



Department of Energy

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May 15, 2014

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Subject: Submittal of Addendum No. 11 to Master Field Sampling Plan for Chemical Data Gap Investigation Phase 3 Go-Back Soil Chemical Sampling at Area IV Santa Susana Field Laboratory for Subareas 5A, 5D, 8, and Northern Buffer Zone

The United States Department of Energy (DOE) is pleased to submit Addendum No. 11 to the Chemical Data Gap Investigation Work Plan, Phase 3 Soil Chemical Sampling at Area IV for chemical soil sampling in Subareas 5A, 5D, 8, and the Northern Buffer Zone (Addendum No. 11; CDM Federal Programs Corporation, May 2014). The Chemical Data Gap Investigation Work Plan, Phase 3 Soil Chemical Sampling at Area IV (Phase 3 Work Plan; CDM Programs Corporation, April 2012) was approved by DTSC on April 11, 2012. This addendum includes the data gap analysis and the proposed sampling locations and objectives for each sample and reflects the incorporation of DTSC comments and input we received at the technical stakeholder meeting we had on April 22, 2014 and all of DTSC's additional comments.

Due to the size of the files, Addendum No. 11 prepared by CDM Smith, the Data Gap Analysis document (Attachment 1) prepared by MWH, and a copy of this letter has been placed on DTSC's ftp site.

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 believe, true, accurate and complete.

DOE requests approval of Addendum No. 11 to the Master Field Sampling Plan for Chemical Data Gap Investigation Phase 3 Go-Back Soil Chemical Sampling at Area IV Santa Susana Field Laboratory for Subareas 5A, 5D, 8, and the Northern Buffer Zone.

If you have any questions regarding this document, please contact me at 805-416-0990.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Stephanie Jennings', with a large, stylized loop at the end.

Stephanie Jennings
Deputy Federal Project Director

CC: Mr. John Jones, DOE
Mr. Buck King, DTSC
Mr. Richard Hume, DTSC
Mr. Mark Malinowski, DTSC
Mr. David Dassler, Boeing
Mr. John Wondolleck, CDM Smith
Ms. Dixie Hambrick, MWH

Addendum No. 11 to
Master Field Sampling Plan for Chemical Data Gap
Investigation
Phase 3 Go-Back Soil Chemical Sampling at Area IV
Santa Susana Field Laboratory
Ventura County, California

Subareas 5A, 5D, 8, and Northern Buffer Zone

Prepared for:

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Prepared under:

**US Department of Energy
EM Consolidated Business Center
Contract DE-EM0001128
CDM Smith Task Order DE-DT0003515**

April 2014
Revision 0

Addendum No. 11 to
Master Field Sampling Plan for Chemical Data Gap
Investigation
Phase 3 Go-Back Soil Chemical Sampling at Area IV
Santa Susana Field Laboratory
Ventura County, California

Subareas 5A, 5D, 8, and Northern Buffer Zone

Contract DE-EM0001128
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May 14, 2014
Date

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May 14, 2014
Date

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Attachment 1 – Final Phase 3 Data Gap Analysis for Subareas 5A, 5D, 8 and the Northern Buffer Zone, Technical Memorandum, Santa Susana Field Laboratory, Ventura County, California (MWH Americas, Inc.)

Tables within Attachment 1 Relevant to the Field Sampling Plan Addendum

Table 1 – Go Back Tracker Status

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Table 3A – Status of uncollected Subarea 5A Soil Sample Locations

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Table 3C – Status of uncollected Subarea 8 Soil Sample Locations

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Table 4A - Subarea 5A Proposed Soil Sample Locations

Table 4B - Subarea 5D Proposed Soil Sample Locations

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Table 4D - Northern Buffer Zone Proposed Soil Sample Locations

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Figures within Attachment 1 Relevant to the Field Sampling Plan Addendum

Figure 4 - Subarea 5A Final Phase 3 Data Gap Sampling Plan Proposed Soil Matrix Sampling Locations

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Introduction

This document supports implementation of the soil sampling program 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* (Phase 3 Work Plan, CDM Smith 2012a). The Phase 3 Work Plan contains four appendices. Appendix A is 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 2012b). Appendix B is the *Quality Assurance Project Plan, Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California* (Phase 3 QAPP, CDM Smith 2012c). Appendix C is the *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* (Safety Plan, CDM Smith 2012d). And Appendix D of the Phase 3 Work Plan provides the Standard Operating Procedures (SOPs) (Phase 3 SOPs, CDM Smith 2012e) describing the details of sampling activities and sample management at SSFL.

The Master FSP addresses soil sampling within Area IV and the Northern Buffer Zone (NBZ) 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). For all samples collected at locations within Area IV Subareas 5A, 5D, 8, and the NBZ, the Master FSP and the SSFL SOPs dictate the procedures pertaining to:

- locating and verifying sampling points
- surface soil sampling techniques
- subsurface soil sampling techniques using a direct push technology (DPT) rig and a hand auger and slide hammer for those locations not accessible by the DPT rig
- subsurface soil sampling using a backhoe to dig test pits and trenches
- 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 NBZ soils/sediments and further defines DOE's obligations in relation to radiologic and chemical cleanup of soils within these areas. It stipulates that during phases 1 and 2 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. The

prior sampling with EPA within Area IV was conducted during October 2010 through November 2011.

Phase 3 of the AOC is the data gap analysis, which includes an assessment of data adequacy using the data collected under the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) program, incorporated the results of co-located soil samples collected during phases 1 and 2 of the AOC, and multiple lines of evidence as described in the Phase 3 Work Plan (CDM 2012a). The purpose of the Phase 3 data gap analysis was to identify additional soil chemical data needed to support the Soil Remedial Action Implementation Plan for Area IV.

An additional data gap analysis, termed the “Go-Back Data Gap Analysis”, evaluated the completeness of the Phase 1, 2 and 3 soil sampling and RFI datasets in completing site characterization. The sampling that will be performed under this FSP Addendum is based on the results of the final data gap analysis. The methodology for the “Go-Back Data Gap Analysis” is described in the document *Final Phase 3 Data Gap Analysis for Subareas 5A, 5D, 8 and the Northern Buffer Zone, Technical Memorandum, Santa Susana Field Laboratory, Ventura County, California* (MWH 2014¹) (*Go-Back 2 Data Gap TM*), which is included as Attachment 1 to this FSP Addendum.

The “Go-Back” soil sampling within Subareas 5A, 5D, 8, and NBZ is governed by the Phase 3 Work Plan and its elements including the Master FSP, the QAPP, Safety Plan, and the Phase 3 SSFL SOPs. These documents are incorporated into this FSP Addendum by reference.

Purpose of FSP Addendum

This FSP Addendum addresses Phase 3 Go-Back Round 2 soil sampling within Subareas 5A, 5D, 8, and the NBZ. Figure 1 of this document illustrates the location of all subareas within Area IV of SSFL. The rationale for sample location and chemical analytes is provided in the document *Go-Back 2 Data Gap TM* (MWH 2014). The *Go-Back 2 Data Gap TM* includes Tables 4A for Subarea 5A, Table 4B for Subarea 5D, Table 4C for Subareas 8, and Table 4C for the NBZ providing the sampling rationale for each location. Figure 4 of the *Go-Back 2 Data Gap TM* (MWH 2014) provides the proposed soil sample locations in the Subareas 5D and 8, Figure 5 for Subareas 5D, and Figure 6 for the NBZ. Soil sample locations were identified during the Go-Back data gap analysis as well as from public comments received during the April 2014 Go-Back 2 public meeting. Tables 1, 2, and 3 of the *Go-Back 2 Data Gap TM* provide additional information for sample rationale, analytes, and locations for the additional soil sampling. Information on specific field conditions and sample locations will be necessary as part of sample point staking and soil collection.

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.

For the Go-Back 2 exercise, surface and subsurface samples will be collected. For surface soil samples, only the top 6-inches of soil (surface soil) will be collected. Many of the 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. Borings located in areas inaccessible to the DPT rig will be sampled using a hand auger and slide hammer as described in Phase 3 SSFL SOP 3. All borings will be drilled to the target depth specified in Tables 4A, 4B, 4C, and 4D of the *Go-Back 2 Data Gap TM*. The cores will be visually inspected and monitored with field instruments for the presence of contamination, including discoloration, debris, and fill. Soil samples will be targeted where contamination is evident.

The Round 2 soil sampling event will also involve the use of a backhoe to dig exploratory test pits and trenches throughout Area IV. This includes test pits and trenches identified during Phase 3 data gap recommendations that digging was deferred until all test pit requirements had been defined. Sample collection will be informed based on visual details observed of subsurface conditions by the site geologists. Phase 3 SOP 5 describes the soil sample collection process using a backhoe.

CDM Smith will be responsible for the physical collection of all samples per the procedures and controls specified in the Master FSP. CDM Smith will be responsible for the hand auger and DPT rig sampling aspects of the field sampling program. This includes locating in the field the sample locations selected during the data gap investigation and that were initially generated and displayed electronically using Geographic Information System (GIS) coordinates. The GIS coordinates are downloaded into a Geographic Positioning System (GPS) unit for physically locating the samples in the field. SSFL SOP 1 provides the process for verifying that the sample locations initially identified by GIS review reflect the targeted feature described in Tables 4A, 4B, 4C, and 4D are consistent with the GPS coordinates generated in the field. If necessary the sample location will be adjusted in the field so that the targeted feature is sampled. Adjusted and all final sample location coordinates will be provided back to the GIS managers so that the GIS database can be updated.

CDM Smith 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. A CDM Smith sample coordinator will be responsible for sample preparation and shipment to an analytical laboratory under contract with CDM Smith. Soil samples collected by CDM Smith will be analyzed for chemical analytes identified in Tables 4A, 4B, 4C, 4D of the *Go-Back 2 Data Gap TM* (MWH 2014). 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 2012b).

Tables 4A, 4B, 4C, and 4D of the *Go-Back 2 Data Gap TM* also identify 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.

MWH will be responsible for procuring and directing the backhoe operations. This includes logging observations of materials found in the test pits and trenches. MWH will identify locations for soil sampling and provide CDM Smith with sample material. Sample material provided by MWH will be handled in accordance to sample management procedures outlined in this Addendum.

Sample Analytes

Table 4A for Subareas 5A, Table 4B for Subarea 5D, Table 4C for Subarea 8, and Table 4D for the NBZ of the *Go-Back 2 Data Gap TM* (MWH 2014) provide 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 Tables 4A, 4B, 4C, and 4D. 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 collected primarily through the use of a DPT rig. SSFL SOP 4 describes the DPT sampling procedures. Sampling will be conducted through the use of 5-foot long acetate sleeves placed within the DPT sampling tool. All cores will be screened using a PID instrument for volatiles and a Micro R gamma detection instrument and a dual phosphor alpha/beta detection instrument (SSFL SOPs 6 and 7, respectively). Soil samples will be collected at the depths specified in Tables 4A, 4B, 4C, and 4D of the *Go-Back 2 Data Gap TM* (MWH 2014) 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 with the sample depth intervals identified in Table 4A, 4B, 4C, and 4D prepared for shipment to the laboratory. These tables also identify the chemical analyses proposed for each depth interval.

There will be 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 sleeves will be used to collect the actual sample. SSFL SOP 3 describes the hand auger sampling procedure.

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

Test Pit/Trench Soil Sampling

Test pits and/or trenches will be excavated using a back hoe directed by MWH. A CDM Smith geologist and sampler will collect soil from test pit sidewalls or from the back-hoe bucket per Phase 3 SSFL SOP 5. The geologist will be responsible for logging the test pit and describing soil samples. A CDM Smith sample coordinator will be responsible for sample preparation and shipment to an analytical laboratory under contract with CDM Smith. Test pit sampling will occur during late May/early June 2014.

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 Tables 4A, 4B, 4C, and 4D of the *Go-Back 2 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. Any photographic documentation of sampling activities will be performed per SSFL SOP 15.

Instrument Calibration and Maintenance

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

Laboratory Sample Preparation (Homogenization)

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

Schedule

Soil sampling activities under this FSP Addendum will most likely start the week of May 12, 2014, following DTSC approval of this FSP Addendum. Sample locations will be marked by the site geologist in advance of sampling. It is anticipated that completion of all soil boring locations will be by May 23. The digging of test pits/trenches is scheduled starting May 19 to accommodate this means of soil sampling within all relevant subareas.

References

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

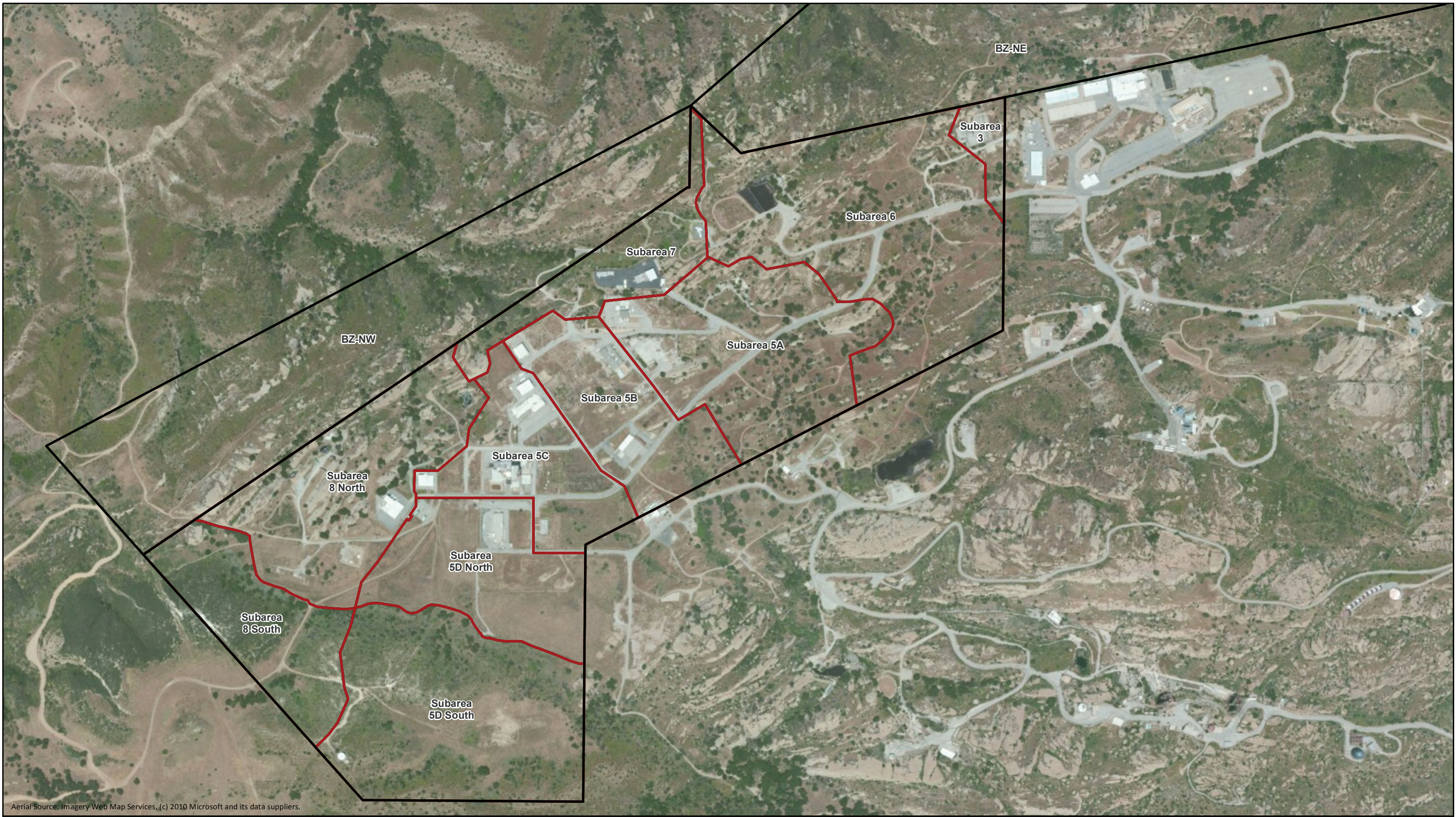
CDM Smith. 2012b. *Master Field Sampling Plan for Chemical Data Gap Investigation, Phase 3 Soil Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California.* April.

CDM Smith. 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.



CDM Smith. 2012e. *Standard Operating Procedures.*

MWH 2014. *Final Phase 3 Data Gap Analysis for Subareas 5A, 5D, 8, and the Northern Buffer Zone, Technical Memorandum Santa Susana Field Laboratory, Ventura County, California. (Go-Back 2 Data Gap TM). April.*



Aerial Source: Imagery Web Map Services, (c) 2010 Microsoft and its data suppliers.

Legend

 Area IV & Northern Buffer Zone  Area IV Subarea

**Subarea Designations
Area IV**



Santa Susana Field Laboratory
Ventura County, California
Figure 1



Attachment 1
*Final Phase 3 Data Gap Analysis for
Subareas 5A, 5D, 8, and the Northern
Buffer Zone*
*Technical Memorandum, Santa Susana
Field Laboratory, Ventura County,
(MWH 2014)*

