	5A_DG-777 5A_DG-799 5A_DG-800 5A_DG-801 5A_DG-802 5A_DG-804 5A_DG-807 5A_DG-808 5A_DG-810 5A_DG-812 5A_DG-817 5A_DG-818 5A_DG-820 5A_DG-821	Samples are proposed within potential dredge piles and hummocky areas suspected to contain dredge pile materials. First, excavate trenches through the areas identified and log sediments, native soil, and the contact between fill and native material. Collect samples in the sidewall to target the fill/sediments, top of native soil, and soil just above bedrock.
Test Pits at Geophysical Anomalies	5A_DG-506 5A_DG-509 5A_DG-512 5A_DG-542 5A_DG-547 5A_DG-548 5A_DG-587 5A_DG-635 5A_DG-636 5A_DG-730 5A_DG-740 5A_DG-757	Excavate test pits to investigate linear geophysical anomalies as potential pipelines identified by EPA. Inspect test pits for signs of backfill, impacts (staining, debris, etc.), piping, or other subsurface infrastructures. Collect samples at top of native and just above bedrock to evaluate depth of uncertainty of feature and potential recharge to groundwater.
Drainage Transects	5A_DG-828 5A_DG-829 5A_DG-830 5A_DG-831 5A_DG-832 5A_DG-833 5A_DG-834 5A_DG-835 5A_DG-836 5A_DG-837	Samples are proposed across drainage in a transect. Recollect sample within the drainage pathway and advance boring to bedrock; collect samples at 5-foot and 10-foot stepouts on each bank laterally from the drainage and also advance to bedrock.
Ephemeral Drainages	5A_DG-852 5A_DG-853	Prior to collection of samples, locate the position or trace of the surface water drainage pathway and map with GPS. Look for rilling, topographic low, or other surface features indicative of a surface water pathway. Collect sample within the center of the drainage pathway.
Tank and floor trench samples	5A_DG-522 5A_DG-535 5A_DG-550 5A_DG-551 5A_DG-564 5A_DG-619	Conduct geophysical surveying to locate position of removed fuel oil USTs (UT-18, UT-19, and UT-22) and position of former trenches within Building footprints (Buildings 4042 and 4032). Previous sampling conducted at the fuel oil USTs UT-18 and UT-19 do not appear to have targeted the correct location based on review of facility diagrams.

NOTE: If a previous sample location is referenced and/or being re-sampled, look for the original staked location in addition to re-locating using GPS coordinates. If the stake is missing look for a cut in asphalt/concrete, a depression in the soil, or other physical evidence of the actual boring location.

Attachment 1

Subarea 5B Phase 3 Data Gap Analysis Technical Memorandum, Santa Susana Field Laboratory, Ventura County, (MWH 2012)

SUBAREA 5A PHASE 3 DATA GAP ANALYSIS
TECHNICAL MEMORANDUM
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA

Prepared For:

THE UNITED STATES DEPARTMENT OF ENERGY

Prepared By:

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August 2012

"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."

August 2012

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ACRONYMS AND ABBREVIATIONS

AOC	Administrative Order on Consent
DOE	Department of Energy
DQO	Data Quality Objective
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
GIS	geographic information system
HGL	Hydrogeologic, Inc.
HSA	historical site assessment
ISL	interim screening level
MFSP	Master Field Sampling Plan
MWH	MWH Americas, Inc.
NDMA	n-Nitrosodimethylamine
NBZ	Northern Buffer Zone
PAH	polyaromatic hydrocarbon
PCB	polycyclic biphenyls
PDU	Process Development Unit
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SSFL	Santa Susana Field Laboratory
TIC	tentatively identified compound
TM	technical memorandum
VOC	Volatile Organic Compound

1.0 INTRODUCTION

This technical memorandum (TM) has been prepared to describe the chemical data gap analysis performed by MWH Americas, Inc. (MWH) for the U.S. Department of Energy (DOE) for Subarea 5A within Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL). The chemical data gap analysis was performed in compliance with the Administrative Order on Consent (AOC) for Remedial Action (AOC; Docket No. HSA-CO 10/11 - 037), and serves as the basis for the Phase 3 data gap investigation being performed in Subarea 5A within Area IV by DOE and implemented by CDM Smith, a contractor to DOE. This Data Gap TM is included as an appendix to the Master Field Sampling Plan (MFSP) Addendum for Subarea 5A prepared by CDM Smith for review and approval by the California Environmental Protection Agency Department of Toxic Substances Control (DTSC).

The focus of this Data Gap TM is Subarea 5A. Information is provided to describe the overall background and approach for the chemical data gap analysis and investigation, followed by a description of specific application of the data gap analysis approach or unique circumstances within Subarea 5A.

2.0 DATA GAP ANALYSIS PROCESS

The AOC requires a chemical data gap investigation to identify locations within Area IV, the NBZ, or contiguous areas where additional chemical investigation is necessary. Per the AOC (Section 2.5.3.2):

> "In determining the scope, DOE and DTSC shall evaluate the results from the Phase 1 Co-Located sampling effort, the results from the Phase 2 Co-Located sampling effort[1], the results of the U.S. EPA's radiological survey and characterization efforts, the data and information presented in the previous RFI reports and RFI work plans, and any available historical Site data. This scoping effort shall be used to determine the locations at the Site where insufficient chemical data exists and additional chemical investigation is necessary."

This Data Gap TM describes the data evaluation process that has been used to identify chemical data gaps. Data gaps exist where more information is needed for DTSC and DOE to make remedial planning decisions, (i.e., whether soil contamination exists, and if so, to what extent). The data gap analysis approach was developed using the U.S. Environmental Protection Agency's (EPA's) seven-step Data Quality Objective (DQO) process that presents a systematic approach to identify chemical sampling needs, address existing data gaps, and obtain environmental data and information required for future remedial planning. The Phase 3 chemical

[1] According to the AOC, the Phase 2 random sampling is to be conducted with EPA. EPA has completed random sampling within the NBZ. The data gap analysis will use the results from Phase 2 sampling within the NBZ to assess additional sampling for that area.

data gap investigation DQOs are the framework for the analysis described in this TM and are presented in Section 4.0 of the MFSP (CDM Smith, 2012b).

The Phase 3 data gap analysis described in this TM will be an iterative process. At this time in the data gap analysis process, data are compared with the interim screening levels (ISLs) developed for evaluation of available data (see Master Phase 3 Work Plan Table 2-1, CDM Smith, 2012a). The ISLs were developed jointly by DTSC and DOE, and reflect the 2005 background soil concentrations for metals and dioxins, and analytical reporting limits for chemicals not having a background value. In the future, background values will be updated based on the ongoing DTSC soil chemical background study and evaluation of the precision and accuracy requirements for reporting limits. Ultimately, all available previous data, including EPA radionuclide data, will be evaluated based on the final soil cleanup values (Look-up Table values) per the AOC. Therefore, a final data gap analysis will be required incorporating data collected as described in this TM and the Master Phase 3 Work Plan (CDM Smith, 2012a), prior chemical data, and EPA radionuclide results.

The data gap analysis described in this TM is based on available results from EPA's radiological investigation activities (e.g., gamma surveys, geophysical surveys, aerial photograph interpretations), prior Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI results), the Phase 1 co-located sample results, and historical information on activities within Area IV. Since recent radiological data have not been completely published by EPA, this data gap analysis used available EPA summaries of these results for planning purposes.

The data gap analysis identifies where additional information is needed for remedial planning by:

- Comparing existing soil sampling results to ISL criteria to identify additional sample locations needed to define the extent of contamination (based on criteria exceedance) and/or gradients in chemical concentrations away from a potential source;
- Evaluating migration pathways to ensure that samples are collected where contamination may have migrated via natural or anthropogenic processes; and
- Evaluating historical documents and site survey information to identify potential release areas that may not have been adequately characterized.

Each of these evaluation steps are described below.

2.1 COMPARISON OF PREVIOUS SAMPLING DATA TO SCREENING CRITERIA

To determine future chemical sampling needs (to be implemented under the Master Phase 3 Work Plan and MFSP), validated soil chemistry results are compared with ISL criteria. The

ISLs reflect either existing 2005 soil background concentrations for metals and dioxins[2] or analytical reporting limits for chemicals that do not have 2005 background concentrations. Table 2-1 in the Master Phase 3 Work Plan (CDM, 2012a) lists the ISL values currently being used for the data gap analysis.

This data comparison is conducted to answer several questions:

- Are the data adequate to define the extent of soil contamination? (i.e., What is the areal extent? How deep does contamination go?)
- Where are additional data needed to address areal and depth extent?
- What types of chemical data are needed at each location?

The soil chemical results within the analytical database are "filterable," meaning each individual soil chemical result can be selectively evaluated or results can be collectively reviewed for each prior sample point. The analytical database incorporates data files for soil chemical data collected under the RFI and co-located sampling programs. A geographic information system (GIS) is used to spatially display the sampling results. To display the data, the sampling results are compared with the ISL values for all chemicals analyzed at each sample location using a computer algorithm. The algorithm calculates the ratio of the soil concentration to the ISL value. The GIS is then used to display the maximum comparison value (i.e., 'ratio') at a sampling location, so that the highest result relative to the ISL is displayed. The GIS uses a color-coded system to display the soil concentration relative to the ISL value. For example, soil concentrations that are at or below the ISL value are displayed as a blue symbol. Locations where the soil concentration exceeds the ISL are displayed as yellow, orange, magenta, or red, depending on the degree of exceedance of the ISL value. Maps displaying the sampling results as color-coded symbols are included in this Data Gap TM (Figures 1, 2, and 3) to help display this evaluation step in the context of proposed sampling locations.

The data gap evaluation includes review of sampling results for combined chemicals, individual chemical groups (e.g. volatile organic compounds [VOCs], polyaromatic hydrocarbons [PAHs], polycyclic biphenyls [PCBs], etc.), and individual chemicals (e.g., barium, perchlorate). Sampling results in the database are 'filtered' to determine which chemicals are above ISLs, their depth of occurrence, and which chemicals are co-located. This allows for effective evaluation and selection of step-out sample locations and analytical suites for assessing the extent and/or distribution of chemicals that exceed their respective ISLs. In some cases where detected chemical concentrations slightly exceed ISL values, Phase 3 step-out sampling is not proposed in this Data Gap TM, but will be subject to an additional data gap review once the final AOC Look-

[2] DTSC is in the process of completing a new soil background study that includes additional chemicals not analyzed in the 2005 study. When the new background values are finalized they will replace the existing background values and will be used for subsequent data gap analyses.

Up Table values are made available. Similarly, sampling to address elevated reporting limits in historical data is not proposed in all areas of Subarea 5B in this Data Gap TM. In areas where other data gaps have been identified, sampling for elevated reporting limits is also proposed as needed. In other areas, data gap evaluation for elevated reporting limits in historical data will be addressed after final Look-Up Table values are established and in the context of recent sampling results.

The GIS display of the ISL-compared sampling results is used to evaluate potential sampling locations. In areas where detected concentrations exceed ISLs, previous sampling data are evaluated to determine if the lateral or vertical extent of the exceedance is limited by other sampling results below ISLs or other features at the site (e.g., bedrock). If not, then additional sampling is proposed in that area. Conversely, in some areas existing sampling results are adequate to support remedial planning or cleanup decisions. A review of the distribution of results along with other lines of evidence (described below) is used to identify where additional sampling is needed.

Some locations with significant exceedances of ISL values have been identified by DOE and DTSC as soil "clearly contaminated areas." These are areas most likely requiring remediation based on the existing elevated sampling results, and are displayed in GIS and on maps in this TM with pink shading. The data gap analysis for these areas considers whether sufficient information is available to determine the lateral and vertical extent of contamination. In many cases, more data are needed to determine a volume of soil to be removed for use in remedial planning, and additional sampling is proposed in these areas.

2.2 EVALUATION OF MIGRATION PATHWAYS

Migration pathways are the means by which chemicals can move in the environment, including surface water transport, downward movement to subsurface soil, or air/wind dispersion. Migration pathways are evaluated to answer several questions:

- Where could potentially contaminated soil migrate via surface water flow?
- Where could contaminants migrate in subsurface soils? Could groundwater be affected by the soil contamination?
- Were chemicals potentially released into the air, dispersed by wind and deposited in surrounding areas at concentrations exceeding ISLs?

The topographic and surface water flow data in the GIS is used to identify surface water pathways from potential contamination sources. Prior data for those pathways will be evaluated as to the adequacy for addressing contaminant migration. If additional data are needed to define

the extent of chemicals moved by surface water, downward migration in the subsurface, or to assess air dispersion, sampling locations are proposed for the migration pathways.

This data gap analysis identifies previous soil sampling locations or features where there may be outstanding groundwater investigation program data needs. At these features, the data gap analysis is evaluating the adequacy of existing soil sampling results to assess potential migration of contaminants to groundwater, and proposing additional soil sampling to the top of bedrock if gaps are identified.

2.3 HISTORIC AND SITE SURVEY INFORMATION REVIEWS

The data gap analysis also addresses potential sources of contamination not covered by prior sampling events. Historical survey and site operational information for Area IV is represented in GIS and viewed in context of previous sampling results. Historical and site survey information will be used to answer two questions:

- Are there any potential chemical use/release features that have not been sampled?
- If a potential chemical use area has already been sampled (but not for all chemicals potentially used), are additional samples/analyses needed to complete characterization?

A checklist has been developed that is reviewed along with the chemical data to ensure that features not covered by RFI or Phase 1 co-located sampling are addressed. The checklist includes the results of the historical site assessment (HSA) conducted by Sapere (2005), site operational and aerial photographic information recently compiled for the RFI, and the recent HSA completed by EPA (Hydrogeologic, Inc. [HGL], 2012). The "lines of evidence" reviewed as part of the checklist are published in the Master Phase 3 Work Plan Table 2-2, and provided herein (Table 4) for how they were applied in Subarea 5A.

Site information includes various site features or survey information that is displayed in GIS using a common coordinate system (similar to latitude and longitude). Tanks, buildings, leach fields, geophysical survey results, historical aerial photos, storage areas, debris/disposal areas, identified chemical use areas, and surface water flow paths are examples of site information/features used to identify potential data gaps and proposed sampling locations. Site information is shown as layers in GIS that can be displayed individually or combined with sampling results. The site information features, compiled from historical documents, aerial photo review, and site surveys are evaluated using existing data to assess the completeness of characterization. If gaps are identified (e.g., a storage area not previously sampled), sampling is proposed with the analytical suites developed based on surrounding site operational uses and existing sample result exceedances.

In addition to site historical use or survey information, soil borings and trench logs are reviewed to identify relevant soil conditions (e.g., debris, staining, bedrock depth) since unique soil characteristics may also guide proposed sampling intervals. For example, sampling may be proposed both within and below stained horizons, or in another case, both within fill materials and below fill materials in underlying native soils. In both of these cases, sampling is needed below a potential contamination zone to identify how far contamination has migrated downward.

Data gaps associated with some historical operational use features are not addressed in this Data Gap TM but will be included in future documents. Historical operational use features not addressed in this plan include the Area IV sewer system, the natural gas pipelines within Area IV, and features within existing Area IV buildings. Data gaps associated with the sewer system and natural gas pipelines are being evaluated for these systems as a whole, and will be addressed in a separate Data Gap TM. Where applicable, sampling is proposed in this TM where sewer pipelines leave former or existing buildings since these are considered site-specific sampling features. Data gaps associated with existing buildings are being evaluated as part of this process, but sampling requirements within or below existing buildings will be detailed in forthcoming demolition plans since that work will proceed under a different schedule and process.

2.4 DATA GAP ANALYSIS PROCESS SUMMARY

A systematic process that incorporates the evaluation components discussed in Sections 2.1 through 2.3 is being used during data gap analysis to ensure available information from multiple sources is considered during data gap review. Thus, combining data gap recommendations from the three evaluation components (data screening evaluations, migration pathway evaluations, and historical document/site survey reviews), sampling is proposed for the evaluated subarea.

The outcome of the data gap analysis process is the identification of soil sampling requirements for Phase 3, including rationale for Phase 3 samples, their locations, depths, and proposed analytical suites. Both soil and soil vapor sampling for chemicals in Phase 3 are proposed in this TM ('soil' sampling is often referred to as 'soil matrix' sampling to distinguish it from soil vapor sampling). Soil matrix and soil vapor media provide different types of chemical data for remedial planning purposes. Soil vapor sampling is preferred to assess the potential release of solvents, which contain VOCs. Since VOCs are highly volatile, they are best evaluated in soil vapor samples, not soil matrix. Therefore, soil vapor sampling is proposed in this TM to evaluate locations where solvents may have been used, stored, or released, or to step-out around previous detections of VOCs above ISLs. Soil vapor sampling is also proposed to provide VOC data over larger areas to evaluate potential solvent release locations when historical operations are uncertain (e.g., large storage areas), or to assess vapor transport from an underlying groundwater plume.

The analytical parameters proposed for step-out or step-down sampling locations are based both on what the prior data indicate are chemicals of potential concern for the location, in conjunction with data needs identified based on review of migration pathways and other lines of evidence. Proposed sample spacing is based on the types of operations and releases, the magnitude and gradients of nearby sampling results, and site conditions (e.g., depth of soil, proximity of bedrock outcrops). Generally, samples are located with a 25 to 100 foot spacing laterally, and at 0.5-, 5-, and 10-foot depth intervals vertically. In many cases the deepest samples will be placed on 'hold' by the laboratory, and analyzed if elevated results are detected in the shallower samples. In special cases, sampling is proposed at shallower depths (e.g., 2 feet) to assess potentially more limited downward migration of large organic molecules like PCBs, dioxins, or PAHs.

The data gap analysis also identifies additional investigation techniques for some areas to aid in selection of sampling locations. The additional investigation techniques can include trenching or test pit excavation to observe soil conditions prior to sampling, or geophysical surveying of areas to identify targeted features, such as pipelines, underground storage tanks, or fill areas. In some cases, field reconnaissance or mapping is needed to refine proposed sampling locations, such as along drainages. The sampling rationales included in this Data Gap TM specify these additional investigative techniques where applicable.

The data gap analysis can identify future sampling locations outside of the subarea being evaluated. These future locations are displayed with pink '+' symbols on Figures 1 and 2. In some cases, the samples are located outside of Area IV and will require additional surveys and coordination prior to sampling. In other cases, the proposed samples are within another subarea, and will be included in the corresponding Data Gap TM.

The information presented in this Data Gap TM, along with supporting GIS and analytical information, is reviewed with DTSC during the data gap process and with interested stakeholders at the end of the data gap process. Input received from DTSC during review and from the public during meetings is incorporated into the proposed sampling included in this Data Gap TM.

3.0 SUBAREA 5A DATA GAP ANALYSIS

The data gap analysis for Subarea 5A was performed following the process outlined above and using the DQOs presented in Section 4 of the MFSP (CDM Smith, 2012b). The proposed sampling for this subarea is presented in Tables 1 (Soil Matrix), 2 (Soil Vapor), and 3 (Future), and Figures 1 (5A North), 2 (5A South), 3 (Soil Vapor), and 4 (Geophysical Survey Areas). Table 4 presents the lines of evidence evaluation summary for this subarea, with checkmarks indicating what information resulted in proposed data gap samples.

As part of the Subarea 5A data gap analysis, some areas were identified where the DQOs were uniquely applied, or where specific sampling approaches have been recommended. These are briefly described below. More detailed, sample-specific rationales for these (and all) areas are provided in Tables 1 through 3.

- Adjacent to the Process Development Unit (PDU) Clearly Contaminated Area, sampling is proposed to define its lateral extent, as well as to assess additional features in the area such as above-ground tank or possible stained soil locations. Samples are not proposed inside the clearly contaminated area since the depth of contamination is sufficiently defined and depth to bedrock generally shallow. Because potential underground storage tanks have been identified in the PDU area with unknown or uncertain locations, this entire operational area is identified for additional geophysical surveying as shown in Figure 4.
- Near the PDU Coal Storage Clearly Contaminated Areas 1 and 2, samples are proposed to define their lateral extent targeting along the edge of where the coal was stored since the parking lot was paved and the surrounding soils received runoff. Additional representative sampling is also proposed within the storage area itself.
- At representative geophysical anomaly locations, investigation using test pits are proposed to evaluate potential subsurface features associated with each anomaly and to inspect soil conditions prior to collecting a soil sample (e.g., 5A_DG-509, 5A_DG-512, 5A_DG-635, 5A_DG-636, and 5A_DG-730).
- Within historical unlined drainages in Subarea 5A, sampling locations are proposed based on aerial photograph review. These unlined drainage ditches occur along G Street, 12th Street, and 17th Street (at the western boundary of Subarea 5A). Samples will be collected down to bedrock to evaluate potential vertical migration into the bedrock and groundwater.
- At other water collection and conveyance features in the northern portion of Subarea 5A, sampling is proposed at representative locations along the conveyance system, and at junctions and discharge points. This man-made stormwater collection system includes an extensive network of catch basins, collection trenches, and associated underground stormwater piping. Samples will be collected beneath the feature, with the deepest sample collected above bedrock to assess vertical migration into groundwater and horizontal migration along bedrock (e.g., 5A_DG-520, -531, -552, -558, and -582). Proposed sample analysis at these locations includes corrosion inhibitor chemicals since these features may have received liquid waste from facilities that used or stored cooling water. As described in the Subarea 5B Data Gap TM, potential corrosion inhibitor chemicals include hexavalent chromium, arsenic, hydrazine, and morpholine. Since hydrazine breaks down rapidly in the environment, sample analysis for the breakdown

products n-Nitrosodimethylamine (NDMA) and formaldehyde are included in the analysis plan. Morpholine is not a typical laboratory analyte and will be identified if present as a tentatively identified compound (TIC). To assess potential solvent release to this conveyance system, soil vapor sampling for VOCs is also proposed at representative locations.

- East of the 17th Street Pond and Drainage Clearly Contaminated Area, lateral step-out sampling is proposed to define the extent of contamination northeast of the former pond area. Samples are proposed along a northeast trend in the clearly contaminated area, generally following the extent of cleared vegetation and possible disturbed soils observed in a 1959 historical aerial photograph, which is also co-incident with the sewer pipeline in this area (e.g., 5A_DG-792, -793, and -789).
- Within and adjacent to the Eastern Hummocky Clearly Contaminated Area, sampling locations are proposed to define its lateral and vertical extent. As part of this data gap analysis, field mapping was performed to locate mounded soil piles. The field mapping focused in the vicinity of the Eastern Hummocky Clearly Contaminated Area and along roads, but also included a general reconnaissance throughout the southern 5A Subarea. Several soil mounds were identified in proximity of this clearly contaminated area, and are targeted for data gap sampling. At these proposed sampling locations, exploratory trenching of the soil mounds will be conducted prior to sampling to characterize soil beneath the sediments and evaluate vertical migration of contaminants (e.g., 5A_DG-808, -810, -812). Future sampling is also proposed south of the contamination area to assess downslope migration of contaminants into Area III (e.g., 5A_DG-803, -805, and -806).
- Sampling to address potential impacts to groundwater is proposed at several locations (listed below and shown on Figure 3). Proposed sampling at these locations includes vertical sampling to top of bedrock (including VOC analysis in the deepest samples collected) and soil vapor sampling. In addition, further evaluation by the groundwater team is recommended for mobile chemicals detected in soil in the vicinity of these features, including VOCs, perchlorate, hexavalent chromium, nitrate, and NDMA. Since some of these mobile chemicals are being evaluated as part of the DTSC background study, characterization of these constituents may be completed after background is established. The identified potential groundwater input features/locations identified in Subarea 5A are:
    - Building 4024 Sub-grade Reactor Test Cell Complex
    - Building 4024 Hot Waste Storage Tanks
    - Building 4024 Liquid Waste Tanks and Retention Basin
    - Building 4005 Radioactive Liquid Waste Holdup Tank Vault

- Building 4005 Sump
- Building 4005 Cooling Tower Sump
- Building 4073 KEWB Reactor
- Building 4093 Leach Field

4.0 REFERENCES

CDM Smith. 2012a. Work Plan for Chemical Data Gap Investigation, Phase 3 Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California. April.

CDM Smith. 2012b. Master Field Sampling Plan for Chemical Data Gap Investigation Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California. April.

Hydrogeologic, Inc. (HGL) 2012. Draft Final Historic Site Assessment Santa Susana Field Laboratory Site Area IV Radiological Study, Ventura County, California.

TABLES

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(1 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-501	SETF	Drainage Northwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets low spot in drainage before entering culvert inlet (dioxins, metals, and PAHs detected above ISLs in existing samples within drainage). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-502	SETF	Northwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-537 (note, sample located south of pole-mounted transformer identified in HMSA RFI Report; prior sampling of transformer was ND for PCBs).
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-503	SETF	Open Storage West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-237-SA5A (PAHs detected above ISLs at 10') and characterizes open storage area with most storage along fence. Bedrock anticipated ~15'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock. Analyze 10' sample for PAHs only (hold other analyses pending shallower results).
				5	X	X	H	X						X					X	X		
				10	X	H	H	H						H					H	H		
5A_DG-504	SETF	Open Storage West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepdown from SL-237-SA5A for deeper sample (PAHs detected above ISLs at 10') and characterizes open storage area with most storage along fence. Bedrock anticipated ~15'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock. Analyze all depths for PAHs only; hold other analyses pending shallower results.
				5	X	X	H	X						X					X	X		
				10	X	H	H	H						H					H	H		
5A_DG-505	SETF	Open Storage West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-503.
				5	X	X	H	X						X					X	X		
				10	X	H	H	H						H					H	H		
5A_DG-506	SETF	West of Building 4024	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-503.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-507	SETF	Open Storage West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-237-SA5A (PAHs detected above ISLs at 10') and characterizes open storage area with most storage along fence. Bedrock anticipated ~15'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock. Analyze 10' sample for PAHs only (hold other analyses pending shallower results); hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	X	H	H	H						H					H	H		
5A_DG-508	SETF	West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 B4024 facility drawing and likely placed during original construction activities); positioned near outside storage. Bedrock anticipated ~30'. Collect samples at 5' intervals to 20', then every 10' to bedrock with the deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
				15	X	X	X	X						X					X	X		
				20	X	X	X	X						X					X	X		
				30	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(2 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-509	SETF	West of Building 4024	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets potential staining observed in aerial photo (1999) identified by EPA, terrain conductivity anomaly, localized depression with cracked asphalt, linear patched asphalt observed on site walk, and fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 facility drawing and likely placed during original construction activities of B4024). Bedrock anticipated ~30'. Collect samples at 5' intervals to 20', then every 10' to bedrock with the deepest sample just above bedrock; analyze all depths to characterize fill. Conduct adjacent test pit for linear terrain conductivity anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
				15	X	X	X	X						X					X	X		
				20	X	X	X	X						X					X	X		
				30	X	X	X	X						X					X	X		
5A_DG-510	SETF	West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets terrain conductivity anomaly, linear patched asphalt observed on site walk (possibly related to anomaly), and fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 B4024 facility drawing and likely placed during original construction activities). Bedrock anticipated ~30'. Collect samples at 5' intervals to 20', then every 10' to bedrock with the deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
				15	X	X	X	X						X					X	X		
				20	X	X	X	X						X					X	X		
				30	X	X	X	X						X					X	X		
5A_DG-511	SETF	West of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 B4024 facility drawing and likely placed during original construction activities); positioned near ramp into B4024 adjacent to the reactor vault complex. Bedrock anticipated ~30'. Collect samples at 5' intervals to 20', then every 10' to bedrock with the deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
				15	X	X	X	X						X					X	X		
				20	X	X	X	X						X					X	X		
				30	X	X	X	X						X					X	X		
5A_DG-512	SETF	Southwest of Building 4024	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets terrain conductivity anomaly and characterizes operational area. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; hold deeper samples pending shallower results. Conduct adjacent test pit for linear terrain conductivity anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-513	SETF	Drainage Southwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets asphalt swale that directs surface flow west of B4024 to the culvert west of the transformer pad. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-514A	SETF	Transformer 4927 (Southwest of B4024)	Soil Boring	0.5		X														X	✓	Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at four discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results.
				3		H														H		
5A_DG-514B	SETF	Transformer 4927 (Southwest of B4024)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-514C	SETF	Transformer 4927 (Southwest of B4024)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-514D	SETF	Transformer 4927 (Southwest of B4024)	Soil Boring	0.5		X														X		
				3		H														H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(3 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-518	SETF	Southwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets AST with unknown contents (AT-HS-5) identified in the Sitewide Tank Inventory (CH2M Hill, 2011); positioned adjacent to undefined feature observed in 1978 photograph (HDMSm000000249). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-519	SETF	Drainage Along B Street South of Building 4024	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Location targets the drainage along the northern edge of B Street downslope from the transformer prior to flow leaving 5A North. Bedrock anticipated <5'. Collect at 5' intervals to bedrock with the deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
5A_DG-520	SETF	Drainage Along B Street South of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets the drainage along the northern edge of B Street immediately prior to flowing into the culvert diverting flow south under B Street. Bedrock anticipated <5'. Collect at 5' intervals to bedrock with the deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-521	SETF	Cooling Tower 4928 (South of Building 4024)	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets cooling tower and sump located south of B4024, cooling tower analytical suite (formaldehyde and Cr[VI]] included. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X	X					X	X	X			X	X		
				10	H	H	H	H	H					H	H	H			H	H		
5A_DG-522	SETF	South of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets removed fuel oil UST (UT-18) located south of B4024. Tank bottom depth expected ~8' with bedrock anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill of unknown origin and potential release from tank. Conduct geophysical survey prior to sampling to determine location of removed UST.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-523	SETF	Drainage Along B Street Southeast of Building 4024	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Location targets the storm drain discharge point to the drainage along the northern edge of B Street; storm drain conveys surface water collected from the areas east and south of B4024. Bedrock anticipated <5'. Collect at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
5A_DG-524	SETF	Southeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-528.
				5	X	X	H	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-525	SETF	East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets fill from unknown origin in location of former underground radioactive gas hold-up tanks (samples of fill contain dioxins, PAHs, TPH, and/or metals above screening criteria). Bedrock anticipated ~15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-526	SETF	East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets fill from unknown origin with dioxins, PAHs, TPH, and metals detected above screening criteria based on surrounding sample results; and characterizes fenced open storage. Bedrock anticipated at 15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(4 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-527	SETF	Open Storage East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepup at SL-113-SA5A for 0' and 5' samples (Zinc and TPH detected above ISLs at depth) to characterize fill in location of former underground radioactive gas hold-up tanks (samples of fill contain dioxins, PAHs, TPH, and/or metals above screening criteria) and fenced open storage observed first in 1990 aerial photo. Bedrock anticipated at 15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-528	SETF	Southeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location characterizing operational area; positioned south of fill from unknown origin in location of former underground radioactive gas hold-up tanks (samples of fill contain dioxins, PAHs, TPH, and/or metals above screening criteria). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-529	SETF	East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets ground penetrating radar anomaly and fill from unknown origin in location of former underground radioactive gas hold-up tanks (samples of fill contain dioxins, PAHs, TPH, and/or metals above screening criteria); and characterizes fenced open storage. Bedrock anticipated at 15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-530	SETF	Southeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets fenced open storage southeast of B4024. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-531	SETF	Open Storage East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets drain discharge from the southern track of the gantry crane pad and characterizes fenced open storage. Bedrock anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-532	SETF	East of the Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets area east of the Hot Waste Storage vaults and stepout from SL-117-SA5A and SL-118-SA5A (TPH detected above ISL). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-533	SETF	East of the Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-118-SA5A (TPH detected above ISLs) and U5BS1127 (metals, TPH, and PAHs above ISLs); previous RFI stepouts not analyzed for TPH. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
5A_DG-534	SETF	East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from U5BS1127 (metals, TPH, and PAHs detected above ISLs); previous RFI stepouts not analyzed for TPH. Location also targets undefined feature observed in aerial photos (i.e.., 1980). Bedrock is anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-535	SETF	Northeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets removed fuel oil UST (UT-19) located northeast of B4024. Tank depth anticipated ~8'. Location based on facility drawing; previous location targeting UST (U5BS1126) had bedrock refusal above the tank bottom depth. Bedrock at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill of unknown origin and potential release from tank. Conduct geophysical survey prior to sampling to determine location of removed UST.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-536	SETF	Northwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-537.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-537	SETF	Northwest of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize operational area northwest of B4024; positioned near storage observed in 1978 photograph (HDMSm000000249). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-538	SETF	North of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout from U5BS1129 (TPH detected above ISL); also will provide stepout information for SL-120-SA5A (dioxins detected above ISLs). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-539	SETF	Northeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout from drainage (dioxins, metals, and PAHs detected above ISLs in existing samples within drainage); positioned outside of drainage and south of location with highest concentrations detected above ISLs (SL-119-SA5A) in the vicinity. Bedrock is anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-540	SETF	Northeast of Building 4024	Soil Boring	0.5	X	X	X	X						X			X	X	X	X		Location targets surface water pathway from RMHF upstream of drainage (dioxins, metals, and PAHs detected above ISLs in existing samples within drainage). Bedrock is anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X	✓	
5A_DG-541	SETF	Northeast of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets low spot at end of surface water pathway from RMHF which flows into drainage (dioxins, metals, and PAHs detected above ISLs in existing samples within drainage). Bedrock is anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
5A_DG-542	SETF	North of Building 4027	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X		Location targets linear magnetometer anomaly; positioned on the "Existing Test Shed" identified on facility drawings. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected. Conduct adjacent test pit for linear magnetometer anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X	✓	
5A_DG-543	SETF	East of Building 4024	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location characterizing operational area; positioned near apparent spill present on 1980 aerial photo and probable containers present on 1999 aerial photo (both noted by EPA). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X	✓	

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-544	SETF	West of Building 4027	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets sanitary sewer pipe connection to B4027; positioned near open storage along east side of B4027. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-545	SETF	Between Buildings 4024 and 4027	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-118-SA5A that targeted the Hot Waste Storage vaults (TPH detected above ISLs); positioned near entrance to B4027. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-546	SETF	North of Building 4027	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-121-SA5A (dioxins detected above ISLs at 0.5'); positioned near concrete apron identified on facility drawings. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-547	SETF	Drainage Northeast of Building 4027	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets point magnetometer anomaly and drainage (dioxins, metals, and PAHs detected above ISLs in existing samples within drainage); also stepout from SL-121-SA5A (dioxins detected above ISLs). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths. Conduct adjacent test pit for linear terrain conductivity anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
5A_DG-548	SETF	Within Building 4027 Footprint	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets linear magnetometer anomaly beneath B4027; also a stepout from U5BS1105 (TPH detected above ISL at 0.5') and targets linear magnetometer anomaly. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected. Conduct adjacent test pit for linear magnetometer anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
5A_DG-549	SETF	West of Building 4027	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Representative location to characterize operational area; positioned along western side of B4027 footprint which was used as a hazardous waste storage facility near high bay door and possible drums observed in 1978 photo (HDMSm000000249). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X	X					X			X	X	X	X		
				10	H	H	H	H	H					H			H	H	H	H		
5A_DG-550	SETF	Within Building 4027 Footprint	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Location targets former location of floor trench located beneath B4027 which was used as a hazardous waste storage facility; also a stepout from U5BS1118 (TPH detected above ISL at 0.5'). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X			X	X	X	X		
				10	X	X	X	X	X					X			X	X	X	X		
5A_DG-551	SETF	Within Building 4027 Footprint	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Location targets former location of floor trench located beneath B4027 which was used as a hazardous waste storage facility. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X	X					X			X	X	X	X		
5A_DG-552	SETF	Drainage Northeast of Building 4027	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-122-SA5A (dioxins detected above ISL at 0.5'); positioned within drainage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-553	SETF	Southeast of Building 4027	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Representative location positioned near B4027 equipment pad and emergency shower. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X	X					X			X	X	X	X		
5A_DG-554	SETF	South of Building 4027	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Stepout from U5BS1118 (TPH detected above ISL at 0.5'); positioned near B4027 entrance. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X	X					X			X	X	X	X		
				10	H	H	H	H	H					H			H	H	H	H		
5A_DG-555	SETF	South of Building 4027	Soil Boring	0.5	X	X	X	X	X					X			X	X	X	X	✓	Stepout from U5BS1118 (TPH detected above ISL at 0.5'); positioned near B4027 equipment pad (B4027 was used as a hazardous waste storage facility). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X	X					X			X	X	X	X		
				10	H	H	H	H	H					H			H	H	H	H		
5A_DG-556	SETF	West of Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize operational area west of B4032; also a stepout from SL-249-SA5A (TPH detected above ISLs at 2.5' [fill from unknown origin]). Bedrock anticipated >10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-557	SETF	West of Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets open storage south of B4027 identified in EPA tech memo and present in the 1960 aerial. Bedrock anticipated >10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-558	SETF	Southwest of Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-249-SA5A (TPH detected above ISLs at 2.5' [fill from unknown origin]). Bedrock anticipated just over 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-559	SETF	Northwest Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize footprint of B4032 addition; also a stepout from SL-249-SA5A (TPH detected above ISLs at 2.5' [fill from unknown origin]). Bedrock anticipated >10. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-560	SETF	Within Building 4032 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize footprint of B4032. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-561	SETF	Within Building 4032 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize fill of unknown origin observed in borings south of B4032; also a stepout from SL-249-SA5A (TPH detected above ISLs at 2.5'). Bedrock anticipated >10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-562	SETF	Within Building 4032 Footprint	Soil Boring	0.5			X							X						X	✓	Resample SL-235-SA5A for TPH; ~5' of fill from unknown origin present at SL-235-SA5A and SL-249-SA5A and fill at SL-249-SA5A had TPH detected above ISL. Location also targets light toned mounded material identified in EPA tech memo. Bedrock anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze 0.5' and 5' sample for TPH (hold other analyses) and hold deeper samples pending shallower results.
				5			H							X						X		
				10			H							H						H		
5A_DG-563	SETF	Southeast Corner of Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets sanitary sewer pipe connection to B4032 and characterizes fill observed in borings south of B4032; positioned near B4032 entrance. Bedrock anticipated >10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-564	SETF	East of Building 4032	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets removed UST UT-22 (used for fuel oil); positioned within light toned mounded material identified in EPA tech memo. Bedrock is anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths. Conduct geophysical survey prior to sampling to determine location of removed UST, shown in two different locations in separate documents.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-565A	SETF	Transformer Pad 4727 (North of Building 4032)	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at four discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results. Northern sample (5A_DG-565A) also targets drainage and western sample (5A_DG-565D) targets light toned mounded material identified in the EPA tech memo. At these location locations, bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with bottom sample collected just above bedrock; analyze all depths.
				3	X	X	X	X						X			X	X	X	X		
				5	X	X	X	X						X			X	X	X	X		
5A_DG-565B	SETF	Transformer Pad 4727 (North of Building 4032)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-565C	SETF	Transformer Pad 4727 (North of Building 4032)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-565D	SETF	Transformer Pad 4727 (North of Building 4032)	Soil Boring	0.5	X	X	X	X						X					X	X		
				3	X	X	H	X						X					X	X		
				5	X	X	H	X						X					X	X		
5A_DG-569	SETF	South of Building 4036	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize operational area; positioned near entrance to B4036. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-570	SETF	Within Building 4036 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize Building 4036 footprint. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-571	SETF	Within Building 4036 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize Building 4036 footprint. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-572	SETF	Within Building 4036 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize Building 4036 footprint. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	H	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-573	SETF	Within Building 4037 Footprint	Soil Boring	0.5	X	X	X	X	X			X		X			X	X	X	X	✓	Representative location to characterize former B4037 footprint which was used as a hazardous waste storage facility. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X	X			X		X			X	X	X	X		
5A_DG-574	SETF	Within Building 4037 Footprint	Soil Boring	0.5	X	X	X	X	X			X		X			X	X	X	X	✓	Representative location to characterize former B4037 footprint which was used as a hazardous waste storage facility. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X	X			X		X			X	X	X	X		
5A_DG-575	SETF	East of Building 4037	Soil Boring	0.5	X	X	X	X	X			X		X			X	X	X	X	✓	Location positioned along south side of 12th Street, downslope of RMHF entrance/roadway. Location targets doors on north side of B4037 (former hazardous waste storage facility) and addresses surface water runoff from RMHF roadway where storage was observed in historical photographs. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X	X			X		X			X	X	X	X		
5A_DG-576	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize former operational area east of B4037. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-577	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Representative location to characterize equipment north of B4023; positioned near former cooling unit. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X	X					X	X	X			X	X		
				10	H	H	H	H	H					H	H	H			H	H		
5A_DG-578	SETF	West of Building 4023	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Representative location to characterize operational area between B4032 and B4023; positioned near high bay door to B4032 and potential cooling tower on facility drawing (only present on one drawing). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X	X					X	X	X			X	X		
				10	H	H	H	H	H					H	H	H			H	H		
5A_DG-579	SETF	Southwest Corner of Building 4023	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets sanitary sewer pipe connection to B4023 and characterizes fill of unknown origin observed in borings within B4023. Bedrock anticipated >10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X	X					X	X	X			X	X		
				10	X	X	X	X	X					X	X	X			X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-580	SETF	Within Building 4023 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-001-SA5A (PCBs, TPH detected above ISLs), SL-004-SA5A (PCBs and dioxins detected above ISLs), and SL-002-SA5A (PCBs, dioxins detected above ISLs). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-581	SETF	Within Building 4023 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-586.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-582	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-004-SA5A (dioxins, PCBs detected above ISLs); positioned outside drainage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results if collected.
				5	X	X	X	X						X					X	X		
5A_DG-583	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize open area north of B4023; area observed to have asphalt with cracks in aerial photos, but little storage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results if collected.
				5	X	X	H	X						X					X	X		
5A_DG-584	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets two ASTs with unknown contents (Unknown-AT-L9-1, -2) located north of B4023. Bedrock is anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-585	SETF	North of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-018-SA5A (dioxins, PCBs detected above ISLs); positioned within drainage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-586	SETF	Within Building 4023 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-001-SA5A (PCBs, TPH detected above ISLs) and characterizes fill of unknown origin observed in borings within B4023; positioned within medium toned mounded material. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-587	SETF	Within Building 4023 Footprint	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets AST with unknown contents (Unknown-AT-L9-3) and linear magnetometer anomaly; positioned within medium toned mounded material identified in EPA tech memo and fill of unknown origin observed in borings within B4023. Bedrock is anticipated at ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths. Conduct adjacent test pit for linear magnetometer anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-588	SETF	Within Building 4023 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-009-SA5A (dioxins, PCBs, Hg, Zn detected above ISLs); positioned within medium toned mounded material identified in EPA tech memo. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-589	SETF	South of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-588; positioned near entrance to B4023.
				5	X	X	X	X						X					X	X		
5A_DG-590	SETF	Southeast of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets hole in asphalt slope adjacent to catch basin (southeast) welded shut; also a stepout from SL-016-SA5A (dioxins and Zn detected above ISLs). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-591	SETF	East of Building 4023	Soil Boring	0.5										X						X	✓	Resample SL-013-SA5A for TPH and stepout for SL-012-SA5A (TPH detected above ISL). Bedrock anticipated at <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5										X						X		
5A_DG-592	SETF	Northeast of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-012-SA5A (dioxins, PCBs, TPH detected above ISLs); positioned outside drainage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-593	SETF	East of Building 4023	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize open storage east of B4023 observed in post-1980 aerial photos. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper samples pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-594	PDU Area	Drainage at Corner of 17th and B Street	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Stepout for dioxins in drainage west near HMSA [Subarea 5B] and targets lined drainage receiving flow from south via unlined drainage and north and west via underground pipe. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
				10	X	X	X	X						X			X	X	X	X		
5A_DG-595	PDU Area	Drainage Along 17th Street Northwest of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X				X	X	✓	Location targets previously unlined drainage flowing north to culvert (see information layer in GIS). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X	X				X	X		
				10	X	X	X	X	X					X	X				X	X		
5A_DG-596	PDU Area	Northwest of Building 4005	Soil Boring	0.5	X	X	X	X	X					X					X	X	✓	Stepout for mercury and TPH in nearby samples and targets ASTs with unknown contents; also characterizes open storage/operational area. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X					X	X		
5A_DG-597	PDU Area	Northwest of Building 4005	Soil Boring	0.5	X	X	X	X	X					X					X	X		Location targets adjacent to B4005 floor trench (dioxins, metals, PAHs, and PCBs detected above ISLs in previous lined trench sediment samples); positioned between storm drain line and floor trench. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X	X					X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(12 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-598	PDU Area	Northwest of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets adjacent to B4005 floor trench (dioxins, metals, PAHs, and PCBs detected above ISLs in previous lined trench sediment samples); also stepout for PAHs and characterizes operational area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-599	PDU Area	West of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-602.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-600	PDU Area	West of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets B4005 floor trench conveyance pipe (dioxins, metals, PAHs, and PCBs detected above ISLs in previous lined trench sediment samples); also stepout from septic tank (dioxins detected above ISLs) and characterizes operational area; positioned between underground stormwater and floor trench conveyance pipes. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential subsurface release and migration along bedrock.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-601	PDU Area	West Side of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets sewer discharge location from B4005. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-602	PDU Area	West of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from septic tank (dioxins); also characterizes operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential subsurface release and migration along bedrock.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-603	PDU Area	Southwest of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-604	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X		Stepout from Clearly Contaminated Area; and located near cooling tower. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X	X			X	X		
5A_DG-605	PDU Area	East of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets adjacent to B4005 drain line and floor trench (dioxins, metals, PAHs, and PCBs detected above ISLs in previous lined trench sediment samples); also stepout for Clearly Contaminated Area and located near cooling tower. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X	X	X			X	X		
				10	X	X	H	X	X					X	X	X			X	X		
5A_DG-606	PDU Area	East of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Representative location to characterize open storage/operational area; also stepout for Clearly Contaminated Area and located near cooling tower. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X	X					X	X	X			X	X		
				10	H	H	H	H	H					H	H	H			H	H		
5A_DG-607	PDU Area	North of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets adjacent to B4005 floor trench; also characterizes operational area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	X	X	H	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(13 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-608	PDU Area	North of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for mercury and TPH in nearby samples and targets ASTs with unknown contents; also characterizes open storage/operational area. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-609	PDU Area	Drainage Along B Street North of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X		X	X	X	X		Location targets lined drainage. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths based on potential for vertical migration of surface water/contaminants.
				5	X	X	X	X	X					X	X		X	X	X	X	✓	
				10	X	X	X	X	X					X	X		X	X	X	X		
5A_DG-610	PDU Area	North of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X				X	X		Location targets AST with unknown contents and undefined feature area (possible staining); also stepout for Clearly Contaminated Area and characterizes open storage/operational area. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X				X	X	✓	
5A_DG-611	PDU Area	Northeast of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets two liquid hold-up tanks and undefined feature area (possible staining); also stepout for Clearly Contaminated Area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential depth of impacts (previous samples were shallow and for metals only).
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-612	PDU Area	Drainage North of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X						X	X				X	X		Stepout from Clearly Contaminated Area; also targets drainage along B Street and undefined feature area (possible staining). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X						X	X				X	X		
				10	X	X	X	X						X	X				X	X		
5A_DG-613	PDU Area	North of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets undefined feature area (possible staining); also stepout from Clearly Contaminated Area (note previous nearby samples not analyzed for dioxins). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-614	PDU Area	Northeast of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets B4793 footprint; also stepout from Clearly Contaminated Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-615	PDU Area	Drainage Northeast of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X						X			X	X	X	X		Location targets stormwater conveyance pipe discharge point into drainage. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential subsurface release and migration along bedrock.
				5	X	X	X	X						X			X	X	X	X	✓	
				10	X	X	X	X						X			X	X	X	X		
5A_DG-616	PDU Area	West Side of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets sewer discharge location from B4042; also characterizes operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-617	PDU Area	Within Building 4042 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for B(a)P and TPH; also characterizes B4042 footprint. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-618	PDU Area	North of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for B(a)P and TPH; positioned adjacent to underground stormwater conveyance pipe from SETF. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess possible leakage from pipe.
				5	X	X	X	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-619	PDU Area	Within Building 4042 Footprint	Soil Boring	0.5	X	X	X	X	X					X	X				X	X		Location targets intersection of two former floor trenches and is a stepout for B(a)P and TPH; positioned near operations associated with alcohol ASTs. Note previous sample U5BS1107 analyzed for metals only. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess possible leakage from trenches.
				5	X	X	X	X	X					X	X				X	X	✓	
				10	X	X	H	X	X					X	X				X	X		
5A_DG-620	PDU Area	West of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-621	PDU Area	East of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X					X	X					X	X		Representative sample to characterize open storage/operational area near B4049 which had terphenyl use. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess vertical extent of potential impacts.
				5	X	X	H	X					X	X					X	X	✓	
5A_DG-622	PDU Area	Southwest of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-620.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-623	PDU Area	East of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets open storage; also stepout for Clearly Contaminated Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess vertical extent of potential impacts.
				5	X	X	H	X						X					X	X	✓	
5A_DG-624A	PDU Area	Transformer Southwest of Building 4042	Soil Boring	0.5		X														X		Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at four discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results.
				3		H														H		
5A_DG-624B	PDU Area	Transformer Southwest of Building 4042	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-624C	PDU Area	Transformer Southwest of Building 4042	Soil Boring	0.5		X														X	✓	
				3		H														H		
5A_DG-624D	PDU Area	Transformer Southwest of Building 4042	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-625	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets magnetic anomaly, dark toned material, and open storage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X	✓	
5A_DG-626	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets dark toned material and open storage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X	✓	
5A_DG-627	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets magnetic anomaly, dark toned material, and open storage; positioned adjacent to Old Conservation Pipeline (diesel fuel). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X	✓	

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-628	PDU Area	Within Building 4042 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets former B4042 footprint and adjacent to operations associated with alcohol ASTs. Analyze 0.5' and 5' samples due to D&D soil disturbance. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-629	PDU Area	Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-628.
				5	X	X	X	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-630A	PDU Area	Transformer Southeast of Building 4042	Soil Boring	0.5		X														X	✓	Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at four discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results.
				3		H														H		
5A_DG-630B	PDU Area	Transformer Southeast of Building 4042	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-630C	PDU Area	Transformer Southeast of Building 4042	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-630D	PDU Area	Transformer Southeast of Building 4042	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-631	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets drainage adjacent to medium toned material and open storage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
5A_DG-632	PDU Area	Drainage Along G Street South of Open Storage / Parking Area	Soil Boring	0.5	X	X	X	X	X					X	X		X	X	X	X	✓	Location targets drainage along G street south of Open Storage/Parking Area upstream of Clearly Contaminated Area south of Coal Storage/Parking Area and downstream of PAH and dioxin impacts; positioned adjacent to the Old Conservation Pipeline (diesel fuel). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X	X					X	X		X	X	X	X		
				10	X	X	X	X	X					X	X		X	X	X	X		
5A_DG-634	PDU Area	Southeast of Building 4042	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets AST with unknown contents; also characterizes area around cooling tower identified in facility drawings. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X	X					X	X	X			X	X		
				10	H	H	H	H	H					H	H	H			H	H		
5A_DG-635	PDU Area	Within Building 4042 Footprint	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets geophysical anomaly; also characterizes operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results. Conduct adjacent test pit for geophysical anomaly. Adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-636	PDU Area	East of Building 4042	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-635.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-637	PDU Area	East of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets disturbed vegetation/soil noted in aerial photographs; also characterizes operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-638	PDU Area	Southeast of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X		Stepout from Clearly Contaminated Area; also characterizes open storage/operational area and area around cooling towers identified in facility drawings. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X	X			X	X		
5A_DG-639	PDU Area	Southeast of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Stepout from Clearly Contaminated Area, characterizes area around cooling towers identified in facility drawings, and targets possible light toned mounded material. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X	X			X	X		
5A_DG-640	PDU Area	Southeast of Clearly Contaminated Area East of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Stepout from Clearly Contaminated Area, characterizes area around cooling towers identified in facility drawings, and targets possible light toned mounded material and surface drainage discharge. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X	X					X	X	X			X	X		
5A_DG-641	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout from Clearly Contaminated Area; positioned between B4005 floor trench and stormwater conveyance line. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-642	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets adjacent to B4005 floor trench (dioxins, metals, PAHs, and PCBs detected above ISLs in previous lined trench sediment samples); also located near cooling tower and characterizes operational area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X	X	X			X	X		
				10	X	X	X	X	X					X	X	X			X	X		
5A_DG-643	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout from Clearly Contaminated Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-644	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-643.
				5	X	X	H	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(17 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																	Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-645A	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X	✓	Location targets two former transformers. Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at six discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results.
				3		H														H		
5A_DG-645B	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-645C	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-645D	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-645E	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-645F	PDU Area	Transformer 4705 (South of Building 4005)	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-651	PDU Area	Drainage Southwest of Building 4005	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets drainage downslope of operational area with a cooling tower; positioned between underground stormwater and floor trench conveyance pipes. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential subsurface release and migration along bedrock.
				5	X	X	X	X	X					X	X	X			X	X		
				10	X	X	X	X	X					X	X	X			X	X		
5A_DG-652	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-643.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-653	PDU Area	South of Building 4005	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize operational area; positioned downslope of Clearly Contaminated Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-654	PDU Area	Northwest of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets a potential AST and undefined features observed in 1978 aerial. Analyze 0.5' and 5' samples based on potential for disturbed soils noted in aerial. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-655	PDU Area	North of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets potential storage area based on aerial photographs. Analyze 0.5' and 5' samples based on potential for disturbed soils noted in aerial. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-656	PDU Area	Drainage Along 17th Street Northeast of Coal Storage/Parking Area	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X		Location targets drainage west of open storage observed in 1978 aerial photograph and downslope of B4005 cooling tower; positioned between underground stormwater and floor trench conveyance pipes. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X	X					X	X	X			X	X	✓	
				10	X	X	X	X	X					X	X	X			X	X		
5A_DG-657	PDU Area	North of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets potential storage area based on aerial photographs. Analyze 0.5' and 5' samples based on potential for disturbed soils noted in aerial. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-658	PDU Area	North of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets unlined surface water flow pathway along the northern perimeter of the Coal Storage/Parking Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths based on potential for vertical migration of surface water/contaminants.
				5	X	X	X	X						X					X	X		
5A_DG-659	PDU Area	Northwest of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout from Clearly Contaminated Area west of Coal Storage/Parking Area; positioned between underground stormwater and floor trench conveyance pipes and in-line with surface water pathway along northern perimeter of Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-660	PDU Area	Clearly Contaminated Area West of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Stepdown within Clearly Contaminated Area (dioxins, metals, PAHs, PCBs at depth near two adjacent surface-only samples; TPH not previously analyzed). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock from adjacent sand trap feature.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-661	PDU Area	Drainage Along 17th Street West of Coal Storage / Parking Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout for dioxins, PCBs, metals, PAHs detected in Coal Storage/Parking Area perimeter samples (Clearly Contaminated Area) and characterizes drainage downslope of operational areas; positioned between underground stormwater and floor trench conveyance pipes. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-662	PDU Area	Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative sample to characterize the Coal Storage/Parking Area; also stepout for Clearly Contaminated Area west of Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-663	PDU Area	Coal Storage / Parking Area Near 17th and G Street Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from Clearly Contaminated Area west of Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-664	PDU Area	Coal Storage / Parking Area Near 17th and G Street Footprint	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout for Clearly Contaminated Area south of Coal Storage/Parking Area and targets surface flow pathway from Coal Storage/Parking Area to drainage along 17th Street. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-665	PDU Area	Drainage at Intersection of 17th and G Street South of Coal Storage / Parking Area	Soil Boring	0.5	X	X	X	X	X					X	X	X	X	X	X	X	✓	Location targets low spot before culvert in drainage along G street immediately downslope of Clearly Contaminated Area south of Coal Storage/Parking Area and downstream of B4005 cooling tower; also targets Old Conservation Pipeline (diesel fuel). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X	X					X	X	X	X	X	X	X		
				10	X	X	X	X	X					X	X	X	X	X	X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-666	PDU Area	Drainage Along G Street South of Coal Storage / Parking Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets geophysical anomaly and drainage along G Street upstream of Clearly Contaminated Area south of Coal Storage/Parking Area; positioned adjacent to Old Conservation Yard fuel pipeline. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-667	PDU Area	Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative sample to characterize the Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-668	PDU Area	Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-667.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-669	PDU Area	North of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets unlined surface water flow pathway along the northwestern perimeter of the Coal Storage/Parking Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential for vertical migration of surface water/contaminants.
				5	X	X	X	X						X					X	X		
5A_DG-670	PDU Area	Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-667; also targets former structures.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-671	PDU Area	Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative sample to characterize the Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-672	PDU Area	Drainage Along G Street South of Coal Storage / Parking Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-666.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-673	PDU Area	East of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets unlined surface water flow pathway along the eastern perimeter of the Coal Storage/Parking Area. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential for vertical migration of surface water/contaminants.
				5	X	X	X	X						X					X	X		
5A_DG-674	PDU Area	Northeast of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets an unlined surface water flow pathway along the northeastern perimeter of the Coal Storage/Parking Area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential for vertical migration of surface water/contaminants.
				5	X	X	X	X						X					X	X		
5A_DG-675	PDU Area	East of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets open space east of Coal Storage/Parking Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-676	PDU Area	East of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-675.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-677	PDU Area	Drainage Along G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets drainage along G street; positioned upstream of Clearly Contaminated Area south of Coal Storage/Parking Area and adjacent to Old Conservation Yard fuel pipeline. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess potential migration along bedrock.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-678	PDU Area	East of Coal Storage / Parking Area Near 17th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-675.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-679	PDU Area	East of Building 4042	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets disturbed vegetation/soil noted in aerial photographs; also characterizes operational area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-680	PDU Area	Western Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets open storage observed along western fence in aerial photos. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-681	PDU Area	Drainage West of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X	X					X	X		X	X	X	X	✓	Location targets unlined surface water flow pathway along western perimeter of open storage. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X	X		X	X	X	X		
				10	X	X	X	X	X					X	X		X	X	X	X		
5A_DG-682	PDU Area	Western Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets open storage observed along western fence in aerial photos. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-683	PDU Area	Drainage Along G Street South of Open Storage / Parking Area	Soil Boring	0.5	X	X	X	X	X					X	X		X	X	X	X	✓	Same as 5A_DG-677.
				5	X	X	X	X	X					X	X		X	X	X	X		
				10	X	X	X	X	X					X	X		X	X	X	X		
5A_DG-684	PDU Area	Western Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets open storage. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-685	PDU Area	Northeastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5							X									X	✓	Collect sample at SL-215-SA5A to confirm previous perchlorate detection at 5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5							X									X		
				10							H									H		
5A_DG-686	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Location targets dark toned material and open storage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X			X	X	X	X		
5A_DG-687	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets drainage adjacent to medium toned material and open storage. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
5A_DG-688	PDU Area	Eastern Portion of Open Storage / Parking Area Near 12th and G Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout (upstream) for dioxins; positioned in surface water pathway downslope of portion of Storage Area/Parking Area that flows toward 12th Street. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-689	B4641 Area	Drainage Along 12th Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize drainage. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-690	B4641 Area	East of Building 4073	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for SL-126-SA5A and SL-127-SA5A (dioxins detected above ISLs). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X	✓	
				10	H	H	H	H						H					H	H		
5A_DG-691	B4641 Area	East of Building 4073	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize open space downslope of operational areas. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-692	B4641 Area	Southeast of Building 4073	Soil Boring	0.5	X	X	X	X						X			X	X	X	X		Location targets drainage downstream of operational area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X	✓	
				10	X	X	X	X						X			X	X	X	X		
5A_DG-693	B4641 Area	Drainage Along 12th Street	Soil Boring	0.5	H	H	H	H						X					H	X		Stepdown at SL-110-SA5A (dioxins and PAHs detected above ISLs shallow; no deeper sample). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze 0.5' sample for TPH only and analyze all samples deeper than 0.5' for full suite.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-694	B4641 Area	Southeast of Building 4073	Soil Boring	0.5	X	X	X	X						X			X	X	X	X		Location targets discharge from cooling water hold-up tank drain line. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X	✓	
				10	X	X	X	X						X			X	X	X	X		
5A_DG-695	B4641 Area	Southeast of Building 4073	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets stormwater flow path along road downstream of B4073 area (metals [Hg up to 4.8 ppm], TPH, PAHs, and dioxins detected above ISLs). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-696	B4641 Area	Within Building 4123 Footprint	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets B4123 footprint (KEWB Waste Storage Yard); also characterizes and/or delineates fill of unknown origin. Note that RFI and EPA collocated sample locations targeting B4123 were inadvertently placed ~50' east of former building footprint. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-697	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for (metals [Hg up to 4.8 ppm], TPH, PAHs, and dioxins detected in the area; also characterizes fill of unknown origin observed in adjacent borings. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-698	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for SL-127-SA5A (dioxins detected above ISLs). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X	✓	

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-699	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepup and stepdown at SL-128-SA5A to characterize fill of unknown origin and native soil beneath fill. Bedrock anticipated ~15'. Collect samples at 5' intervals to bedrock with the deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-700	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-697.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-701	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-699.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-702	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-699.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-703	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-699.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-704	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-699.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-705	B4641 Area	Building 4073 Area	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-697; positioned on undefined feature present in aerials from 1959 to 1967. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-706	B4641 Area	Open Space South of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets former road downslope of the former leachfield and upslope of the drainage along 12th St (dioxins and PAHs detected above ISLs); also serves as stepout from SL-143-SA5A (dioxins and PAHs detected above ISLs). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-707	B4641 Area	Open Space South of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-706.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-708	B4641 Area	Open Space South of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-111-SA5A (dioxins detected above ISLs) and SL-253-SA5A (dioxins and pesticides detected above ISLs); also characterizes area downslope of operations. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-709	B4641 Area	Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X					X	X					X	X	✓	Recollect at SL-148-SA5A to analyze for terphenyls within B4093 leach field (terphenyl tank present in B4093). Bedrock anticipated <15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all samples for terphenlys and analyze 0.5' sample for full suite since shallow sample at SL-148-SA5A not collected.
				5	H	H	H	H					X	H					H	H		
				10	H	H	H	H					X	H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-710	B4641 Area	Open Space South of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets former road downslope of the former leachfield and upslope of the drainage along 12th St (dioxins and PAHs detected above ISLs); also characterizes area downslope of disturbed ground identified by EPA in the 1995 aerial photo. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-711	B4641 Area	North of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets geophysical anomaly (terrain conductivity) and leachfield and associated components; and stepout for SL-156-SA5A (dioxins and TPH detected above ISLs). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-712	B4641 Area	North of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-711; positioned within drainage.
				5	X	X	H	X						X					X	X		
5A_DG-713	B4641 Area	Parking Area between Buildings 4073 and 4083	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize former parking lot and open storage observed in 1988 oblique photo; positioned downslope of operational area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
5A_DG-714	B4641 Area	Drainage Between Buildings 4073 and 4074	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout for SL-146-SA5A (dioxins, metals, PAH, and TPH detected above ISLs); positioned within drainage upstream of sample. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-715	B4641 Area	Building 4633	Soil Boring	0.5	X	X	X	X	X					X	X	X			X	X	✓	Location targets former B4633, the Reactor Cooling Water Pad. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X	X					X	X	X			X	X		
5A_DG-716	B4641 Area	North of Building 4093	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5AN_DG-125; positioned near end of asphalt path from B4003 and upslope of SL-167-SA5A. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X					X	X		
5A_DG-717	B4641 Area	Northwest of Building 4093	Soil Boring	0.5	X	X	X	X					X	X					X	X	✓	Same as 5AN_DG-125; positioned in surface water pathway downslope of SL-167-SA5A (terphenyl tank present in B4093). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X					X	X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(24 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-718	B4641 Area	Building 4093	Soil Boring	0.5	X	X	X	X					X	X					X	X	✓	Location targets sewer connection to B4093 (terphenyl tank present in B4093); note many surrounding samples to north and east do not have shallow sample and ~2' of fill observed in borings. Bedrock anticipated between 10' and 15'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X					X	X					X	X		
				10	H	H	H	H					H	H					H	H		
5A_DG-719	B4641 Area	Building 4093	Soil Boring	0.5	X	X	X	X					X	X					X	X	✓	Stepout from SL-167-SA5A (metals [Hg 15x ISL] and TPH detected above ISLs); positioned near entrance to B4093 (terphenyl tank present in B4093). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X					X	X					X	X		
5A_DG-720	B4641 Area	Southeast of Building 4093	Soil Boring	0.5	X	X	X	X					X	X					X	X		Representative location to characterize operational area (terphenyl tank present in B4093). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	X	X					X	X					X	X		
5A_DG-721	B4641 Area	Southwest of Building 4093	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize operational area; note many surrounding samples to north and east do not have shallow sample and ~2' of fill observed in borings. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	X	X	H	X						X					X	X		
5A_DG-722	B4641 Area	Drainage East of Building 4093 Leach Field	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize drainage downslope of operational area. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-723	B4641 Area	Southeast of Building 4093	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize operational area between B4093 and 4453; positioned near a former road. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-724	B4641 Area	Southeast of Building 4093	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-723.
				5	X	X	X	X						X					X	X		
5A_DG-725	B4641 Area	Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Stepout from SL-171-SA5A and SL-173-SA5A (dioxins, metals, PAHs, and pesticides detected above ISLs); positioned near end of asphalt path from B4641. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-726	B4641 Area	Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-725.
				5	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(25 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-727	B4641 Area	Building 4453	Soil Boring	0.5		X								X						X	✓	Reanalysis at SL-173-SA5A for PCBs due to elevated reporting limits. Both SL-171-SA5A and SL-173-SA5A had samples with elevated reporting limits for PCBs. Recollecting at SL-173-SA5A due to location having highest reporting limit and positioned near entrance to B4453. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5		X								X						X		
5A_DG-728	B4641 Area	Building 4453	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Same as 5A_DG-725; positioned in access road to B4093.
				5	X	X	X	X						X			X	X	X	X		
5A_DG-729	B4641 Area	Open Space West of Building 4453	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Representative location to characterize open space downslope of operational areas; positioned in possible surface water flow path from operation area into open space (based on topography and aerial photos). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	H	X						X			X	X	X	X		
5A_DG-730	B4641 Area	Open Space West of Building 4453	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets three point magnetometer anomalies and inline with interpreted drain remnant. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths. Conduct adjacent test pit for three point magnetometer anomalies and interpreted drain remnant and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-731	B4641 Area	Building 4453	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Same as 5A_DG-725; positioned in surface water flow path not captured by SL-172-SA5A.
				10	H	H	H	H						H			H	H	H	H		
5A_DG-732	B4641 Area	Open Space Southwest of Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets former road and vegetation clearance area observed in 1980 aerial photo. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-733	B4641 Area	Drainage Along 12th Street	Soil Boring	0.5	X	X	X	X	X					X					X	X	✓	Stepout from SL-111-SA5A and SL-109-SA5A (dioxins and hexavalent chromium). Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X	X					X					X	X		
				10	X	X	X	X	X					X					X	X		
5A_DG-734	B4641 Area	Open Space South of Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-732.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-735	B4641 Area	Open Space Southeast of Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize open space downslope of operational areas; positioned on flat area adjacent to road. Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-736	B4641 Area	Open Space Southeast of Building 4453	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets vegetation clearance area observed in 1980 aerial photo. Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-737	B4641 Area	Drainage Along G Street and 11th Street	Soil Boring	0.5										X	X					X	✓	Stepdown at SL-107-SA5A (dioxins and PAHs detected above ISLs shallow; no deeper sample). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze 0.5' sample for TPH only and all samples deeper than 0.5' for all analyses.
				5	X	X	X	X	X					X	X				X	X		
				10	X	X	X	X	X					X	X				X	X		
5A_DG-738	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets disturbed ground area identified in EPA technical memorandum present in the 1995 aerial photo (possible location of leach field) and characterizes open space downslope of an operational area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-739	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Location targets stormwater pipe discharge location and delineates extent of fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
				10	X	X	X	X						X			X	X	X	X		
5A_DG-740	B4641 Area	Building 4641	Soil Boring / Test Pit	0.5	X	X	X	X						X					X	X	✓	Location targets linear terrain conductivity and characterizes fill of unknown origin. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths Conduct adjacent test pit for linear terrain conductivity anomaly and adjust 5' sample to target feature (or sample pit as appropriate).
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-741	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets linear terrain conductivity and characterizes fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-742	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets terminus of lined drainage and entrance to B4641; also characterizes fill of unknown origin and open storage along west side of B4641 observed in 1974 oblique photo. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-743	B4641 Area	Building 4046	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize operational area and open storage identified in EPA HSA (open storage area offset to northeast in GIS). Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-744	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-745	B4641 Area	North of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets drainage downstream of operational area and open storage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(27 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-746A	B4641 Area	North of Building 4641	Soil Boring	0.5		X														X		Transformers in Area IV with previous ND results are being resampled with discrete samples. Collect samples at four discrete locations and analyze 0.5' samples for PCBs; hold deeper samples pending shallower results. Northern sample (5A_DG-151C) also characterizes open storage and fill of unknown origin. At this location, bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				3		H														H		
5A_DG-746B	B4641 Area	North of Building 4641	Soil Boring	0.5		X														X		
				3		H														H		
5A_DG-746C	B4641 Area	North of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	
				3	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-746D	B4641 Area	North of Building 4641	Soil Boring	0.5		X														X		
				5		H														H		
5A_DG-750	B4641 Area	Open Storage North of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for SL-221-SA5A and SL-222-SA5A (dioxins, metals, PCBs, and PAH detected above ISLs) and characterizes open storage and fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-751	B4641 Area	South of Building 4030	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-750.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-752	B4641 Area	Building 4030	Soil Boring	0.5	X	X	X	X						X					X	X		Location targets sewer connection to B4030 and open storage identified in EPA memo (open storage area offset to northeast in GIS). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
5A_DG-753	B4641 Area	Building 4046	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-743.
				5	X	X	X	X						X					X	X	✓	
5A_DG-754	B4641 Area	South of Building 4035	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location to characterize open storage and fill of unknown origin (metals, dioxins, and TPH above ISLs). Bedrock anticipated <5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X	✓	
5A_DG-755	B4641 Area	South of Building 4035	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-754; also targets linear magnetometer anomaly.
				5	X	X	X	X						X					X	X	✓	
5A_DG-756	B4641 Area	Between Buildings 4030 and 4641	Soil Boring	0.5	X	X	X	X						X					X	X		Same as 5A_DG-750.
				5	X	X	X	X						X					X	X	✓	
				10	X	X	X	X						X					X	X		
5A_DG-757	B4641 Area	Between Buildings 4030 and 4641	Soil Boring / Trench	5	X	X	X	X						X					X	X		Stepout for SL-221-SA5A and SL-222-SA5A (dioxins, metals, PCBs, and PAH detected above ISLs) and characterizes open storage and fill of unknown origin. Excavate test pit to investigate linear magnetometer anomalies and adjust 5' sample to target features observed in the field (or sample pit as appropriate). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths. Conduct trench according to orientation shown; adjust to north based on existing sewer line location.
				10	X	X	X	X						X					X	X	✓	

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-758	B4641 Area	Between Buildings 4030 and 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-750.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-759	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location in area surrounding B4641. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-760	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-759.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-761	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-759.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-762	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Same as 5A_DG-759.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-763	B4641 Area	East of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets stormwater pipe discharge location. Bedrock anticipated between 5' and 10'.Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-764	B4641 Area	Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets southern end of loading dock area and high bay door at B4641. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-765	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets magnetometer anomaly and further characterizes fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-766	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Location targets magnetometer anomaly and characterizes open space downslope of an operation area. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-767	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize open area downslope of an operational area; positioned at intersection of two surface flow pathways. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-768	B4641 Area	Drainage Along G Street and 11th Street	Soil Boring	0.5										X	X					X	✓	Stepdown at SL-105-SA5A (dioxins and PAHs detected above ISLs shallow; no deeper sample). Bedrock anticipated ~10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze 0.5' sample for TPH only and all samples deeper than 0.5' for all analyses.
				5	X	X	X	X	X					X	X				X	X		
				10	X	X	X	X	X					X	X				X	X		
5A_DG-769	B4641 Area	South of Building 4641	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Location targets stormwater pipe discharge location and delineates extent of fill of unknown origin. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
				10	X	X	X	X						X			X	X	X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(29 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-770	B4641 Area	Drainage Along 10th Street	Soil Boring	0.5	X	X	X	X						X					X	X	✓	Representative location to characterize drainage. Bedrock anticipated ~5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X					X	X		
5A_DG-771	B4641 Area	Drainage Along G Street and 10th Street	Soil Boring	0.5	X	X	X	X						X			X	X	X	X	✓	Stepout for SL-105-SA5A (dioxins, metals, and PAH detected above ISLs); positioned upstream of SL-105-SA5A. Bedrock anticipated between 5' and 10'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X	X	X	X						X			X	X	X	X		
				10	X	X	X	X						X			X	X	X	X		
5A_DG-772	B4029	West of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-773	B4029	West of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X			X		X	X	√	Stepout for dioxins, PAHs, and pesticides at SL-031-SA5A; location also assesses potential disposal along south side of G Street adjacent to the open storage area identified as "Waste Disposal Area" in EPA HSA. Shallow bedrock anticipated based on previous sampling in the area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X			X		X	X		
5A_DG-774	B4029	Southwest of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X			X		X	X		Stepout for dioxins, PAHs, and pesticides at SL-031-SA5A and dioxins at SL-024-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X			X		X	X		
5A_DG-775	B4029	Southwest of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for dioxins at SL-024-SA5A; location also characterizes area downslope from open storage area identified as "Waste Disposal Area" in EPA HSA. Shallow bedrock anticipated based on previous sampling in the area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-776	B4029	Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X			X		X	X	√	Stepout for PAHs, dioxins, and pesticides at SL-031-SA5A and dioxins and PAHs (BaP) at SL-026-SA5A; location also characterizes western portion of open storage area identified as "Waste Disposal Area" in EPA HSA and potential staining or low spot observed in aerial photos between 1967 and 1972. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X			X		X	X		
5A_DG-777	B4029	Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X			X		X	X	√	Location targets open storage area identified as "Waste Disposal Area" in EPA HSA; location also serves as stepout for dioxins at SL-040-SA5A, and dioxins and pesticides at SL-037-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X			X		X	X		
				10	H		H	H						H			H		H	H		
5A_DG-778	B4029	Open Storage Area Along G Street	Soil Boring	0.5							X									X	√	Collect sample at SL-036-SA5A to confirm previous perchlorate detection at 0.5'. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5							H									H		
				10							H									H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(30 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-779	B4029	East of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X			X		X	X	√	Stepout for dioxins at SL-040-SA5A and SL-051-SA5A, and dioxins and pesticides at SL-037-SA5A; location also characterizes eastern extent of open storage area identified as "Waste Disposal Area" in EPA HSA and open field near former dirt road (observed in aerial photos in 1957 and 1995). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X			X		X	X		
				10	H		H	H						H			H		H	H		
5A_DG-780	B4029	East of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X		Stepout for dioxins at SL-051-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-781	B4029	South of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X		Stepout for dioxins at SL-050-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-782	B4029	South of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	One of three locations targeting rill along dirt road downslope from open storage area identified as "Waste Disposal Area" in EPA HSA. Locate drainage feature (e.g. rill, topographic low, etc.) and map with GPS prior to collection of samples. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths.
				5	X		X	X						X					X	X		
5A_DG-783	B4029	South of Open Storage Area Along G Street	Soil Boring	0.5	X	X	X	X	X					X	X				X	X	√	Stepout for dioxins at SL-021-SA5A and SL-022-SA5A; location also characterizes former road and area of cleared vegetation (observed in 1959 aerial photo). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X				X	X		
5A_DG-784	B4029	Southeast of Open Storage Area South of G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-782.
				5	X		X	X						X					X	X		
5A_DG-785	B4029	South of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-783.
				5	X		H	X						X					X	X		
5A_DG-786	B4029	Southwest of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for dioxins at SL-024-SA5A; location also characterizes area downslope from open storage area identified as "Waste Disposal Area" in EPA HSA. Shallow bedrock anticipated based on previous sampling in the area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-787	B4029	South of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Location targets area of cleared vegetation and potential dirt road observed in aerial photos between 1959 and 1965. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X		H	X						X					X	X		
5A_DG-788	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X	X	X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-789	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X	X	X	X	X					X	X				X	X		Same as 5A_DG-788. Location along sanitary sewer pipeline near manhole to assess potential northeast extension of the 17th Street Pond Clearly Contaminated Area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X	X					X	X				X	X		
5A_DG-790	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X		X	X						X					X	X		Same as 5A_DG-788.
				5	X		H	X						X					X	X		
5A_DG-791	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X		X	X						X					X	X		Same as 5A_DG-788.
				5	X		H	X						X					X	X		
5A_DG-792	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for dioxins and metals (Ag) at SL-206-SA5B and SL-207-SA5B; location also defines eastern extent of Clearly Contaminated Area (17th Street Pond) in Subarea 5B. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected
				5	X	X	X	X						X					X	X		
5A_DG-793	B4029	Northeast of Clearly Contaminated Area (17th Street Pond)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout to characterize Clearly Contaminated Area (17th Street Pond); location also targets area of cleared vegetation (observed only in 1959 aerial photo). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	H	X						X					X	X		
5A_DG-794	B4029	Northwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X	√	Stepout to characterize area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond); location also placed on historical dirt road. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-795	B4029	Northwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for dioxins at CFBS1030 and dioxins and metals (Ag) at SL-207-SA5B; location also defines eastern extent of the 17th Street Pond Clearly Contaminated Area and characterizes area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-796	B4029	West of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for dioxins at CFBS1030; location also characterizes area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-797	B4029	West of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for dioxins at SL-272-SA5B and CFBS1030; location also characterizes area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-798	B4029	West of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout to characterize area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-799	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Location characterizes identified hummocky area adjacent to Clearly Contaminated Area (Eastern Hummocky Area) observed during site walk (May, 2012). Excavate exploratory trench to investigate hummocky area for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-800	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-799.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-801	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-799.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-802	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-799.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-804	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-799.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-807	B4029	Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X	√	Location targets Clearly Contaminated Area (Eastern Hummocky Area) to complete coverage / definition within extent. Excavate exploratory trench to investigate hummocky area for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-808	B4029	Northwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Stepout to characterize northern extent of Clearly Contaminated Area (Eastern Hummocky Area); location also characterizes identified hummocky area observed during site walk (May, 2012). Excavate exploratory trench to investigate hummocky area for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-809	B4029	North of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X		Stepout for dioxins at SL-041-SA5A and CFBS1029; location also characterizes area between two Clearly Contaminated Areas (Eastern Hummocky Area and 17th Street Pond). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(33 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-810	B4029	Northwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5AS_DG-332; also serves as a stepout for PCBs and metals (Ag) at P2TS59.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-811	B4029	North of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X	√	Stepout for dioxins at SL-041-SA5A and CFBS1029; location also targets edge of hummocky area observed during site walk (May, 2012) and characterizes northern extent of Clearly Contaminated Area (Eastern Hummocky Area). If pond dredge material / sediments observed in boring, collect one sample in sediment, one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-812	B4029	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5AS_DG-332; also serves as stepout for dioxins at SL-049-SA5A. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results, if collected.
				5	X	X	X	X						X					X	X		
5A_DG-813	B4029	North of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Hold deeper sample pending shallow results. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-814	B4029	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for dioxins at SL-049-SA5A; location also targets surface water pathway along dirt road. Locate drainage feature (e.g. rill, topographic low, etc.) and map with GPS prior to collection of samples. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location along surface water pathway.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-815	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-816	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X					X	X	√	Location targets potential hummocky area and defines eastern extent of Clearly Contaminated Area (Eastern Hummocky Area). If pond dredge material / sediments observed in boring, collect one sample in sediment, one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-817	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Targets small mound observed during site walk (May, 2012). Excavate exploratory trench to investigate mound for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-818	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Targets area of low-profile mounded soil observed during site walk (May, 2012). Excavate exploratory trench to investigate mound for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-819	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-782.
				5	X		X	X						X					X	X		
5A_DG-820	B4029	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-818.
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-821	B4029	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring / Trench	0.5	X	X	X	X						X					X	X	√	Targets hummocky area observed during site walk (May, 2012). Excavate exploratory trench to investigate hummocky area for potential pond dredge sediment and log depth of native soil. Collect one sample in sediment (if observed), one sample in native soil just below contact with sediment, and deepest sample just above bedrock (bedrock anticipated between 5' and 10').
				5	X	X	X	X						X					X	X		
				10	X	X	X	X						X					X	X		
5A_DG-822	B4029	Northeast of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Hold deeper sample pending shallower results. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-823	B4029	East of Open Storage Area Along G Street	Soil Boring	0.5	X		X	X						X					X	X	√	Representative location in open field; location also positioned adjacent to historical dirt road observed in aerial photographs (1957 - 1965). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-824	B4029	Northwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-823.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-825	B4029	West of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-826	B4029	West of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Targets shallow drainage pathway in open field. Locate drainage feature (e.g. rill, topographic low, etc.) and map with GPS prior to collection of samples. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location within surface water pathway.
				5	X		X	X						X					X	X		
5A_DG-827	B4029	West of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Representative location in open field; location also placed on historical dirt road observed in aerial photograph (2005). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-828	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Transect/stepout for dioxins at SL-241-SA5A to characterize overbank deposits. Four lateral stepout locations comprise a drainage transect (with previous drainage sample in the middle); collect stepouts 5 feet and 10 feet laterally from location SL-241-SA5A/5A_DG-830. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess historical deposition over time. 5A_DG-830 also serves as a stepdown for dioxins at SL-241-SA5A (previously, only 0.5 ft sample collected). Analyze shallow sample for TPH since not previously sampled. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since located in unlined surface water pathway.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-829	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-830	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5										X						X	√	
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-831	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-832	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-833	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Transect/stepout for dioxins at SL-100-SA5A to characterize overbank deposits. Four lateral stepout locations comprise a drainage transect (with previous drainage sample in the middle); collect stepouts 5 feet and 10 feet laterally from location SL-100-SA5A/5A_DG-835. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to assess historical deposition over time. 5A_DG-835 also serves as a stepdown for dioxins at SL-100-SA5A (previously, only 0.5 ft sample collected). Analyze shallow sample for TPH since not previously sampled. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location within unlined surface water pathway.
				5	X		X	X						X					X	X		
5A_DG-834	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
5A_DG-835	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5										X						X	√	
				5	X		X	X						X					X	X		
5A_DG-836	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
5A_DG-837	B4029	Drainage Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	
				5	X		X	X						X					X	X		
5A_DG-838	B4029	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-839	B4029	Southwest of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-840	B4029	East of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field; location also positioned on historical dirt road (observed in aerial photos in 1967 and between 1977 and 1990). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X	√	
				10	H		H	H						H					H	H		
5A_DG-841	B4029	South of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field; location also targets low spot/drainage pathway from northeast (near 5AS_DG-386) and positioned on historical dirt road (observed in aerial photos between 1953 and 1977). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X	√	
				10	H		H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-842	B4029	South of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Representative location in open area; also targets area of cleared vegetation observed in 1980 aerial photo. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-843	B4029	Southeast of SE Drum Yard	Soil Boring	0.5			X													X	√	Recollect at SEBS1002 located within area of cleared vegetation east of the SE Drum Yard and analyze for dioxins to complete the analytical suite. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5			X													X		
				10			H													H		
5A_DG-844	B4029	South of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Location targets rilling along dirt road and provides dioxin data near/upslope of elevated dioxins in drainage sample location SL-098-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since located in unlined surface water pathway.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-845	B4029	East of SE Drum Yard	Soil Boring	0.5			X													X	√	Recollect at SEBS1001 located within area of cleared vegetation east of the SE Drum Yard and analyze for dioxins to complete the analytical suite. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5			X													X		
				10			H													H		
5A_DG-846	B4029	East of SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for PAHs (BaP) at SEBS1000; location also characterizes eastern SE Drum Yard storage area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-847	B4029	SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	One of three samples characterizing the northern portion of the SE Drum Yard (previous historical [1988] samples had elevated RLs for NDMA and PAHs) but were not analyzed for comprehensive suite; location also serves as stepout for PAHs (BaP) at SEBS1000 and targets containers / cleared vegetation (observed in aerial photos between 1960 and 1965). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-848	B4029	SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-847.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-849	B4029	SE Drum Yard	Soil Boring	0.5	X		X	X						X					X	X	√	One of three samples characterizing the northern portion of the SE Drum Yard (previous historical [1988] samples had elevated RLs for NDMA and PAHs) but were not analyzed for comprehensive suite. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-850	B4029	South of B4029	Soil Boring	0.5	X		X	X						X					X	X	√	Characterizes potential surface water pathway along dirt road south of B4029. Locate drainage feature (e.g. rill, topographic low, etc.) if identifiable; otherwise collect at GPS coordinates shown on figure to characterize open field area. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given area receives surface water runoff.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-851	B4029	Drainage Southwest of B4029	Soil Boring	0.5	X		X	X						X					X	X	√	Location targets area of potential sheet flow between two parallel drainages southwest of B4029 (observed in aerial photos between 1978 and 1988). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-852	B4029	Drainages Southwest of B4029	Soil Boring	0.5	X	X	X	X						X					X	X	√	Location targets one of two drainages southwest of B4029; analyze PCBs since drainage potentially receives runoff from operational areas to the north of G Street. Locate drainage feature (e.g. rill, topographic low, etc.) and map with GPS prior to collection of samples. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since located in surface water pathway.
				5	X	X	X	X						X					X	X		
5A_DG-853	B4029	Drainage Southwest of B4029	Soil Boring	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-852.
				5	X	X	X	X						X					X	X		
5A_DG-854	B4029	West of B4029	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for surficial dioxins detected at SL-053-SA5A; location also positioned adjacent to historical dirt road observed in aerial photographs (1957 - 1965). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze 5-foot sample since dioxins RLs were >ISLs at SL-053-SA5A and hold other samples pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-855	B4029	West of B4029	Soil Boring	0.5	X		X	X						X					X	X	√	Same as 5A_DG-854; location also positioned on historical dirt road observed in aerial photographs (1957 and 1959). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-856	B4029	Northwest of B4029 Near G Street	Soil Boring	0.5	X	X	X	X						X					X	X	√	Stepout for PAHs, dioxins, and metals (Pb, Zn) at SL-096-SA5A; location also downslope of culvert discharge at SL-096-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-857	B4029	Northwest of B4029 Near G Street	Soil Boring	0.5	X	X	X	X						X					X	X	√	Same as 5A_DG-856.
				5	X	X	H	X						X					X	X		
				10	H	H	H	H						H					H	H		
5A_DG-858	B4029	Northwest of B4029 Near G Street	Soil Boring	0.5										X						X	√	Stepdown for dioxins and PAHs at SL-096-SA5A; location also targets culvert discharge point. Analyze shallow sample for TPH since not previously sampled. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location at culvert discharge point.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-859	B4029	Northwest of B4029 Near G Street	Soil Boring	0.5	X		X	X						X					X	X		Stepout for PAHs, dioxins, and metals (Pb, Zn) at SL-096-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-860	B4029	West of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Characterizes potential surface water pathway in vegetated area south of G Street. Target drainage feature (e.g. rill, topographic low, etc.) if identifiable; otherwise collect at GPS coordinates shown on figure to characterize open field area. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given area receives surface water runoff.
				5	X		X	X						X					X	X		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
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Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method															Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-861	B4029	North of B4029	Soil Boring	0.5	X	X	X	X						X					X	X	√	Location targets discharge from culvert which receives runoff from B4064 operational areas in the north (located in Subarea 6) and unlined surface water pathway along south side of G Street. Shallow bedrock anticipated. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location at surface water discharge point.
				5	X	X	X	X						X					X	X		
5A_DG-862	B4029	North of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout upstream of culvert inlet in unlined surface water pathway for dioxins at SL-095-SA5A. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location within unlined drainage.
				5	X		X	X						X					X	X		
5A_DG-863	B4029	Southwest of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Targets discharge from existing culvert downslope of B4029 access road. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location at culvert discharge point.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-864	B4029	Southwest of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Targets discharge from two historical culverts downslope of B4029 access road. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths given location at culvert discharge point.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-865	B4029	B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for dioxins at SL-056-SA5A and dioxins and PAHs at SL-057-SA5A; also characterizes possible fill along slope and area of cleared vegetation south of B4029 access road (observed in aerial photos from 1980 and 1995) and identified in EPA's HSA 5A Tech Memo as "ground scar". Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths to characterize fill.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-866	B4029	South of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for TPH at SFBS0012 and PAHs and dioxins at SL-057-SA5A; also characterizes possible fill along slope and area of cleared vegetation south of the B4029 access road (observed only in aerial photos from 1980 and 1995) and identified in EPA's HSA 5A Tech Memo as "ground scar". Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since TPH detected at depth in previous samples and to characterize fill.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-867	B4029	South of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Stepout for TPH at SFBS0011 and SFBS0012; also characterizes possible fill along slope and area of cleared vegetation south of the B4029 access road (observed only in aerial photos from 1980 and 1995) and identified in EPA's HSA 5A Tech Memo as "ground scar". Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since TPH detected at depth in previous samples and to characterize fill.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-868	B4029	South of B4029 Access Road	Soil Boring	0.5	X		X	X						X					X	X	√	Location targets potential surface water feature on slope south of B4029 (linear feature observed in 1980 aerial photo); location also characterizes possible fill along slope and area of cleared vegetation south of the B4029 access road (observed only in aerial photos from 1980 and 1995) and identified in EPA HSA as "ground scar". Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; analyze all depths since TPH detected at depth in previous samples and to characterize fill.
				5	X		X	X						X					X	X		
				10	X		X	X						X					X	X		
5A_DG-869	B4029	South of B4029	Soil Boring	0.5	X		X	X						X					X	X	√	Location targets historical dirt road leading to cleared vegetation area on slope south of B4029 (observed in 1980 aerial photo). Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		

Table 1
Subarea 5A Phase 3 Proposed Sample Locations
(39 of 39)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-870	B4029	South of B4029	Soil Boring	0.5	X		X	X						X					X	X		Same as 5A_DG-869.
				5	X		H	X						X					X	X	√	
				10	H		H	H						H					H	H		
5A_DG-871	B4029	East of B4029	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-872	B4029	East of B4029	Soil Boring	0.5	X		X	X						X					X	X		Representative location in open field. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X		
				10	H		H	H						H					H	H		
5A_DG-873	B4029	North of B4029	Soil Boring	0.5	X		X	X						X					X	X		Location targets dirt road south of G Street and upslope from elevated detections (L4BS1014) in Subarea 6. Collect samples at 5' intervals to bedrock with deepest sample just above bedrock; hold deeper sample pending shallower results.
				5	X		H	X						X					X	X	√	
				10	H		H	H						H					H	H		

Footnotes

1. Sampling will generally be at 5 foot intervals to bedrock. In areas where fill is encountered or anticipated, samples will be collected from the top of native soil (beneath fill) and soil just above bedrock. Samples collected at 0.5' and 5' will be analyzed, with deeper samples placed on hold pending shallower results, unless otherwise stated. If deeper soils are encountered, additional sampling will be added as needed. Sample intervals may be added or adjusted based on field conditions.

2. Standard metals analysis includes silver and mercury, but does not include hexavalent chromium.

3. A check mark in column indicates sample was proposed based on review of information source indicated in the Data Gap Checklist, Table 4.

4. The Subarea 5A analytical suite for general operations includes primary chemical groups: PAHs, PCBs/PCTs, Metals, and TPH. The corrosion inhibitor suite includes formaldehyde and NDMA to address potential hydrazine use, and arsenic, hexavalent chromium, and morpholine (EPA Method 8260 TIC). PCBs/PCTs are proposed at locations associated with potential pond dredge material/mounds based on detections in previous sampling.

5. Dioxin analysis at depth is generally on hold pending shallower results unless warranted by observed site conditions (e.g. fill, subsurface features, or historical drainages).

Acronyms and Abbreviations

Ag = silver
AST = above-ground storage tank
B = building (e.g. B4005 is Building 4005)
B(a)P = benzo(a)pyrene
bgs = below ground surface
Cr(VI) = hexavalent chromium
D&D = decommissioning and demolition
EPA = Environmental Protection Agency
ft = foot/feet
H = sample on hold for corresponding analysis
HDMS - Historical Document Management System
Hg = mercury
HMSA = Hazardous Materials Storage Area
HSA = Historical Site Assessment
ISL = interim screening level
KEWB = Kinetic Experiment Water Boiler
ND = analyte not detected above method reporting limit
NDMA = n-nitrosodimethylamine
PAHs = polyaromatic hydrocarbons
Pb = lead
PCBs = polychlorinated biphenyls
PCTs = polychlorinated terphenyls
PDU = Coal Gasification Process Development Unit
ppm = parts per million
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RL = reporting limit
RMHF = Radioactive Materials Handling Facility
SETF = SNAP Environmental Test Facility
SM = soil matrix
SV = soil vapor
TPH = total petroleum hydrocarbons
UST = underground storage tank
VOC = volatile organic compound
X = sample to be analyzed by corresponding analytical method
Zn = zinc

Table 2
Subarea 5A Phase 3 Proposed Soil Vapor Sample Locations
(1 of 4)

Location ID	Area	Location Description	Depth (ft bgs)[1]	Data Gap Checklist[2]	Rationale / Comments
5ASV_DG-501	SETF	North of B4024	5 10	√	Representative location within operational area and near drainage; shallow bedrock anticipated (~5').
5ASV_DG-502	SETF	Open Storage West of B4024	5 10 15	√	Targets open storage area where most storage observed in aerial photos along fence.
5ASV_DG-503	SETF	West of B4024	5 10	√	Targets terrain conductivity anomaly and open storage identified in EPA HSA and aerial photos; shallow bedrock anticipated (~5').
5ASV_DG-504	SETF	West of B4024	5 10 15 20 30	√	Targets potential "stain" or "storage" observed in aerial photos (i.e., 1999) identified in EPA HSA, terrain conductivity anomaly, localized depression with cracked asphalt, linear patched asphalt observed on site walk, and fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 B4024 facility drawing and likely placed during original construction activities of B4024).
5ASV_DG-505	SETF	Southwest of B4024	5 10	√	Targets asphalt swale that directs surface water runoff west of B4024 into culvert west of the transformer pad; shallow bedrock anticipated shallow (~5').
5ASV_DG-506	SETF	Southwest of B4024	5 10	√	Targets AST with unknown contents (AT-HS-5) identified in the Sitewide Tank Inventory (CH2M Hill, 2011); positioned adjacent to undefined feature observed in 1978 photograph (HDMSm000000249); shallow bedrock anticipated (~5').
5ASV_DG-507	SETF	Drainage Along B Street South of Building 4024	5 10	√	Targets the drainage along the northern edge of B Street immediately prior to flowing into the culvert diverting flow south under B Street.
5ASV_DG-508	SETF	Southwest of B4024	5 10	√	Targets removed fuel oil UST (UT-18); tank bottom depth expected ~8' with bedrock anticipated at ~10'. Collect deepest sample just above bedrock to assess potential leak from former UST.
5ASV_DG-509	SETF	West of B4024	5 10 15 20 30	√	Targets fill from unknown origin west of B4024 observed at SL-245-SA5A to 30' (fill extent shown on 1961 B4024 facility drawing and likely placed during original construction activities); positioned near high bay ramp into B4024 and adjacent to subsurface reactor vault complex.
5ASV_DG-510	SETF	Southeast of B4024	5 10	√	Targets fill from unknown origin (in area following removal of underground tanks) and area of fenced open storage identified in EPA HSA and observed in aerial photos.
5ASV_DG-511	SETF	Southeast of B4024	5 10	√	Same as 5ASV_DG-587; positioned adjacent to fill from unknown origin.
5ASV_DG-512	SETF	East of B4024	5 10	√	Targets former radioactive liquid waste hold up tanks and retention basin; also located in area of open storage.
5ASV_DG-513	SETF	Northeast of B4024	5 10	√	Targets removed fuel oil UST (UT-19) located northeast of B4024. Tank depth anticipated ~8'. Location based on facility drawing; previous location targeting UST (U5SV1110) had bedrock refusal above the tank bottom depth. Collect deepest sample just above bedrock to assess potential leak from former UST.
5ASV_DG-514	SETF	North of B4024	5 10	√	Targets sanitary sewer pipe exit from B4024. Collect deepest sample just above bedrock to assess potential leak from sanitary sewer.
5ASV_DG-515	SETF	West of Building 4027	5 10	√	Targets sanitary sewer pipe exit to B4027 and open storage along east side of B4027. Collect deepest sample just above bedrock to assess potential leak from sanitary sewer.
5ASV_DG-516	SETF	Within B4027 Footprint	5 10	√	Same as 5ASV_DG-614.
5ASV_DG-517	SETF	Within B4027 Footprint	5 10	√	Targets former location of floor trench located beneath B4027 which was used as a hazardous waste storage facility.
5ASV_DG-518	SETF	East of B4024	5 10	√	Representative location in operational area south of B4027.
5ASV_DG-519	SETF	West of B4032	5 10	√	Representative location near B4032 footprint.
5ASV_DG-520	SETF	Within B4032 Footprint	5 10	√	Representative location within B4032 footprint (note: fill of unknown origin observed in adjacent borings).
5ASV_DG-521	SETF	East of B4032	5 10	√	Targets removed fuel oil UST UT-22 and positioned within light toned mounded material identified in EPA HSA. Collect deepest sample just above bedrock to assess potential leak from former UST.
5ASV_DG-522	SETF	Within B4036 Footprint	5 10	√	Representative location within former B4036 footprint.
5ASV_DG-523	SETF	North of B4023	5 10	√	Representative location in open space area (no storage or other operations observed in aerial photos).
5ASV_DG-524	SETF	Within B4023	5 10	√	Representative location in former B4023 footprint.
5ASV_DG-525	SETF	South of B4023	5 10	√	Targets sanitary sewer pipe exit from B4023. Collect deepest sample just above bedrock to assess potential leak from sanitary sewer.
5ASV_DG-526	SETF	North of B4023	5 10	√	Targets ASTs with unknown contents (Unknown-AT-L9-1 and -2).
5ASV_DG-527	SETF	East of B4023	5 10	√	Targets former radioactive gas holdup tank vault.
5ASV_DG-528	SETF	East of B4023	5 10	√	Targets area of open storage observed in post-1980 aerial photos.
5ASV_DG-529	PDU	Drainage Along 17th Street Northwest of B4005	5 10	√	Targets confluence of multiple drainages receiving surface water runoff from operational areas to the northeast, north, and northwest, eventually discharging to the 17th Street Pond. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-530	PDU	Northwest of B4005	5 10	√	Targets tank area; also addresses previous sampling with detections (PUSV04 and PUSV1010).
5ASV_DG-531	PDU	North of B4005	5 10	√	Targets B4005 floor trench.
5ASV_DG-532	PDU	West of B4005	5 10	√	Targets sanitary sewer pipe exit from B4023 and removed fuel oil UST (UT-01).
5ASV_DG-533	PDU	South of B4005	5 10	√	Targets lined drainage along 17th Street, operational area south of B4005, and former road.

Table 2
Subarea 5A Phase 3 Proposed Soil Vapor Sample Locations
(2 of 4)

Location ID	Area	Location Description	Depth (ft bgs)[1]	Data Gap Checklist[2]	Rationale / Comments
5ASV_DG-534	PDU	South of B4005	5 10	√	Same as 5ASV_DG-652.
5ASV_DG-535	PDU	Clearly Contaminated Area (PDU)	5 10	√	Representative location within Clearly Contaminated Area; also addresses previous sampling with detection (PUSV1013).
5ASV_DG-536	PDU	Clearly Contaminated Area (PDU)	5 10	√	Targets sump east of B4005.
5ASV_DG-537	PDU	Northern Portion of Clearly Contaminated Area (PDU)	5 10	√	Targets for R/A Liquid waste holdup tanks and adjacent to location SL-189-SA5A (VOCs in soil matrix at 120x ISL).
5ASV_DG-538	PDU	Clearly Contaminated Area (PDU)	5 10	√	Representative location within Clearly Contaminated Area; also addresses previous sampling with detection (PUSV1004).
5ASV_DG-539	PDU	Northeast of Clearly Contaminated Area (PDU)	5 10	√	Targets B4793 footprint and area adjacent to Clearly Contaminated Area; shallow bedrock anticipated (~5').
5ASV_DG-540	PDU	Within B4042 Footprint	5 10	√	Targets former floor trench within B4042.
5ASV_DG-541	PDU	South of B4042	5 10	√	Representative location in B4042 operational area.
5ASV_DG-542	PDU	Within B4042 Footprint	5 10	√	Targets location SL-223-SA5A (TPH at 13x ISL); also characterizes fill of unknown origin and former road.
5ASV_DG-543	PDU	East of B4042	5 10	√	Targets area of disturbed vegetation/soil observed in aerial photographs; shallow bedrock anticipated (~5').
5ASV_DG-544	PDU	Open Storage / Parking Area at 12th and G Street	5 10	√	Targets open storage observed in aerial photos along western fence.
5ASV_DG-545	PDU	Open Storage / Parking Area at 12th and G Street	5 10	√	Same as 5ASV_DG-665; shallow bedrock anticipated (~5').
5ASV_DG-546	PDU	Drainage Along G Street South of Open Storage / Parking Area	5 10	√	Representative location in open area; shallow bedrock anticipated (~5').
5ASV_DG-547	PDU	Open Storage / Parking Area at 12th and G Street	5 10	√	Targets geophysical anomalies and open storage.
5ASV_DG-548	PDU	East of Open Storage/Parking Area	5 10	√	Targets "storage / dark toned material" identified in EPA HSA.
5ASV_DG-549	PDU	Drainage Along G Street, East of Open Storage / Parking Area	5 10	√	Targets drainage along G Street. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-550	PDU	Open Storage / Parking Area at 12th and G Street	5 10	√	Representative location in fenced open storage area.
5ASV_DG-551	PDU	Open Storage / Parking Area at 12th and G Street	5 10	√	Same as 5ASV_DG-662.
5ASV_DG-552	PDU	Open Field East of Coal Storage / Parking Area	5 10	√	Targets discharge from lined drainage into open field.
5ASV_DG-553	PDU	Drainage Along G Street, East of Coal Storage / Parking Area	5 10	√	Same as 5ASV_DG-668.
5ASV_DG-554	PDU	East of Coal Storage / Parking Area at 17th and G Street	5 10	√	Targets unlined surface water pathway along the northeastern perimeter of Coal Storage/Parking Area; shallow bedrock anticipated (~5').
5ASV_DG-555	PDU	Coal Storage / Parking Area at 17th and G Street	5 10	√	Representative location in Coal Storage/Parking Area and adjacent to unlined drainage; shallow bedrock anticipated (~5').
5ASV_DG-556	PDU	Northwest of Coal Storage / Parking Area at 17th and G Street	5 10	√	Targets lined drainage along 17th Street and potential storage area to the northeast based on aerial photographs.
5ASV_DG-557	PDU	Coal Storage / Parking Area at 17th and G Street	5 10	√	Representative location in Coal Storage / Parking Area; also addresses elevated RLs in previous sampling (PUSV1403).
5ASV_DG-558	PDU	Drainages at Corner of 17th and G Street	5 10	√	Targets confluence of drainages to the northeast and northwest downslope of operational areas in PDU, SETF, and B4641. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-559	B4641 Area	Southwest of B4073	5 10		Representative location in open field; shallow bedrock anticipated (~5').
5ASV_DG-560	B4641 Area	Southeast of Building 4073	5 10	√	Targets discharge onto unlined surface from cooling water hold-up tank drain line.
5ASV_DG-561	B4641 Area	Drainage Along 12th Street	5 10	√	Targets drainage along former road. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-562	B4641 Area	North of B4073	5 10	√	Targets fill (observed in nearby previous borings) and operational area north of B4073.
5ASV_DG-563	B4641 Area	Parking Area Between B4073 and 4083	5 10	√	Targets former parking lot and open storage observed in 1988 oblique photo.
5ASV_DG-564	B4641 Area	West of B4083	5 10	√	Representative location downslope from operational area to the northeast.
5ASV_DG-565	B4641 Area	B4093 Leach Field	5 10	√	Targets B4093 Leach Field. Collect deepest sample just above bedrock since potential input location to groundwater.
5ASV_DG-566	B4641 Area	B4093	5 10	√	Targets sanitary sewer pipe exit from B4093. Collect deepest sample just above bedrock to assess potential leak from sanitary sewer.
5ASV_DG-567	B4641 Area	Southeast of B4093	5 10	√	Representative location along former road / dirt area southeast of B4093; shallow bedrock anticipated (~5').
5ASV_DG-568	B4641 Area	Drainage East of Building 4093 Leach Field	5 10	√	Location targets discharge of lined drainage onto unlined soils downslope of B4083 operational area. Collect deepest sample just above bedrock to assess potential input to groundwater at unlined drainage feature.
5ASV_DG-569	B4641 Area	Open Field West of B4453	5 10	√	Targets geophysical anomalies in field south of B4093 operational area.
5ASV_DG-570	B4641 Area	Open Field South of B093 Leach Field	5 10		Representative location in open field south of B4093.
5ASV_DG-571	B4641 Area	Open Field South of B4453	5 10	√	Representative location in open field; also positioned on former road.

Table 2
Subarea 5A Phase 3 Proposed Soil Vapor Sample Locations
(3 of 4)

Location ID	Area	Location Description	Depth (ft bgs)[1]	Data Gap Checklist[2]	Rationale / Comments
5ASV_DG-572	B4641 Area	Drainage Along 12th Street	5 10	√	Targets drainage along 12th Street. Collect deepest sample just above bedrock to assess unlined drainage feature.
5ASV_DG-573	B4641 Area	Drainage at Intersection of 12th and G Street	5 10	√	Targets collection point of two unlined drainages along 12th and G Streets. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-574	B4641 Area	Open Field Southeast of B4453	5 10		Representative location in open field south of 11th Street.
5ASV_DG-575	B4641 Area	Drainage Along G Street	5 10	√	Targets drainage along G Street. Collect deepest sample just above bedrock to assess potential migration to groundwater.
5ASV_DG-576	B4641 Area	South of B4641	5 10	√	Targets disturbed ground area identified in EPA HSA and visible in the 1995 aerial photo and potential leach field location.
5ASV_DG-577	B4641 Area	B4641 Footprint	5 10	√	Representative location within B4641 footprint.
5ASV_DG-578	B4641 Area	B4046 Footprint	5 10	√	Targets B4046 footprint and open storage identified in EPA HSA; shallow bedrock anticipated (~5').
5ASV_DG-579	B4641 Area	B4030 Footprint	5 10	√	Targets sewer pipe exit from B4030 and open storage identified in EPA HSA; shallow bedrock anticipated (~5').
5ASV_DG-580	B4641 Area	Between B4030 and 4641	5 10	√	Representative location in operational area adjacent to B4035; shallow bedrock anticipated (~5').
5ASV_DG-581	B4641 Area	Between B4030 and 4641	5 10	√	Targets area of open storage and linear geophysical anomalies.
5ASV_DG-582	B4641 Area	South of B4641	5 10		Representative location in open field.
5ASV_DG-583	B4641 Area	South of B4641	5 10	√	Targets collection point of two unlined drainages receiving surface water runoff from B4641 and B4093 operational areas to the north and west, respectively.
5ASV_DG-584	B4641 Area	Drainage Along 10th Street	5 10	√	Targets unlined drainage along 10th Street that receives surface water runoff from B4035 and B4641 operational areas to the north.
5ASV_DG-585	B4029 Area	West of Open Storage Area Along G Street	5 10		Same as 5ASV_DG-537.
5ASV_DG-586	B4029 Area	Open Storage Area Along G Street	5 10	√	Targets western extent of "Waste Disposal Area" identified in EPA's HSA; shallow bedrock anticipated (~5').
5ASV_DG-587	B4029 Area	Open Storage Area Along G Street	5 10	√	Representative location in "Waste Disposal Area" identified in EPA HSA.
5ASV_DG-588	B4029 Area	Open Storage Area Along G Street	5 10	√	Targets edge of hummocky area and "Waste Disposal Area" identified in EPA HSA. Shallow bedrock anticipated (~5'); collect deepest sample just above bedrock since assessing potential disposal area.
5ASV_DG-589	B4029 Area	Northeast of Open Storage Area Along G Street	5 10	√	Same as 5ASV_DG-550; also assesses former road and area of cleared vegetation observed in aerial photos between 1959 and 1972.
5ASV_DG-590	B4029 Area	South of Open Storage Area Along G Street	5 10	√	Same as 5ASV_DG-532; shallow bedrock anticipated (~5').
5ASV_DG-591	B4029 Area	South of Open Storage Area Along G Street	5 10		Same as 5ASV_DG-537.
5ASV_DG-592	B4029 Area	South of Open Storage Area Along G Street	5 10		Representative location in open field southwest of Open Storage Area along G Street; shallow bedrock anticipated (~5').
5ASV_DG-593	B4029 Area	West of Clearly Contaminated Area (Eastern Hummocky Area)	5 10		Representative location in area between two Clearly Contaminated Areas (17th Street Pond and Eastern Hummocky Area); shallow bedrock anticipated (~5').
5ASV_DG-594	B4029 Area	Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Targets Clearly Contaminated Area (Eastern Hummocky Area).
5ASV_DG-595	B4029 Area	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Targets hummocky area to investigate potential pond dredge sediment adjacent to Clearly Contaminated Area (Eastern Hummocky Area).
5ASV_DG-598	B4029 Area	Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Same as 5ASV_DG-501.
5ASV_DG-599	B4029 Area	Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Same as 5ASV_DG-501.
5ASV_DG-600	B4029 Area	North of Clearly Contaminated Area (Eastern Hummocky Area)	5 10		Same as 5ASV_DG-514.
5ASV_DG-601	B4029 Area	Southeast of Open Storage Area South of G Street	5 10	√	Targets surface water pathway downslope from "Waste Disposal Area" identified in EPA HSA.
5ASV_DG-602	B4029 Area	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Targets edge of hummocky area observed during site walk in May 2012 and surface water pathway that receives runoff from "Waste Disposal Area" identified in EPA HSA.
5ASV_DG-603	B4029 Area	Northeast of Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Targets hummocky area (low-profile) observed during site walk in May 2012.
5ASV_DG-604	B4029 Area	East of Clearly Contaminated Area (Eastern Hummocky Area)	5 10		Representative location in area adjacent to Clearly Contaminated Area (Eastern Hummocky Area).
5ASV_DG-605	B4029 Area	Northeast of Open Storage Area Along G Street	5 10		Representative location in open field south of G Street.
5ASV_DG-606	B4029 Area	Northeast of Open Storage Area Along G Street	5 10		Same as 5ASV_DG-550.
5ASV_DG-607	B4029 Area	West of SE Drum Yard	5 10	√	Same as 5ASV_DG-550.
5ASV_DG-608	B4029 Area	Drainage Southwest of SE Drum Yard	5 10	√	Targets open field next to drainage downsstream of SE Drum Storage Area.

Table 2
Subarea 5A Phase 3 Proposed Soil Vapor Sample Locations
(4 of 4)

Location ID	Area	Location Description	Depth (ft bgs)[1]	Data Gap Checklist[2]	Rationale / Comments
5ASV_DG-609	B4029 Area	East of Clearly Contaminated Area (Eastern Hummocky Area)	5 10	√	Representative location in open field near hummocky areas observed during site walk in May 2012.
5ASV_DG-610	B4029 Area	South of SE Drum Yard	5 10		Representative location in open field south of drainage.
5ASV_DG-611	B4029 Area	South of SE Drum Yard	5 10		Same as 5ASV_DG-556; shallow bedrock anticipated (~5').
5ASV_DG-612	B4029 Area	South of SE Drum Yard	5 10	√	Targets area of cleared vegetation observed in aerial photo from 1980.
5ASV_DG-613	B4029 Area	Southeast of SE Drum Yard	5 10	√	Targets area of cleared vegetation observed in aerial photos between 1965 and 1972; also addresses elevated RLs in previous sampling (SESV02).
5ASV_DG-614	B4029 Area	Drainages Southwest of B4029	5 10	√	Targets area of potential sheet flow / ponding (area of dense vegetation) between two parallel drainages (observed in aerial photos between 1978 and 1988).
5ASV_DG-615	B4029 Area	SE Drum Yard	5 10	√	Targets SE Drum Yard and containers (observed in 1962-1963 aerial photo); also addresses elevated RLs in previous sampling (SESV01). Shallow bedrock anticipated (~5').
5ASV_DG-616	B4029 Area	West of SE Drum Yard	5 10		Same as 5ASV_DG-550.
5ASV_DG-617	B4029 Area	Drainages Southwest of B4029	5 10	√	Targets one of two parallel drainages southwest of B4029; shallow bedrock anticipated (~5').
5ASV_DG-618	B4029 Area	Drainages Southwest of B4029	5 10	√	Targets one of two parallel drainages southwest of B4029 and edge of ground scar identified in EPA HSA; shallow bedrock anticipated (~5').
5ASV_DG-619	B4029 Area	West of B4029	5 10		Representative location in open field.
5ASV_DG-620	B4029 Area	Northwest of B4029 Near G Street	5 10	√	Targets discharge from culvert receiving surface water runoff from the B4641 operational area to the north. Collect deepest sample just above bedrock since assessing unlined drainage feature.
5ASV_DG-621	B4029 Area	West of B4029	5 10	√	Same as 5ASV_DG-572.
5ASV_DG-622	B4029 Area	Southwest of B4029 Access Road	5 10	√	Targets discharge from historical and current storm drain culverts along slope southwest of B4029 access road. Collect deepest sample just above bedrock since assessing unlined drainage feature.
5ASV_DG-623	B4029 Area	North of B4029	5 10	√	Targets discharge from culvert receiving surface water runoff from the B4064 operational area to the north. Collect deepest sample just above bedrock since assessing unlined drainage feature.
5ASV_DG-624	B4029 Area	West of B4029	5 10	√	Same as 5ASV_DG-577.
5ASV_DG-625	B4029 Area	South of B4029	5 10	√	Targets ground scar identified in EPA HSA and area downslope from B4029 access road.
5ASV_DG-626	B4029 Area	West of B4029	5 10	√	Targets road base/fill beneath B4029 access road and assesses elevated TPH detections within fill to the west; also targets storage/containers observed in aerial photo from 1980.
5ASV_DG-627	B4029 Area	South of B4029	5 10	√	Representative location downslope of B4029.
5ASV_DG-628	B4029 Area	East of B4029	5 10		Representative location in open field south of B4029.
5ASV_DG-629	B4029 Area	East of B4029	5 10		Same as 5ASV_DG-570.
5ASV_DG-630	B4029 Area	North of B4029	5 10	√	Targets dirt road north of B4029 and upslope of Subarea 6.

Footnotes

1. Soil vapor sampling field protocols still being defined; proposed sampling included in table to be implemented after DTSC approval of Soil Vapor SOP. It is anticipated that soil vapor samples will be collected at 5-foot intervals to a depth of 20 feet bgs, and at 10-foot intervals thereafter to bedrock with the deepest sample targeting soil just above bedrock. All soil vapor samples will be collected and analyzed in accordance with approved procedures in a Soil Vapor SOP. In areas where soils are not deep enough for soil vapor analysis, soil matrix samples will be collected for VOC analysis using EPA Method 8260B if soils are more than 2 feet thick.

2. Checkmark in column indicates sample was proposed based on review of information source indicated in Table 2 for the area listed in "Location Description" (GIS or aerial photo review layers).

Acronyms

AST = aboveground storage tank
bgs = below ground surface
DTSC = California Department of Toxic Substances Control
EPA = Environmental Protection Agency
ft = foot/feet
GIS = geographic information system
HSA = Historical Site Assessment
ISL = interim screening level
LF = leach field
PDU = Process Demonstration Unit
RL = reporting limit
SETF = SNAP Environmental Test Facility
SOP = standard operating procedure
SV = soil vapor
TPH = total petroleum hydrocarbons
UST = underground storage tank
VOC = volatile organic compound

Table 3
Subarea 5A Phase 3 Proposed Sample Locations for Future Collection
(1 of 1)

Location ID	Area	Location Description	Sample Type	Depth (ft bgs)[1]	Analytical Method																	Data Gap Checklist[3]	Rationale / Comments[4,5]
					PAHs including NDMA (EPA Method 8270C [SIMI])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C/6020/6020A/7471A/7471B)	Cr(VI) (EPA Method 7196A)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	1-4 Dioxane (EPA Method 8360B SIM)	Terphenyls (EPA Method 8015B)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	Morpholine (EPA Method 8260 TIC)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	Pesticides (EPA Method 8081)	Herbicides (EPA Method 8151A)	pH (EPA Method 9045C)	Soil Moisture (ASTM D2216/EPA Method 160.3)		
5A_DG-805	B4029	South of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X							X	X		Future Location. Stepout to characterize southern extent of Clearly Contaminated Area (Eastern Hummocky Area).
				5	X	X	X	X						X							X	X		
				10	H	H	H	H						H							H	H		
5A_DG-806	B4029	South of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X							X	X		Future Location. Same as 5A_DG-805.
				5	X	X	X	X						X							X	X		
				10	H	H	H	H						H							H	H		
5A_DG-803	B4029	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Boring	0.5	X	X	X	X						X							X	X		Future Location. Stepout for PCBs and TPH at P2TS48 and characterizes southern extent of hummocky area.
				5	X	X	X	X						X							X	X		
				10	H	H	H	H						H							H	H		
5ASV_DG-596	B4029 Area	Southwest of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Vapor	5													X						√	Future Location. Representative location downslope of hummocky area observed during site walk in May 2012.
				10													X							
5ASV_DG-597	B4029 Area	South of Clearly Contaminated Area (Eastern Hummocky Area)	Soil Vapor	5													X						√	Future Location. Representative location downslope of Clearly Contaminated Area (Eastern Hummocky Area).
				10													X							

Footnotes

1. If deeper soils are encountered, additional sampling will be added as needed. Sampling will generally be at 5 foot intervals to bedrock, but will target the top of native soil (beneath fill) and soil just above bedrock. Therefore, sample intervals may be added or adjusted based on field conditions.
2. Standard metals analysis includes silver and mercury, but does not include hexavalent chromium.
3. A check mark in column indicates sample was proposed based on review of information source indicated in the Data Gap Checklist, Table 3.
4. The Subarea 5A analytical suite for general operations includes primary chemical groups: PAHs, PCBs/PCTs, Metals, and TPH. The corrosion inhibitor suite includes formaldehyde and NDMA to address potential hydrazine use, and arsenic, hexavalent chromium, and morpholine (EPA Method 8260 TIC). PCBs/PCTs are proposed at locations associated with potential pond dredge material/mounds based on detections in previous sampling.
5. Dioxin analysis at depth is generally on hold pending shallower results unless warranted by observed site conditions (e.g. fill, subsurface features, or historical drainages).

Acronyms and Abbreviations

B = building (e.g. B4005 is Building 4005)
bgs = below ground surface
EPA = Environmental Protection Agency
ft = foot/feet
H = sample on hold for corresponding analysis
NDMA = n-nitrosodimethylamine
PAHs = polyaromatic hydrocarbons
PCBs = polychlorinated biphenyls
PCTs = polychlorinated terphenyls
SM = soil matrix
SV = soil vapor
TPH = total petroleum hydrocarbons
VOC = volatile organic compound
X = sample to be analyzed by corresponding analytical method

Table 4
Subarea 5A Data Gap Checklist
(Page 1 of 2)

INFORMATION SOURCE	Subarea 5A Data Gap Evaluation Areas [1]			
	SETF	**B4641 Area**	**PDU Area**	**Subarea 5A South**
GIS Base Map Layers				
Tanks (and Sitewide Tank Inventory Table)	√	√	√	√
Transformers	√	√	√	√
Structures	√	√	√	√
Sumps	√	√	√	√
Vaults	√	√	√	√
Pipes	√	√	√	√
Undefined features	√	√	√	√
Chemical Use Areas (RFI)	√	√	√	√
Streams/ditches	√	√	√	√
Leachfields	√	√	√	√
Storage Yard Areas	√	√	√	√
Roads	√	√	√	√
Soil Disturbance (Veg clearance, excavation, grading, etc)	√	√	√	√
Migration Pathways				
Surface Water	√	√	√	√
Aerial Dispersion [2]	√	√	√	√
Subsurface Soil	√	√	√	√
Site-wide Infrastructure				
IWW - spray fields	√	√	√	√
Natural Gas Pipelines (site-wide approach also in progress)	√	√	√	√
Sewer (site-wide approach also in progress)	√	√	√	√
Aerial Photo Review				
Historical aerial photographs from 17 years (1953 - 2005)	√	√	√	√
EPA Layers				
Gamma Scan	√	√	√	√
Potential Gamma Anomalies (PGRAY)	**N/A**	**N/A**	**N/A**	**N/A**
Tank Points (Subarea 5C specific)	**N/A**	**N/A**	**N/A**	**N/A**
HSA Line Layer (HSA linear features)	**N/A**	**N/A**	**N/A**	**N/A**
HSA Photo Layer (HSA aerial photo review features)	√	√	√	√
Historical Use Data (chem use, storage, leach fields, releases, interviews, etc.)	√	√	√	√
Area IV Conduit (pipelines)	√	√	√	√
Geophysical Survey (EM, GPR, TC)	√	√	√	√

Table 4
Subarea 5A Data Gap Checklist
(Page 2 of 2)

INFORMATION SOURCE	Subarea 5A Data Gap Evaluation Areas [1]			
	SETF	**B4641 Area**	**PDU Area**	**Subarea 5A South**
Other [3]				
Existing Building Feature Documentation - process info reviewed	√	√	√	√
Historical Facility Diagrams - deep feature info reviewed	√	√	√	√
Groundwater Impacts / Potential Inputs to Groundwater Evaluated [4]	√	√	√	√
Site-wide Tank Inventory Table for unlocated tanks (viewed with Tanks Base Map layer)	√	√	√	√
EPA Area IV radiological sampling results [5]	N/A	N/A	N/A	N/A
Uncollected EPA Phase 1 sample locations [6]	√	√	√	√
Field reconnaissance / mapping[7]	√	√	√	√

Notes
√ - Feature reviewed during data gaps evaluation
√ - Indicates sampling proposed based on reviewed feature
"--" - No buildings present for inspection

N/A - Information source not available for this subarea

1. Data gap evaluations were performed over smaller footprints within each subarea. For Subarea 5AN this includes: SETF Area includes B4023, B4024, B4027, B4032, B4036, B4037, cooling tower (B4928), and the area surrounding these buildings; B4641 Area includes B4030, B4035, B4046, B4073, B4074, B4083, B4093, B4103, B4123, B4453, B4633, B4641, B4643, B4793, B4893, and the area surrounding these buildings; and PDU Area includes 4005, B4042, B4048, B4049, B4185, B4636, B4793, B4823, transformer substation (B4705), two parking lots (B4501 and B4536), and surrounding buildings and features. For Subarea 5AS this includes: B4029 and the area surrounding this building; the SE Drum Yard RFI Site and the area surrounding this site; the Clearly Contaminated Area (Eastern Hummocky Area) and surrounding area; and the Open Storage Area (identified as the "Waste Disposal Area" in EPA's HSA 5A Tech Memo) and surrounding area.

2. Evaluation of air dispersion migration pathways was performed using existing sampling results, or proposing additional sampling as warranted along predominant wind directions (NW-SE), and/or in adjacent drainages. For Subarea 5AN, five air dispersion sources were evaluated: stacks at B4005 (2), B4024, B4023, and B4643. Additional future sampling is recommended in Subarea 7 and the NBZ to assess this pathway, but existing data along with newly proposed Phase 3 locations is considered sufficient to assess potential contamination within Subarea 5AN from this pathway. No sampling proposed in 5AS due to lack of significant air dispersion migration pathways (e.g. no stacks present) within the subarea.

3. Other notes and resources used in the data gap process included data dotmaps, a co-located sampling boring log summary table (including analytical and sample depth info), boring and trench logs from the RFI, EPA boring logs from co-located sampling, filterable dataset, the EPA HSA document, and previous RFI SAPs (e.g Group 8 for B4056 drainage north of B4100). Previous RFI Group reports were used as a reference on an as-needed basis in evaluation of selected features (e.g. building use descriptions).

4. Feature/area identified that may warrant further consideration of groundwater input sources and threat to groundwater sampling requirements by DTSC and SSFL groundwater teams. Identification based on type of feature (typically, a liquid waste disposal or storage feature), and soil detections of mobile chemicals (e.g., VOCs, NDMA, perchlorate, 1,4-dioxane), and/or multiple chemical detections signficantly above ISLs.

5. EPA radiological sampling results summaries will be included as part of chemical data gap evaluation process. Validated data for Subarea 5A is not currently available and will be reviewed when provided by EPA.

6. Proposed Phase 1 sampling locations where no radiological sample was collected by EPA (due to refusal, safety concerns, etc.) were evaluated to determine if a chemical data gap still existed, with additional sampling proposed in Phase 3 if a gap was identified.

7. Information captured during site walks or other field observations and included in supplemental GIS layers for surface water drainages/pathways, soil disturbance areas (e.g. hummocky areas potentially containing pond dredge material), and other relevant features.

FIGURES

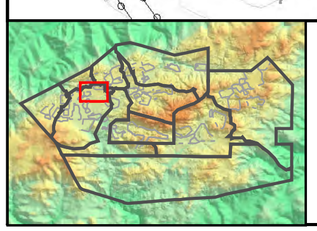
Subarea 5A

Subarea 5A North

Subarea 5A South

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Drainage courses are approximate based on topography, sample locations and aerial photograph review. Actual locations will be refined based on field reconnaissance during sampling.



Base Map Legend

- Administrative Area Boundary
- Area IV HSA Subarea
- Clearly Contaminated Area
- Existing Building or Structure
- Removed Building or Structure
- Ponds
- Excavated Area
- Backfilled Excavation Area
- Pipe
- Leach Field
- Drainage
- Concrete Lined Drainage
- Surface Water Divide
- Rock Outcrop
- Dirt Road
- A/C Paving
- Elevation Contour

Groundwater Wells

- Near Surface
- Chatsworth

Trenches

- Previous
- Proposed

For the "Combined Analyte" Data Summary, ratios of dioxin TEQ (2,3,7,8-TCDD TEQ), perchlorate, energetics, herbicides, pesticides, metals, NDMA, PAHs, and PCB/PCT results to respective DOE Interim Screening Levels (ISLs) were calculated. The maximum ratio was used to color code symbols at each location as shown in the legend. For locations where at least one chemical was detected, the maximum detected concentration/ISL ratio was used; otherwise the maximum RL/ISL ratio was used and the location was symbolized as ND. Locations for which detected concentrations or RLs are below both the ISL and LDC are shown as green. The chemicals included in the "combined analyte" comparison were selected to provide a single, integrated representation of primary, commonly detected chemicals for trend evaluation. Dioxin congeners, VOCs, TPH, glycols/alcohols, and formaldehyde are not included in the "combined analyte" comparison.

Proposed Area IV Data Gap Locations

- Future Sample Location
- Add to Analytical Suite at Sample Location
- Re-analysis Sample Location (RLs)
- Other Targeted Sample Location
- Tank Sample location
- Stepout/Stepdown Sample location
- Test Pit Location
- Post Demolition Sampling Area

Combined Detect / LDC

- <1x LDC

Combined ND / LDC

- < 1x LDC

Combined Detect / ISL

- < 1x ISL
- 1x to 2x ISL
- 2x to 10x ISL
- 10x to 100x ISL
- > 100x ISL

Combined ND / ISL

- < 1x ISL
- 1x ISL to 2x ISL
- 2x ISL to 10x ISL
- 10x ISL to 19x ISL

LDC = Lower Display Criteria
ISL = Interim Screening Level

Subarea 5A North
Phase 3 Proposed Soil Matrix Sampling Locations and Previous Data Summary

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5AN_Summary.mxd

Date: 8/20/2012

1 inch = 80 feet

0 80 160 Feet

FIGURE 1

Subarea 5A North

Subarea 5A South

Subarea 5B

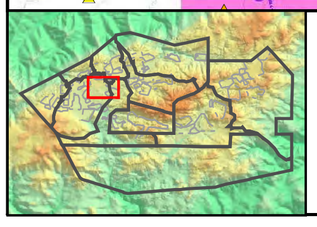
Subarea 6

AREA IV

AREA III

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.

Drainage courses are approximate based on topography, sample locations and aerial photograph review. Actual locations will be refined based on field reconnaissance during sampling.



Base Map Legend

- Administrative Area Boundary
- Area IV HSA Subarea
- Clearly Contaminated Area
- Existing Building or Structure
- Removed Building or Structure
- Ponds
- Excavated Area
- Backfilled Excavation Area
- Pipe
- Leach Field
- Drainage
- Concrete Lined Drainage
- Surface Water Divide
- Rock Outcrop
- Dirt Road
- A/C Paving
- Elevation Contour

Groundwater Wells

- Near Surface
- Chatsworth

Trenches

- Previous
- Proposed

For the "Combined Analyte" Data Summary, ratios of dioxin TEQ (2,3,7,8-TCDD TEQ), perchlorate, energetics, herbicides, pesticides, metals, NDMA, PAHs, and PCB/PCT results to respective DOE Interim Screening Levels (ISLs) were calculated. The maximum ratio was used to color code symbols at each location as shown in the legend. For locations where at least one chemical was detected, the maximum detected concentration/ISL ratio was used; otherwise the maximum RL/ISL ratio was used and the location was symbolized as ND. Locations for which detected concentrations or RLs are below both the ISL and LDC are shown as green. The chemicals included in the "combined analyte" comparison were selected to provide a single, integrated representation of primary, commonly detected chemicals for trend evaluation. Dioxin congeners, VOCs, TPH, glycols/alcohols, and formaldehyde are not included in the "combined analyte" comparison.

Proposed Area IV Data Gap Locations

- Future Sample Location
- Add to Analytical Suite at Sample Location
- Re-analysis Sample Location (RLs)
- Other Targeted Sample Location
- Tank Sample location
- Stepout/Stepdown Sample location
- Test Pit Location
- Post Demolition Sampling Area

Combined Detect / LDC

- <1x LDC

Combined ND / LDC

- < 1x LDC

Combined Detect / ISL

- < 1x ISL
- 1x to 2x ISL
- 2x to 10x ISL
- 10x to 100x ISL
- > 100x ISL

Combined ND / ISL

- < 1x ISL
- 1x ISL to 2x ISL
- 2x ISL to 10x ISL
- 10x ISL to 19x ISL

LDC = Lower Display Criteria
ISL = Interim Screening Level
RL = Reporting Limit

Subarea 5A South
Phase 3 Proposed Soil Matrix Sampling Locations and Previous Data Summary

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5AS_Summary.mxd

Date: 8/17/2012

1 inch = 90 feet

0 90 180 Feet

FIGURE 2

Figure Notes:

1. Drainage courses are approximate based on topography, sample locations and aerial photograph review. Actual locations will be refined based on field reconnaissance during sampling.

Subarea 7

B4073
KEWB Reactor

B4093
Leach Field

B4024 Hot Waste
Storage Tanks

B4024 Sub-grade Reactor
Test Cell Complex

B4024 Liquid Waste
Tanks and Retention Basin

B4005 R/A Liquid Waste
Holdup Tank Vault

B4005 Sump

B4005 Cooling
Tower Sump

Subarea 5A North

Subarea 5A South

Subarea 5B

Area IV

Area III

Building 4011 Leach Field and Septic Tank

5ASV_DG-501
5ASV_DG-502
5ASV_DG-503
5ASV_DG-504
5ASV_DG-505
5ASV_DG-506
5ASV_DG-507
5ASV_DG-508
5ASV_DG-509
5ASV_DG-510
5ASV_DG-511
5ASV_DG-512
5ASV_DG-513
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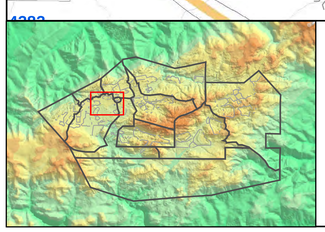
5ASV_DG-618
5ASV_DG-619
5ASV_DG-620
5ASV_DG-621
5ASV_DG-622
5ASV_DG-623
5ASV_DG-624
5ASV_DG-625
5ASV_DG-626
5ASV_DG-627
5ASV_DG-628
5ASV_DG-629
5ASV_DG-630

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



Base Map Legend

- Administrative Area Boundary
- Area IV HSA Subarea
- Clearly Contaminated Areas
- Existing Building or Structure
- Removed Building or Structure
- Ponds
- Excavated Area
- Backfilled Excavation Area
- Pipe
- Leach Field
- Drainage
- Concrete Lined Drainage
- Rock Outcrop
- Dirt Road
- A/C Paving
- Elevation Contour

Groundwater Wells

- Near Surface
- Chatsworth

Trenches

- Previous
- Proposed

Proposed Area IV Data Gap Locations

- Future Sample Location
- Proposed Soil Vapor Sample Location

- Area / Feature Identified as Potential Input Location to Groundwater Contamination
- Post Demolition Sampling Area

Subarea 5A
Phase 3 Proposed Soil Vapor Sampling Locations

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5A_SV_Proposed_E.mxd

Date: 8/22/2012

1 inch = 54 feet

0 110 220 Feet

FIGURE 3

Figure Notes:

1. Drainage courses are approximate based on topography, sample locations and aerial photograph review. Actual locations will be refined based on field reconnaissance during sampling.

Subarea 5A

Subarea 5B

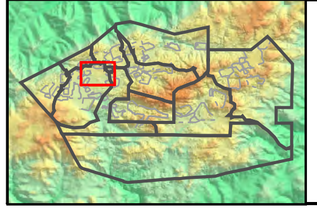
Conduct geophysical surveying to determine the location of removed fuel oil USTs for field placement of samples 5A_DG-522 and 5A-D-535.

Conduct geophysical survey to determine the location of removed fuel oil UST for field placement of sample 5A_DG-564. Tank location shown in two different locations in separate documents.

Conduct geophysical survey to investigate for potential underground storage tanks identified in the Sitewide Tank Tech Memo as having unknown locations.

1 inch = 50 feet

Please Note: The original version of this figure includes colorized features and shading. A black and white copy of the figure should not be used because it may not accurately represent the information presented.



Base Map Legend
- Administrative Area Boundary
- Area IV HSA Subarea
- Clearly Contaminated Areas
- Existing Building or Structure
- Removed Building or Structure
- Ponds
- Excavated Area
- Backfilled Excavation Area
- Pipe
- Leach Field
- Drainage
- Concrete Lined Drainage
- Rock Outcrop
- Dirt Road
- A/C Paving
- Elevation Contour

Groundwater Wells
- Near Surface
- Chatsworth

Trenches
- Previous
- Proposed

Test Pit Location

Figure Legend
- Proposed Geophysical Survey Area
- Post Demolition Sampling Area
- Sanitary Sewer Line

Tank Legend
- Alcohol
- Chemicals
- Coal
- DI Water
- Drinking Water
- Flourine
- GHE
- Helium
- Hydrazine
- Morpholine
- Natural Gas
- Nitrogen
- Other
- Petroleum Fuel/Oil Tank
- R/A Water
- Septic
- Sodium
- Solvent
- TCE
- Unknown
- Water

Subarea 5A
Proposed Locations of Geophysical Surveys

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5A_Geophysical.mxd

Date: 8/17/2012

1 inch = 100 feet

0 100 200 Feet

FIGURE 4