Addendum No. 2 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 5B

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

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Table of Contents

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. For all samples collected at locations within Subarea 5B, the Master FSP and the 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 5B was completed in April 2011.

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 2010b) (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 5B 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 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 5B. Figure 1 of the Subarea 5B FSP Addendum illustrates the location of Subarea 5B within Area IV of SSFL. The rationale for sample location and chemical analytes is provided in the document *Subarea 5B Phase 3 Data Gap Analysis Technical Memorandum, Santa Susana Field Laboratory, Ventura County, California* (MWH 2012[1]) (*Subarea 5B Data Gap TM*). The *Subarea 5B 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 5B Phase 3 Data Gap TM* provides soil sample locations in the northern portion of Subarea 5B that were identified through the data gap investigation; Figure 2 shows the soil sample locations in the southern portion of Subarea 5B. Table 1 of the *Subarea 5B Data Gap TM* provides the sampling rationale.

For Subarea 5B, 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 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 displayed electronically through Geographic Information System (GIS) coordinates. Standard Operating Procedure (SOP) 1 provides the process for verifying that the sample locations identified by GIS review reflect the targeted feature described in Table 1. 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.

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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.

CDM Smith will be responsible for the physical collection of all samples per the procedures and controls specified in the Master Field Sampling Plan. 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 5B 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 5B 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.

Sample Analytes

Table 1 of the *Subarea 5B 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 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 (SOPs 6 and 7,

respectively). Soil samples will be collected at the depths specified in Table 1 of the *Subarea 5B 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 SOP 9.

Trenching and Test Pit Sampling

The investigation of Subarea 5B will include the characterization of debris and fill areas through backhoe trenching. Figures 1 and 2 of the *Subarea 5B 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 5B 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 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.

Schedule

Soil sampling activities under this FSP Addendum will mostly likely start the week of June 18, 2012, following DTSC approval of the 5B Subarea FSP Addendum, with the locating and staking of proposed sample locations. Surface soil sampling will start the week of June 25, followed by shallow soil borings to be drilled by hand auger. Subsurface sampling by DPT rig is expected to start mid-July 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 Subarea 5A addendum, anticipated for August 2012. A geophysical survey plan for conducting the surveys will be provided to DTSC in the August timeframe. 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 5B Phase 3 Data Gap Analysis Technical Memorandum Santa Susana Field Laboratory, Ventura County, California.* May.

Santa Susana Field Laboratory Site
Ventura County, California

Figure 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
Subarea 5A
NORTHERN BUFFER ZONE
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

CDM Smith

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Attachment 1

Subarea 5B Phase 3 Data Gap Analysis Technical Memorandum (MWH 2012)

SUBAREA 5B 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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May 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."

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TABLE OF CONTENTS

Section No. **Page No.**

TABLES

Table No.

FIGURES

Figure No.

ACRONYMS AND ABBREVIATIONS

AOC	Administrative Order on Consent
bgs	below ground surface
DOE	Department of Energy
DQO	Data Quality Objective
DTSC	Department of Toxic Substances Control
EEL	Environmental Effects Laboratory
EPA	Environmental Protection Agency
GIS	Graphical Information System
HMSA	Hazardous Material Storage Area
HSA	Historical Site Assessment
ISL	Interim Screening Level
MFSP	Master Field Sampling Plan
NDMA	n-Nitrosodimethylamine
NBZ	Northern Buffer Zone
PAH	polyaromatic hydrocarbon
PCB	polycyclic biphenyls
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 5B 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 in Subarea 5B being performed by DOE in Area IV 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 5B 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 5B. 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 5B.

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 recently 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 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 may only 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

[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 available they will replace and add to the existing background values and will be used for subsequent data gap analyses.

AOC look-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 Lookup 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 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), recent site operational and aerial photographic information compiled for the RFI, and the recent HSA completed by EPA (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 5B.

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

Using the evaluation components discussed in Sections 2.1 through 2.3 above, a systematic process 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 5B DATA GAP ANALYSIS

The data gap analysis for Subarea 5B was performed following the process outlined above and using the DQOs presented in Section 4 of the MFSP (CDM, 2012b). The proposed sampling for this subarea is presented in Tables 1 (Soil Matrix), 2 (Soil Vapor), and 3 (Future), and Figures 1 (5B North), 2 (5B 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 5B 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.

- Within and west of the Building 4010 Clearly Contaminated Area, sampling locations are proposed around the clearly contaminated area to define its lateral extent, and three locations are proposed within the area to complete definition of the vertical extent of contamination. To the west of the clearly contaminated area, representative sampling of a fill area (identified by boring log information and coincident with EPA geophysical anomalies) is proposed to characterize the fill material and define the extent of chemical concentrations previously detected above ISLs in this area. Trenching is also proposed to investigate soil conditions at the former B4010 Leach Field and tank pit locations.
- At the Sodium Component Test Installation and Kalina Complex Areas, proposed sample analysis includes corrosion inhibitor chemicals since these areas were used for steam power generation with numerous locations or facilities that used or stored cooling water. 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). Additionally, trenching is proposed to assess potential liquid collection and conveyance features in each of these areas (i.e., 5B_DG-597, 5B_DG-598, 5B_DG-616).
- At the Hazardous Materials Storage Area (HMSA) Building 4457 former sump locations, sampling is proposed to address elevated reporting limits in previous PCB results and to complete characterization of the soil beneath these features for metals and chemicals used as corrosion inhibitors. As described below, VOC analysis is also proposed at the top of bedrock and in soil vapor at the former sumps to evaluate the potential of these features serving as input location for groundwater contamination.
- At the Building 4005/4006 and Building 4011 Leach Fields, sufficient previous sampling was conducted within the leach fields to characterize soil conditions to the top of bedrock, so no additional sampling is proposed within the footprints of these features. However, lateral sampling is proposed around each of the former leach fields. At the Building 4011 Leach Field, sampling is proposed to delineate the extent of the clearly contaminated area, including that potentially associated with surrounding fill soil (see below). At the Building 4005/4006 Leach Field, sampling is proposed around the south of the leach field to assess the potential lateral migration of leachate.

- At Buildings 4007 and 4008, soil vapor sampling is not proposed since previous trenching/sampling in the area indicates that the soils are less than 5 feet thick (the minimum required for soil vapor sampling). VOCs are included in the soil matrix sampling analytical suite to assess potential solvent releases at these buildings.
- At representative geophysical terrain conductivity 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., 5B_DG-628, 5B_DG-693, 5B_DG-695).
- Within and adjacent to the 17th Street Pond and Drainage Clearly Contaminated Area, lateral step-out sampling is proposed to define the extent of contamination surrounding the former pond. Deeper sampling in the upstream drainages of the contamination area is proposed to determine the depth of impacts; deeper samples in the pond area are not proposed since previous sampling information is sufficient to assess vertical extent of soil contamination. Future sampling is proposed south of the contamination area within Area III to assess downslope contamination (5B_DG-793, 5B_DG-795, and 5B_DG-798).
- West of the 17th Street Pond and Drainage Clearly Contaminated Area, a fill area was identified by EPA and additional sampling is proposed to characterize its extent south of G Street and toward the Environmental Effects Laboratory (EEL) and coincident with the B4011 Leach Field clearly contaminated area. Trenching is proposed to observe soil conditions and fill depth in the area (e.g., 5B_DG-739, 5B_DG-741, and 5B_DG-810).
- At the EEL Area, sampling is proposed within the former building footprint and at site features including former tanks, a transformer, and chemical storage area. Future sampling is also proposed in Area III south and downslope of the chemical storage pad to characterize potential chemical release (5B_DG-814).
- Historical drainages in Subarea 5B are proposed for sampling based on aerial photograph review. These unlined drainage ditches occur along G Street, F Street, and 17th Street (adjacent to B4007 and B4008), and along 20th Street (at the western boundary of Subarea 5B).
- 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, including VOCs, perchlorate, hexavalent chromium, nitrate, and NDMA in the vicinity of these features. 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 5B are:

- Building 4019 Reactor Pit and Holdup Tank
- Building 4010 Leach Field
- Building 4010 Subsurface Reactor Features (including reactor pit, secondary equipment pit, and drain system sump)
- Building 4356 Below-Grade Tanks
- HMSA Building 4457 Sumps
- Potentially Saturated Area south of the Kalina Complex
- Building 4005/4006 Leach Field
- Building 4011 Leach Field
- 17th Street Pond and Drainage

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 5B Phase 3 Proposed Soil Sample Locations
(1 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-501A	B4019 Area	Transformer 4719 North of Building 4019	Soil Boring	0.5		X																	X		Previous sample was a composite of four discrete samples with ND result. Transformers in Area IV with previous ND results are being resampled with discrete samples. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results.
				3		H																	H		
5B_DG-501B	B4019 Area	Transformer 4719 North of Building 4019	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-501C	B4019 Area	Transformer 4719 North of Building 4019	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-501D	B4019 Area	Transformer 4719 North of Building 4019	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-502	B4019 Area	Waste Holdup Tank South of Building 4019	Soil Boring	0.5	X	X	X	X							X	X						X	X	√	Targets waste holdup tank associated with B4019 sanitary sewer line (identified in EPA HSA). Analyze all samples due to potential release at depth; collect deepest sample just above bedrock and analyze for full suite plus VOCs (SM) to evaluate potential migration to groundwater.
				5	X	X	X	X							X	X						X	X		
				10	X	X	X	X							X	X		X				X	X		
5B_DG-505	B4019 Area	Awning Northwest of Building 4013	Soil Boring	0.5	X	X	X	X							X	X						X	X	√	Location targets canopy with unknown operations (1977 aerial). Analyze for formaldehyde based on detections in the area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X	X						X	X		
				10	H	H	H	H							H	H						H	H		
5B_DG-506	B4019 Area	Northeast of Building 4019	Soil Boring	0.5	X	X	X	X							X	X						X	X	√	Representative location for open storage and also targets the roll up door on the northern side of B4019. Analyze for formaldehyde based on detections in the area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X	X						X	X		
				10	H	H	H	H							H	H						H	H		
5B_DG-507	B4019 Area	West of Building 4019	Soil Boring	0.5	X	X	X	X							X	X						X	X	√	Representative of operational area adjacent to B4019 (HSA recommended additional characterization in area). Formaldehyde analyzed since detected in area. Hold 10 ft. sample pending shallow results since assessing potential surface release.
				5	X	X	X	X							X	X						X	X		
				10	H	H	H	H							H	H						H	H		
5B_DG-508	B4019 Area	East of Building 4019	Soil Boring	0.5	X			X							X	X							X	√	Representative of operational area adjacent to B4019 (HSA recommended additional characterization in area). Also a stepout for TPH at SL-041-SA5B. Formaldehyde analyzed since detected in area. Hold 10 ft. sample pending shallow results since assessing potential surface release.
				5	X			X							X	X							X		
				10	H			H							H	H							X		
5B_DG-509	B4019 Area	South of Building 4019	Soil Boring	0.5	X										X								X		Stepout to delineate impact of PAHs and TPH in SL-044-SA5B and TPH in area of SL-043-SA5B to SL-041-SA5B. Analyze at depth based on elevated TPH (> 10x ISL) at depth in adjacent samples.
				5	X										X								X		
				10	X										X								X		
5B_DG-510	B4019 Area	Sewer Line Exit West Side of Building B4013	Soil Boring	5	X	X		X							X	X	X		X			X	X	√	Targets sewer line exit from building; analyze 5 foot sample and hold 10 foot sample. Analyze for morpholine and formaldehyde to characterize area for potential releases from 25-gallon USTs that do not have documented locations in Sitewide Tank TM.
				10	H	H		H							H	H	H		H			H	H		
5B_DG-511	B4019 Area	Tank Northwest of Building 4013	Soil Boring	0.5	X	X		X			X	X			X	X						X	X	√	Targets open storage area near unknown tank. Hold 10' sample pending surface and 5 ' sample results. Analyze for formaldehyde based on detections in the area.
				5	X	X		X			X	X			X	X						X	X		
				10	H	H		H			H	H			H	H						H	H		
5B_DG-515A	B4019 Area	North of B4013	Soil Boring	0.5		X																	X		Previous sample was a composite of four discrete samples with ND result. Transformers in Area IV with previous ND results are being resampled with discrete samples. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results.
				3		H																	H		
5B_DG-515B	B4019 Area	North of B4013	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-515C	B4019 Area	North of B4013	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-515D	B4019 Area	North of B4013	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-516	B4019 Area	West side of B4010	Soil Boring	0.5										X									X		Collect sample at SL-306-SA5B to confirm previous perchlorate detection at 0.5 feet. Hold deeper samples pending shallow results.
				3.5										H									H		
				10										H									H		
5B_DG-517	B4019 Area	South of B4010	Soil Boring	0.5										X									X		Collect sample at SL-009-SA5B to confirm previous perchlorate detection at 0.5 feet. Hold deeper samples pending shallow results.
				3.5										H									H		
				10										H									H		
5B_DG-519	B4019 Area	Building 4013	Soil Boring	0.5	X	X	X	X							X	X			X	X		X	X		Targets former building to complete representative sampling based on previous sample spacing, elevated TPH and PAHs, low level (< ISLs) PCBs. Analyze for morpholine and formaldehyde to characterize area for potential releases from 25-gallon USTs that do not have documented locations in Sitewide Tank TM.
				5	X	X	X	X							X	X			X	H		X	X		
				10	H	H	H	H							H	H			H	H		H	H		
5B_DG-520	B4019 Area	Building 4013	Soil Boring	0.5	X	X	X	X							X	X			X	X		X	X		Same as 5B_DG-519.
				5	X	X	X	X							X	X			X	H		X	X		
				10	H	H	H	H							H	H			H	H		H	H		
5B_DG-521	B4019 Area	Southern Ramp on East Side of Building 4013	Soil Boring	0.5	X	X	X	X							X	X				X		X	X		Location targets southern ramp along east side of B4013. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X	X				H		X	X		
				10	H	H	H	H							H	H				H		H	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(2 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-522	B4019 Area	South of Building 4013	Soil Boring	0.5	X	X		X							X							X	X		Location targets an unknown AST described in the HSA 5B EPA Tech Memo. 10 foot sample on hold pending shallow results since addressing potential surface release.
				5	X	X		X							X	X						X	X	√	
				10	H	H		H							H							H	H		
5B_DG-523	SCTI	Northwest of Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations provide overall characterization of fill material within deep excavation area around former Building 4356, based on previous sporadic elevated detects, fill material observed in borings to south, and geophysical anomalies (magnetic and terrain conductivity anomalies present). Location also targets secondary containment trench. Excavate exploratory trench in perpendicular direction to former trench alignment (southwest - northeast transect) and analyze for cooling tower suite since trench associated with SCTI water treatment. Target native soil or soil just above bedrock for vertical definition and potential impacts to groundwater (former samples collected at a maximum of 10 feet). Sample intervals at each location based on anticipated depth to bedrock per previous sampling.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-524	B4010 Area	Storage Area North of Building 4012	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Location targets open storage area and provides stepout for PCBs at SL-024-SA5B. Hold 10' samples pending shallower results since evaluating potential surface release.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-525	B4010 Area	Northwest Corner of Building 4012	Soil Boring	0.5	X			X		X					X	X			X			X	X		Targets fuel storage area at B4102. Hold deep samples pending shallow results since characterizing potential surface release.
				5	H			H		H					H	H			H			H	H		
				10	H			H		H					H	H			H			H	H		
5B_DG-526	B4010 Area	East of Building 4012	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Provide overall characterization of fill material within deep excavation based on previous sporadic elevated detects, fill material observed in borings, former presence of tanks, and geophysical anomalies (magnetic and terrain conductivity anomalies present). Target native soil or soil just above bedrock for vertical definition and potential impacts to groundwater (former samples collected to maximum 10 feet). Analyze PAHs, dioxins, metals, TPH, and formaldehyde based on documented chemical storage and previous detects. PCBs not analyzed based on sporadic detects throughout fill below ISL. Analyze all depths based on mixed fill composition; deeper samples should target native soil beneath fill and/or deepest soil overlying bedrock. See Footnote 1.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
				15	X	X	X	X		X					X	X			X			X	X		
5B_DG-527	B4010 Area	Tank Pit West of B4012	Trench	0.5	X	X	X	X		X					X	X			X			X	X		Excavate exploratory trench to characterize former tank pit identified in historical facility drawing in the EPA HSA. Determine sample locations with trench based on field observation (staining, debris, etc.). If fill is observed, collect on sample at the top of native and one sample just above bedrock to address migration pathway along bedrock.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-528	B4010 Area	South of Building 4012	Soil Boring	0.5	X	X	X	X		X					X				X			X	X		Stepout to delineate fill and contamination to southwest. Analyze deep based on detects at depth in fill (e.g. nearby SL-021-SA5B). potential fill, potential leach field impacts, and soil movement/fill; 15 foot sample targets native soil beneath fill or deepest fill if overlying bedrock..
				5	X	X	X	X		X					X				X			X	X		
				10	X	X	X	X		X					X				X			X	X		
				15	X	X	X	X		X					X				X			X	X		
5B_DG-529	B4010 Area	South of B4012	Trench	0.5	X	X	X	X							X				X			X	X		Targets AST with unknown contents; also targets southern portion of fill and potential leach field location. Excavate exploratory trench perpendicular to leach field orientation to investigate leach field location (inspect for signs of fill, gravel, leach lines, etc.). Analyze for corrosion inhibitors due to cooling tower operations in area. Analyze at depth due to potential fill, potential leach field impacts, and soil movement/fill. 15 foot sample targets native soil just above bedrock; analyze for full suite plus VOCs (SM) to evaluate potential migration pathway to groundwater.
				5	X	X	X	X							X				X			X	X		
				10	X	X	X	X							X				X			X	X	√	
				15	X	X	X	X							X			X	X			X	X		
5B_DG-530	B4010 Area	Southwest of Building 4710	Soil Boring	0.5	X	X	X	X		X					X				X			X	X		Similar to 5B_DG-541 and 5B_DG-542; defines area between known fill.
				5	X	X	X	X		X					X				X			X	X		
				10	X	X	X	X		X					X				X			X	X		
5B_DG-531	B4010 Area	B4012	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-526.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X	√	
				15	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-532	B4010 Area	Building 4012	Soil Boring	0.5	X		X	X		X					X	X			X			X	X		Same as 5B_DG-526.
				5	X		X	X		X					X	X			X			X	X		
				10	X		X	X		X					X	X			X			X	X	√	
				15	X		X	X		X					X	X		X	X			X	X		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(3 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-533	B4010 Area	B4012	Soil Boring	0.5	X		X	X		X					X	X			X			X	X		Same as 5B_DG-526.
				5	X		X	X		X					X	X			X			X	X	√	
				10	X		X	X		X					X	X			X			X	X		
				15	X		X	X		X					X	X			X			X	X		
5B_DG-534	B4010 Area	East of Building 4012	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-526 defining fill/ potential contamination to northeast.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
				15	X	X	X	X		X					X	X			X			X	X		
5B_DG-535	B4010 Area	B4012	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-526. Also defines northern extent of fill/contamination.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
				15	X	X	X	X		X					X	X			X			X	X		
5B_DG-536	B4010 Area	Storage Area North of Building 4012	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Location targets open storage area and provides stepout for PCBs at SL-024-SA5B. Hold 10' samples pending shallower results since evaluating potential surface release.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-537	B4010 Area	Northeast of Building 4012	Soil Boring	0.5	X		X	X		X					X	X			X			X	X		Location targets waste disposal area. Hold 10 foot sample pending shallow results since evaluating potential surface release. Formaldehyde and morpholine analyzed based on nearby formaldehyde detects and cooling tower operations (all Cr +6 < ISLs in B4010/B4710/B4012 area).
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H		H	H		H					H	H			H			H	H		
5B_DG-538	B4010 Area	Unidentified Structures Northwest of Building 4710	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets unidentified structures observed in 1988, 1990, and 1995 aerial photographs. Hold 10 foot samples pending shallow results to assess potential surface release. Formaldehyde and morpholine analyzed based on nearby formaldehyde detects and cooling tower operations (all Cr +6 < ISLs in B4010/B4710/B4012 area).
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-539	B4010 Area	Tank Northwest of Building 4710	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Targets operations and possible storage near AST (hydrochloric acid). Hold 10 foot samples pending shallow results to assess potential surface release from AST/storage location. If evidence of fill encountered, analyze 10 foot sample. Formaldehyde and morpholine analyzed based on nearby formaldehyde detects and cooling tower operations (all Cr +6 < ISLs in B4010/B4710/B4012 area).
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-540	B4010 Area	Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-541	B4010 Area	B4012	Soil Boring	0.5	X	X	X	X		X				X	X	X			X	X		X	X		Stepout to delineate fill presence between two fill areas and detected dioxins, TPH and metals at SL-314-SA5B. PCBs analyzed due to detections above ISLs in eastern fill area, including 12 feet at SL-323-SA5B. Analyze at depth due to potential fill, potential soil movement and former presence of deep bldg. features; 15 foot sample targets native soil beneath fill or deepest fill if overlying 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		
				15	X	X	X	X		X				X	X	X			X	X		X	X		
5B_DG-542	B4010 Area	Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate PAHs, PCBs, dioxins, metals, TPH at depth (SL-020-SA5B analyzed at 0.5 ft. only) and the western extent of the identified contamination area (evaluates fill presence and contamination between the two fill areas). Analyze at depth due to detections in adjacent samples along mapped septic line and potential for soil movement and former presence of deep features (e.g., vaults).
				5	X	X	X	X						X	X					X		X	X	√	
				10	X	X	X	X						X	X					X		X	X		
				15	X	X	X	X						X	X			X		X		X	X		
5B_DG-543	B4010 Area	Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepdown to delineate depth of identified contamination. Targets below most elevated dioxin for full chemical suite; low level perchlorate analysis to confirm previous detection. 10-foot sample targets native soil beneath fill and fill/native soil above bedrock, to evaluate depth penetration and maximum impacts above bedrock.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-544	B4010 Area	South of Building 4710	Soil Boring	0.5	X	X	X	X		X				X	X	X			X	X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area.
				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		
5B_DG-545	B4010 Area	Southeast of Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-546	B4010 Area	Transformer southeast of Building 4710	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area; 10 foot sample targets native soil beneath fill or fill/native above bedrock, whichever occurs (bedrock anticipated before 10 ft.). Also addresses previous ND result in transformer composite sample.
				3	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-547	B4010 Area	Transformer southeast of Building 4710	Soil Boring	0.5		X																	X		Addresses previous ND result in transformer composite sample. Recollect sample at former discrete location and analyze for PCBs; hold deep samples pending shallow results. Fill not anticipated based on nearby shallow refusal (1.5 ft. bgs).
				3		H																	H		
5B_DG-548	B4010 Area	Transformer southeast of Building 4710	Soil Boring	0.5		X																	X		Stepout for PCB detections > ISLs at SL-230-SA5B. Fill not anticipated based on nearby shallow refusal (1.5 ft. bgs).
				3		H																	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(4 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-549	B4010 Area	East Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-550	B4010 Area	Waste Holdup Tank East of B4010	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepdown to delineate depth of identified contamination area. Specifically targets former Waste Holdup Tank; however, representative of deep impacts in excavation/fill area. 10 and 15 foot samples target native soil beneath fill and fill/native soil above bedrock, to evaluate depth penetration and maximum impacts above bedrock.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
				15	X	X	X	X						X	X			X		X		X	X		
5B_DG-551	B4010 Area	Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepdown to delineate depth of identified contamination area. Specifically targets former UST; however, representative of deep impacts in excavation/fill area. 10 and 15 foot samples target native soil beneath fill and fill/native soil above bedrock, to evaluate depth penetration and maximum impacts above bedrock.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
				15	X	X	X	X						X	X			X		X		X	X		
5B_DG-552	B4010 Area	East of Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area. **Note: sample located outside of Subarea 5B boundary (to the north) and in Subarea 7. Included since delineating Identified Contamination Area in Subarea 5B.**
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-553	B4010 Area	East Building 4710	Soil Boring	0.5	X	X	X	X						X	X					X		X	X		Stepout to delineate identified contamination area for PAHs, PCBs, dioxins, metals, TPH and corrosion inhibitor suite. Analyze at depth due to detections in adjacent fill/contaminated area.
				5	X	X	X	X						X	X					X		X	X		
				10	X	X	X	X						X	X					X		X	X		
5B_DG-554	B4010 Area	Rollup Door North of B4025	Soil Boring	0.5	X	X	X	X							X							X	X		Targets doorway at B4052 and linear geophysical anomaly.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-555	B4010 Area	Yard North of Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Targets fenceline where open storage was observed in aerial photos. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-556	B4010 Area	Yard North of Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-555.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-557	B4010 Area	Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Targets doorway at B4052 and serves as stepout to delineate PAHs and dioxins in SL-228-SA5B. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-558	B4010 Area	Yard North of Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout to delineate PAHs and dioxins at SL-228-SA5B and targets doorway to yard from B4025. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-559	B4010 Area	Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout for SL-228-SA5B and addresses general operations within former B4025. Hold 10 foot sample pending shallow results.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							H							H	H		
5B_DG-560	B4010 Area	UST at Building 4926	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets a 500-gallon diesel UST, a stepout for PAH and dioxin detects at SL-228-SA5B, and assesses building operations. Analyze all depths for TPH and hold 10' samples for other chemicals pending shallow results since evaluating potential surface release.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							X							H	X		
5B_DG-561	B4010 Area	Building 4025	Soil Boring	0.5	X	X		X							X							X	X		Targets B4925 equipment pad and open storage identified in aerial photographs (1978, 1980, 1988, 1990). Hold 10 foot sample pending shallow results.
				5	X	X		X							X							X	X	√	
				10	H	H		H							H							H	H		
5B_DG-562	B4010 Area	Southeast Building 4025	Soil Boring	0.5				X														X	X		Stepout for Zn detection at U5BS1123. Hold 10 foot pending shallow results.
				5				X														X	X		
				10				H														H	H		
5B_DG-563	B4010 Area	Drainage Swale South of Building 4025	Soil Boring	0.5	X	X	X	X							X							X	X		Targets catch basin along north side of B Street that receives surface water from RMHF catch basin, B4025 operations, and potential releases/dumping from south-side doorway. Hold 10 foot sample pending shallow results since addressing potential surface release.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-564	HMSA	North of Building 4615	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout in drainage to delineate PCBs, PAHs, metals, and dioxins at SL-138-SA5B and overall characterization of potential collection feature for nearby operations. Hold 10 foot samples pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-565	HMSA	East of Building 4478	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets open storage observed in aerial photos. Hold 10 foot sample pending shallow results since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-566	HMSA	East of Building 4478	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets open storage observed in aerial photos; also serves as a stepout to delineate PAHs and dioxins in SL-067-SA5B. Hold 10 foot sample pending shallow results since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(5 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-567	HMSA	Southeast of Building 4478	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets EPA aerial photograph feature defined as "dark toned material" within general open storage area. Hold 10 foot sample pending shallow results since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-568	HMSA	Trench Southeast of Building 4478	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout for PAHs and dioxins at SL-067-SA5B and provide characterization in HMSA operations area. Hold 10 foot samples since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-569	HMSA	Northeast of Building 4357	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Characterizes operational area and serves as stepout for metals and TPH at HSBS02. Cooling tower suite added based on operations. Analyze all depths since detections at HSBS02 at 6 feet.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-570	HMSA	Linear Anomaly South of B4357	Soil Boring	5	X	X	X	X							X							X	X	√	Targets linear terrain conductivity anomaly (note: continuation of anomaly is targeted by DG-123).
				10	H	H	H	H							H							H	H		
5B_DG-571	HMSA	Building 4357 Footprint	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Location targets footprint of B4357. Cooling tower suite added to full suite based on SCTI operations. Hold 10 foot sample pending shallow results.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-572	HMSA	Building 4457 Sump 3	Soil Boring	5	X	X	X	X		X					X	X		X	X			X	X	√	Same as 5B_DG-577. Analyze samples at 5 and 10 feet to address potential release beneath sump (approx. 4 feet).
				10	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-573	SCTI	Building 4457 Sump 2	Soil Boring	0.5	X	X	X	X		X					X	X		X	X			X	X		Same as 5B_DG-577 (note trench depth approx. 14 feet based on previous sampling). Also stepout for SL-070-SA5B; analyze 0.5 feet due to shallow detects at that location.
				5	X	X	X	X		X					X	X		X	X			X	X		
				10	X	X	X	X		X					X	X		X	X			X	X		
				15 (see rationale)	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-574	HMSA	Building 4478	Soil Boring	0.5	X	X	X	X		X				X	X	X			X			X	X		Stepout for PAHs, perchlorate, and TPH in SL-070-SA5B. Based on refusal at 3.5' in SL-070-SA5B, collect sample just above bedrock and analyze to evaluate potential migration of perchlorate.
				5	H	H	H	H		H				H	H	X			H			H	H		
				10	H	H	H	H		H				H	H	H			H			H	H		
5B_DG-575	HMSA	Building 4457 Trench	Soil Boring	5	X	X	X	X		X					X	X		X	X			X	X		Location targets sump 1 at B4457. Complete analytical suite; re-analyze PCBs due to elevated RLs, metals due to anomalous pH values and historical storage of acids and bases noted in HSA, and corrosion inhibitors due to operations at SCTI. Analyze 5 and 10 foot samples to evaluate potential release beneath trench (depth approx. 4 feet based on previous sampling).
				10	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-576	HMSA	Building 4457 Sump 1	Soil Boring	5	X	X		X		X					X	X		X	X			X	X		Location targets sump 1 at B4457. Complete analytical suite; re-analyze PCBs due to elevated RLs, metals due to anomalous pH values and historical storage of acids and bases noted in HSA, and corrosion inhibitors due to operations at SCTI. Collect and analyze samples at 5, 10, and just above bedrock (approx. 13 feet based on previous sampling).
				10	X	X		X		X					X	X		X	X			X	X	√	
				13 (see rationale)	X	X		X		X					X	X		X	X			X	X		
5B_DG-577	HMSA	Building 4457 Sump 1	Soil Boring	5	X	X	X	X		X					X	X		X	X			X	X		Same as 5B_DG-576.
				10	X	X	X	X		X					X	X		X	X			X	X	√	
				13 (see rationale)	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-578	HMSA	North of Building 4457	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout to delineate PAHs (B(a)P at 558 ppb) at SL-064-SA5B and TPH at SL-063-SA5B, and characterize operational area. Hold 10 foot sample pending shallow results. Note likely shallow refusal based on SL-64.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-579	HMSA	Northwest Building 4457	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Stepout to delineate PAHs (B(a)P at 558 ppb) at SL-064-SA5B and TPH at SL-063-SA5B, and characterize operational area. Hold 10 foot sample pending shallow results. Note likely shallow refusal based on SL-64.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-580	HMSA	Northeast of Building 4357	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets operational area north of B4357. Analyze complete plus cooling tower suite since documented use in operations at surrounding areas. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-581	SCTI	Southwest of Building 4457	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout to delineate PAHs (B(a)P at 558 ppb) at SL-064-SA5B and TPH at SL-063-SA5B, and characterize operational area. Hold 10 foot sample pending shallow results. Note likely shallow refusal based on SL-64.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-582	SCTI	Transformer on North Side of Building 4355	Soil Boring	0.5		X																	X	√	Location targets transformer identified in HSA facility drawing; previously unsampled. Collect and analyze four discrete locations; hold deep samples pending shallow results.
				3		H																	H		
5B_DG-583	SCTI	Transformer on North Side of Building 4355	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-584	SCTI	Transformer on North Side of Building 4355	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-585	SCTI	Transformer on North Side of Building 4355	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-586	SCTI	Catch Basin South of 4355	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-587; also targets linear terrain conductivity anomaly.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-587	SCTI	Catch Basin South of 4355	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of three stepouts for PCBs, metals, dioxins, nitrate detected at SL-089-SA5B (Phase 1 catch basin sample); fourth position covered by SL-090. Analyze all depths based on potential for impacts along bedrock (SL-089 completed to 5 feet bgs - possible refusal). Stepouts delineate impacts and address any uncertainty with previous location. Note: consider evaluation of nitrate if background concentration is established by commencement of field work.
				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 5B Phase 3 Proposed Soil Sample Locations
(6 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-588	SCTI	Sanitary Sewer Exit at Building 4355	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Location targets sanitary sewer exit from the building. [Positioned between EPA and RFI sewer layers]
				5	H	H		H		X					H	X			X			H	H	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-589	SCTI	East of Building 4457	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout to delineate PAHs (B(a)P at 558 ppb) at SL-064-SA5B and TPH at SL-063-SA5B, and characterize operational area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-590A	SCTI	Substation 4756 (North of Building 4356)	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Previous sample was a composite of four discrete samples with detect < ISL result. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results. (Note: SL-233-SA5B serves as discrete location on north edge of pad)
				3	X	X	X	X		X					X	X			X			X	H		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-590B	SCTI	North of Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Previous sample was a composite of four discrete samples with detect < ISL result. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results. (Note: SL-233-SA5B serves as discrete location on north edge of pad)
				3	X	X	X	X		X					X	X			X			X	H		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-590C	SCTI	North of Building 4356	Soil Boring	0.5		X																	X		Previous sample was a composite of four discrete samples with detect < ISL result. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results. (Note: SL-233-SA5B serves as discrete location on north edge of pad) 5B_DG-595 also serves as one of eight representative locations in B4356 fill area. Analyze 0.5 and 3 foot samples at DG-595 for full suite to characterize fill area (see description for 5B_DG-523); analyze 10 foot sample if fill present. 5B_DG-591 defines northwest boundary of B4356 fill area; includes same depths and suite and 5B_DG-595.
				3		H																	H		
5B_DG-591	HMSA	South of Building 4478	Soil Boring	0.5										X									X		Collect sample at SL-070-SA5B to confirm previous perchlorate detection at 3.5 feet. Hold 10 foot sample pending shallow results.
				3.5										X									H		
				10										H									H		
5B_DG-592	SCTI	North of Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-611).
				5	X	X	X	X		X					X	X			X			X	X	√	**Note: Collect deepest sample just above bedrock and analyze VOCs (SM) to evaluate potential migration pathway to groundwater.**
				10	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-593	SCTI	Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-611).
				5	X	X	X	X		X					X	X			X			X	X	√	**Note: Collect deepest sample just above bedrock and analyze VOCs (SM) to evaluate potential migration pathway to groundwater.**
				10	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-594	SCTI	Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-611).
				5	X	X	X	X		X					X	X			X			X	X	√	**Note: Collect deepest sample just above bedrock and analyze VOCs (SM) to evaluate potential migration pathway to groundwater.**
				10	X	X	X	X		X					X	X			X			X	X		
				15	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-596	SCTI	Building 4356 Fill Area	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-611).
				5	X	X	X	X		X					X	X			X			X	X	√	**Note: Collect deepest sample just above bedrock and analyze VOCs (SM) to evaluate potential migration pathway to groundwater.**
				10	X	X	X	X		X					X	X			X			X	X		
				15	X	X	X	X		X					X	X		X	X			X	X		
5B_DG-597	SCTI	Trench east of Building 4656	Trench	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-523).
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-598	SCTI	Trench east of Building 4656	Trench	0.5	X	X	X	X		X					X	X			X			X	X		Targets a secondary containment trench, provides characterization of operational area and adjacent tank containment pit (water with hydrazine). Excavate exploratory trench in perpendicular direction to former trench alignment (southwest - northeast transect) and analyze for cooling tower suite since trench associated with SCTI water treatment. Target native soil or soil just above bedrock for vertical definition and potential impacts to groundwater (former samples collected at a maximum of 10 feet). Sample intervals at each location based on anticipated depth to bedrock per previous sampling.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-599	SCTI	Southwest of B4356	Test Pit	0.5	X	X		X		X					X	X			X			X	X		Targets intersection of two linear terrain conductivity anomalies south of the SCTI Water Treatment Area. Analyze for general suite plus cooling towers/anti-corrosion suite. Adjust samples depths based on field observations (i.e., if fill observed target top of native and collected deepest sample just above bedrock if staining or impacts are observed).
				5	X	X		X		X					X	X			X			X	X	√	
				10	X	X		X		X					X	X			X			X	X		
5B_DG-600	SCTI	Building 4361 (Former Hazardous Materials Bldg.)	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Targets former hazardous material storage building and linear terrain conductivity anomaly. Analyze for general suite plus cooling towers/anti-corrosion suite. Analyze all depths based on potential for significant chemical quantities.
				5	X	X		X		X					X	X			X			X	X	√	
				10	X	X		X		X					X	X			X			X	X		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(7 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-601	SCTI	Building 4656	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-611.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-602	SCTI	North of Building 4656	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-603.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-603	SCTI	North of Cooling Tower Building 4656	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Characterize operational area north of cooling tower; also serves as stepout to delineate dioxins at SL-235-SA5B. Hold 10 foot sample pending shallow results. Analyze full suite plus cooling tower suite.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-604	SCTI	Tank east of Building 4358	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets wastewater AST and serves as stepout for dioxins to east. Analytes address full suite for representation of operations area, plus cooling tower suite for adjacent operations. Analyze sample at 0.5 feet and 5 feet due to potential for surficial release from AST; hold 10 feet bgs pending shallow results. Note: refusal was encountered at 2 feet bgs at SL-235-SA5B; target just above bedrock for deepest sample.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-605	SCTI	Acid/Based Tanks north of Building 4656	Soil Boring	0.5				X														X	X		Location targets an acid AST. Analyze sample at 0.5 feet and 5 feet due to potential for surficial release from AST; hold 10 foot samples pending shallow results.
				5				X														X	X	√	
				10				H														H	H		
5B_DG-606	SCTI	Air-cooled Condenser East of Building 4360	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Targets air-cooled condenser. Analyze for full suite plus cooling tower suite to address use of corrosion inhibitors. Hold 10 foot sample pending shallow results.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-607	SCTI	Air-cooled Condenser East of Building 4360	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Same as 5B_DG-606.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-608	SCTI	Chemical Storage Building 4360	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Location targets chemical storage area. Complete suite plus corrosion inhibitor suite since storage supported steam generation/ cooling tower operations. Hold 10 foot samples on pending shallow results.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-609	SCTI	Chemical Storage Building 4360	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-608.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-610	SCTI	Building 4358	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets day tanks and operations under awning. Analytes address full suite plus cooling tower operations. Analyze sample at 0.5 feet and 5 feet due to potential for surficial releases; hold 10 feet bgs pending shallow results. Note: refusal was encountered at 2 feet bgs at SL-235-SA5B; target just above bedrock for deepest sample.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-611	SCTI	Building 4656	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations provide overall characterization of fill material within deep excavation area around former Building 4356, based on previous sporadic elevated detects, fill material observed in borings to south, and geophysical anomalies (magnetic and terrain conductivity anomalies present). Samples in area analyzed for general suite and cooling tower suite based on operations (hydrazine, transmission fluids, oils, etc.). Analyze samples at all depths based on subsurface features and to characterize extent of fill.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-612	SCTI	Tank Southwest of SCTI water treatment facility cooling tower	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Targets AST with unknown contents and provides characterization at base of cooling towers slope; completes suite of previous sample for general suite plus cooling tower suite and provides subsurface data. Hold 10 foot sample pending shallow results.
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-613	Kalina Complex	Storage Area north of Building 4335	Soil Boring	0.5	X	X		X		X		X			X	X			X			X	X		Location targets unknown pad with no documented storage. Collect samples to screen operational area. Analyze for chemicals associated with cooling tower operations. Hold 10 foot sample pending shallow results since potential surface release.
				5	X	X		X		X		X			X	X			X			X	X	√	
				10	H	H		H		H		H			H	H			H			H	H		
5B_DG-614	Kalina Complex	Concrete Pad south of Building 4656	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-613.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-615	Kalina Complex	Storage Area North of B4335	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Location targets operations area identified as "open storage" and linear terrain conductivity anomaly. Analyze for general and cooling tower suites. Hold 10 foot sample pending shallow results since potential surface or anomaly feature (pipeline) release.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-616	Kalina Complex	South of B4226	Trench	0.5	X	X		X		X					X	X			X			X	X		Excavate exploratory trench in northwest-southeast alignment targeting intersection of two linear terrain conductivity anomalies. Adjust samples depths based on field observations (i.e., if fill observed target top of native and collected deepest sample just above bedrock if staining or impacts are observed).
				5	X	X		X		X					X	X			X			X	X	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-617	Kalina Complex	Building 4392 (Electrical Equipment Building)	Soil Boring	0.5	X	X		X		X		X			X	X			X			X	X		Targets Building 4392 (Electrical Equipment Building). Hold 10 foot sample pending shallow results.
				5	X	X		X		X		X			X	X			X			X	X	√	
				10	H	H		H		H		H			H	H			H				H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(8 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-618	Kalina Complex	Yard Southeast of Building 4392	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Targets potential surface releases associated with storage in fenced area adjacent to B4392 and unidentified feature to south; analyze for chemicals associated with cooling tower operations since associated with SCTI / Kalina Complex. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-619	Kalina Complex	Southwest of Building 4392	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Representative sampling in operational area (RFI chemical use area); include chemicals associated with cooling tower operations. Also serves as stepout for PAHs and dioxins detects at SL-105-SA5B. Hold 10 foot samples pending shallow results.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-620	Kalina Complex	Storage Area North of B4335	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-615; also targets alcohol tanks.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-621	Kalina Complex	South of Building 4335	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-622 and within RFI chemical use area.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-622	Kalina Complex	Southwest of Building 4335	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Stepout of PAHs and dioxins in SL-054-SA5B, delineates southern extent of storage area, and characterization of operational area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X		X			X	X			X			X	X		
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-623	Kalina Complex	Tank South of Building 4335	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Location addresses general area operations (within RFI chemical use area) and is adjacent to ammonia tank. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-624	Kalina Complex	Southwest of Building 4334	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Representative sampling of operational area and stepout for dioxins at SL-240-SA5B; analyze for general suite and cooling tower chemicals. Hold 10 foot sample pending shallow results since addressing potential for surface release.
				5	X	X	X	X		X		X			X	X			X			X	X		
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-625	Kalina Complex	Southwest of Building 4334	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-624.
				5	X	X	X	X		X		X			X	X			X			X	X		
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-626	Kalina Complex	Southwest of Building 4334	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-624 and within RFI chemical use area.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-627	Kalina Complex	Lube Oil Tank within Building 4334	Soil Boring	0.5	X			X		X		X			X	X			X			X	X		Location targets an 870-gallon AST containing TG Lube Oil (removed). Analyze sample at 0.5 and 5 feet due to potential for substantial surficial release; hold 10 foot sample pending shallow results.
				5	X			X		X		X			X	X			X			X	X	√	
				10	H			H		H		H			H	H			H			H	H		
5B_DG-628	Kalina Complex	Building 4334	Test Pit	0.5	X	X	X	X		X		X			X	X			X			X	X		Representative characterization of operational area (RFI chemical use area) and area of geophysical anomalies. Excavate test pit to investigate geophysical anomalies (signs of fill, piping, etc.). Analyze for general and cooling tower suites. Hold 10 foot sample pending shallow results since addressing potential surface releases.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-629	Kalina Complex	Building 4334	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Representative characterization of operational area (RFI chemical use area). Analyze for general and cooling tower suites. Hold 10 foot sample pending shallow results since addressing potential surface releases.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-630	Kalina Complex	Building 4334	Soil Boring	0.5	X	X	X	X		X		X			X	X			X			X	X		Same as 5B_DG-629.
				5	X	X	X	X		X		X			X	X			X			X	X	√	
				10	H	H	H	H		H		H			H	H			H			H	H		
5B_DG-631	SCTL	Tank Southeast of Building 4392	Soil Boring	0.5	X	X		X				X			X							X	X		Targets unknown AST and linear terrain conductivity anomaly. Hold 10 foot sample pending shallow results.
				5	X	X		X				X			X							X	X	√	
				10	H	H		H				H			H							H	H		
5B_DG-632	SCTL	South of B4226	Trench	0.5	X	X		X							X							X	X		Soil boring targets intersection of two linear terrain conductivity anomalies. Hold 10 foot sample pending shallow results. Excavate trench approximately 20 feet to the northeast to investigate potential sump location. Collect sample if fill, staining, or other impacts observed.
				5	X	X		X							X							X	X	√	
				10	H	H		H							H							H	H		
5B_DG-633	SCTL	Yard East of Building 4392	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Targets potential surface releases associated with storage in fenced area east of B4392; analyze for chemicals associated with cooling tower operations since associated with SCTI / Kalina Complex. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-634	SCTL	Building 4356	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of eight representative locations for B4356 fill area (see description for 5B_DG-611).
				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 5B Phase 3 Proposed Soil Sample Locations
(9 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																				Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-635	SCTL	South End of Building 4356 Operations Area	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Targets operational area south of B4356; include corrosion inhibitors based on SCTI cooling tower operations. Hold 10 foot sample pending shallow results.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-636	SCTL	North of Building 4226	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Targets potential sump on north side of B4226. EPA HSA indicates sump on south side of B4226; however, facility drawing indicates sump on north side. Trenching proposed on south side to address uncertainty. Location also targets storage visible in 1980 aerial photo and serves as stepout for PCBs at SL-087-SA5B. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-637	SCTL	South of Building 4026	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Representative sample in operational area with potential storage visible in 1980 aerial photo; also serves as stepout for PCBs and metals at SL-085-SA5B and PCBs at SL-087-SA5B. Hold 10 foot sample pending shallow results.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-638	SCTL	South of B4026	Soil Boring	0.5	X	X	X	X							X					X	X	X	X		Stepout for dioxins in area with "Possible Saturated Material" identified in EPA HSA; also provides additional characterization in area. Since potential surface water collection area, analyze all depths and target just above bedrock for potential migration along bedrock surface. Shallow bedrock likely; therefore distribute samples accordingly (likely one surface, one just above bedrock).
				5	X	X	X	X							X					X	X	X	X	√	
				10	X	X	X	X							X			X		X	X	X	X		
5B_DG-639A	SCTL	Transformer West of Building 4826	Soil Boring	0.5		X																	X		Previous sample was a composite of four discrete samples with ND result. Transformers in Area IV with previous ND results are being resampled with discrete samples. Recollect samples at four (including 5B_DG-640) former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results. 5B_DG-639B also serves as characterization for operational area and targets subsurface linear terrain conductivity anomaly. (Note: 5B_DG-640 serves as fourth discrete sample location characterizing transformer.) Samples also serve as stepouts for PCBs at SL-087-SA5B and SL-087-SA5B.
				3		H																	H		
5B_DG-639B	SCTL	Transformer West of Building 4826 & Ops Area	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		
				3	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-639C	SCTL	Transformer West of Building 4826	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-639D	SCTL	Transformer West of Building 4826	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-640	SCTL	Building 4026	Soil Boring	0.5										X									X		Collect sample at SL-086-SA5B to confirm previous perchlorate detection at 0.5 feet. Hold deeper samples pending shallow results.
				5										H									H		
				10										H									H		
5B_DG-643	SCTL	Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Targets Building 4026 adjacent to motor generator room; include corrosion inhibitors since cooling tower operations. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-644	SCTL	West of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Representative sample in operational area with potential storage visible in 1980 aerial photo; also serves as stepout for PCBs at SL-087-SA5B. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-645	SCTL	Building 4026	Soil Boring	0.5	X	X	X	X							X							X	X		Targets operational area at SCTL (B4026). Analyze all depths if available soil as previous locations limited to 5 feet bgs; target just above bedrock with deepest sample. No cooling tower operations documented at facility; therefore chemical suite for CTs not included.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-646	SCTL	Catch Basin South of 4355	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-587.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-647	SCTL	North of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Representative location in operational area between B4026 and B4357; also serves as stepout for PCBs and dioxins at SL-236-SA5B. Analyze for 5B suite plus corrosion inhibitors based on proximity to cooling tower operations. Hold 10 foot sample pending shallow results since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-648	SCTL	Building 4026	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-645.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-649	SCTL	Building 4026	Soil Boring	0.5	X	X		X							X							X	X		Targets fuel oil AST; adequate representative sampling nearby; therefore limited suite for TPH/PAHs. Analyze 0.5 ft. and 5 ft. since top several feet of soil were disturbed during building demolition; hold 10 foot sample pending shallow results (nearby samples suggest refusal just over 5 feet bgs).
				5	X	X		X							X							X	X	√	
				10	H	H		H							H							H	H		
5B_DG-650	SCTL	Building 4826	Soil Boring	12	X	X	X	X							X							X	X		Stepdown for previous location targeting former sodium tank pit with fill observed to 10 feet and no refusal encountered. TPH > 10x ISL detected at depth. Depths indicated are estimated; target native soil below fill and just above bedrock.
				15	X	X	X	X							X							X	X		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(10 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-651	SCTL	South of Building 4826	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Representative location in operational area between B4026 and B4354. Also targets linear terrain conductivity anomaly. Include corrosion inhibitors since cooling tower operations at B4006. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	H	H	H		H					H	H			H			H	H		
5B_DG-652	SCTL	West of Building 4354 (South of Building 4826)	Soil Boring	0.5	X	X		X							X							X	X		Targets potential storage observed in aerial photograph (see 1980 aerial photo). Hold 10 foot sample pending shallow results.
				5	X	X		X							X							X	X		
				10	H	H		H							H							H	H		
5B_DG-653	SCTL	West of Building 4354 (South of Building 4826)	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-652.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-654	SCTL	Building 4714	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-680.
				5	H	H	H	H		H					H	H			H			H	H	√	
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-655	SCTL	Building 4714	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Similar to 5B_DG-680, targets B714 identified as the PowerPak Interconnecting Facility. Analyze 5 foot sample to provide representative depth coverage for operational area.
				5	X	H		H		H					H	H			H			H	H	√	
				10	H	H		H		H					H	H			H			H	H		
5B_DG-656	SCTL	Building 4354 (South of Building 4826)	Soil Boring	0.5	X	X		X							X							X	X		Targets structure observed in aerial photographs (see 1980 aerial photo) and operational area southeast of B4026 - potentially B4354 (Control Element Test Structure). No cooling tower operations documented in area. Hold 10 foot sample pending shallow results.
				5	X	X		X							X							X	X	√	
				10	H	H		H							H							H	H		
5B_DG-657	SCTL	Building 4354 (South of Building 4826)	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-656.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							H	H		
5B_DG-658	SCTL	South of Building 4826	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Same as 5B_DG-651.
				5	X	X		X		X					X	X			X			X	X	√	
				10	X	H		H		H					H	H			H			H	H		
5B_DG-659	SCTL	South of Building 4826	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-651.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	H	H	H		H					H	H			H			H	H		
5B_DG-660	SCTL	Building 4826	Soil Boring	12	X	X	X	X							X							X	X		Same as 5B_DG-650.
				15	X	X	X	X							X							X	X		
5B_DG-661	SCTL	North of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-647.
				5	H	H	H	H		H					H	H			H			H	H		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-662	SCTL	North of Building 4615	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		One of four representative samples in the operational area at B4615 (Combustion Test Facility); also serves as stepout for TPH at PUBS1002. Analyze for 5B suite plus corrosion inhibitors since cooling tower operations at adjacent B4006. Hold 10 foot sample pending shallow results since evaluating surface release (no subsurface features were documented).
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-663	SCTL	Building 4615	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Same as 5B_DG-662.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-664	SCTL	South of Building 4615	Soil Boring	0.5	X	X		X		X					X	X			X			X	X		Same as 5B_DG-662.
				5	X	X		X		X					X	X			X			X	X		
				10	H	H		H		H					H	H			H			H	H		
5B_DG-665	SCTL	Building 4615	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-662.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-667	SCTL	East of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Representative location in operational area between B4026 and B4006; also serves as stepout for PCBs and dioxins at SL-236-SA5B. Analyze for 5B suite plus corrosion inhibitors based on proximity to cooling tower operations. Hold 10 foot sample pending shallow results since evaluating potential surface release.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-668	SCTL	East of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-667.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-669	SCTL	East of Building 4026	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-667; also serves as stepout for TPH detects at SL-082-SA5B.
				5	X	X	X	X		X					X	X			X			X	X		
				10	H	H	H	H		H					H	H			H			H	H		
5B_DG-670	SCTL	Presumed Sump West of Building 4006	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Stepout for TPH, dioxins and metals at presumed sump; also representative location in operation area. Analyze all samples for TPH and metals based on detections at depth in SL-081-SA5B, SL-082-SA5B, and PUBS1066, and remaining chemicals based on potential migration from sump along bedrock.
				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 5B Phase 3 Proposed Soil Sample Locations
(11 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-671	SCTL	"Presumed Sump" West of Building 4006	Soil Boring	10				X							X								X	X	√	Stepdown for TPH and metals at depth in SL-082-SA5B based on previous detection at 8 feet. Collect and analyze sample at 10 feet; 15 foot sample targets just above bedrock.
				15				X							X								X	X		
5B_DG-672	SCTL	Sewer Exit from SW Building 4006	Soil Boring	5	X	X	X	X		X					X	X			X				X	X	√	Targets sewer line exit from building; analyze 5 foot sample and hold 10 foot sample
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-673A	SCTL	Substation 4067	Soil Boring	0.5		X		X							X								X	X		Previous sample was a composite of four discrete samples with detect > ISLs. Resample with discrete samples; recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results. 5B_DG-673 also serves as a stepout for TPH and metals at PUBS1066. Analyze 3 foot sample at this location. 5B_DG-676 also serves as a stepout for metals and dioxins at SL-083-SA5B. Analyze 3 foot sample at this location.
				3		X		X							X								X	X		
5B_DG-673B	SCTL	Substation 4067	Soil Boring	0.5		X																		X		
				3		H																		H		
5B_DG-673C	SCTL	Substation 4067	Soil Boring	0.5		X	X	X															X	X		
				3		X	X	X															X	X		
5B_DG-673D	SCTL	Substation 4067	Soil Boring	0.5		X																		X		
				3		H																		H		
5B_DG-677	SCTL	West of Building 4816	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Stepout PCBs, dioxins, PAHs, and metals at SL-083-SA5B. Also representative of operational area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-678	SCTL	West of Building 4816	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Stepout PCBs, dioxins, PAHs, and metals at SL-083-SA5B. Hold deep samples pending shallow results since no detects at depth above ISLs in adjacent samples.
				5	H	H	H	H		H					H	H			H				H	H		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-679	SCTL	West of Building 4816	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Stepout for mercury in PUBS1029, and PCBs, PAHs, metals, and dioxins in SL-083-SA5B; also targets former cooling tower. Hold deep samples pending shallow results since no detects above ISL at depth in adjacent samples.
				5	H	H	H	H		H					H	H			H				H	H		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-680	SCTL	Building 4714	Test Pit	0.5	X	X	X	X		X					X	X			X				X	X	√	Targets B714 identified as the PowerPak Interconnecting Facility. Also stepout for PUBS1029. Analyze for corrosion inhibitors since associated with cooling tower operations. Hold deep pending shallow results to evaluate potential for surface release. [Note: Feature was identified during sitewide aerial photograph review as a transformer chemical use area; however aerial photos are not conclusive. PCBs included in analyses to address uncertainty.]
				5	H	H	H	H		H					H	H			H				H	H		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-681	SCTL	Building 4616	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Stepout to delineate dioxins in SL-084-SA5B; also targets former cooling tower and representative of general operation area. Hold 10 foot sample pending shallow results.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-682	SCTL	Building 4402	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Targets B4402 (MHD Experiment Building). Cooling tower suite added based on surrounding operations.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-683	SCTL	Building 4607 South of Building 4816	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X	√	Targets B4607 which was also identified as "Sodium Lab Instrument Building" and later used for storage; location also addresses potential storage tank identified during EPA HSA as well as general operations in yard. Cooling tower suite added based on surrounding operations.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-684	SCTL	Operational Area East of B4816 (South of Building 4006)	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Same as 5B_DG-685. Location also targets stain identified in EPA HSA.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-685	SCTL	Operational Area East of B4816 (South of Building 4006)	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		One of four representative samples in operational area east of B4816; also serves as stepout for metals at PUBS1404. Cooling tower (corrosion inhibitor) suite added based on surrounding operations. Hold 10 foot samples pending shallow results.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-686	SCTL	East of Building 4006	Soil Boring	0.5	X	X		X		X					X	X			X				X	X	√	Location targets a 1,000-gallon diesel UST and provides representative characterization at surface. Collect samples to bedrock due to tank size; hold samples deeper than 10 feet pending shallow results or analyze if impacts noted above bedrock.
				5	X	X		X		X					X	X			X				X	X		
				10	X	X		X		X					X	X			X				X	X		
				15	H	H		H		H					H	H			H				H	H		
5B_DG-687	SCTL	Operational Area East of B4816 (South of Building 4006)	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Same as 5B_DG-685.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-688	SCTL	Operational Area East of B4816 (South of Building 4006)	Soil Boring	0.5	X	X	X	X		X					X	X			X				X	X		Same as 5B_DG-685; also delineates northwestern extent of identified contamination area at 17th Street Drainage.
				5	X	X	X	X		X					X	X			X				X	X		
				10	H	H	H	H		H					H	H			H				H	H		
5B_DG-689	SCTL	17th Street Drainage	Soil Boring	0.5	X	X	X	X							X								X	X		Stepdown to characterize drainage at depth (previous samples shallow).
				5	X	X	X	X							X								X	X		
				10	X	X	X	X							X								X	X		
5B_DG-690	HMSA	South of B4357	Test Pit	0.5	X	X	X	X		X					X	X			X				X	X		Exploratory test pit targets linear terrain conductivity anomaly; adjust sample depths based on field observations.
				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 5B Phase 3 Proposed Soil Sample Locations
(12 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-691	B4011 Area	Open Area South of SCTL PowerPak Interconnecting Facility	Soil Boring	0.5	X	X	X	X							X					X		X	X		Same as 5B_DG-743.
				5	H	H	H	H							H					H		H	H		
				10	H	H	H	H							H					H		H	H		
5B_DG-692	B4011 Area	South of B4026	Soil Boring	0.5	X	X	X	X							X					X	X	X	X		Same as 5B_DG-638.
				5	X	X	X	X							X					X	X	X	X	√	
				10	X	X	X	X							X					X	X	X	X		
5B_DG-693	B4011 Area	East of B4005/B4006 Leach Field	Soil Boring / Test Pit	0.5	X	X	X	X							X					X		X	X		Conduct geophysical survey and excavate trench targeting leach line, linear geophysical anomaly, and northern terminus of above ground fuel line. Extend trench approximately 20 feet eastward to investigate the northern terminus of the fuel line (i.e., determine if the pipeline goes underground at this location and has been removed). Collect an additional sample if the terminus of the pipeline is identified or soil staining observed. Adjust 5 foot boring sample to target beneath piping or below fill in top of native if observed. Analyze for PAHs and TPH.
				5	X	X	X	X							X					X		X	X	√	
				10	H	H	H	H							H					H		H	H		
5B_DG-694	B4011 Area	South of Kalina Complex	Soil Boring	0.5	X	X	X	X							X					X	X	X	X		Same as 5B_DG-638.
				5	X	X	X	X							X					X	X	X	X		
				10	X	X	X	X							X			X		X	X	X	X		
5B_DG-695	B4011 Area	East of B4005/B4006 Leach Field	Soil Boring/ Test Pit	0.5	X	X	X	X							X					X		X	X		Stepout for dioxins and metals and characterization in open area. Shallow bedrock observed in surrounding samples. Collect and analyze sample just above bedrock. Conduct adjacent test pit for linear geophysical anomaly and adjust 5 foot boring sample to target (or sample pit as appropriate).
				5	X	X	X	X							X					X		X	X		
				10	H	H	H	H							H					H		H	H		
5B_DG-697	B4011 Area	Southwest of B4005/B4006 Leach Field	Soil Boring	0.5	X	X	X	X							X					X		X	X		Same as 5B_DG-638.
				5	X	X	X	X							X					X		X	X		
				10	H	H	H	H							H					H		H	H		
5B_DG-698	B4011 Area	Parking Area Southwest of B4005/B4006 Leach Field	Soil Boring	0.5	X	X	X	X							X							X	X	√	One of 8 representative locations in former parking area with historical disturbed soil and unpaved roads observed in aerial photos. Location also targets geophysical anomaly (potential leachate signature) south of B4005/B4006 leach field . Refusal on bedrock ranges between 2 and 5 feet in previous borings; therefore bedrock anticipated to be 5 feet bgs. Collect samples at 5-foot intervals to bedrock and target deepest sample just above bedrock. Analyze surface and top-of-bedrock sampl; hold intermediate sample depths pending results.
				5	X	X	X	X							X							X	X		
5B_DG-699	B4011 Area	Open Area South of SCTL PowerPak Interconnecting Facility	Soil Boring/ Test Pit	0.5	X	X	X	X							X					X		X	X		Same as 5B_DG-744; conduct focused geophysical survey and adjacent test pit for linear geophysical anomaly (fuel pipeline?) and adjust 5 foot boring sample to target (or sample pit as appropriate).
				5	X	X	X	X							X					X		X	X		
				10	X	X	X	X							X					X		X	X		
				15	H	H	H	H							H					H		H	H		
5B_DG-700	B4011 Area	South of B4005/B4006 Leach Field	Soil Boring	0.5	X	X	X	X							X							X	X	√	Same as 5B_DG-698.
				5	X	X	X	X							X							X	X		
5B_DG-701	B4011 Area	Parking Area northwest of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Same as 5B_DG-705.
				5	X	X	X	X							X							X	X		
5B_DG-702	B4011 Area	Drainage along 20th Street, east of parking area	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X	√	Same as 5B_DG-589.
				5	X	X	X	X		X					X	X			X			X	X		
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-703	B4011 Area	Parking Area northwest of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Same as 5B_DG-705.
				5	X	X	X	X							X							X	X		
5B_DG-704	B4011 Area	Parking Area northwest of Building 4011	Soil Boring	0.5		X	X	X							X							X	X	√	Same as 5B_DG-705. Location at previously collected U5BS1014 analyzed for PAHs; complete analytical suite.
				5		X	X	X							X							X	X		
5B_DG-705	B4011 Area	Parking Area northwest of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	One of 8 representative locations in former parking area with historical disturbed soil and unpaved roads observed in aerial photos. Refusal on bedrock ranges between 2 and 5 feet in previous borings; collect samples at 5-foot intervals to bedrock and target deepest sample just above bedrock. Analyze surface and top-of-bedrock sample, and hold intermediate sample depths pending results.
				5	X	X	X	X							X							X	X		
5B_DG-707	B4007 Area	Former aboveground tank T-735	Soil Boring/ Test Pit	0.5	X	X	X	X							X					X		X	X		Stepout for TPH detections to the south and dioxins/pesticides to the north; also provides additional characterization in open area and targets fuel pipeline. Conduct geophysical survey and test pit/trenching to characterize potential impacts from pipeline. Collect and analyze samples per 5B_DG-695.
				5	X	X	X	X							X					X		X	X		
				10	X	X	X	X							X					X		X	X		
5B_DG-708	B4011 Area	Drainage along 20th Street, east of parking area	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X		Same as 5B_DG-589.
				5	X	X	X	X		X					X	X			X			X	X	√	
				10	X	X	X	X		X					X	X			X			X	X		
5B_DG-709	B4011 Area	Parking Area northwest of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Same as 5B_DG-705.
				5	X	X	X	X							X							X	X		
5B_DG-710	B4011 Area	Northwest of B4011	Soil Boring	0.5		X	X	X							X							X	X	√	Co-locate with sample U5BS1013 with representative sampling suite to identify potential impacts associated with unidentified object and parking area identified in 1988 aerial photo. Analyze same as 5B_DG-711; however, refusal on bedrock at 2 feet in boring U5BS1013.
				5		X	X	X							X							X	X		
5B_DG-711	B4011 Area	Northwest of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Location targets undefined feature identified in 1988 aerial photo. Also serves as representative sample for parking area ID'd in 5B_DG-705 and stepout for dioxins in drainage sample SL-131-SA5B. Analyze surface and 5 foot samples; hold 10 foot if collected pending shallow results. Refusal on bedrock at 2' in boring U5BS1013 suggests shallow soils.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							H							H	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(13 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-712	B4011 Area	F Street Drainage Ditch	Soil Boring	0.5	--	--	--	--							--							--	--	√	Stepdown at SL-131-SA5B for contamination identified in F Street drainage ditch (all previous data collected at surface). Shallow bedrock anticipated; collect sample just above bedrock.
				5	X	X	X	X							X							X	X		
5B_DG-713	B4011 Area	North of F Street Drainage (Identified Contamination Area)	Soil Boring	0.5	X	X	X	X							X					X		X	X		Stepout in flat area from drainage to assess potential overflow. Also targets soil disturbance area observed in 1960 aerial photo. Shallow soils likely based on samples in general area.
				5	X	X	X	X							X					X		X	X		
				10	H	H	H	H							H					H		H	H		
5B_DG-714	B4011 Area	F Street Drainage Ditch	Soil Boring	0.5	--	--	--	--							--							--	--	√	Same as 5B_DG-712 at SL-133-SA5B.
				5	X	X	X	X							X							X	X		
5B_DG-715	B4011 Area	North of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X		Located in operational area north of B4011; also serves as stepout for detections in drainage (identified contamination area) to the north. Hold deeper samples pending shallow results (note: previous samples in surrounding areas were surface only so depth to bedrock unknown; shallow bedrock anticipated).
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							X							H	H		
5B_DG-716	B4011 Area	North of Building 4011	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-715.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							X							H	H		
5B_DG-717A	B4011 Area	Transformer northwest of B4011	Soil Boring	0.5		X																	X		Transformers in Area IV are being resampled with analysis of all discrete samples. Recollect samples at four former discrete locations and analyze each sample for PCBs; hold deep samples pending shallow results.
				3		H																	H		
5B_DG-717B	B4011 Area	Transformer northwest of B4011	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-717C	B4011 Area	Transformer northwest of B4011	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-717D	B4011 Area	Transformer northwest of B4011	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-721	B4011 Area	B4011 Septic Tank	Soil Boring	0.5	X	X	X	X							X							X	X	√	Stepout from TPH detected at 5 feet (and some elevated metals; silver @ 1.5 mg/kg) based on former septic tank location and potential uncertainty associated with previous sample locations relative to tank. Also addresses area of open storage. Analyze all depths and target deepest sample just above bedrock.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-722	B4011 Area	Building 4172	Soil Boring	0.5	X	X	X	X							X							X	X	√	Location targets sanitary/leach line exit from B4011 and an AST AT-L2-6 (unknown contents) at B4172. Field place sample location at north edge of existing asphalt patch (patch indicates north boundary of existing slurry backfilled septic tank). Analyze all samples based on potential for subsurface release from sewer/leach line. Target soil just above bedrock in deepest sample.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-723	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Sample targets open storage in yard adjacent to B4011. Analyze all depths since staining observed at 3 feet and 8.5 feet in previous sampling in surrounding area.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-724	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Stepout in open storage area based on TPH SL-145-SA5B. Sample also targets feature observed in aerial photo (1959 ['1962-63_1']) but not identified in GIS. Target deepest sample just above bedrock; analyze all depths since TPH detected at depth and for potential migration along bedrock from nearby septic tank.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-725	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Stepout and open storage area sample for PAHs, PCBs, dioxins, and metals analysis based on PAHs, PCBs, dioxins, and metals detected at SL-156-SA5B collected at EPA aerial photo location identified as "probable stained area." Hold deep samples pending shallow results since surface impacts were identified at SL-156-SA5B.
				5.0	X	X	X	X							X							X	X		
				10	H	H	H	H							H							H	H		
5B_DG-726	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Stepout and open storage area sample for PAHs, PCBs, dioxins, and metals analysis based on PAHs, PCBs, dioxins, and metals detected at SL-156-SA5B collected at EPA aerial photo location identified as "probable stained area." Hold deep samples pending shallow results since surface impacts were identified at SL-156-SA5B.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							H							H	H		
5B_DG-727	B4011 Area	20th Street Drainage West of B4011 Storage Yard	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X	√	Sample targets drainage west of storage yard immediately downstream of culvert discharge, open storage area, and location identified as "probable stained area" in EPA HSA. Location also serves as stepout based on PAHs, PCBs, dioxins, and metals detected at SL-156-SA5B. Analyze for cooling tower suite since down drainage from cooling tower operations at SCTI and analyze all depths since drainage unlined. Collect deepest sample just above bedrock (shallow soils anticipated).
				5	X	X	X	X		X					X	X			X			X	X		
5B_DG-728	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Stepout and open storage area sample for PAHs, PCBs, dioxins, and metals analysis based on PAHs, PCBs, dioxins, and metals detected at SL-156-SA5B collected at EPA aerial photo location identified as "probable stained area." Hold deep samples pending shallow results since surface impacts were identified at SL-156-SA5B.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							H							H	H		
5B_DG-729	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X	√	Targets open storage area; hold deep samples pending shallow results.
				5	X	X	X	X							X							X	X		
				10	H	H	H	H							H							X	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(14 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-730	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-729.
				5	X	X	X	X							X							X	X	√	
				10	H	H	H	H							H							X	H		
5B_DG-731	B4011 Area	20th Street Drainage West of B4011 Storage Yard	Soil Boring	0.5	X	X	X	X		X					X	X			X			X	X	√	Sample in drainage west of storage yard. Analyze for cooling tower suite since down drainage of SCTI operations and all depths since drainage unlined. Collect deepest sample just above bedrock (shallow soils anticipated).
				5	X	X	X	X		X					X	X			X			X	X		
5B_DG-732	B4011 Area	Open Storage West of B4011	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-723.
				5	X	X	X	X							X							X	X	√	
				10	X	X	X	X							X							X	X		
5B_DG-733	B4011 Area	Storage Area southeast of B4011	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets open storage area.
				5	H	H	H	H							H							H	H	√	
				10	H	H	H	H							H							H	H		
5B_DG-734	B4011 Area	B4011 Leach Field Area Along G Street	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Targets area south of G Street, **drainage,** and adjacent (stepout) for fill area to south for ISL exceedences of PCBs, dioxins, metals, PAHs. Lead at L2BS1002 detected at 66 mg/kg. Hold 10 foot samples (if collected; refusal likely as shallow as 5.5 feet bgs (L2BS1002) pending shallow results or if fill encountered.
				5	X	X	X	X		X					X	X						X	X		
				10	H	H	H	H		H					H	H						H	H		
5B_DG-735	B4011 Area	B4011 Leach Field Area Along G Street	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Same as 5B_DG-734.
				5	X	X	X	X		X					X	X						X	X		
				10	H	H	H	H		H					H	H							H		
5B_DG-736	B4011 Area	Fill Area FA-11 West of B4011 Leach Field	Soil Boring	0.5	X	X	X	X		X					X	X						X	X	√	Targets fill area identified in EPA HSA and defines extent of identified contamination area at B4011 Leach Field. Analyze all depths for full chemical suite based on PAHs, dioxins, PCBs and metals detected in fill and unknown source of material. Depth to refusal variable between 6 and 10 feet bgs; collect sample in underlying native soil if discernible and deepest sample just above bedrock.
				5	X	X	X	X		X					X	X						X	X		
				10	X	X	X	X		X					X	X						X	X		
5B_DG-737	B4011 Area	West of Identified Contamination Area (East of B4015 Field)	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout to west of contaminated area and dioxins at SL-178-SA5B.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-738	B4011 Area	Drainage West of B3271	Soil Boring	0.5	X	X	X	X		X					X	X						X	X	√	Location targets drainage within fill area and downstream of identified contaminated areas. Analyze all depths
				5	X	X	X	X		X					X	X						X	X		
				10	X	X	X	X		X					X	X						X	X		
5B_DG-739	B4011 Area	Fill Area FA-11 West of B4011 Leach Field	Trench	0.5	X	X	X	X		X					X	X						X	X		Targets fill area identified in EPA HSA and defines extent of identified contamination area at B4011 Leach Field. Excavate trench to investigate presence and depth of fill. Analyze all depths for full chemical suite based on PAHs, dioxins, PCBs and metals detected in fill and unknown source of material. Depth to refusal variable between 6 and 10 feet bgs; collect sample in underlying native soil if discernible and deepest sample just above bedrock.
				5	X	X	X	X		X					X	X						X	X		
				10	X	X	X	X		X					X	X						X	X		
5B_DG-740	B4011 Area	Fill Area FA-11 Southeast of B4011 Leach Field	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Targets fill soil southeast of identified contamination area at B4011 Leach Field as per 5B_DG-736.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		
5B_DG-741	B4011 Area	Fill Area FA-11 East of B4011 Leach Field	Trench	0.5	X	X	X	X		X					X	X						X	X		Same as 5B_DG-739.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		
5B_DG-742	B4011 Area	Fill Area FA-11 East of B4011 Leach Field	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Targets fill soil east of identified contamination area at B4011 Leach Field as per 5B_DG-736.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		
5B_DG-743	B4007 Area	Open Area South of SCTL PowerPak Interconnecting Facility	Soil Boring	0.5	X	X	X	X							X					X		X	X		Stepout to delineate dioxins and pesticides detected to the west. Location also provides characterization in open area. Hold deep samples pending surface results. Shallow bedrock observed in surrounding samples; collect deepest sample just above bedrock.
				5	H	H	H	H							H					H		H	H		
				10	H	H	H	H							H					H		H	H		
5B_DG-744	B4007 Area	Open Space South of SCTL PowerPak Interconnecting Facility	Soil Boring	0.5	X	X	X	X							X					X		X	X		Same as 5B_DG-743.
				5	H	H	H	H							H					H		H	H		
				10	H	H	H	H							H					H		H	H		
5B_DG-745	B4007 Area	Open Space South of SCTL PowerPak Interconnecting Facility	Soil Boring	0.5	X	X	X	X							X					X		X	X		Targets open area similar to 5B_DG-743.
				5	X	X	X	X							X					X		X	X		
				10	H	H	H	H							H					H		H	H		
5B_DG-746	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5	X	X	X	X							X							X	X		Collected discrete samples around substation. Analyze full suite since location adjacent to substation support structures, and bounds Identified Contamination Area. Analyze sample just above bedrock at depth. Shallow soils anticipated.
				3	X	X	X	X							X							X	X	√	
5B_DG-747	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-746.
				3	X	X	X	X							X							X	X	√	
5B_DG-748	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5		X	X																X		Collect discrete samples around substation. Hold deep samples pending shallow results. Analyze dioxins due to detections in adjacent areas.
				3		H	H																H	√	
5B_DG-749	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-746.
				3	X	X	X	X							X							X	X	√	

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(15 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-750	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5		X	X																X	√	Same as 5B_DG-748.
				3		H	H																H		
5B_DG-751	B4007 Area	B4704 Transformer Substation	Soil Boring	0.5		X	X																X	√	Same as 5B_DG-748.
				3		H	H																H		
5B_DG-752	B4007 Area	Former aboveground tank T-735	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout downslope of AST, along pipeline and for TPH impacts at OCBS25/OCTS20. Collect sample along bedrock surface; likely more shallow than 5 ft. bgs since bedrock encountered at between 1' and 3' in boring OCBS25 and trench OCTS20, respectively. Analyze both samples to characterize potential migration of fuels along bedrock.
				5	X	X	X	X							X							X	X		
5B_DG-753	B4007 Area	F Street Drainage Ditch	Soil Boring	0.5	--	--	--	--							--							--	--	√	Same as 5B_DG-712 at SL-135-SA5B.
				5	X	X	X	X							X							X	X		
5B_DG-754	B4007 Area	Storage Yard North B4007	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-755	B4007 Area	Storage Yard North B4007	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-756	B4007 Area	Storage Yard between B4007/B4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-757	B4007 Area	Storage Yard North of B4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X		Location targets storage yards around B4007 observed in aerial photographs; characterizes area for storage of flammable hazardous materials (solvents, morpholine, hydrazine, petroleum fuels, metals, PCBs, and propellants) described in RFI and EPA HSA. Analyze for VOCs in soil matrix since soils to shallow for soil vapor. Hold deep samples pending shallow. Shallow bedrock observed in adjacent samples; collect 5 foot sample if soil present.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-758	B4007 Area	Storage Yard North of B4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X		Same as 5B_DG-757.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-759	B4007 Area	Building 4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X		Characterizes B4008 for storage of flammable hazardous materials (solvents, morpholine, hydrazine, petroleum fuels, metals, PCBs, and propellants) described in RFI and EPA HSA. Analyze for VOCs in soil matrix since soils to shallow for soil vapor. Hold deep samples pending shallow. Shallow bedrock observed in adjacent samples; collect 5 foot sample if soil present.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-760	B4007 Area	Building 4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X		Same as 5B_DG-759.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-761	B4007 Area	Building 4007	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-762	B4007 Area	Building 4007	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-763	B4007 Area	Storage Yard South of B4007	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-764	B4007 Area	South of B4007	Soil Boring	0.5	X	X	X	X					X	X	X	X			X			X	X		Location targets downslope area from B4007/B4008; also serves as stepout for SL-262-SA5B to the northeast. Analyze for all chemicals identified in storage areas. Shallow bedrock observed in adjacent samples; collect and analyze 5 foot sample if soil present.
				5	X	X	X	X					X	X	X	X			X			X	X		
5B_DG-765	B4007 Area	17th Street Drainage	Soil Boring	0.5	X	X	X	X							X							X	X		Stepdown to characterize drainage at depth (previous samples shallow).
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-766	B4007 Area	South of Building 4007/4008	Soil Boring	0.5	X	X	X	X						X	X	X			X			X	X		Stepout to delineate dioxins at SL-263-SA5B and characterize area adjacent to storage at B4007/4008. Analyze for chemicals stored at B4007/B4008. Shallow bedrock observed in adjacent samples; collect and analyze 5 foot sample if soil present.
				5	X	X	X	X						X	X	X			X			X	X		
5B_DG-767	B4007 Area	Storage Yard South of B4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Same as 5B_DG-768.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-768	B4007 Area	Storage Yard South of B4008	Soil Boring	0.5	X	X	X	X					X	X	X	X		X	X			X	X	√	Location characterizes area for storage of flammable hazardous materials (solvents, morpholine, hydrazine, petroleum fuels, metals, PCBs, and propellants) described in RFI and EPA HSA. Analyze VOCs in soil matrix since soils too shallow for soil vapor. Shallow bedrock observed in adjacent samples; collect 5 foot sample if soil present. 5B_DG-768 also serves as a stepout for L2BS1009 to the south.
				5	X	X	X	X					X	X	X	X		X	X			X	X		
5B_DG-769	B4007 Area	Storage Area South of Building 4008	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout to delineate PAHs and TPH in L2BS1009 and TPH in L2BS1008. Sample adjacent to B4500 and general operations area. Shallow bedrock observed in adjacent samples; collect and analyze 5 foot samples if soil present.
				5	X	X	X	X							X							X	X		
5B_DG-770	B4007 Area	Storage Area South of Building 4008	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-769.
				5	X	X	X	X							X							X	X		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(16 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-771	B4007 Area	Storage Area South of Building 4008	Soil Boring	0.5	X	X	X	X							X								X	X		Same as 5B_DG-769.
				5	X	X	X	X							X								X	X		
5B_DG-772	B4007 Area	G Street Drainage West of 17th Street	Soil Boring	0.5	X	X	X	X					X	X	X	X			X				X	X	√	Locations target drainage along G Street. Analyze for all chemicals stored at B4007/4008 since location is downslope/downdrainage. Deepest sample targets just above bedrock. Analyze all depths since historical drainage was unlined.
				5	X	X	X	X					X	X	X	X			X				X	X		
				10	X	X	X	X					X	X	X	X			X				X	X		
5B_DG-773	B4007 Area	G Street Drainage West of 17th Street	Soil Boring	0.5	X	X	X	X					X	X	X	X			X				X	X		Same as 5B_DG-772.
				5	X	X	X	X					X	X	X	X			X				X	X	√	
				10	X	X	X	X					X	X	X	X			X				X	X		
5B_DG-774	17th St. Pond	North of Fill Area Along G Street	Soil Boring	0.5	X	X	X	X							X								X	X		Sample on slope along G Street.
				5	X	X	X	X							X								X	X		
				10	H	H	H	H							H								H	H		
5B_DG-775	17th St. Pond	North of Fill Area Along G Street	Soil Boring	0.5	X	X	X	X							X								X	X		Sample on slope along G Street.
				5	X	X	X	X							X								X	X		
				10	H	H	H	H							H								H	H		
5B_DG-776	17th St. Pond	North of Fill Area Along G Street	Soil Boring	0.5	X	X	X	X							X								X	X		Location targets 'tarp-like' feature observed in 1960 aerial photograph and linear and magnetic geophysical anomalies to characterize soil for potential pipeline or buried metal.
				5	X	X	X	X							X								X	X	√	
				10	H	H	H	H							H								H	H		
5B_DG-777	17th St. Pond	North of 17th Street Pond	Soil Boring	0.5	X	X	X	X							X								X	X		Location targets 'tarp-like' feature south of G Street observed in 1960 aerial photo (note: photo analysis indicates actual photo date as 1959).
				5	X	X	X	X							X								X	X	√	
				10	H	H	H	H							H								H	H		
5B_DG-778	17th St. Pond	Undefined object south of G Street	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout on west side of 17 Street Pond Identified Contamination Area drainage (dioxins 120 x ISL), and slope below G street. Refusal in bedrock between 2.5 and 5' in nearby borings.
				5	X	X	X	X							X								X	X	√	
5B_DG-779	17th St. Pond	West of 17th St. Pond Identified Contamination Area Drainage South	Soil Boring	0.5	X	X	X	X							X								X	X		Same as 5B_DG-782, west of 17th Street Drainage.
				5	X	X	X	X							X								X	X		
5B_DG-780	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area (define extent) and stepout for SL-215-SA5B PCBs, dioxins, metals. Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	H	X							X								X	H		
5B_DG-781	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-782	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area (define extent), and stepout for SL-212-SA5B and SL-213-SA5B PAH, PCB, metal, and dioxin detects. Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-783	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area (define extent). Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-784	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area (define extent) and stepout for SL-215-SA5B PAHs, PCBs, and dioxins. Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-785	17th St. Pond	Northeast of 17th St. Pond Identified Contamination Area.	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area northeast of Identified Contamination Area (define extent). Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-786	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X								X	X		Stepout/representative sample location to characterize open area southeast of Identified Contamination Area (define extent) and stepout for dioxins/metals both to east and west. Analyze all depths. Shallow soil anticipated based on previous sampling.
				5	X	X	X	X							X								X	X		
5B_DG-787	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X								X	X		Same as 5B_DG-786.
				5	X	X	X	X							X									X		
5B_DG-788	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X								X	X		Same as 5B_DG-786.
				5	X	X	X	X							X								X	X		
5B_DG-789	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X								X	X		Same as 5B_DG-786.
				5	X	X	X	X							X								X	X		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(17 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-790	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-786; southeastern most extent of potential contamination extent within subarea 5B.
				5	X	X	X	X							X							X	X		
5B_DG-791	17th St. Pond	East of 17th Street Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout for identified contamination area to the west, providing characterization of open area to the east. Location is also stepout between contamination area and silver (615 mg/kg) at location P2TS57. PCBs detected in identified contamination area and as TIC at P2TS57. Located in a suspect dredge area identified in RFI report. Analyze all depths; however, refusal on bedrock likely at approximately 5 feet bgs.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-792	17th St. Pond	Area southeast of 17th St. Pond Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-787; southeastern most extent of potential contamination extent within subarea 5B.
				5	X	X	X	X							X							X	X		
5B_DG-794	17th St. Pond	East of 17th Street Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X							X	X		Same as 5B_DG-791.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-796	17th St. Pond	Sewer Line South of 17th Street Pond	Test Pit	0.5	X	X	X	X							X							X	X		Excvate test pit to investigate linear geophysical anomaly south of the 17th Street Pond. Inspect test pit for signs of fill and target sample at top of native if fill observed. Collect deepest samples just above bedrock to evaluate potential migration to groundwater.
				5	X	X	X	X							X							X	X	√	
				10	X	X	X	X							X							X	X		
5B_DG-797	17th St. Pond	Drainage Near Area III Boundary	Soil Boring	0.5	-	-	-	-														-	-		Stepdown for PAH, PCB, dioxin, and silver in sample SL-284-SA5B (0.5 feet only) to assess drainage sediment depth at downstream (Area IV) limit of Identified Contamination Area. Analyze 5 and 10 ft. samples; refusal in upstream location PUBS1054 at 7 ft. Target deepest sample just above bedrock.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-799	17th St. Pond	Area southwest of 17th St. Pond Clearly Contaminated Area	Soil Boring	0.5	X	X	X	X							X							X	X		Stepout for southwestern extent of 17th Street Pond Identified Contamination Area and dioxins in SL-172SA5B. Analyze all depths. Refusal in bedrock between 2' and 5' in nearby borings.
				5	X	X	X	X							X							X	X		
5B_DG-800	17th St. Pond	Area southwest of 17th St. Pond Clearly Contaminated Area	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Stepout for southwestern extent of 17th Street Pond Identified Contamination Area and dioxins in SL-172SA5B; also located within reclaimed water sprayfield area. Analyze all depths. Refusal in bedrock between 2' and 5' in nearby borings.
				5	X	X	X	X		X				X	X	X						X	X		
5B_DG-802	17th St. Pond	Area west of 17th St. Pond Clearly Contaminated Area	Soil Boring/ Test Pit	0.5	X	X	X	X							X							X	X		Stepout for western extent of 17th Street Pond Identified Contamination Area and dioxins in SL-173-SA5B. Analyze all depths. Refusal in bedrock between 3' and 4' in nearby borings. Conduct adjacent test pit for linear geophysical anomaly and adjust 5 foot boring sample to target (or sample pit as appropriate).
				5	X	X	X	X							X							X	X		
5B_DG-803	17th St. Pond	Reclaimed Water Sprayfield East of EEL	Soil Boring/ Test Pit	0.5	X	X	X	X		X				X	X	X						X	X		Location characterizes area downslope of fill north of road, west of Identified Contamination Area, and assesses potential impacts from reclaimed water sprayfields. Hexavalent chromium, formaldehyde and perchlorate added for potential presence in reclaimed water. Shallow soils anticipated; collect deepest sample just above bedrock.
				5	X	X	X	X		X				X	X	X						X	X	√	Conduct adjacent test pit for linear geophysical anomaly and adjust 5 foot boring sample to target (or sample pit as appropriate).
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-805	17th St. Pond	Fill Area FA-11 East of B4011 Leach Field	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Stepout from location of elevated dioxins (232 x ISL), characterization of southern boundary of fill, assesses potential impacts from nearby spray fields. Soil likely shallow based on nearby borings.
				5	X	X	X	X		X				X	X	X						X	X	√	
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-806	EEL	East of Gas Cylinder Storage	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Location assesses potential impacts from adjacent EEL operational area and reclaimed water sprayfields to the east. Hold deep samples pending shallow results or as warranted based on field observations. Hexavalent chromium, formaldehyde and perchlorate added for potential presence in reclaimed water. Refusal on bedrock nearby at 2.5'.
				5	H	H	H	H		H				H	H	H						H	H	√	
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-807	EEL	Northeast of Unknown Tank north of B3271	Soil Boring	0.5	X	X		X	X						X							X	X		Location targets northern portion of chemical use area identified in RFI report. Hold deep samples pending shallow results to characterize potential surface impacts . Shallow bedrock anticipated based on ELBS1001.
				5	H	H		H	H						H							H	H	√	
				10	H	H		H	H						H							H	H		
5B_DG-808	EEL	Transformer North of Building 3271	Soil Boring	0.5	X	X	X	X							X							X	X		Targets location based on unknown object in aerial photograph (1988) . Nearby to gas cylinders and historical storage so believed to be some type of container. Object identified as transformer but only seen in one photograph and large transformer is located to south. Likely misidentified; however sample will be analyzed for full storage suite including PCBs. Shallow soils anticipated based on 2.5 foot refusal nearby.
				5	H	H	H	H							H								H	√	

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(18 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-809A	EEL	Transformer Pad East of Building 3271	Soil Boring	0.5		X																	X		Two samples previously collected, at southwest (elevated detect) and northeast (ND with elevated RL) corners. Resample at four locations to get representative sample consistent with discrete sampling for Area IV transformers and define for remedial planning. Hold deep samples pending shallow results.
				3		H																	H		
5B_DG-809B	EEL	Transformer Pad East of Building 3271	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-809C	EEL	Transformer Pad East of Building 3271	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-809D	EEL	Transformer Pad East of Building 3271	Soil Boring	0.5		X																	X		
				3		H																	H		
5B_DG-810	17th St. Pond	Fill area West of Identified Contamination Area	Soil Boring	0.5	X	X	X	X							X							X	X		Stepdown at elevated dioxin location (SL-192-SA5B); target fill, top of native soil and soil above bedrock as appropriate based on field conditions observed. Deepest sample at 5 feet bgs in previous boring.
				5	X	X	X	X							X							X	X		
				10	X	X	X	X							X							X	X		
5B_DG-811	EEL	East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Stepout to characterize potential impacts outside of operational area (chem storage and PCBs at transformer); delineate surficial impacts of PCBs at ELBS16 and assess potential impacts from adjacent reclaimed water sprayfields. Refusal depths at surrounding borings range from 3.5' to 7'; collect and hold sample at 10' if soil is present.
				5	H	H	H	H		H				H	H	H						H	H		
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-812	EEL	East of EEL in Reclaimed Water Sprayfield	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Targets reclaimed water sprayfield. Hexavalent chromium, formaldehyde and perchlorate added for potential presence in reclaimed water. Analyze 5 foot sample since targeting linear geophysical anomaly (potential pipeline); hold 10 foot sample pending shallow results.
				5	X	X	X	X		X				X	X	X						X	X		
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-813	EEL	Hazardous Materials Storage Area East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Characterize soil immediately adjacent to concrete pad for Hazardous Materials Storage Area, undefined feature observed in 1960-1963 aerial photograph, and potential impacts from reclaimed water spray field. Bedrock in area approximately 7 feet bgs; target deepest sample just above bedrock due to assess potential fluid release and migration along bedrock from HMSA.
				5	X	X	X	X		X				X	X	X						X	X	√	
				10	X	X	X	X		X				X	X	X						X	X		
5B_DG-815	EEL	Hazardous Materials Storage Area East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Same as 5B_DG-813.
				5	X	X	X	X		X				X	X	X						X	X	√	
				10	X	X	X	X		X				X	X	X						X	X		
5B_DG-816	EEL	Hazardous Materials Storage Area East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Same as 5B_DG-813.
				5	X	X	X	X		X				X	X	X						X	X	√	
				10	X	X	X	X		X				X	X	X						X	X		
5B_DG-817	EEL	East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Stepout to delineate surficial impacts of PCBs at ELBS16, assess EEL operational area and potential impacts from adjacent reclaimed water sprayfields. Refusal depth at surrounding borings range from 3.5' to 6.5'; collect and hold sample at 10' if soil is present.
				5	H	H	H	H		H				H	H	H						H	H		
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-818	EEL	Transformer Pad East of Building 3271	Soil Boring	0.5																					Stepdown sample to characterize potential vertical migration at location of detected PCBs in ELBS16.
				3		X																	X		
5B_DG-819	17th St. Pond	Fill Area FA-11 East of B4011 Leach Field	Soil Boring	0.5										X									X		Collect sample at SL-187-SA5B to confirm previous perchlorate detection at 5 feet. Hold 10 foot sample pending shallow results.
				5										X									X	√	
				10										H									H		
5B_DG-820	17th St. Pond	Fill Area FA-11 East of B4011 Leach Field	Soil Boring	0.5										X									X		Collect sample at SL-190-SA5B to confirm previous perchlorate detection at 5 feet. Hold 10 foot sample pending shallow results.
				5										X									X	√	
				10										H									H		
5B_DG-821	EEL	East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Same as 5B_DG-817.
				5	H	H	H	H		H				H	H	H						H	H		
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-822	EEL	North Wall of B3271	Soil Boring	0.5	X	X		X							X							X	X		Targets location of compressors and other operational equipment along north wall of B3271.
				5	X	X		X							X							X	X		
				10	H	H		H							H							H	H		
5B_DG-823	EEL	Operational Area north of Building 3271	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets operational area north of B3271 and south (downslope) of storage. Analyze full storage suite since downslope of tanks with unknown contents. Hold deep samples pending shallow results or warranted based on field observations. Nearby borings ELBS1009 and ELBS1030 encountered refusal on bedrock at 3' and 1.5', respectively.
				5	H	H	H	H							H							H	H		
				10	H	H	H	H							H							H	H		
5B_DG-824	EEL	Unknown tank north of B3271	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets an AST with unknown contents. Analyze for full storage suite to address uncertainty of tank contents. Hold deep samples pending shallow results to characterize potential surface impacts from AST. Shallow bedrock anticipated based on ELBS1001.
				5	H	H	H	H							H							H	H	√	
				10	H	H	H	H							H							H	H		
5B_DG-825	EEL	Fill Area FA-11 North of EEL Storage	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Stepout to define boundary of fill area as described below for 5B_DG-833.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		
5B_DG-826	EEL	Storage Area on Slope North of Building 3271	Soil Boring	0.5	X	X	X	X						X	X							X	X		Location targets storage area observed in aerial photographs; hold deep samples pending shallow results. Shallow soils anticipated; 10 foot sample should target just above bedrock.
				5	H	H	H	H						H	H							H	H	√	
				10	H	H	H	H						H	H							H	H		

Table 1
Subarea 5B Phase 3 Proposed Soil Sample Locations
(19 of 19)

Location ID[1]	Area	Location Description	Sample Type	Depth (ft. bgs)	Analytical Method																			Data Gap Checklist[3]	Rationale / Comments[4]
					PAHs (EPA Method 8270C [SIM])	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[2] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-827	EEL	Storage Area on Slope North of Building 3271	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets downslope of storage area observed in aerial photographs; hold deep samples pending shallow results; 10 foot sample should target just above bedrock.
				5	H	H	H	H							H							H	H	√	
				10	H	H	H	H							H							H	H		
5B_DG-828	EEL	Unknown tank -AT-EL-12 Northwest of B3271	Soil Boring	0.5	X	X	X	X							X							X	X		Location targets former sample ELBS1002 downslope of AST AT-EL-12 with unknown contents. Previous sample only analyzed for TPH (detected < ISL at 0.5 ft.). Analyze for full storage suite to address uncertainty of tank contents. Bedrock refusal was 7.5' in boring ELBS1002; 10 ft. sample should target immediately above bedrock for potential migration along bedrock surface. (Note: tank is represented in miscellaneous lines layer in GIS).
				5	H	H	H	H							H							H	H	√	
				10	H	H	H	H							H							H	H		
5B_DG-829	EEL	North Wall of B3271	Soil Boring	0.5	X	X		X							X							X	X		Targets location of compressors and other operational equipment along north wall of B3271.
				5	X	X		X							X							X	X		
				10	H	H		H							H								H		
5B_DG-830	EEL	North Wall of B3271	Soil Boring	0.5	X	X		X							X							X	X		Targets location of compressors and other operational equipment along north wall of B3271.
				5	X	X		X							X							X	X		
				10	H	H		H							H							H	H		
5B_DG-831	EEL	Undefined feature North of B3271	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Targets previous sample location ESBS1406, analyzed for metals only at 1 foot bgs only, to assess undefined feature observed in 1967 aerial photo.
				5	X	X	X	X		X				X	X	X						X	X		
				10	H	H	H	H		H				H	H	H						H	H		
5B_DG-832	EEL	Storage Area and Fill Boundary on Slope North of Building 3271	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Location targets western portion of storage area observed in aerial photographs and defines fill boundary as described below for 5B_DG-833; sample and analyze as described above.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		
5B_DG-833	EEL	Fill Area FA-11 Northwest of Building 3271	Soil Boring	0.5	X	X	X	X							X	X						X	X		Stepout to define boundary of fill area and PAHs, PCBs, and dioxins at SL-176-SA5B . If fill observed collect sample in fill, native soil, just above bedrock as soil conditions warrant; otherwise sample at 0.5, 5 and just above bedrock (refusal anticipated < 10 ft. bgs).
				5.0	X	X	X	X							X	X						X	X	√	
				10	X	X	X	X							X	X						X	X		
5B_DG-834	EEL	West of EEL (Subarea 5C)	Soil Boring	0.5	X	X	X	X		X				X	X	X						X	X		Stepout in drainage to west of dioxins in SL-176-SA5B. Location also targets reclaimed water sprayfield; hexavalent chromium, formaldehyde and perchlorate added for potential presence in reclaimed water. Analyze all depths due to natural (unlined) drainage and deposition over time. Note: 5B_DG-834 located east of Subarea 5B boundary in Subarea 5C.
				5	X	X	X	X		X				X	X	X						X	X		
				10	X	X	X	X		X				X	X	X						X	X		
5B_DG-835	EEL	Fill Area FA-11 West of B3271	Soil Boring	0.5	X	X	X	X		X					X	X						X	X		Stepout to define boundary of fill area as described above for 5B_DG-833.
				5	X	X	X	X		X					X	X						X	X	√	
				10	X	X	X	X		X					X	X						X	X		

Footnotes
1. The following Location IDs were omitted or deleted during the data gap analysis process and are not included in this table: 5B_DG-503, -504, -512, -513, -514, -518, -641, -642, -666, -674, -675, -676, -706, -718, -719, -720, -793, -795, -798, -801, -804, -814.
2. Standard metals analysis includes silver and mercury, but does not include hexavalent chromium. Individual analyses for silver and mercury included for select locations.
3. Checkmark in column indicates sample was proposed based on review of information source indicated in Table 4 for the area listed in "Location Description" (GIS or aerial photo review layers).
4. The Subarea 5B analytical suite for general operations includes primary chemical groups: PAHs, PCB/PCTs, Metals, and TPH. The corrosion inhibitor suite is proposed in operational areas associated with or located downslope from cooling tower operations and includes analysis for formaldehyde and NDMA to address hydrazine use, hexavalent chromium, arsenic, and morpholine (EPA Method 8260 TIC).

Acronyms
AST = above-ground storage tank
B(a)P = benzo(a)pyrene
bgs = below ground surface
Cr(VI) = hexavalent chromium
EEL = Environmental Effects Laboratory
EPA = Environmental Protection Agency
ft. = foot or feet
Hg = mercury
HMSA = hazardous materials storage area
HSA = Historical Site Assessment
ISL = interim screening level
kg = kilogram
LF = leach field
ng = nanogram
NDMA = n-nitrosodimethylamine
PAH = polyaromatic hydrocarbons
PCB = polychlorinated biphenyls
PCT = polychlorinated terphenyls
ppm = parts per million
ppt = parts per trillion
RL = Reporting Limit
SCTI = Sodium Component Test Installation
SCTL = Sodium Component Test Loop
SPTF = Sodium Pump Test Facility
SM = soil matrix
SV = soil vapor
TEQ = toxicity equivalent quotient
TIC = temporary identified compound
TPH = total petroleum hydrocarbons
VOC = volatile organic compound

Table 2
Subarea 5B 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
5BSV_DG-501	B4019 Area	North of B4019	5 10	√	Representative sample location in storage yard north of B4019.
5BSV_DG-502	B4019 Area	Sewer South of B4019	5 10	√	Location targets sanitary sewer junction at exit from B4019 and sewer main on B Street.
5BSV_DG-503	B4019 Area	East of B4019	5 10		Representative location in B4019 operational area east.
5BSV_DG-504	B4019 Area	B4013	5 10	√	Location targets diesel AST (T-EMG1) and characterizes operational area at B4013.
5BSV_DG-505	B4019 Area	North of B4013	5 10	√	Location targets storage north of B4013 identified in EPA HSA.
5BSV_DG-506	B4019 Area	North of B4013	5 10		Representative location in B4013 operational area.
5BSV_DG-507	B4019 Area	B4013	5 10		Same as 5BSV_DG-506.
5BSV_DG-508	B4010 Area	Northwest of B4012/4228	5 10	√	Location targets storage northwest of B4228 identified in EPA HSA.
5BSV_DG-509	B4010 Area	North of B4010	5 10	√	Location targets potential waste disposal area identified in EPA HSA.
5BSV_DG-510	B4010 Area	B4228	5 10	√	Location targets reactor room in B4012 and two fuel oil ASTs (EMGEN and T-L01) in north portion of B4228. Collect samples at 5 foot intervals with deepest sample just above bedrock.
5BSV_DG-511	B4010 Area	B4228	5 10	√	Location targets fuel oil AST (EMSTG) in south portion of B4228.
5BSV_DG-512	B4010 Area	Potential Leach Field South of B4228	5 10	√	Location targets potential leach field identified in EPA HSA and AST with unknown contents. Collect samples at 5 foot intervals with deepest sample just above bedrock.
5BSV_DG-513	B4010 Area	South of B4010	5 10	√	Location defines southwestern extent of identified contamination area at B4010; also targets potential storage tank identified in EPA HSA. Collect samples at 5 foot intervals to bedrock, with deepest sample just above bedrock.
5BSV_DG-514	B4010 Area	Northwest of B4010	5 10		Representative location in operational area northwest of B4010.
5BSV_DG-515	B4010 Area	East of B4010	5 10		Delineates eastern extent of identified contamination area at B4010.
5BSV_DG-516	B4010 Area	East of B4010	5 10 15 20	√	Location targets former reactor vault and UST in B4010; also addresses elevated RLs in previous sampling (L1SV1000). Collect samples at 5 foot intervals to bedrock, with deepest sample just above bedrock to evaluate potential input location to groundwater.
5BSV_DG-517	B4010 Area	Southeast of B4010	5		Representative location in operational area southeast of B4010. Sample depth based on refusal in nearby locations.
5BSV_DG-518	B4010 Area	Storage Yard North of B4025	5 10	√	Location targets storage observed along the fenceline north of B4025 in aerial photos.
5BSV_DG-519	B4010 Area	B4025	5		Representative location in B4025 operational area and addresses elevated RLs in previous sampling (U5SV1106). Sample depth based on nearby locations.
5BSV_DG-520	B4010 Area	UST East of B4025	5	√	Location targets UST, equipment pad, and open storage observed in aerial photos east of B4025. Sample depth based on nearby locations.
5BSV_DG-521	B4010 Area	Slope south of B4025	5 10	√	Location targets drainage along road and surface water pathway downslope of B4025 operations / south-side doorway. Shallow refusal in area; collect deeper samples if soil present.
5BSV_DG-522	HMSA	North of B4457	5 10		Representative location in operational area north of B4457.
5BSV_DG-523	HMSA	East of B4457	5 10	√	Targets open storage observed in aerial photos.
5BSV_DG-524	HMSA	East of B4457	5 10	√	Location characterizes area with two features identified in EPA HSA as "dark toned material" within general open storage area.
5BSV_DG-525	HMSA	Sump 2 at B4457	5 10	√	Location targets Sump 2. Collect samples at 5 foot intervals with deepest sample just above bedrock to evaluate feature as potential input location to groundwater.
5BSV_DG-526	HMSA	Sump 1 at B4457	5 10	√	Location targets Sump 1. Collect samples at 5 foot intervals with deepest sample just above bedrock to evaluate feature as potential input location to groundwater.
5BSV_DG-527	HMSA	North of B4457	5 10		Same as 5BSV_DG-522.
5BSV_DG-528	HMSA	South of B4457	5 10		Representative location in operational area south of B4457.
5BSV_DG-529	HMSA	West of Sump 1 at B4457	5 10	√	Same as 5BSV_DG-527.
5BSV_DG-530	SCTI	B4356	5 10	√	Same as 5BSV_DG-532.One of four representative locations which provide overall characterization of fill material within deep excavation area around former Building 4356; based on previous sporadic elevated detects, fill material observed in borings to south, and geophysical anomalies (magnetic and terrain conductivity anomalies present).
5BSV_DG-531	SCTI	B4356	5 10	√	Same as 5BSV_DG-533.Location targets secondary containment trench in SCTI water treatment area. The location is also one four representative locations which provide overall characterization of fill material within deep excavation area around former Building 4356; based on previous sporadic elevated detects, fill material observed in borings to south, and geophysical anomali (magnetic and terrain conductivity anomalies present). Collect samples at 5 foot intervals with deepest sample just above bedrock.
5BSV_DG-532	SCTI	North of B4356	5 10	√	Same as 5BSV_DG-530.
5BSV_DG-533	SCTI	Water Treatment Area West of B4356	5 10	√	Same as 5BSV_DG-531.
5BSV_DG-534	SCTI	Water Treatment Area West of B4356	5 10	√	Location targets secondary containment trench and pit in SCTI water treatment area.
5BSV_DG-535	SCTI	Water Treatment Area West of B4356	5 10	√	Location characterizes ASTs associated with SCTI water treatment area. The location is also one of five representative locations which provide overall characterization of fill material within deep excavation area around former Building 4356; based on previous sporadic elevated detects, fill material observed in borings to south, and geophysical anomalies (magnetic and terrain conductivity anomalies present).
5BSV_DG-536	SCTI	Northwest Corner of SCTI	5	√	Location targets chemical storage area. Shallow refusal in area; collect deeper samples if soil present.
5BSV_DG-537	SCTI	Cooling Tower Southwest of B4356	5 10	√	Location targets cooling tower (B4656).

Table 2
Subarea 5B 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
5BSV_DG-538	Kalina Complex	South of B4355	5 10	√	Targets open storage identified in EPA aerial photograph review.
5BSV_DG-539	Kalina Complex	South of B4355	5 10		Representative sample location in Kalina Complex operational area.
5BSV_DG-540	Kalina Complex	B4334	5 10	√	Targets fuel oil AST (KR-102).
5BSV_DG-541	SCTL	Southwest of B4026	5 10		Representative location in operational area southwest of B4026.
5BSV_DG-542	SCTL	Southwest of B4026	5 10	√	Targets former sump and open storage south of B4226.
5BSV_DG-543	SCTL	B4358	5 10	√	Targets "potentially saturated area" identified in EPA aerial photograph review. Collect deepest sample just above bedrock.
5BSV_DG-544	SCTL	B4026	5 10		Same as 5BSV_DG-546.Representative location in B4026 operational area.
5BSV_DG-545	SCTL	Catch Basin North of B4359	5 10	√	Targets catch basin and "probable leakage" identified in EPA HSA.
5BSV_DG-546	SCTL	B4026	5 10		Same as 5BSV_DG-544.
5BSV_DG-547	SCTL	B4026	5 10	√	Targets fuel oil AST (T-15).
5BSV_DG-548	SCTL	B4826	5 10	√	Targets sodium tank pits in B4826.
5BSV_DG-549	SCTL	East of B4026	5 10		Same as 5BSV_DG-550; also addresses elevated RLs in previous sampling (HSSV05).
5BSV_DG-550	SCTL	North of B4026	5 10		Representative location in operational area north/northeast of B4026.
5BSV_DG-551	SCTL	Northeast of B4006	5 10		Representative of operational area at on northeast side of B4006.
5BSV_DG-552	SCTL	Tank East of B4006	5 10	√	Targets fuel oil UST (UT-02).
5BSV_DG-553	SCTL	Septic Tank Southwest of B4006	5 10	√	Targets "presumable former septic tank" identified in EPA aerial photograph review.
5BSV_DG-554	SCTL	Southeast of B4026	5 10	√	Targets structure observed in aerial photographs (see 1980 aerial photo) and operational area southeast of B4026 - potentially B4354 (Control Element Test Structure); also addresses storage observed to the southwest.
5BSV_DG-555	SCTL	Southeast of B4026	5 10	√	Location targets the SCTI Interconnecting PowerPak Facility and a debris area identified in EPA aerial photograph review.
5BSV_DG-556	SCTL	East of B4816	5 10	√	Characterizes "stain" and horizontal tank identified in EPA aerial photograph review; also addresses elevated RLs in previous sampling (HSSV09).
5BSV_DG-557	SCTL	Southeast of B4816	5 10	√	Targets drainage along 17th Street and open storage area identified in EPA aerial photo review.
5BSV_DG-558	SCTL	Southeast of B4816	5 10		Representative sample in operational area southeast of B4816/B4006.
5BSV_DG-559	B4011 Area	Northeast of B4005/4006 Leach Field	5 10	√	Targets northern terminus of pipeline leading for fuel oil tank to the south.
5BSV_DG-560	B4011 Area	North of B4005/4006 Leach Field	5 10	√	Same as 5BSV_DG-543.
5BSV_DG-562	B4011 Area	North of B4005/4006 Leach Field	5 10	√	Same as 5BSV_DG-543.
5BSV_DG-561	B4011 Area	Northeast of B4005/4006 Leach Field	5 10	√	Location targets B4005/4006 leach field. Collect deepest sample just above bedrock to evaluate leach field as potential input location to groundwater.
5BSV_DG-563	B4011 Area	Southwest of B4005/4006 Leach Field	5 10		Location targets drainage along 20th Street.
5BSV_DG-564	B4011 Area	South of B4005/4006 Leach Field	5 10		Representative location south of leach field.
5BSV_DG-565	B4011 Area	East of B4005/4006 Leach Field	5 10		Representative location east of leach field.
5BSV_DG-567	B4011 Area	South of B4005/4006 Leach Field	5 10		Same as 5BSV_DG-564.
5BSV_DG-566	B4011 Area	South of B4005/4006 Leach Field	5 10		Same as 5BSV_DG-564; also targets fuel pipeline and linear geophysical anomaly.
5BSV_DG-568	B4011 Area	South of B4005/4006 Leach Field	5 10		Same as 5BSV_DG-564.
5BSV_DG-569	B4011 Area	Culvert at 20th and F Street	5 10		Targets drainage and culvert.
5BSV_DG-570	B4011 Area	East of B4639	5 10		Targets drainage along F Street and defining western edge of identified contamination area.
5BSV_DG-571	B4011 Area	North of B4011	5 10		Representative location in operational area north of B4011.
5BSV_DG-572	B4011 Area	West of B4011	5 10	√	One of five samples targeting open storage area; also targets former septic tank and addresses elevated RLs in previous sampling (L2SV02, L2SV1008).
5BSV_DG-573	B4011 Area	West of B4011	5 10	√	One of five samples targeting open storage area west of B4011; also targets "probable horizontal tank" identified in EPA HSA.
5BSV_DG-574	B4011 Area	West of B4011	5 10	√	One of five samples targeting open storage area; also targets historical unlined drainage observed in 1967 aerial photograph.
5BSV_DG-575	B4011 Area	West of B4011	5 10	√	One of five samples targeting open storage area.

Table 2
Subarea 5B 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
5BSV_DG-576	B4011 Area	West of B4011	5 10	√	Location targets open storage.
5BSV_DG-577	B4011 Area	Southwest of B4011	5 10	√	One of five samples targeting open storage area; also targets drainage along G Street.
5BSV_DG-578	B4011 Area	Southwest of B4011 Leach Field	5 10	√	One of six representative locations characterizing fill area (FA-11) identified in EPA aerial photograph review.
5BSV_DG-579	B4011 Area	South of B4011 Leach Field	5 10	√	Same as 5BSV_DG-578. Location also characterizes potential impacts from reclaimed water spray field.
5BSV_DG-580	EEL	Northwest of B3271	5 10	√	Same as 5BSV_DG-578.
5BSV_DG-581	B4007 Area	East of B4005/4006 Leach Field	5 10		Representative location east of leach field.
5BSV_DG-582	B4011 Area	South of B4005/4006 Leach Field	5 10	√	Targets fuel oil AST (T-735).
5BSV_DG-583	B4011 Area	F Street Drainage	5 10		Targets F Street Drainage. Collect deepest sample just above bedrock to evaluate potential recharge to groundwater.
5BSV_DG-584	B4007 Area	South of Transformer	5 10	√	Representative of area south of the transformer.
5BSV_DG-585	B4007 Area	East of B4011	5 10	√	Same as 5BSV_DG-576.
5BSV_DG-586	B4007 Area	South of B4007	5 10		Location targets drainage and culvert leading to 17th Street Pond.
5BSV_DG-587	B4007 Area	East of B4500	5 10	√	Location targets drainage along G Street.
5BSV_DG-588	17th Street Pond	Northwest of 17th Street Pond	5 10	√	Representative location to characterize open area northwest of Identified Contamination Area. Location also targets a ground scar observe during EPA HSA.
5BSV_DG-589	17th Street Pond	Northwest of 17th Street Pond	5 10		Representative location to characterize open area northwest of Identified Contamination Area.
5BSV_DG-590	17th Street Pond	Northeast of 17th Street Pond	5 10		One of six representative sample locations characterizing open area east of Identified Contamination Area.
5BSV_DG-591	17th Street Pond	Northeast of 17th Street Pond	5 10		Same as 5BSV_DG-590.
5BSV_DG-592	17th Street Pond	Northeast of 17th Street Pond	5 10		Same as 5BSV_DG-590.
5BSV_DG-593	17th Street Pond	17th Street Pond	Approx. 6 (see rationale)		Targets the 17th Street Pond. Depth to bedrock anticipated to be approximately 6 feet based on surrounding samples. Collect deepest sample just above bedrock to evaluate potential input/migration pathway to groundwater contamination. If total depth greater than 7 feet, collect first sample at 5 feet and second sample just above bedrock to evaluate potential gradient.
5BSV_DG-594	17th Street Pond	East of 17 Street Pond	Approx. 6 (see rationale)		Targets the 17th Street Pond. Depth to bedrock anticipated to be approximately 5 feet based on surrounding samples. Collect deepest sample just above bedrock to evaluate potential input/migration pathway to groundwater contamination. If total depth greater than 7 feet, collect first sample at 5 feet and second sample just above bedrock to evaluate potential gradient.
5BSV_DG-595	17th Street Pond	East of 17th Street Pond	5 10		Same as 5BSV_DG-590.
5BSV_DG-596	17th Street Pond	Southeast of 17th Street Pond	5 10		Same as 5BSV_DG-590.
5BSV_DG-597	17th Street Pond	Southeast of 17th Street Pond	5 10		Same as 5BSV_DG-590.
5BSV_DG-598	17th Street Pond	South of 17 Street Pond	5 10		Same as 5BSV_DG-594.
5BSV_DG-599	17th Street Pond	B3271	5 10	√	Targets drainage in southern portion of 17th Street Pond Identified Contamination Area.
5BSV_DG-600	17th Street Pond	17th Street Pond	5		Same as 5BSV_DG-593.
5BSV_DG-601	17th Street Pond	Fill Area West of 17th Street Pond	5 10	√	One of six representative locations characterizing fill area (FA-11) identified in EPA aerial photograph review.
5BSV_DG-602	17th Street Pond	Fill Area West of 17th Street Pond	5 10	√	Same as 5BSV_DG-578.
5BSV_DG-603	17th Street Pond	Fill Area West of 17th Street Pond	5 10	√	Same as 5BSV_DG-578. Location also characterizes potential impacts from reclaimed water spray field.
5BSV_DG-604	EEL	B3271	5 10	√	Location characterizes potential impacts from reclaimed water spray field.
5BSV_DG-605	EEL	B3271	5 10	√	Same as 5BSV_DG-604.
5BSV_DG-606	17th Street Pond	B3271	5 10	√	Same as 5BSV_DG-604.
5BSV_DG-607	EEL	B3271	5 10	√	Targets concrete pad for Hazardous Materials Storage Area, undefined feature observed in 1960-1963 aerial photograph, and potential impacts from reclaimed water spray field. Bedrock in area approximately 7 feet bgs; target deepest sample just above bedrock due to assess potential fluid release and migration along bedrock from HMSA.
5BSV_DG-608	EEL	North of B3271	5 10	√	Representative location in operational area north of B3271; also addresses elevated RLs in previous sampling (ELSV09).

Table 2
Subarea 5B 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
5BSV_DG-609	EEL	B3271	5 10	√	Targets B3271.
5BSV_DG-610	EEL	West of B3271	5 10	√	Same as 5BSV_DG-578.
5BSV_DG-612	17th Street Pond	South of 17th Street Pond	5 10	√	Location targets repair location along sanitary sewer line. Collect deepest sample just above bedrock to evaluate potential migration pathway to groundwater.

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. 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 4 for the area listed in "Location Description" (GIS or aerial photo review layers).

Acronyms

ASTM = American Society for Testing and Materials
bgs = below ground surface
DTSC = California Department of Toxic Substances Control
EEL = Environmental Effects Laboratory
EPA = Environmental Protection Agency
ft = foot/feet
GIS = geographic information system
HSA = Historical Site Assessment
HMSA = Hazardous Material Storage Area
ISL = interim screening level
LF = leach field
RL = reporting limit
SCTI = Sodium Component Test Installation
SCTL = Sodium Component Test Loop
SOP = standard operating procedure
VOC = volatile organic compound

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

Location ID	Area	Location Description	Sample Type	Depth (feet bgs)	Analytical Method																			Data Gap Checklist[2]	Rationale / Comments
					PAHs (EPA Method 8270C (SIM))	PCBs / PCTs (EPA Method 8082)	Dioxins/Furans (EPA Method 1613)	Metals[1] (EPA Methods 6010B/6010C /6020/6020A/7471A/7471B)	Mercury (EPA Method 7471A)	Cr(VI) (EPA Method 7196A)	Glycols (EPA Method 8015B)	Alcohols (EPA Method 8015B)	Energetics (EPA Method 8330A)	Perchlorate (EPA Method 6850/6860)	TPH (EPA Method 8015B)	Formaldehyde (EPA Method 8315A)	VOCs (SV) (EPA Method 8260B)	VOCs (SM) (EPA Method 8260B)	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)		
5B_DG-793	17th St. Pond	Southeast of 17th Street Identified Contamination Area Area III	Soil Boring	0.5	X	X	X	X							X								X	X		Future Location. Stepout for silver (and potentially PCBs) impacts in sample P2TS57 as described for 5B_DG-794.
				5	X	X	X	X							X								X	X		
				10	H	H	H	H							H								H	H		
5B_DG-795	17th Street Pond	South of 17th St. Pond Clearly Contaminated Area	Soil Boring	0.5	X	X	X	X							X								X	X		Future Location. Stepout to delineate elevated silver in sample P2TS56. Analyze for dioxins since it is found throughout the 17th Street Pond Clearly Contaminated Area. Deep samples on hold pending shallow results since no detections above ISLs at depth. Depth to refusal unknown.
				5	X	X	X	X							X								X	X		
				10	H	H	H	H							H								H	H		
5B_DG-798	Area III South of 17th St. Pond	Drainage South of Area III/ IV Boundary	Soil Boring	0.5	X	X	X	X							X								X	X		Future Location. Stepout to delineate down drainage extent of PAH, PCB, dioxins, and metals impacts from sample SL-284-SA5B. Hold deeper samples pending stepdown sample results at SL-284-SA5B.
				5.0	X	X	X	X							X								X	X	√	
				10	H	H	H	H							H								H	H		
5B_DG-814	B4011 Area	Hazardous Matrials Storage Area East of Building 3271	Soil Boring	0.5	X	X	X	X		X				X	X	X							X	X		Future Location. Characterize soil immediately adjacent to concrete pad for Hazardous Materials Storage Area, undefined feature observed in 1960-1963 aerial photograph, and potential impacts from reclaimed water spray field. Bedrock in area approximately 7 feet bgs; target deepest sample just above bedrock due to assess potential fluid release and migration along bedrock from HMSA.
				5.0	X	X	X	X		X				X	X	X							X	X	√	
				10	X	X	X	X		X				X	X	X							X	X		

Notes
1. Standard metals analysis includes silver and mercury, but does not include hexavalent chromium. Individual analyses for silver and mercury included for select locations.
2. Checkmark in column indicates sample was proposed based on review of information source indicated in Table 4 for the area listed in "Location Description" (GIS or aerial photo review layers).

Acronyms
bgs = below ground surface
HMSA = Hazardous Material Storage Area
ISL = interim screening level
PAH = polyaromatic hydrocarbons
PCB = polychlorinated biphenyls
SM = soil matrix
SV = soil vapor
VOC = volatile organic compound

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

INFORMATION SOURCE	5B Data Gap Evaluation Areas [1]									
	B4019 Area	B4010 Area	SCTI	HMSA	Kalina Complex	SCTL	EEL	B4011 Area	B4007 Area	17th St Pond
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)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tank Points	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HSA Line Layer (HSA linear features)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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)	√	√	√	√	√	√	√	√	√	√
Other [3]										
Existing Building Feature Documentation - process info reviewed	√	√	√	√	√	√	√	√	√	√
Historical Facility Diagrams - deep feature info reviewed	√	√	√	√	√	√	√	√	√	NA

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

5B Data Gap Evaluation Areas [1]

INFORMATION SOURCE	**B4019 Area**	**B4010 Area**	**SCTI**	**HMSA**	**Kalina Complex**	**SCTL**	**EEL**	**B4011 Area**	**B4007 Area**	**17th St Pond**
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]	√	√	√	√	√	√	√	√	√	√
Uncollected EPA Phase 1 sample locations [6]	√	√	√	√	√	√	√	√	√	√

√	Feature reviewed during data gaps evaluation
√	Indicates sampling proposed based on reviewed feature
--	No buildings present for inspection
NA	Information source not available for this subarea

Notes

1. Data gap evaluations were performed over smaller footprints within each subarea. For Subarea 5B: B4019 Area includes B4013, B4019, and the area surrounding these buildings; B4010/4102 Area includes B4010, B4012, B4025, B4710, B4228, and the area surrounding these buildings; SCTI includes B4355, B4356, cooling tower (B4656), condenser, water treatment area, and surrounding areas; HMSA includes B4457, B4357, B4478, three containment sumps, and areas surrounding these buildings/features; Kalina Complex includes B4334, B4335, B4392, and areas surrounding these buildings; and SCTL area includes B4359, B4226, B4026, B4826, B4006, B4816, B4354, and surrounding buildings and features; EEL includes B3271 and areas to the north and northeast; B4011 Area includes B4011, B4171, B4172, B4611, B4612, and surrounding areas; B4007 Area includes B4007, B4008, B4500, and surrounding areas; and the 17th Street Pond includes the pond and surrounding areas.

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 5B, three air dispersion sources were evaluated: stacks at B4010, B4012, and B4019. 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 with Subarea 5B from this pathway.

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, and the EPA HSA document. 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 included as part of chemical data gap evaluation process; validated data from EPA will be reviewed when available. For Subarea 5B, no chemical data gaps indicated based only on radiological sampling results although chemical sampling proposed at 2 areas with radiological trigger level exceedances (B4010 and 17th Street Pond / Drainage Areas).

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.

FIGURES

BZ-NW

Subarea 7

Subarea 5A

Subarea 5C

Subarea 5B North

Subarea 5B South

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

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
- 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 5B North
Phase 3 Proposed Soil Matrix Sampling Locations and Previous Data Summary
SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5BN_Summary.mxd

Date: 5/16/2012

1 inch = 50 feet

0 50 100 Feet

FIGURE 1

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.

2. Building 3271 and nearby structures were demolished in April 2012 and these changes are not reflect in base map features shown on this figure.

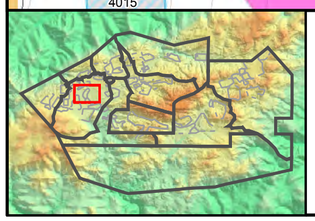
Subarea 5A

Subarea 5B North

Subarea 5B South

Subarea 5C

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
- 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	Combined Detect / ISL	Combined ND / ISL
<1x LDC	< 1x ISL	< 1x ISL
Combined ND / LDC	1x to 2x ISL	1x ISL to 2x ISL
< 1x LDC	2x to 10x ISL	2x ISL to 10x ISL
	10x to 100x ISL	10x ISL to 19x ISL
	> 100x ISL	

LDC = Lower Display Criteria
ISL = Interim Screening Level

Subarea 5B South
Phase 3 Proposed Soil Matrix Sampling Locations and Previous Data Summary
SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5BS_Summary.mxd

Date: 5/16/2012

1 inch = 75 feet

0 75 150 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.

2. Building 3271 and nearby structures were demolished in April 2012 and these changes are not reflect in base map features shown on this figure.

BZ-NW

Subarea 7

Subarea 5A

Subarea 5B North

Subarea 5B South

Subarea 5C

Building 4010 Leach Field

Building 4010 Subsurface Reactor Features

Building 4457 Sumps

Building 4019 Reactor Pit and Holdup Tank

Building 4356 Below Grade Tanks

Potentially Saturated Material

Building 4005/4006 Leach Field

17th Street Pond, Drainage and Surrounding Area

Building 4011 Leach Field

PDU

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Base Map Legend

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- 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

Proposed Area IV Data Gap Locations

- Proposed Soil Vapor Sample Location
- Area / Feature Identified as Potential Input Location to Groundwater Contamination
- Post Demolition Sampling Area

Subarea 5B
Phase 3 Proposed Soil Vapor Sampling Locations

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5B_SV_Proposed.mxd

Date: 5/16/2012

1 inch = 110 feet

0 110 220 Feet

FIGURE 3

BZ-NW

Subarea 7

Subarea 5B North

Subarea 8 North

Subarea 5B South

Subarea 5C

RD-88

RD-97

RD-96

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.

2. Building 3271 and nearby structures were demolished in April 2012 and these changes are not reflect in base map features shown on this figure.

Conduct geophysical survey to identify sanitary sewer waste holdup tank for sampling.

1 inch = 50 feet

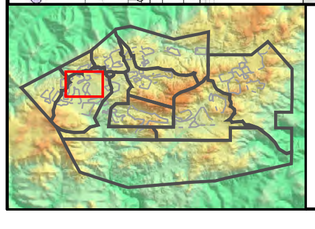
Conduct geophysical survey to determine the location of septic tank associated with B4011.

1 inch = 25 feet

Conduct geophysical survey targeting leach line, linear geophysical anomaly, and northern terminus of above ground fuel line to determine if pipe went below grade and if it has been removed.

1 inch = 25 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

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- Removed Building or Structure
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- Backfilled Excavation Area
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- A/C Paving
- Elevation Contour

Groundwater Wells

- Near Surface
- Chatsworth

Trenches

- Previous
- Proposed

Test Pit Location

Figure Legend

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

Tank Legend

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

Subarea 5B
Proposed Locations of Geophysical Surveys

SANTA SUSANA FIELD LABORATORY

Path: T:\projects\rock3\HSA\Working\HSA5B_Geophysical.mxd

Date: 5/16/2012

1 inch = 110 feet

0 110 220 Feet

FIGURE 4