

Addendum No. 3 to

Master Work Plan/Field Sampling and Analysis
Plan, Co-Located Chemical Sampling at Area IV
Santa Susana Field Laboratory, Ventura County,
California

EPA Subarea 8N Soil Sampling

Prepared for:

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EM Consolidated Business Center
Contract DE-AM09-05SR22404
CDM Task Order DE-AT30-08CC60021/ET17**

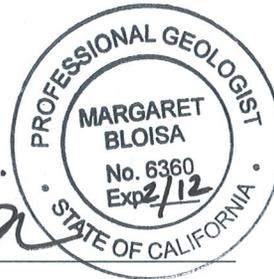
April 2011

Addendum No. 3 to Master Work Plan/Field
Sampling and Analysis Plan, Co-Located Chemical
Sampling at Area IV Santa Susana Field Laboratory,
Ventura County, California

EPA Subarea 8N Soil Sampling

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CDM Task Order DE-AT30-08CC60021/ET17

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4/7/11
Date

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4/7/11
Date

Introduction

This document supports the field implementation of the soil sampling program addressed in the *Master Work Plan (WP)/Field Sampling and Analysis Plan (FSAP), Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory* (Master WP/FSAP, CDM 2011). The Master WP/FSAP dictates the field sampling, analytical, quality control, and data review procedures for the collection and chemical analysis of soil samples within Area IV of the Santa Susana Field Laboratory (SSFL) and the Northern Buffer Zone (NBZ), collectively termed the Area IV study area. As part of a radiological characterization study, the United States Environmental Protection Agency (EPA) is collecting surface and subsurface soil samples throughout Area IV of SSFL and the NBZ for the presence of radioactive elements (radionuclides). The California Department of Toxic Substances Control (DTSC) and Department of Energy (DOE) requested that soil collected by EPA also be analyzed for chemical analytes. DTSC and DOE agreed that the chemical sampling be done by DOE's contractor, CDM Federal Programs Corporation (CDM).

Purpose of Addendum

This addendum documents the rationale for the location of surface and subsurface chemical soil samples to be collected during Phase I of soil sampling within Subarea 8N as presented in EPA's *Subarea 8 North FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study*, (HGL 2011). Phase I soil sampling is based on EPA's Historical Site Assessment (HSA) of Subarea 8N (that also included a gamma survey, geophysical survey, and review of prior data) with sample locations selected by EPA to address concerns identified in the HSA. Phase II chemical sampling, which is not covered by this Addendum, will involve further chemical and radionuclide characterization "step-out" samples. The need for chemical "step-out" samples will be determined on a case-by-case basis following a review of all chemical data collected for Area IV.

Under the co-located soil sampling program, EPA and its consultant HydroGeoLogic, Inc. (HGL) will physically collect the soil material. CDM personnel will be responsible for the sample container preparation, sample handling and documentation, sample shipment, laboratory procurement, chemical analyses of the samples, and chemical data review. Co-located soil samples collected by CDM will be analyzed for chemical analytes as stipulated in Table 4-1 (Data Quality Objectives) and Table 6-1 (Analytical Methods, Containers, Preservatives, and Holding Times) of the Master WP/FSAP (CDM 2011).

Figure 1 is a layout of EPA's Subarea 8N. The proposed sample locations are shown on Figures 2 through 4, which were taken from EPA's FSP Addendum for Subarea 8N (HGL 2011). EPA's description and rationale for the soil sample locations in Subarea 8N are summarized in Table 1.

De-Selection of Locations for Chemical Sampling

EPA's identified sample locations are based on radiological sampling needs as determined by EPA, and not on chemical sampling needs for the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) of Area IV. The sampling protocol for targeting the depths of soil samples for chemical analyses are illustrated in Figures 5-1 and 5-2 of the Master WP/FSAP.

Soil samples for chemical analyses will not be collected from all locations identified in Subarea 8N by EPA for radionuclide analyses. Portions of the Subarea 8N study area that have been subject to prior investigations under the RFI include the Empire States Atomic Development Authority (ESADA) area, the Former Sodium Disposal Facility (FSDF) area, the Building 4009 area, and the Building 56 Landfill. Some locations have adequate data for use in determining the need for a soil cleanup action. Locations with adequate data were discussed with DTSC personnel on March 18, 2011 and DOE and DTSC jointly de-selected HGL sample locations for chemical sample collection using the following three "Sample/No Sample" decision criteria.

SCENARIO 1. "CLEARLY CONTAMINATED" AREA THAT WILL REQUIRE CLEANUP DISCRETIONARY SAMPLING CRITERIA

The potential discretionary decision is to not collect chemical samples at some EPA locations where sufficient chemical data already exist to define the area as one that is clearly contaminated and will likely be remediated. Co-located sampling will still be conducted near the areas, as needed, to adequately define extent of contamination.

- a. "Clearly contaminated" are those areas that have been previously sampled and sampling results show detected chemical concentrations that obviously exceed current background and/or Method Reporting Limits (MRLs)
- b. There are a high frequency and number of chemical constituents that exceed background and MRLs
- c. DOE agrees to cleanup of contaminated area.

SCENARIO 2. HIGH DENSITY RADIOLOGICAL SAMPLING AREA DUE TO ELEVATED GAMMA SURVEY RESULTS DISCRETIONARY SAMPLING CRITERIA

Potential discretionary decision: do not collect chemical samples at some EPA locations so that sample spacing is consistent with the RFI approach (approximately 50 to 100 feet).

- a. No known and/or identified chemical operations and/or releases (subject to field observations)
- b. Non-point source, no preferential pathways identified, open/flat area

- c. Site is sufficiently distant from known potential chemical sources.

SCENARIO 3. HIGH DENSITY RADIOLOGIC SAMPLING OF HISTORIC FEATURES DISCRETIONARY SAMPLING CRITERIA

Potential discretionary decision: using professional judgment, do not collect chemical samples at some EPA locations so that sample spacing is consistent with the RFI approach.

- a. Feature has known chemical and/or radiologic impacts, and/or identified data gaps
- b. Targeted sampling density should be based on feature characteristics and historical use (e.g., holdup tanks, septic tanks, sumps, test areas, etc.).

The logic and rationale for discretionary de-selection of co-located sample locations for Subarea 8N was discussed with the community stakeholders on March 25, 2011. The criterion for each agreed-upon de-selected co-located sampling location is also noted in Table 1.

Reduction of Analytes for Chemical Sampling

During the March 9, 2011 Technical Work Group meeting, DOE also discussed with the stakeholders a proposal to modify the secondary analytical suite (i.e., those analyses performed on soil samples collected from areas with a process history of specific chemical usage, elevated field instrument readings, visually contaminated materials, or at locations of waste or fill) at locations where there is sufficient chemical analytical information known to warrant such a reduction. Inputs to reduction of the secondary analytical suite include:

- recent HSA sampling results indicate that many chemicals on the secondary analyte list have been rarely detected
- previous RFI sampling results, and
- DTSC comments and public input on RFI and EPA documents

Rationale for reduction of the secondary analyte list was developed taking into consideration historic operations at the site, proximity of the operation to the sample location, EPA rationale and targeted feature(s), and likelihood of multiple sources or pathways that may have contributed to contamination in the area.

All chemical co-located samples collected within Subarea 8N will be analyzed for the primary suite. Locations where secondary analyses will be reduced are:

At the ESADA area:

- Locations 1, 2, 3, 7, 8, 13, 14, 15, 16, 17, 48, and 50 within and downgradient of the former storage area will be analyzed for all primary analytes and glycols only from the secondary analyte list, since this area was used for glycol drum storage.
- Locations 4, 5, 6, and 9 at the Pistol Range will be analyzed for primary analytes and glycols and energetics only from the secondary analyte list, based on area use and historical records indicating use of energetics.

At the Solar Concentrator Area (northeast of the ESADA Pistol Range):

- Locations 27, 28, 32, 36, 40, 41, and 46 will be analyzed for primary analytes and total petroleum hydrocarbons (gasoline range organics and extractable fuel hydrocarbons).

At the Building 4009 Area:

- Locations 127, 128, and 129 will be analyzed for total petroleum hydrocarbons (gasoline range organics and extractable fuel hydrocarbons) based on building reactor operations and previous RFI data.

Reductions in the secondary suite of analyses are also noted in Table 1.

Installation of Soil Vapor Probes in Selected Borings

At sampling locations 51, 54, 58, 59, 63, and 73 within the former FSDF excavation, soil vapor probes are proposed to be installed into the EPA boreholes. This will allow for in-situ testing of VOCs in soil vapor, likely coming from bedrock and groundwater, that will be used for treatability testing and remediation planning. The procedure for installation of these probes will be detailed in an attachment to this WP/FSAP Addendum prior to the start of subsurface sampling in Subarea 8N (scheduled to begin the week of April 25, 2011). No chemical samples will be collected from locations 54, 58, 59, 63, and 73. Location 51 will however be sampled for primary analytes since it is adjacent to the FSDF southeast chemical contamination area.

Numbering of Equipment Rinsate Blanks

So that equipment rinsate blanks may be easily associated with their respective soil samples, the equipment rinsate blank sample name format will be revised so that "SB" or "SS" is inserted in the sample number. For example, EB01-SA8N-SS-042511 indicates the first equipment rinsate blank collected in Subarea 8N on April 25, 2011. The "SS" identifies the blank as being collected from a surface sampling tool. "SB" would indicate that the blank was collected from a subsurface tool.

Text in Section 6.2 of the Master WP/FSAP will be revised to reflect this change in a future revision of the WP/FSAP.

Schedule

EPA is scheduled to initiate soil sampling within Subarea 8N mid-April 2011 with the collection of surface soil samples identified in Table 1. Collection of subsurface samples is schedule to begin the last week of April 2011 following completion of soil boring sampling within Subarea 5A.

References

CDM Federal Programs Corporation (CDM). 2011. *Master Work Plan/Field Sampling and Analysis Plan Co-Located Chemical Sampling at Area IV, Santa Susana Field Laboratory, Ventura County, California*. February 16.

HydroGeoLogic, Inc. 2011. *Subarea 8 North FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study, Santa Susana Field Laboratory*. March 31.

FIGURES

Figure 1
Subarea 8N Base Map
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:



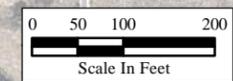
Demolished



Existing



Subarea 8N Groups



Path: Y:\Santa_Susana\EP9038\Soil_Sampling\SubArea8N\1\Subarea8N_BaseMap_11x17_.mxd
Project: EP9038
Edited By: 1/17/2011 SDK
Source: HGL 2010, CIRGIS 2007



Figure 2
Subarea 8N Group 1 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

Existing

Subarea 8 Groups

Drainage Sample

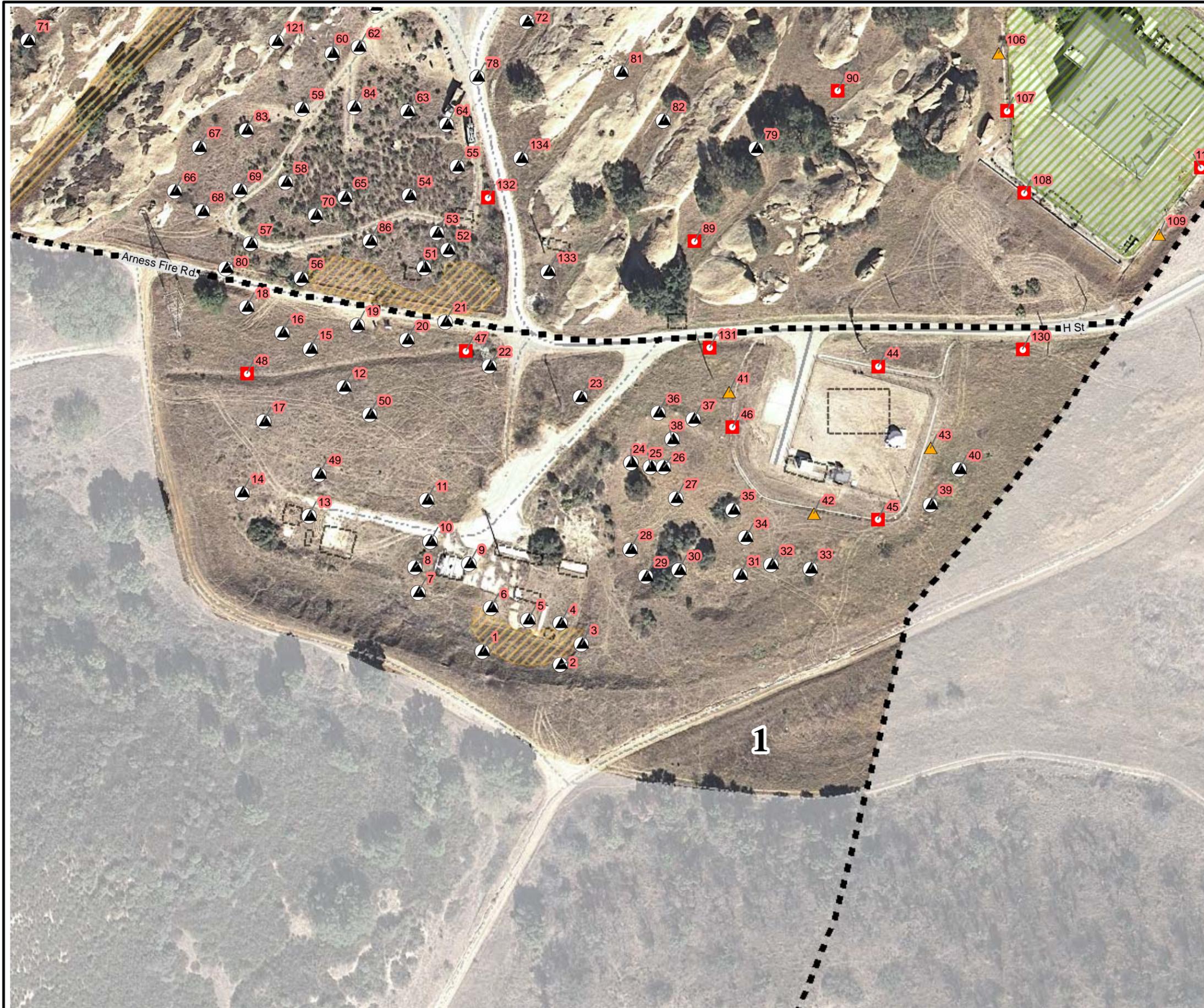
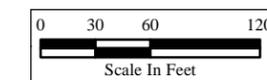
Subsurface Sample

Surface and Subsurface Sample

(Grayed Symbols Represent Soil Samples from Previous Subareas)

Likely Chemical Remediation Areas

Likely Structural Remediation Areas



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(2)Group1ProposedSampleLocations_11x17_8N.mxd
3/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

Figure 3
Subarea 8N Group 2 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

Existing

Subarea 8 Groups

Drainage Sample

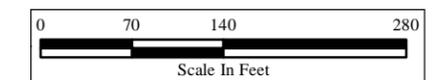
Subsurface Sample

Surface and Subsurface Sample

(Grayed Symbols Represent Soil Samples from Previous Subareas)

Likely Chemical Remediation Areas

Likely Structural Remediation Areas



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(3)Group2ProposedSampleLocations_11x17_8N.mxd
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Source:HGL 2010, CIRGIS 2007



Figure 4
Subarea 8N Group 3 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

Existing

Subarea 8 Groups

Drainage Sample

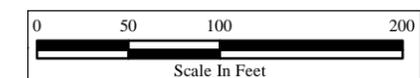
Subsurface Sample

Surface and Subsurface Sample

(Grayed Symbols Represent Soil Samples from Previous Subareas)

Likely Chemical Remediation Areas

Likely Structural Remediation Areas



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(4)Group3ProposedSampleLocations_11x17_8N.mxd
3/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007



TABLE

Table 1
Summary of Soil Sample Locations and Chemical Analyses in Subarea 8N

Group	SampleID	SampleType	Location Description	Technical Justification	Analytes	Co-located Chemical Sample Rationale
1	34	Surface	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	34	Subsurface	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	35	Surface	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	35	Subsurface	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	36	Surface	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Primary, TPH	TPH added due to location in debris area.
1	36	Subsurface	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Primary, TPH	TPH added due to location in debris area.
1	37	Surface	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	37	Subsurface	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	38	Surface	ESADA Area west of Building 4425	Geophysical anomaly "Conductivity".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	38	Subsurface	ESADA Area west of Building 4425	Geophysical anomaly "Conductivity".	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	39	Surface	ESADA Area south of Building 4425	Geophysical anomaly "Conductivity" and elevated gamma readings.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	39	Subsurface	ESADA Area south of Building 4425	Geophysical anomaly "Conductivity" and elevated gamma readings.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	40	Surface	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Primary, TPH	TPH added due to location in debris area.
1	40	Subsurface	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Primary, TPH	TPH added due to location in debris area.
1	41	Subsurface	ESADA Area west of Building 4425	Potential radiological contamination below concrete drainage ditch.	Primary, TPH	TPH added due to location in debris area.
1	42	Subsurface	ESADA Area south of Building 4425	Potential radiological contamination below concrete drainage ditch.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	43	Subsurface	ESADA Area east of Building 4425	Potential radiological contamination below concrete drainage ditch.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	44	Drainage	ESADA Area north of Building 4425	Accumulated sediment within concrete drainage ditch.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	45	Drainage	ESADA Area south of Building 4425	Accumulated sediment within concrete drainage ditch.	De-Select	Area will be targeted for trenching and additional chemical sampling during Phase II.
1	46	Drainage	ESADA Area west of Building 4425	Accumulated sediment within concrete drainage ditch.	Primary, TPH	TPH added due to location in debris area.
1	47	Drainage	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added due to proximity to waste disposal area (FSDF operational area).
1	48	Drainage	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	Primary, Glycols	Glycols added due to glycol storage at nearby ESADA Storage Yard.
1	49	Surface	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added due to location in ESADA Storage Yard.
1	49	Subsurface	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added due to location in ESADA Storage Yard.
1	50	Surface	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Primary, Glycols	Glycols added due to glycol storage at nearby ESADA Storage Yard.
1	50	Subsurface	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Primary, Glycols	Glycols added due to glycol storage at nearby ESADA Storage Yard.
1	51	Surface	Former Sodium Disposal Facility	Former concrete pool at Former Sodium Disposal Facility Building 4886.	De-Select	High density of rad sampling in former remediation/backfill area.
1	51	Subsurface	Former Sodium Disposal Facility	Former concrete pool at Former Sodium Disposal Facility Building 4886.	Primary, top of bedrock Install Soil Vapor Probe	Area was formerly excavated to bedrock as an interim measure. To be sampled for Primary analytes since adjacent to FSDF Southeast Chemical Contamination Area. Soil vapor probe to be installed for future remedial planning.
2	52	Surface	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	52	Subsurface	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	53	Surface	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	53	Subsurface	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	54	Surface	Former Sodium Disposal Facility	Area of former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	54	Subsurface	Former Sodium Disposal Facility	Area of former Upper Pond	No samples will be collected Install Soil Vapor Probe	Co-located sample de-selected due to high density of rad sampling in former remediation/backfill area. Soil vapor probe to be installed for future remedial planning.
2	55	Surface	Former Sodium Disposal Facility	Low point of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	55	Subsurface	Former Sodium Disposal Facility	Low point of the former Upper Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	56	Surface	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	56	Subsurface	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	57	Surface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	57	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	58	Surface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench" and geophysical anomaly "Conductivity".	De-Select	High density of rad sampling in former remediation/backfill area.
2	58	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench" and geophysical anomaly "Conductivity".	No samples will be collected Install Soil Vapor Probe	Co-located sample de-selected due to high density of rad sampling in former remediation/backfill area. Soil vapor probe to be installed for future remedial planning.
2	59	Surface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	59	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	No samples will be collected Install Soil Vapor Probe	Co-located sample de-selected due to high density of rad sampling in former remediation/backfill area. Soil vapor probe to be installed for future remedial planning.
2	60	Surface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	60	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	61	Surface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	61	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	62	Surface	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	62	Subsurface	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	63	Surface	Former Sodium Disposal Facility	Former Lower Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	63	Subsurface	Former Sodium Disposal Facility	Former Lower Pond.	No samples will be collected Install Soil Vapor Probe	Co-located sample de-selected due to high density of rad sampling in former remediation/backfill area. Soil vapor probe to be installed for future remedial planning.
2	64	Surface	Former Sodium Disposal Facility	Low point of the former Lower Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	64	Subsurface	Former Sodium Disposal Facility	Low point of the former Lower Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	65	Surface	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	De-Select	High density of rad sampling in former remediation/backfill area.
2	65	Subsurface	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	De-Select	High density of rad sampling in former remediation/backfill area.
2	66	Surface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	De-Select	High density of rad sampling in former remediation/backfill area.
2	66	Subsurface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	De-Select	High density of rad sampling in former remediation/backfill area.
2	67	Surface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	67	Subsurface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	68	Surface	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity".	De-Select	High density of rad sampling in former remediation/backfill area.
2	68	Subsurface	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity".	De-Select	High density of rad sampling in former remediation/backfill area.
2	69	Surface	Former Sodium Disposal Facility	Aerial photo feature "Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	69	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	70	Surface	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	De-Select	High density of rad sampling in former remediation/backfill area.
2	70	Subsurface	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	De-Select	High density of rad sampling in former remediation/backfill area.
2	71	Surface	West of the Former Sodium Disposal Facility	Historical photograph.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	71	Subsurface	West of the Former Sodium Disposal Facility	Historical photograph.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).

Table 1
Summary of Soil Sample Locations and Chemical Analyses in Subarea 8N

Group	SampleID	SampleType	Location Description	Technical Justification	Analytes	Co-located Chemical Sample Rationale
2	72	Surface	Former Sodium Disposal Facility	Previous excavation.	De-Select	High density of rad sampling in former remediation/backfill area.
2	72	Subsurface	Former Sodium Disposal Facility	Previous excavation.	De-Select	High density of rad sampling in former remediation/backfill area.
2	73	Surface	Former Sodium Disposal Facility	Previous excavation.	De-Select	High density of rad sampling in former remediation/backfill area.
2	73	Subsurface	Former Sodium Disposal Facility	Previous excavation.	No samples will be collected Install Soil Vapor Probe	Co-located sample de-selected due to high density of rad sampling in former remediation/backfill area. Soil vapor probe to be installed for future remedial planning.
2	74	Surface	Former Sodium Disposal Facility	Previous excavation.	De-Select	High density of rad sampling in former remediation/backfill area.
2	74	Subsurface	Former Sodium Disposal Facility	Previous excavation.	De-Select	High density of rad sampling in former remediation/backfill area.
2	75	Surface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	75	Subsurface	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	76	Surface	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	Primary, Secondary	Secondary suite added to delineate down drainage extent of FSDF West Chemical Contamination Area.
2	76	Subsurface	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	Primary, Secondary	Secondary suite added to delineate down drainage extent of FSDF West Chemical Contamination Area.
2	77	Drainage	Former Sodium Disposal Facility downgradient of Outfall 6	Sediment downgradient of Outfall 006.	Primary, Secondary	Secondary suite added since location is down drainage from waste disposal area (FSDF operational area).
2	78	Surface	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	78	Subsurface	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	79	Surface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	79	Subsurface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	80	Surface	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	80	Subsurface	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	81	Surface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	81	Subsurface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	82	Surface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	82	Subsurface	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	83	Surface	Former Sodium Disposal Facility	Aerial Photo Feature "Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	83	Subsurface	Former Sodium Disposal Facility	Aerial Photo Feature "Trench".	De-Select	High density of rad sampling in former remediation/backfill area.
2	84	Surface	Former Sodium Disposal Facility	Aerial photo of excavation at Lower Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	84	Subsurface	Former Sodium Disposal Facility	Aerial photo of excavation at Lower Pond.	De-Select	High density of rad sampling in former remediation/backfill area.
2	85	Surface	West of the Former Sodium Disposal Facility	Past Environmental Data.	Primary, Secondary	Full suite due to sample locations in debris area identified in aerial photo.
2	85	Subsurface	West of the Former Sodium Disposal Facility	Past Environmental Data.	Primary, Secondary	Full suite due to sample locations in debris area identified in aerial photo.
2	86	Surface	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	Primary	Area was formerly excavated to bedrock as an interim measure. To be sampled for Primary analytes since adjacent to FSDF Southeast Chemical Contamination Area.
2	86	Subsurface	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	Primary	Area was formerly excavated to bedrock as an interim measure. To be sampled for Primary analytes since adjacent to FSDF Southeast Chemical Contamination Area.
2	87	Subsurface	Former Sodium Disposal Facility south Of Outfall 7	Geophysical anomaly "Conductivity".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	88	Subsurface	Former Sodium Disposal Facility south Of Outfall 9	Geophysical anomaly "Conductivity and Ground Penetrating Radar".	Primary, Secondary	Secondary suite added to evaluate sloughing of sidewall material during excavation.
2	89	Drainage	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added due to location in waste disposal area (FSDF operational area).
2	90	Drainage	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Primary	Primary suite only due to distance from FSDF operational area; upgradient samples in drainage will be analyzed for secondary suite.
2	91	Drainage	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Primary	Primary suite only due to distance from FSDF operational area; upgradient samples in drainage will be analyzed for secondary suite.
2	92	Drainage	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added to delineate down drainage extent of FSDF West Chemical Contamination Area.
2	93	Drainage	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	Primary, Secondary	Secondary suite added to delineate down drainage extent of FSDF West Chemical Contamination Area.
2	94	Surface	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	94	Subsurface	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	95	Surface	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	95	Subsurface	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	96	Surface	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	96	Subsurface	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	97	Surface	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	97	Subsurface	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Primary	Primary suite only due to distance from operational area.
2	98	Surface	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	Primary	Primary suite only due to distance from operational area.
2	98	Subsurface	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	Primary	Primary suite only due to distance from operational area.
2	99	SubSurface	Building 4009	Geophysical anomaly "Conductivity" and north of the Building 4009 former leach field.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	400	Surface	North of Building 4009	Former leach field north of Building 4009.	De-Select	High density of rad sampling in area of former leach field.
2	400	Subsurface	North of Building 4009	Former leach field north of Building 4009.	De-Select	High density of rad sampling in area of former leach field.
2	101	Surface	North of Building 4009	Former leach field north of Building 4009.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	101	Subsurface	North of Building 4009	Former leach field north of Building 4009.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	102	Surface	North of Building 4009	Former leach field north of Building 4009.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	102	Subsurface	North of Building 4009	Former leach field north of Building 4009.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	103	Subsurface	North of Building 4009	Former leach field north of Building 4009.	Primary, Secondary	Secondary suite added due to down gradient location and proximity to former waste disposal area (Building 4009 leach field).
2	104	Subsurface	North of Building 4009	Geophysical anomaly "Manetometer" associated with former leach field.	Primary	Sample location targets magnetometer anomaly; Primary suite only.
2	105	Subsurface	Building 4009	Potential radiological contamination from holdup tank on the east side of Building 4009.	Primary, Secondary	Secondary suite added due to proximity to operational area.
2	106	Subsurface	West side Building 4009	Potential radiological contamination below concrete drainage ditch.	Primary, Secondary	Secondary suite added due to proximity to operational area.

