SUBAREA 8-SOUTH FSP ADDENDUM
SANTA SUSANA FIELD LABORATORY SITE
AREA IV RADIOLOGICAL STUDY

TO:	Andrew Bain, EPA Region 9 RPM
FROM:	T. Stewart Williford, HGL Associate Manager
THROUGH:	L. Steven Vaughn, R.G., HGL Project Manager
	Rene R. Rodriguez, P.E., HGL Deputy Project Manager
CC:	Mary Aycock, EPA Region 9 RPM
	Gregg Dempsey, Technical Advisor
DATE:	September 13, 2011
SUBJECT:	FSP Addendum for Subarea 8-South
CONTRACT NO:	EP-S7-05-05
TASK ORDER NO:	0038

INTRODUCTION

HydroGeoLogic, Inc. (HGL) has been tasked by the U.S. Environmental Protection Agency (USEPA) to conduct a radiological characterization study of Area IV and the Northern Buffer Zone at the Santa Susana Field Laboratory (SSFL) site in Ventura County, California. This work is being executed under USEPA Region 7 Architect and Engineering Services Contract EP-S7-05-05, Task Order 0038. The technical lead on the project is USEPA Region 9.

This document supports the field implementation of the overall soil sampling program and is an addendum to the master Field Sampling Plan (FSP) for Soil Sampling (HGL, 2010). A description of the overall project goals; data quality objectives; sampling strategy; laboratory analytical suites; sample depth interval selection; data quality control; and data evaluation are described in the FSP.

PURPOSE

This addendum documents the rationale used to determine the location and depth of soil samples to be collected during the first phase (Round 1) of soil sampling within Subarea 8-South. Sample locations are summarized in Table 1 (Attachment 1) and illustrated on the figures provided in Attachment 2. This addendum also documents the laboratory analyses that will be performed for each soil sample, derived from the default suite from Table 2.4 of the FSP (HGL, 2010) and adding site-specific analytes to that list by location as appropriate.

It should be noted that the specific sample locations presented herein were discussed during a technical review meeting held on August 17, 2011, with members of USEPA's SSFL Technical Stakeholder group consisting of representatives of U.S. Department of Energy (DOE), the State of California Department of Toxic Substances Control (DTSC), The Boeing Company, USEPA, and the community. Recommendations and action items identified at the technical review meeting have been incorporated into this FSP Addendum.

All soil samples will be analyzed for the default suite analytes presented in Table 2.4 of the master soil sampling FSP (HGL, 2010).

Table 1 in Attachment 1 provides the location for each soil sample that will be collected in Subarea 8-South during Round 1 of the soil sampling investigation as well as the technical justification and rationale for the selection of each sample location. Also summarized in this table is the suite of radiological analyses that will be performed on every sample, as well as other field-pertinent information including sample identification number, type, and general proximity to radiological facilities.

Figure 1 provides a map that shows the location and type (e.g. surface, subsurface, drainage) of each sample within Subarea 8-South (Attachment 2). Table 2 below, provides a summary of sample numbers by sample type.

Table 2
Summary of Sample Numbers by Sample Type

Drainage	Surface	Subsurface	Total
0	24	24	48

Attachment 3 provides key technical information that led to the selection of sample locations, sample interval selection, and the laboratory analysis that will be performed for each sample collected. The key information includes results of gamma surface radiation surveys, results of past soil radiological investigations, and the findings summarized in the Technical Memorandum Subarea HSA-7, Subarea HSA-3, Subarea HSA-Northern Buffer Zone Historical Site Assessment (HGL, 2011). No geophysical survey was conducted at Subarea 8-South, and therefore no geophysical map was included in Attachment 3.

SCHEDULE

Round 1 soil sampling within Subarea 8-South will commence in mid September 2011, and be completed by mid December 2011. USEPA will provide periodic updates to SSFL Stakeholders regarding the status of the soil sampling program as well as the laboratory analysis and data interpretation.

REFERENCES

HydroGeoLogic, Inc., 2010. Field Sampling Plan for Soil Sampling, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. October 4, 2010.

HydroGeoLogic, Inc., 2011. Draft, Technical Memorandum, Subarea HSA-8, Historical Site Assessment, Santa Susana Field Laboratory Area IV Radiological Study, Ventura County, California. March 28, 2011.

State of California, Environmental Protection Agency, Department of Toxic Substances Control, 2010. Administrative Order On Consent For Remedial Action, Santa Susana Field Laboratory, Simi Hills, Ventura County, California. December 6, 2010.

LIST OF ATTACHMENTS

ATTACHMENT 1

Table 1 Summary of Soil Sample Locations in Subarea 8-South

Table 1
Summary of Soil Sample Locations in Subarea 8-South

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite[1]
1	Surface	Southern most corner of Subarea 8-South.	Historical data show elevated levels of radionuclides.	Default
1	Subsurface	Southern most corner of Subarea 8-South.	Historical data show elevated levels of radionuclides.	Default
2	Surface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, " Disturbed Soil".	Default
2	Subsurface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, " Disturbed Soil".	Default
3	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
3	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
4	Surface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
4	Subsurface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
5	Surface	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
5	Subsurface	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
6	Surface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
6	Subsurface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
7	Surface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
7	Subsurface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Default
8	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
8	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
9	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
9	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
10	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
10	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
11	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
11	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
12	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
12	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
13	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Default
13	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Default
14	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	Default
14	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	Default
15	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Default
15	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Default
16	Surface	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Historical data show elevated levels of radionuclides . Potential contamination from Open Storage activities associated with the FSDF.	Default
16	Subsurface	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Historical data show elevated levels of radionuclides . Potential contamination from Open Storage activities associated with the FSDF.	Default
17	Surface	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Potential contamination from Open Storage activity conducted at the FSDF.	Default
17	Subsurface	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Potential contamination from Open Storage activity conducted at the FSDF.	Default
18	Surface	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Potential contamination from Open Storage activities associated with the FSDF.	Default

Table 1
Summary of Soil Sample Locations in Subarea 8-South

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite[1]
18	Subsurface	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Potential contamination from Open Storage activities associated with the FSDF.	Default
19	Surface	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
19	Subsurface	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
20	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
20	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
21	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
21	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
22	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
22	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
23	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
23	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
24	Surface	West portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default
24	Subsurface	West portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Default

Notes:

[1] Default suite includes the radionuclide analysis shown in Table 2.4 of the Field Sampling Plan for Soil Sampling (HGL, 2010a). All samples will be tested for the default suite of analytes.

FSDF - Fomrer Sodium Disposal Facility

ATTACHMENT 2

Figure 1 Subarea 8-South Sample Locations

Figure 1
Subarea 8S Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9

Legend

Buildings:

- Demolished
- Existing
- Subarea 8S

- Drainage Sample
- Surface and Subsurface Sample

N

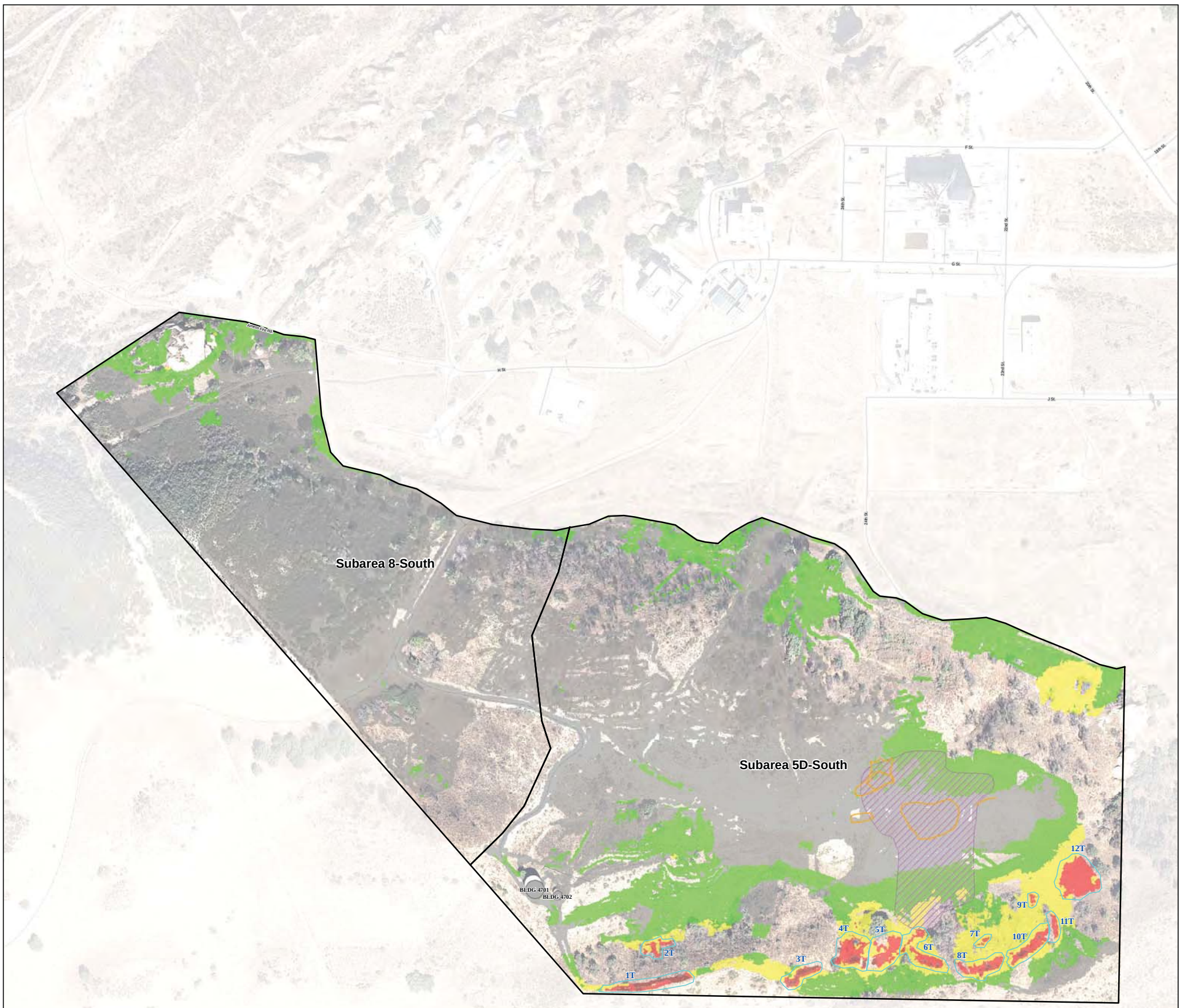
0 50 100 200
Scale In Feet

Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea8S_5DS\(1)ProposedSampleLocations_11x17_8S.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

HGL HydroGeoLogic, Inc

ATTACHMENT 3

Gamma Anomalies Static Count Subarea 5D South and 8-South
Past Radiological Soil Investigations Subarea 8-South
Plate 1 Subarea HSA-8



Legend

- PGRAY Boundary
- SubArea 5D South and 8 South Boundary
- Geophysical Anomalies
- HSA

Buildings

- DEMOLISHED
- EXISTING

Centerline Roads

- PRIMARY ROADS
- SECONDARY ROADS
- TERTIARY ROADS

Total Count (CPS)

12000 15000 18000 21000

N

0 125 250 500

Scale In Feet

Gamma Anomalies
Static Count
Subarea 5D South and 8 South
Santa Susana Field Laboratory

U.S. EPA Region 9

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Project: EP9038
Edited: 05/18/11 PL
Source:Boeing Company, 2008
CIRGIS, 2007

HydroGeoLogic, Inc

Legend

RAD Soil Location

- Above NDA
- Below NDA
- Subareas_polygon
- Subarea 8 Groups
- Primary Roads
- Secondary Roads
- Tertiary Roads
- ScreenLayer
- Demolished
- Existing

Past Radiological Soil Investigations
Subarea 8 South
Santa Susana Field Laboratory

U.S. EPA Region 9

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Subarea8South_RadSoil.mxd
7/14/2011 sdrallos-kopecky
Source:HGL 2010, CIRGIS 2007

Legend

- Subarea 8 Groups

Centerline Roads
- Primary Roads
- Secondary Roads
- Tertiary Roads

Buildings
- Demolished
- Existing
- Parking Lots

Surface Water
- Intermittent Stream
- Permanent Stream
- Surface Water
- Lined Channel

Tanks
- Above ground Storage Tank
- Underground Storage Tank
- Unknown Tank Type
- French Drain Holding Tank
- Sump
- Dry Well
- Tank Footprint
- Drain
- Well
- French Drain
- Drainage
- Leach Field
- Septic System

Aerial Photography Data
- Aerial Photography Features
- Septic Tank
- Leach Field
- Cooling Fan
- Other

Utilities
- Gas
- Storm Drain
- Sanitary Sewer
- Sanitary Waste
- Water
- Water (Removed)

Surface Features
- Channel
- Drain
- Drain
- Drainage Divide
- Gutter
- Tank
- Tank
- Vault
- Well
- Surface Water Flow (From Boeing Database, 2008)

Aerial Photography Descriptors

Type	Description
B	Building
CONT	Container
CR	Crates
DB	Debris
DG	Disturbed Ground
DTM	Dark Tone Material
EX	Excavation
FA	Fill Area
GS	Ground Scar
HT	Horizontal Tank
IM	Impoundment
LTMM	Light Toned Mounded Material
MTMM	Medium Toned Mounded Material
OS	Open Storage
PA	Processing Area
PL	Pipeline
POSS	Possible
PROB	Probable
SS	Smoke Stack
ST	Stain
S-T	Storage Tank
UO	Unidentified Object
VT	Vertical Tank
WDA	Waste Disposal Area

N

0 50 100 200
Scale In Feet

Historical Site Assessment
Draft Technical Memorandum - HSA-8

Plate 1
Subarea HSA-8
Santa Susana Field Laboratory

U.S. EPA Region 9

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Project: EP9038
Edited: 09/14/2010 TJ
Source:Boeing Company, 2008
CIRGIS, 2007

HGL