
SUBAREA 7 FSP ADDENDUM
SANTA SUSANA FIELD LABORATORY SITE
AREA IV RADIOLOGICAL STUDY

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SUBJECT: FSP Addendum for Subarea 7
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 7. 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, including those on the topic of "likely chemical remediation" (LCR)

zones and Likely Decontamination & Decommissioning (LD&D) zones have been incorporated into this FSP Addendum. In Subarea 7 there is one LCR zone and two LD&D zones. USEPA understands that most, if not all, surface soil and infrastructure (building structures, concrete slabs, above-ground pipelines and underground pipelines etc.) may be excavated and removed from areas identified as LCR and LD&D zones. Therefore, USEPA placed a reduced number of surface/subsurface samples within the LCR zones to define potential contamination at depth and placed surface/subsurface samples around the zone's perimeter to better define the potential extent of contamination associated with such zones. No samples were placed in the LD&D zones. In accordance with our role under the Administrative Order on Consent for Remedial Action (DTSC, 2010) agreement between DTSC and DOE for the SSFL site, USEPA will conduct verification soil sampling post excavation to evaluate the attainment of site soil cleanup levels at all such remediation zones.

All soil samples will be analyzed for the default suite analytes presented in Table 2.4 of the FSP for Soil Sampling (HGL, 2010). In addition to the default analytes, soil samples collected in the vicinity of the former Building 4028 (Shield Test Irradiation Reactor) will be tested for the site-specific analytes C-14, H-3, I-129, Ni-59, Ni-63 and Tc-99 in accordance with Table 2.4 of the FSP for Soil Sampling (HGL, 2010).

Table 1 in Attachment 1 provides the location for each soil sample that will be collected in Subarea 7 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 base map that shows the current and former buildings within Subarea 7. Figures 2 through 4 are maps that show the location and type (e.g. surface, subsurface, drainage) of each sample within Subarea 7 (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
9	114	175	298

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 geophysical surveys, 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).

SCHEDULE

Round 1 soil sampling within Subarea 7 will begin in mid September 2011, and be completed by late November 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-7, Subarea HSA-3, Subarea HSA-Northern Buffer Zone, Historical Site Assessment, Santa Susana Field Laboratory Area IV Radiological Study, Ventura County, California. August, 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

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ATTACHMENT 1

Table 1 Summary of Soil Sample Locations in Subarea 7

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
1	Surface	Southwest portion of Subarea 7. Northeast of the 56 Excavation.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1	Default
1	Subsurface	Southwest portion of Subarea 7. Northeast of the 56 Excavation.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1	Default
2	Surface	Site 4614 - Northwest of Site 4614.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2C	Default + H-3
2	Subsurface	Site 4614 - Northwest of Site 4614.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2C	Default + H-3
3	Surface	Site 4614 - North of Site 4614.	Gamma scanning results show a gamma radiation anomaly - GRAY 3	Default + H-3
3	Subsurface	Site 4614 - North of Site 4614.	Gamma scanning results show a gamma radiation anomaly - GRAY 4	Default + H-3
4	Surface	Site 4614 - Northeast of Site 4614.	Gamma scanning results show a gamma radiation anomaly - GRAY 4C.	Default + H-3
4	Subsurface	Site 4614 - Northeast of Site 4614.	Gamma scanning results show a gamma radiation anomaly - GRAY 4C.	Default + H-3
5	Surface	Site 4614 - East of Site 4614 and west of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 5C	Default + H-3
5	Subsurface	Site 4614 - East of Site 4614 and west of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 5C	Default + H-3
6	Surface	Site 4614 - East of Site 4614 and west of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6C	Default + H-3
6	Subsurface	Site 4614 - East of Site 4614 and west of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6C	Default + H-3
7	Surface	RMHF - West side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 7C	Default
7	Subsurface	RMHF - West side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 7C	Default
8	Surface	RMHF - West side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 8C	Default
8	Subsurface	RMHF - West side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 8C	Default
9	Surface	RMHF - North side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 9C	Default
9	Subsurface	RMHF - North side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 9C	Default
10	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 10C	Default
10	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 10C	Default
11	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 11C	Default
11	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 11C	Default
12	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 12C	Default
12	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 12C	Default
13	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 13C	Default
13	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 13C	Default
14	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 14C	Default
14	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 14C	Default
15	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 15C	Default
15	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 15C	Default
16	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 16C	Default
16	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 16C	Default
17	Surface	RMHF - Northeast side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 17C	Default
17	Subsurface	RMHF - Northeast side, outside of fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 17C	Default
18	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 18C	Default
18	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 18C	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
19	Surface	North Drainage - North of the RMHF, on the north side of the drainage.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 19T	Default
19	Subsurface	North Drainage - North of the RMHF, on the north side of the drainage.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 19T	Default
20	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 20C	Default
20	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 20C	Default
21	Surface	RMHF - Southeast side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 21C	Default
21	Subsurface	RMHF - Southeast side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 21C	Default
22	Surface	RMHF - Northeast corner, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 22C	Default
22	Subsurface	RMHF - Northeast corner, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 22C	Default
23	Surface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 23C	Default
23	Subsurface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 23C	Default
24	Surface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 24C	Default
24	Subsurface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 24C	Default
25	Surface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 25C	Default
25	Subsurface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 25C	Default
26	Surface	Former Building 4654 - Northwest of former Building 4654 on the west side of the road.	Gamma scanning results show a gamma radiation anomaly - GREY 26C	Default + H-3
26	Subsurface	Former Building 4654 - Northwest of former Building 4654 on the west side of the road.	Gamma scanning results show a gamma radiation anomaly - GREY 26C	Default + H-3
27	Surface	Former Building 4133 - Northwest of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 27C	Default
27	Subsurface	Former Building 4133 - Northwest of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 27C	Default
28	Surface	Former Building 4654 - Northwest of former Building 4654. west side of the road.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 28C	Default + H-3
28	Subsurface	Former Building 4654 - Northwest of former Building 4654. west side of the road.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 28C	Default
29	Surface	Former Building 4654 - Northwest of former Building 4654, west edge of the road.	Gamma scanning results show a gamma radiation anomaly - GRAY 29C	Default
29	Subsurface	Former Building 4654 - Northwest of former Building 4654, west edge of the road.	Gamma scanning results show a gamma radiation anomaly - GRAY 29C	Default
30	Surface	Former Building 4654 - Southwest of former Building 4654, west edge of the road.	Gamma scanning results show a gamma radiation anomaly - GRAY 30C	Default
30	Subsurface	Former Building 4654 - Southwest of former Building 4654, west edge of the road.	Gamma scanning results show a gamma radiation anomaly - GRAY 30C	Default
31	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 31C	Default
31	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 31C	Default
32	Surface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 32C	Default
32	Subsurface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 32C	Default
33	Surface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 33C	Default
33	Subsurface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 33C	Default
34	Surface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 34C	Default
34	Subsurface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 34C	Default
35	Surface	Building 4133 - Southwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 35C	Default
35	Subsurface	Building 4133 - Southwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 35C	Default
36	Surface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 36C	Default
36	Subsurface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 36C	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
37	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 37C	Default + SS
37	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 37C	Default + SS
38	Surface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 38C	Default
38	Subsurface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 38C	Default
39	Surface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 39C	Default
39	Subsurface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 39C	Default
40	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 40C	Default
40	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 40C	Default
41	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 41C	Default + SS
41	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 41C	Default + SS
42	Surface	Former Building 4811 - South of former Building 4811.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 42C	Default
42	Subsurface	Former Building 4811 - South of former Building 4811.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 42C	Default
43	Surface	Site 4614 - Southwest of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Default
43	Subsurface	Site 4614 - Southwest of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Default
44	Surface	RMHF - North side of the RMHF within the asphalt drainage ditch.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 17C.	Default
44	Subsurface	RMHF - North side of the RMHF within the asphalt drainage ditch.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 17C.	Default
45	Surface	RMHF - West side of the RMHF, outside of the fence.	Location of former drainage from RMHF to the former holding pond. Historical data show elevated levels of radionuclide's. Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 7C.	Default
45	Subsurface	RMHF - West side of the RMHF, outside of the fence.	Location of former drainage from RMHF to the former holding pond. Historical data show elevated levels of radionuclide's. Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 7C.	Default
46	Surface	Site 4614 - East of the former RMHF Holding Pond and west of the RMHF.	Potential residual contamination from the remediation of the former drainage way from RMHF to the former holding pond. Historical data show elevated reading of radionuclide's.	Default
46	Subsurface	Site 4614 - East of the former RMHF Holding Pond and west of the RMHF.	Potential residual contamination from the remediation of the former drainage way from RMHF to the former holding pond. Historical data show elevated reading of radionuclide's.	Default
47	Surface	Site 4614 - Center of the RMHF Holding Pond.	Characterize potential residual contamination within the former RMHF Holding Pond.	Default
47	Subsurface ²	Site 4614 - Center of the RMHF Holding Pond.	Characterize potential residual contamination within the former RMHF Holding Pond.	Default
48	Surface	Site 4614 - Southwest side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Default
48	Subsurface	Site 4614 - Southwest side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Default
49	Surface	Site 4614 - Northeast side of the former holding pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Default + H-3
49	Subsurface	Site 4614 - Northeast side of the former holding pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Default + H-3
50	Surface	Site 4614 - Southeast side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond. Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
50	Subsurface	Site 4614 - Southeast side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond. Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
51	Surface	Site 4614 - East of the former RMHF Holding Pond and west of the RMHF.	Location of former surface water drainage from RMHF to the former holding pond. Historical data show elevated concentrations of radionuclide's. Aerial photo feature, "Debris Area".	Default
51	Subsurface	Site 4614 - East of the former RMHF Holding Pond and west of the RMHF.	Location of former surface water drainage from RMHF to the former holding pond. Historical data show elevated concentrations of radionuclide's. Aerial photo feature, "Debris Area".	Default
52	Surface	RMHF - North side of the RMHF, in the asphalt drainage located just outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 17C.	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
52	Subsurface	RMHF - North side of the RMHF, in the asphalt drainage located just outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 17C.	Default
53	Surface	RMHF - North side of the RMHF, in the asphalt drainage located just outside of the fence.	Gamma scanning survey readings indicate elevated readings of cesium associated with GRAY 17C.	Default
53	Subsurface	RMHF - North side of the RMHF, in the asphalt drainage located just outside of the fence.	Gamma scanning survey readings indicate elevated readings of cesium associated with GRAY 17C.	Default
54	Surface	RMHF - Northeast side of the RMHF, in the drainage ditch located just outside of the fence.	Gamma scanning survey readings indicate elevated readings of cesium along the trough of the drainage ditch.	Default
54	Subsurface	RMHF - Northeast side of the RMHF, in the drainage ditch located just outside of the fence.	Gamma scanning survey readings indicate elevated readings of cesium along the trough of the drainage ditch.	Default
55	Drainage	RMHF - Drainage on the northeast corner of the RMHF.	Characterize potential radiological contamination in drainage due to surface water run-off from the RMHF.	Default
56	Subsurface ¹	RMHF - Septic Leach Field. Approximately 75 feet north of the northeast portion of the RMHF.	Characterize potential residual contamination from the remediation of the RMHF Septic Leach Field. Geophysical feature, "Conductivity Anomaly". Historical data show elevated levels of radionuclide's within the area.	Default + H-3
57	Subsurface ¹	RMHF - Septic Leach Field. Approximately 85 feet north of the northeastern portion of the RMHF.	Characterize potential residual contamination from the remediation of the RMHF Septic Leach Field. Geophysical feature, "Conductivity Anomaly". Historical data show elevated levels of radionuclide's in the area.	Default + H-3
58	Subsurface ¹	RMHF - Septic Leach Field. Approximately 65 feet north of the northeastern portion of the RMHF.	Characterize potential residual contamination from remediation of the RMHF Septic Leach Field. Geophysical feature, "Conductivity Anomaly". Historical data show elevated levels of radionuclide's in the area.	Default + H-3
59	Subsurface ¹	RMHF - Septic 75 feet north of the northeast corner of the RMHF.	Characterize potential residual contamination associated with the removal and remediation of the RMHF Septic Leach Field. Geophysical feature, "Conductivity Anomaly".	Default + H-3
60	Subsurface ¹	RMHF - Septic Leach Field. Approximately 100 feet north of the northeast corner of the RMHF.	Characterize potential residual contamination from the removal and remediation of the RMHF Septic Leach Field. Geophysical feature, "Conductivity Anomaly".	Default + H-3
61	Surface	North Drainage - Approximately 150 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Characterize potential contamination from surface water run-off from Building 4133.	Default
61	Subsurface	North Drainage - Approximately 150 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Characterize potential contamination from surface water run-off from Building 4133.	Default
62	Drainage	Building 4133 - Approximately 100 feet southwest of Building 4133.	Characterize potentially contaminated sediment in the drainage that may have originated from Building 4133. Geophysical feature, "Conductivity and Magnetometer Anomalies".	Default
63	Subsurface	Building 4133 - Approximately 70 feet southwest of Building 4133.	Geophysical feature, "Conductivity and Magnetometer Anomalies".	Default
64	Subsurface	Building 4133 - Approximately 70 feet southwest of Building 4133.	Geophysical features, "Conductivity and Magnetometer Anomalies".	Default
65	Subsurface	Building 4133 - Approximately 220 feet northwest of Building 4133.	Aerial photo feature, "Debris Area". Geophysical features, "Conductivity and Magnetometer Anomalies".	Default
66	Surface	Northern Drainage - Approximately 245 feet north of the northeastern portion of the RMHF.	Aerial photo feature, Debris Area. Gamma scanning survey indicate slightly elevated gamma readings.	Default
66	Subsurface	Northern Drainage - Approximately 245 feet north of the northeastern portion of the RMHF.	Aerial photo feature, Debris Area. Gamma scanning survey indicate slightly elevated gamma readings.	Default
67	Surface	Northern Drainage - Approximately 225 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma survey indicates slightly elevated gamma readings.	Default
67	Subsurface	Northern Drainage - Approximately 225 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma survey indicates slightly elevated gamma readings.	Default
68	Surface	Northern Drainage - Approximately 190 feet north of the northern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma scanning survey results indicate slightly elevated gamma readings in the area.	Default
68	Subsurface	Northern Drainage - Approximately 190 feet north of the northern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma scanning survey results indicate slightly elevated gamma readings in the area.	Default
69	Surface	Northern Drainage - Approximately 190 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma scanning survey results indicate slightly elevated gamma readings in the area.	Default
69	Subsurface	Northern Drainage - Approximately 190 feet north of the northeastern portion of the RMHF.	Aerial photo feature, "Debris Area". Gamma scanning survey results indicate slightly elevated gamma readings in the area.	Default
70	Surface	Northeast portion of Subarea 7. Northwest of the SRE area.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 37C. Aerial photo feature, "Cleared Area".	Default + SS
70	Subsurface	Northeast portion of Subarea 7. Northwest of the SRE area.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 37C. Aerial photo feature, "Cleared Area".	Default + SS
71	Surface	Northeast portion of Subarea 7. Northwest of the SRE area.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 37. Aerial photo feature, "Cleared Area".	Default + SS

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
71	Subsurface	Northeast portion of Subarea 7. Northwest of the SRE area.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 37. Aerial photo feature, "Cleared Area".	Default + SS
72	Subsurface	Former Building 4654 - Northwest corner of former Building 4654 foot print.	Historical records show elevated levels of radionuclide's in this area. Geophysical feature, "GPR". Aerial photo feature, "Open Storage".	Default + H-3
73	Surface	Former Building 4654 - West of former Building 4654 foot print, along the west side of the road.	Elevated gamma survey readings associated with GRAY 30.	Default
73	Subsurface	Former Building 4654 - West of former Building 4654 foot print, along the west side of the road.	Elevated gamma survey readings associated with GRAY 30.	Default
74	Subsurface	Former Building 4654 - Southwest corner of former Building 4654.	Former location of eight storage tubes used to store spent fuel rods. Aerial photo feature, "Open Storage". Geophysical feature, "GPR".	Default + H-3
75	Subsurface	Former Building 4654 - South edge of former Building 4654 foot print.	Former location of storage tubes used to store spent fuel rods. Aerial photo feature, "Open Storage". Geophysical feature, "GPR".	Default + H-3
76	Surface	Former Building 4654 - West of former Building 4654 foot print along the west side of the road.	Elevated gamma survey readings associated with GRAY 29.	Default
76	Subsurface	Former Building 4654 - West of former Building 4654 foot print along the west side of the road.	Elevated gamma survey readings associated with GRAY 29.	Default
77	Surface	Former Building 4654 - Southwest corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show levels of radionuclide's in this area.	Default + H-3
77	Subsurface	Former Building 4654 - Southwest corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show levels of radionuclide's in this area.	Default + H-3
78	Surface	Former Building 4654 - Northeast corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show past contamination in this area.	Default + H-3
78	Subsurface	Former Building 4654 - Northeast corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show past contamination in this area.	Default + H-3
79	Subsurface	Building 4133 - South side of Building 4133, outside of the fence.	Characterize potential contamination resulting from activities conducted at Building 4133. Aerial photo feature, "Open Storage".	Default
80	Subsurface	Building 4133 - Southwest side of Building 4133, outside of the fence.	Characterize potential contamination resulting from activities conducted at Building 4133. Aerial photo feature, "Open Storage".	Default
81	Subsurface	Building 4133 - North side of Building 4133, outside of the fence.	Characterize potential contamination associated with activities conducted at Building 4133. Location of former temporary underground tank. Aerial photo feature, "Open Storage".	Default
82	Subsurface	Building 4133 - East side of Building 4133, outside of the fence.	Characterize potential contamination associated with activities conducted at Building 4133. Aerial photo feature, "Open Storage".	Default
83	Surface	RMHF - North side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 9C.	Default
83	Subsurface	RMHF - North side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 9C.	Default
84	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity Anomaly". Aerial photo feature, Ground Scar".	Default
85	Surface	Site 4614 - West of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Default
85	Subsurface	Site 4614 - West of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Default
86	Surface	RMHF - Northwest corner of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 9C.	Default
86	Subsurface	RMHF - Northwest corner of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 9C.	Default
87	Surface	RMHF - Approximately 30 north of the northwest corner of the RMHF.	Aerial photo feature, "Debris Area". Potential contamination associated with GRAY 9C.	Default
87	Subsurface	RMHF - Approximately 30 north of the northwest corner of the RMHF.	Aerial photo feature, "Debris Area". Potential contamination associated with GRAY 9C.	Default
88	Surface	RMHF - Approximately 60 feet north of the western corner of the RMHF.	Aerial photo feature, "Debris Pile". Potential surface water run-off from the RMHF.	Default
88	Subsurface	RMHF - Approximately 60 feet north of the western corner of the RMHF.	Aerial photo feature, "Debris Pile". Potential surface water run-off from the RMHF.	Default
89	Surface	Northern Drainage - Up gradient (East) of Outfall 3, in pond area.	Characterize potential contamination in soil within ponded area. Geophysical feature, "Conductivity Anomaly".	Default
89	Subsurface	Northern Drainage - Up gradient (East) of Outfall 3, in pond area.	Characterize potential contamination in soil within ponded area. Geophysical feature, "Conductivity Anomaly".	Default
90	Surface	RMHF - West side of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 7C.	Default
90	Subsurface	RMHF - West side of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 7C.	Default
91	Surface	RMHF - Southwest corner of the RMHF, outside of the fence.	Gama scanning survey readings indicate elevated levels of cesium associated with GRAY 10C.	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
91	Subsurface	RMHF - Southwest corner of the RMHF, outside of the fence.	Gama scanning survey readings indicate elevated levels of cesium associated with GRAY 10C.	Default
92	Surface	RMHF - Southside of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 10C.	Default
92	Subsurface	RMHF - Southside of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 10C.	Default
93	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey reading indicate elevated levels of cesium associated with GRAY 14C.	Default
93	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey reading indicate elevated levels of cesium associated with GRAY 14C.	Default
94	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 14C.	Default
94	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 14C.	Default
95	Surface	RMHF - Southeast corner of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 14C.	Default
95	Subsurface	RMHF - Southeast corner of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 14C.	Default
96	Surface	RMHF - Southwest portion of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 18C.	Default
96	Subsurface	RMHF - Southwest portion of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 18C.	Default
97	Surface	RMHF - South central portion of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 21C.	Default
97	Subsurface	RMHF - South central portion of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 21C.	Default
98	Surface	RMHF - Southeast side of the RMHF, outside of the fence.	Characterize potential contamination originating from sewer line that exits the RMHF at this location.	Default
98	Subsurface	RMHF - Southeast side of the RMHF, outside of the fence.	Characterize potential contamination originating from sewer line that exits the RMHF at this location.	Default
99	Surface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 24C.	Default
99	Subsurface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 24C.	Default
100	Surface	RMHF - Northeast corner of the RMHF, outside of the fence.	Gamma scanning readings indicate elevated levels of cesium associated with GRAY 22C.	Default
100	Subsurface	RMHF - Northeast corner of the RMHF, outside of the fence.	Gamma scanning readings indicate elevated levels of cesium associated with GRAY 22C.	Default
101	Surface	RMHF - North side of the RMHF, on north facing slope.	Process knowledge feature, "2 inch Discharge Pipe".	Default
101	Subsurface	RMHF - North side of the RMHF, on north facing slope.	Process knowledge feature, "2 inch Discharge Pipe".	Default
102	Subsurface	Former Building 4028 - East side of former Building 4028 foot print.	Former location of Fuel Storage Vault.	Default + SS
103	Subsurface ³	Former Building 4028 - South central portion of the former Building 4028 foot print.	Former location of the Reactor Pool (Drawing 301-018-P4).	Default + SS
104	Subsurface ³	Former Building 4028 - Southwest corner of the former Building 4028 foot print.	Former location of Reactor Pool (Drawing 301-018-P4).	Default + SS
105	Subsurface ³	Former Building 4028 - Southwest portion of former Building 4028.	Former location of the Reactor Pool (Drawing 301-018-P4).	Default + SS
106	Subsurface ³	Former Building 4028 - Southwest portion of the former Building 4028 foot print.	Former location of the Reactor Pool (Drawing 301-018-P4)	Default + SS
107	Subsurface ³	Former Building 4028 - Western portion of former Building 4028.	Former location of the Test Vault and Cask Pit.	Default + SS
108	Subsurface	Former Building 4028 - Western portion of the former Building 4028 foot print.	Former location of the Test Vault.	Default + SS
109	Subsurface	Former Building 4028 - South of the former Building 4028 foot print.	Geophysical feature, "Conductivity Anomaly".	Default + SS
110	Drainage	Site 4614 (RMHF Holding Pond). Approximately 60 feet south of the RMHF Holding Pond.	Characterize potential contamination in drainage from surface water run-off from former Buildings 4811 and 4028.	Default + SS
111	Drainage	Site 4614 - Approximately 30 feet north of the RMHF former Holding Pond.	Characterize potential contamination in drainage that may have originated in from the RMHF Holding Pond.	Default + SS
112	Subsurface	Site 4614 . Approximately 165 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default + SS
113	Subsurface	Southwest portion of Subarea 7. Approximately 230 feet to the southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default
114	Subsurface	Southwest Portion of Subarea 7. Approximately 180 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default
115	Subsurface	Approximately 240 feet southwest of the RMHF Holding Pond .	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default
116	Subsurface	Approximately 180 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
117	Subsurface	Approximately 135 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Potential residual contamination from remediation activities conducted at the RMHF Holding Pond.	Default
118	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Default
119	Surface	Southwest corner of Subarea 7. North of former Building 4013.	Characterize potential contamination as a result of surface water run-off from open storage areas associated with former Building 4013 and 4012.	Default
119	Subsurface	Southwest corner of Subarea 7. North of former Building 4013.	Characterize potential contamination as a result of surface water run-off from open storage areas associated with former Building 4013 and 4012.	Default
120	Surface	Southwest corner of Subarea 7. North of Building 4019.	Characterize potential contamination resulting from surface water run-off from the Open Storage area associated with Building 4019 and former Building 4013.	Default
120	Subsurface	Southwest corner of Subarea 7. North of Building 4019.	Characterize potential contamination resulting from surface water run-off from the Open Storage area associated with Building 4019 and former Building 4013.	Default
121	Surface	Southwest corner of Subarea 7. North of Building 4019.	Characterize potential contamination resulting from surface water run-off from the Open Storage area associated with Building 4019 and former Building 4013.	Default
121	Subsurface	Southwest corner of Subarea 7. North of Building 4019.	Characterize potential contamination resulting from surface water run-off from the Open Storage area associated with Building 4019 and former Building 4013.	Default
122	Drainage	Site 4614 - Approximately 30 feet north of the Former RMHF Holding Pond.	Characterize potential contamination in drainage leading from the former RMHF Holding Pond. Aerial photo feature, "Disturbed Soil".	Default + SS
123	Surface	Southwest corner of Subarea 7.	Characterize potential contamination as a result of surface water run-off from the SNAP. Aerial photo feature, "Debris".	Default
123	Subsurface	Southwest corner of Subarea 7.	Characterize potential contamination as a result of surface water run-off from the SNAP. Aerial photo feature, "Debris".	Default
124	Drainage	Southwest corner of Subarea 7.	Characterize potential contamination in the drainage that may have originated from debris up gradient and surface water run-off from the SNAP or Building 4019.	Default
125	Surface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Conductivity Anomaly".	Default + H-3
125	Subsurface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Conductivity Anomaly".	Default + H-3
126	Subsurface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Magnetometer Anomaly".	Default + H-3
127	Subsurface	Former Building 4028 - South of former Building 4028 and north of former Building 4025.	Geophysical feature, "Conductivity Anomaly".	Default + H-3
128	Subsurface	Former Building 4028 - West side of former Building 4028 foot print.	Test Vault Access way.	Default + H-3
129	Surface	RMHF - West of the RMHF and east of the former RMHF Holding Pond.	Location of former 4 inch cast iron pipe that exited from the RMHF. Potential drain that emptied into the former RMHF Holding Pond.	Default
129	Subsurface	RMHF - West of the RMHF and east of the former RMHF Holding Pond.	Location of former 4 inch cast iron pipe that exited from the RMHF. Potential drain that emptied into the former RMHF Holding Pond.	Default
130	Surface	Site 4614 - Approximately 40 feet northeast of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C. Geophysical feature, "Conductivity".	Default
130	Subsurface	Site 4614 - Approximately 40 feet northeast of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C. Geophysical feature, "Conductivity".	Default
131	Surface	Site 4614 - Approximately 60 feet northeast of the former RMHF Holding Pond.	Geophysical feature, "Conductivity". Potential residual contamination from remediation of RMHF Holding Pond.	Default
131	Subsurface	Site 4614 - Approximately 60 feet northeast of the former RMHF Holding Pond.	Geophysical feature, "Conductivity". Potential residual contamination from remediation of RMHF Holding Pond.	Default
132	Subsurface	Former Building 4028 - Northwest corner of the former Test Vault Access way of former Building 4028.	Location of drainage sump within the former Test Vault access way.	Default + H-3
133	Drainage	Site 4614 - Approximately 25 feet south of the RMHF Holding Pond.	Characterize potential residual contamination from remediation of RMHF Holding Pond. Potential contamination from surface water run-off from former Buildings 4811 and 4028. Geophysical feature, "Conductivity". Aerial photo feature' "Debris Area".	Default + H-3
133	Subsurface	Site 4614 - Approximately 25 feet south of the RMHF Holding Pond.	Characterize potential residual contamination from remediation of RMHF Holding Pond. Potential contamination from surface water run-off from former Buildings 4811 and 4028. Geophysical feature, "Conductivity". Aerial photo feature' "Debris Area".	Default + H-3

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
134	Surface	Site 4614 - Approximately 55 feet east of the RMHF Holding Pond.	Gamma survey reading indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
134	Subsurface	Site 4614 - Approximately 55 feet east of the RMHF Holding Pond.	Gamma survey reading indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
135	Surface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
135	Subsurface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Default + H-3
136	Surface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C. Geophysical feature, "Conductivity".	Default + H-3
136	Subsurface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C. Geophysical feature, "Conductivity".	Default + H-3
137	Surface	Northern Drainage - Approximately 55 feet northeast of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Default + H-3
137	Subsurface	Northern Drainage - Approximately 55 feet northeast of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Default + H-3
138	Surface	Site 4614 - North of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Default + H-3
138	Subsurface	Site 4614 - North of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Default + H-3
139	Surface	Northern Drainage - North of the RMHF.	Gamma scanning survey results indicate elevated levels of cesium associated with GRAY 16C.	Default
139	Subsurface	Northern Drainage - North of the RMHF.	Gamma scanning survey results indicate elevated levels of cesium associated with GRAY 16C.	Default
140	Surface	Northern Drainage - North of the RMHF.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 16C.	Default
140	Subsurface	Northern Drainage - North of the RMHF.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 16C.	Default
141	Surface	Northern Drainage - Northeast of the northeastern portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C. Aerial photo feature, "Debris Area".	Default
141	Subsurface	Northern Drainage - Northeast of the northeastern portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C. Aerial photo feature, "Debris Area".	Default
142	Surface	Northern Drainage - Northeast of the northeast portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C.	Default
142	Subsurface	Northern Drainage - Northeast of the northeast portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C.	Default
143	Surface	Northern Drainage - Northeast of the northeastern portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C.	Default
143	Subsurface	Northern Drainage - Northeast of the northeastern portion of the RMHF.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 23C.	Default
144	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Default
144	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Default
145	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Default
145	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Default
146	Surface	Building 4133 - West side of Building 4133 .	Gamma scanning survey readings indicate elevated reading of cesium associated with GRAY 34C.	Default
146	Subsurface	Building 4133 - West side of Building 4133 .	Gamma scanning survey readings indicate elevated reading of cesium associated with GRAY 34C.	Default
147	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Characterize potential residual contamination from remediation activities.	Default
148	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Default
149	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Default + H-3
150	Subsurface ¹	RMHF - North edge of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Default + H-3
151	Surface	RMHF - East side of the RMHF.	Aerial photo feature, "Debris Area".	Default
151	Subsurface	RMHF - East side of the RMHF.	Aerial photo feature, "Debris Area".	Default
152	Drainage	Northern Drainage - North of the RMHF,	Potential contamination in the drainage that may have originated from the RMHF Septic Leach Field.	Default
153	Drainage	Northern Drainage - North of the RMHF Septic Leach Field.	Potential contamination in drainage fro RMHF Septic Leach Field.	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
154	Subsurface ¹	RMHF - Septic Leach Field. West end of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Default + H-3
155	Subsurface	RMHF - Septic Leach Field. North of the RMHF Septic Leach Field in the road lead to the north.	Potential residual contamination on road used during the remediation of the leach Field.	Default
156	Subsurface	Former Building 4654 - Center of former Building 4654 foot print.	Potential contamination from storage activities conducted at former Building 4654. Geophysical feature, "GPR".	Default
157	Surface	Northwest portion of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 9.	Default
157	Subsurface	Northwest portion of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 9.	Default
158	Subsurface	Former Building 4654 - Eastern edge of former Building 4654 foot print.	Geophysical feature, "GPR". Aerial photo feature, "Open Storage".	Default + H-3
159	Subsurface	Southwest corner of Subarea 7.	Aerial photo feature, "Debris Area".	Default
160	Subsurface	Southwest corner of Subarea 7.	Aerial photo feature, "Debris Area".	Default
161	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity Anomaly". Aerial photo feature, "Ground Scar".	Default
162	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Default + SS
163	Subsurface	Northern Drainage - Up gradient (East) of Outfall 3.	Geophysical feature, "Conductivity Anomaly".	Default
164	Subsurface ¹	Northern Drainage - Northwest of the RMHF Septic Leach Field.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 17C.	Default
165	Surface	RMHF - North side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 17C. Location of septic tank.	Default
165	Subsurface	RMHF - North side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 17C. Location of septic tank.	Default
166	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Default + H-3
167	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Default + H-3
168	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Default + H-3
169	Subsurface	Site 4614 - West of the RMHF Holding Pond.	Potential residual contamination from remediation activities.	Default + H-3
170	Subsurface	Former Building 4028 - Southwest of the southwest corner of the RMHF.	Potential contamination from surface water run-off from the RMHF. Down gradient from cesium levels associated with GRAY 10C.	Default + H-3
171	Subsurface	Former Building 4028 - South of former Building 4028 foot print.	Potential contamination within the former cooling unit piping trench.	Default + H-3
172	Subsurface	Former Building 4028 - South of former Building 4028 foot print.	Potential contamination within the former cooling unit piping trench and pit.	Default + H-3
173	Surface	Site 4614 - West of the former RMHF Holding Pond.	Potential contamination within soil pile associated with remedial activity at the holding pond	Default + H-3
173	Subsurface	Site 4614 - West of the former RMHF Holding Pond.	Potential contamination within soil pile associated with remedial activity at the holding pond	Default + H-3
174	Subsurface ¹	RMHF Septic Leach Field - West of the former RMHF Leach Field.	Down gradient of the former RMHF Leach Field.	Default + H-3
175	Surface	Southwest corner of Subarea 7.	Potential contamination from surface water run-off from the SNAP area.	Default
175	Subsurface	Southwest corner of Subarea 7.	Potential contamination from surface water run-off from the SNAP area.	Default
176	Surface	South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 10C.	Default
176	Subsurface	South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 10C.	Default
177	Subsurface	RMHF - South of the RMHF, in the parking lot of north of Building 4024.	Potential contamination from surface water run-off from the RMHF. Down gradient of GRAY 10C.	Default
178	Surface	Northeast portion of Subarea 7.	Gamma Scanning survey readings indicate elevated readings of cesium associated with GRAY 37C.	Default + SS
178	Subsurface	Northeast portion of Subarea 7.	Gamma Scanning survey readings indicate elevated readings of cesium associated with GRAY 37C.	Default + SS
179	Surface	East side of the RMHF.	Surface water run-off from the RMHF.	Default
179	Subsurface	East side of the RMHF.	Surface water run-off from the RMHF.	Default
180	Subsurface	Southeast of the RMHF holding pond and northwest of former Building 4028.	Characterize potential contamination from waste lines from former Building 4028 to the RMHF Holding Pond.	Default

Table 1
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	Location Description	Technical Justification	Analytical Suite ^{4, 5}
181	Surface	Northern Drainage - Up gradient from Outfall 3. North of the RMHF.	Geophysical feature, "Conductivity". Potential contamination from surface water run-off in surface and subsurface soil within the drainage area.	Default
181	Subsurface	Northern Drainage - Up gradient from Outfall 3. North of the RMHF.	Geophysical feature, "Conductivity". Potential contamination from surface water run-off in surface and subsurface soil within the drainage area.	Default
182	Subsurface	Northern Drainage - Up gradient of Outfall 3. North of the RMHF.	Geophysical feature, "Conductivity". Potential contamination in the subsurface soil within the drainage area.	Default
183	Surface	North of Building 4133.	Geophysical feature, "Magnetometer Anomaly".	Default
183	Subsurface	North of Building 4133.	Geophysical feature, "Magnetometer Anomaly".	Default
184	Surface	East side of the RMHF outside of the fence.	Possible open storage of drums. Potential contamination from surface water run-off from the RMHF.	Default
184	Subsurface	East side of the RMHF outside of the fence.	Possible open storage of drums. Potential contamination from surface water run-off from the RMHF.	Default
185	Subsurface	Southwest portion of Subarea 7.	Areal photo feature, "Debris Area".	Default

Notes:

¹ Soil sample borings within the RMHF Leach Field (sampling locations 56, 57, 58, 59, 60, 147, 148, 149, 150, 154, 164 and 174) will be advanced down to bedrock or refusal. In addition to the sampling strategy presented in the Field Sampling Plan for Soil Sampling (HGL, 2010a), a soil sample will be collected at the soil/bedrock interface or at the depth reached before refusal is encountered.

² The soil sample boring in the center of the RMHF Holding Pond (sampling location 47) will be advanced down to bedrock or refusal. In addition to the sampling strategy presented in the Field Sampling Plan for Soil Sampling (HGL, 2010a), a soil sample will be collected at the soil/bedrock interface or at the depth reached before refusal is encountered.

³ Soil sample borings within the STIR Reactor (sampling locations 103, 104, 105, 106 and 107) will be advanced down to bedrock or refusal. In addition to the sampling strategy presented in the Field Sampling Plan for Soil Sampling (HGL, 2010a), a soil sample will be collected at the soil/bedrock interface or at the depth reached before refusal is encountered.

⁴ 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.

⁵ Site-specific (SS) indicates that C-14, H-3, I-129, Ni-63, Ni-59, and Tc-99 will be added to the suite of radiological laboratory analysis identified in Table 2.4 of the Field Sampling Plan for Soil Sampling (HGL, 2010a).

GPR - ground penetrating radar

GRAY - gamma radiation anomaly

PGRAY - potential gamma radiation anomaly

RMHF - Radioactive Materials Handling Facility

Site 4614 - RMHF Holding Pond

SNAP - Systems for Nuclear Auxiliary Power

SRE - Sodium Reactor Experiment

ATTACHMENT 2

Figure 1	Subarea 7 Overview
Figure 2	Subarea 7 Map 1 Sample Locations
Figure 3	Subarea 7 Map 2 Sample Locations
Figure 4	Subarea 7 Map 3 Sample Locations

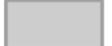
Figure 1
Subarea 7 Overview
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

-  Demolished
-  Existing
-  Subarea 7
-  Chemical Likely Remediation Zones
-  Structural Likely Remediation Zones



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(1)OverviewMap_11x17_7.mxd
8/30/2011 pbillock
Source:HGL2010, CIRGIS 2007



Figure 2
Subarea 7 Map 1 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

Existing

Subarea 7

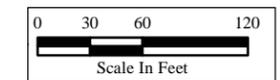
Chemical Likely
Remediation Zones

Structural Likely
Remediation Zones

Drainage Sample

Subsurface Sample

Surface and Subsurface Sample



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8/30/2011 pbillock
Source:HGL2010, CIRGIS 2007

Figure 3
Subarea 7 Map 2 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

Existing

Subarea 7

Chemical Likely
Remediation Zones

Structural Likely
Remediation Zones

Drainage Sample

Subsurface Sample

Surface and Subsurface Sample



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(3)Map2ProposedSampleLocations_11x17_7.mxd
8/30/2011 pbillock
Source:HGL2010, CIRGIS 2007

Figure 4
Subarea 7 Map 3 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

Demolished

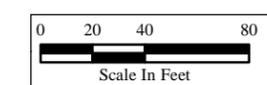
Existing

Subarea 7

Drainage Sample

Subsurface Sample

Surface and Subsurface Sample



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(4)Map3ProposedSampleLocations_11x17_7.mxd
8/30/2011 pbillock
Source:HGL2010, CIRGIS 2007



ATTACHMENT 3

Gamma Anomalies Static Count Subarea 7
Geophysical Anomalies Subarea 7
Past Radiological Soil Investigations Subarea 7
Plate 1 Subarea HSA-7



Legend

Subarea 7 Groups

Centerline Roads
 Primary Roads
 Secondary Roads
 Tertiary Roads

Buildings
 Demolished
 Existing

Magnetometer Anomaly Area

Geophysical Anomalies

- Terrain Conductivity
- Magnetometer
- Ground Penetrating Radar
- Cut and Fill Boundaries
- Magnetometer Anomaly Linear
- Terrain Conductivity Anomaly Linear
- Ground Penetrating Radar
- Interpreted Drain Remnant
- Buried Metals

Surface Water

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

Surface Water Flow

Surface Water Flow (From Boeing Database, 2008)

Surface Features

- Channel
- Drain
- Drainage Divide
- Gutter
- Tank
- Tank
- Vault
- Well

Utilities

- Gas
- Storm Drain
- Sanitary Sewer
- Water
- Water (Removed)
- Water (Removed)
- Pipes (Unknown Type)
- Pipes (Unknown Type)

0 25 50 100
 Scale In Feet



**Geophysical Anomalies
 Subarea 7
 Santa Susana Field Laboratory**

U.S. EPA Region 9



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 Subarea_7_Geophysical_20110722.mxd
 8/16/2011 10:11:00 AM
 Source: HGL 2010, CIRGIS 2007
 Coordinate System: NAD83 CA State Plane V





Samples with readings above Preliminary BTV's

- ✚ Samples with readings above Preliminary BTV's
- Subarea Boundary
- ScreenLayer
- Demolished
- Existing

**Past Radiological Soil Investigations
Subarea 7
Santa Susana Field Laboratory**

U.S. EPA Region 9



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Source:HGL 2010, CIRGIS 2007





Legend

- Subarea 7
- Centerline Roads**
 - Primary Roads
 - Secondary Roads
 - Tertiary Roads
- Buildings**
 - Demolished
 - Existing
 - Parking Lots
- Surface Water**
 - Intermittent Stream
 - Stream
 - Surface Water
 - Lined Channel

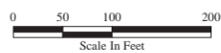
- Tanks**
 - Above ground Storage Tank
 - Underground Storage Tank
 - Unknown Tank Type
 - French Drain Holding Tank
 - Dry Well
 - Tank Footprint
 - Well
 - French Drain
- Process Knowledge Data**
 - Process Knowledge Features

- Aerial Photograph Data**
 - Aerial Photograph Features
- Utilities**
 - Gas
 - Storm Drain
 - Sanitary Sewer
 - Sanitary Waste
 - Water
 - Water (Removed)

- Surface Features**
 - Tank
 - Vault
 - Channel
 - Drain
 - Drainage Divide
 - Gutter
 - Pipes (Unknown Type)
 - Surface Water Flow
 - Likely Structural Remediation Zones
 - Likely Chemical Remediation Zones

Aerial Photograph 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 |



Historical Site Assessment
Draft Technical Memorandum - HSA-7

Plate 1 Subarea HSA-7 Santa Susana Field Laboratory

U.S. EPA Region 9

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