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

TO: Craig Cooper, EPA Region 9 RPM
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SUBJECT: FSP Addendum for Subarea 8 North
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 at Area IV and the Northern Buffer Zone of 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, 2010a). 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-North (8N). 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, 2010a) and adding site-specific analytes to that list by location as appropriate.

It should be noted that the specific sample location presented herein were discussed during a technical review meeting held on March 16, 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 remediation zones" and "likely

Decontamination and Decommissioning (D&D) zones” have been incorporated into this FSP Addendum. 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 “likely remediation zones” or “likely D&D zones”. Therefore, USEPA reduced the density of soil samples in the zone's interior, and located some surface/subsurface samples to the zone's perimeter to better define the potential extent of contamination associated with such zones. In accordance with our role under the December 2010 DTSC/DOE cleanup agreement 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.

Soil samples collected within the Former Sodium Disposal Facility will be tested for the site specific analytes Ni-63, Ni-59, Tc-99, Pm-147 in accordance with Table 2.4 of the FSP (HGL, 2010a)

Soil samples associated with Building 4009 will be tested for the default suite, C-14, Ni-63, Ni-59, Tc-99 because of the Organic Moderated Reactor and the Sodium Graphite Reactor that were housed inside the building. The Sodium Graphite Reactor storage area also housed a Van de Graaff accelerator during the early 1960's. Therefore, soil samples associated with Building 4009 will also be analyzed for the site specific analytes tritium and Am-243.

Table 1 provides the location for each soil sample that will be collected in Subarea 8N 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 location of each subgroup within Subarea 8N. The location and type (e.g. surface, subsurface, drainage) of each sample within each of the 3 Subarea 8N groupings are shown in Figures 2 through 4 in Attachment 2. Table 2 provides a summary of sample numbers by subarea group.

Table 2
Summary of Sample Numbers by Subarea Group

Group	Drainage	Surface	Subsurface	Total
1	7	42	45	94
2	10	56	64	130
3	0	15	15	30
Total	17	109	120	254

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-8 Historical Site Assessment (HGL, 2010b).

SCHEDULE

Round 1 soil sampling within Subarea 8N will commence in mid April 2011, and be completed by late May 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.

LIST OF ATTACHMENTS

- Attachment 1 Tables
- Attachment 2 Figures 1- 4
- Attachment 3 Support Figures

ATTACHMENT 1

Table 1 Summary of Soil Sample Locations in Subarea 8 North

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 1	Surface	1	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	1	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	2	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	2	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	3	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	3	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	4	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	4	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	5	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	5	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	6	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Subsurface	6	ESADA Area Building 4820	Possible uranium contamination from zirconium-hydride fuel pellets used in impact testing.	Default
Group 1	Surface	7	ESADA Area Building 4314	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	7	ESADA Area Building 4314	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	8	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Subsurface	8	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Surface	9	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Subsurface	9	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Surface	10	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Subsurface	10	ESADA Area Building 4314	Geophysical anomaly "Conductivity".	Default
Group 1	Surface	11	ESADA Area north of Building 4314	Location of an aerial photography feature "Container".	Default
Group 1	Subsurface	11	ESADA Area north of Building 4315	Location of an aerial photography feature "Container".	Default
Group 1	Surface	12	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	12	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	13	ESADA Area east of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	13	ESADA Area east of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	14	ESADA Area west of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	14	ESADA Area west of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	15	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	15	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	16	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	16	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	17	ESADA Area north of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	17	ESADA Area north of Building 4814	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	18	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	Default
Group 1	Subsurface	18	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	Default
Group 1	Surface	19	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	Default
Group 1	Subsurface	19	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation".	Default
Group 1	Surface	20	ESADA Area south of the Arness Fire Road	Aerial photo feature "Excavation". Underground piping Building 4814 to Former Sodium Disposal Facility.	Default
Group 1	Subsurface	20	ESADA Area south of the Arness Fire Road	Aerial photo feature "Excavation". Underground piping Building 4814 to Former Sodium Disposal Facility.	Default

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 1	Surface	21	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation and Ground Scar".	Default
Group 1	Subsurface	21	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation and Ground Scar".	Default
Group 1	Surface	22	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation, Ground Scar, Trench".	Default
Group 1	Subsurface	22	ESADA Area south of the Arness Fire Road	Location of an aerial photography feature "Excavation, Ground Scar, Trench".	Default
Group 1	Surface	23	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench".	Default
Group 1	Subsurface	23	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench".	Default
Group 1	Surface	24	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	24	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	25	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	25	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	26	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	26	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	27	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench" and geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	27	ESADA Area west of Building 4425	Location of an aerial photography feature "Trench" and geophysical anomaly "Magnetometer".	Default
Group 1	Surface	28	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Subsurface	28	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Surface	29	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	29	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	30	ESADA Area east of Building 4318	Geophysical anomaly "Conductivity".	Default
Group 1	Subsurface	30	ESADA Area east of Building 4318	Geophysical anomaly "Conductivity".	Default
Group 1	Surface	31	ESADA Area east of Building 4318	Location of an aerial photography feature "Trench" and geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	31	ESADA Area east of Building 4318	Location of an aerial photography feature "Trench" and geophysical anomaly "Magnetometer".	Default
Group 1	Surface	32	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Default
Group 1	Subsurface	32	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Default
Group 1	Surface	33	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Subsurface	33	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Surface	34	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	34	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	35	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Subsurface	35	ESADA Area east of Building 4318	Geophysical anomaly "Magnetometer".	Default
Group 1	Surface	36	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Subsurface	36	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Surface	37	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Subsurface	37	ESADA Area west of Building 4425	Geophysical anomaly "Magnetometer and Conductivity".	Default
Group 1	Surface	38	ESADA Area west of Building 4425	Geophysical anomaly "Conductivity".	Default
Group 1	Subsurface	38	ESADA Area west of Building 4425	Geophysical anomaly "Conductivity".	Default
Group 1	Surface	39	ESADA Area south of Building 4425	Geophysical anomaly "Conductivity" and elevated gamma readings.	Default
Group 1	Subsurface	39	ESADA Area south of Building 4425	Geophysical anomaly "Conductivity" and elevated gamma readings.	Default
Group 1	Surface	40	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Default
Group 1	Subsurface	40	ESADA Area south of Building 4425	Geophysical anomaly "Magnetometer and Conductivity" and elevated gamma readings.	Default
Group 1	Subsurface	41	ESADA Area west of Building 4425	Potential radiological contamination below concrete drainage ditch.	Default
Group 1	Subsurface	42	ESADA Area south of Building 4425	Potential radiological contamination below concrete drainage ditch.	Default

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 1	Subsurface	43	ESADA Area east of Building 4425	Potential radiological contamination below concrete drainage ditch.	Default
Group 1	Drainage	44	ESADA Area north of Building 4425	Accumulated sediment within concrete drainage ditch.	Default
Group 1	Drainage	45	ESADA Area south of Building 4425	Accumulated sediment within concrete drainage ditch.	Default
Group 1	Drainage	46	ESADA Area west of Building 4425	Accumulated sediment within concrete drainage ditch.	Default
Group 1	Drainage	47	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	Default
Group 1	Drainage	48	ESADA Area drainage ditch south of the Arness Fire Road	Accumulated sediment in drainage south of Former Sodium Disposal Facility.	Default
Group 1	Surface	49	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Default
Group 1	Subsurface	49	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Default
Group 1	Surface	50	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Default
Group 1	Subsurface	50	ESADA Area north of Building 4814	Underground piping transported waste sodium from Building 4814 to Former Sodium Disposal Facility.	Default
Group 1	Drainage	130	ESADA Area drainage ditch northeast of 4425	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	Default
Group 1	Drainage	131	ESADA Area drainage ditch northwest of 4425	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	Default
Group 2	Surface	51	Former Sodium Disposal Facility	Former concrete pool at Former Sodium Disposal Facility Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	51	Former Sodium Disposal Facility	Former concrete pool at Former Sodium Disposal Facility Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	52	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	52	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	53	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	53	Former Sodium Disposal Facility	Conductivity anomaly found in area of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	54	Former Sodium Disposal Facility	Area of former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	54	Former Sodium Disposal Facility	Area of former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	55	Former Sodium Disposal Facility	Low point of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	55	Former Sodium Disposal Facility	Low point of the former Upper Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	56	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	56	Former Sodium Disposal Facility	Conductivity anomaly, historical photographs, aerial photo feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	57	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	57	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	58	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench" and geophysical anomaly "Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	58	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench" and geophysical anomaly "Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	59	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	59	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	60	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	60	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	61	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	61	Former Sodium Disposal Facility	Aerial photo feature "Surface Water Diversion Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	62	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	62	Former Sodium Disposal Facility	Magnetometer anomaly in former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	63	Former Sodium Disposal Facility	Former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	63	Former Sodium Disposal Facility	Former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	64	Former Sodium Disposal Facility	Low point of the former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	64	Former Sodium Disposal Facility	Low point of the former Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	65	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	65	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 2	Surface	66	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	66	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	67	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	67	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer and Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	68	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	68	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	69	Former Sodium Disposal Facility	Aerial photo feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	69	Former Sodium Disposal Facility	Aerial photo feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	70	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	70	Former Sodium Disposal Facility	Surface water run-off from the Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	71	West of the Former Sodium Disposal Facility	Historical photograph.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	71	West of the Former Sodium Disposal Facility	Historical photograph.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	72	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	72	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	73	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	73	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	74	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	74	Former Sodium Disposal Facility	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	75	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	75	Former Sodium Disposal Facility	Geophysical anomaly "Magnetometer".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	76	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	76	Former Sodium Disposal Facility downgradient of Outfall 5	Previous excavation.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Drainage	77	Former Sodium Disposal Facility downgradient of Outfall 6	Sediment downgradient of Outfall 006.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	78	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	78	Former Sodium Disposal Facility	Aerial photo feature "Excavation" and geophysical anomaly "Magnetometer".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	79	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	79	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	80	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	80	Former Sodium Disposal Facility	Geophysical anomaly "Conductivity", historical photos, aerial photos.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	81	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	81	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	82	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	82	East of the Former Sodium Disposal Facility	Elevated gamma readings and historical photos.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	83	Former Sodium Disposal Facility	Aerial Photo Feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	83	Former Sodium Disposal Facility	Aerial Photo Feature "Trench".	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	84	Former Sodium Disposal Facility	Aerial photo of excavation at Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	84	Former Sodium Disposal Facility	Aerial photo of excavation at Lower Pond.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	85	West of the Former Sodium Disposal Facility	Past environmental data.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	85	West of the Former Sodium Disposal Facility	Past environmental data.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	86	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	86	Former Sodium Disposal Facility	Surface water run-off from sodium cleaning process at Building 4886.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	87	Former Sodium Disposal Facility south Of Outfall 7	Geophysical anomaly "Conductivity".	Default, Ni-63, Ni-59, Tc-99

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 2	Subsurface	88	Former Sodium Disposal Facility south Of Outfall 9	Geophysical anomaly "Conductivity and Ground Penetrating Radar".	Default, Ni-63, Ni-59, Tc-99
Group 2	Drainage	89	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Default, Ni-63, Ni-59, Tc-99
Group 2	Drainage	90	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Default, Ni-63, Ni-59, Tc-99
Group 2	Drainage	91	East of the Former Sodium Disposal Facility	Sediment in drainage east of the Former Sodium Disposal Facility.	Default, Ni-63, Ni-59, Tc-99
Group 2	Drainage	92	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	Default, Ni-63, Ni-59, Tc-99
Group 2	Drainage	93	Drainage on west side of the Former Sodium Disposal Facility	Sediment in drainage downgradient of "Likely Remediation Zone West", Former Sodium Disposal Facility.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	94	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	94	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	95	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	95	Building 4009	Geophysical anomaly "Conductivity" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	96	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	96	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	97	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	97	Building 4009	Geophysical anomaly "Magnetometer" and Aerial Photo Feature "Fill Area".	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	98	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	98	Building 4009	Geophysical anomaly "Conductivity" and surface drainage.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	99	Building 4009	Geophysical anomaly "Conductivity" and north of the Building 4009 former leach field.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	100	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	100	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	101	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	101	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	102	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	102	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	103	North of Building 4009	Former leach field north of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	104	North of Building 4009	Geophysical anomaly "Magnetometer" associated with former leach field.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	105	Building 4009	Potential radiological contamination from holdup tank on the east side of Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 2	Subsurface	106	West side Building 4009	Potential radiological contamination below concrete drainage ditch.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Drainage	107	Building 4009	Accumulated sediment in concrete drainage Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Drainage	108	Building 4009	Accumulated sediment in concrete drainage Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Subsurface	109	Building 4009	Potential radiological contamination below concrete drainage ditch.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Drainage	110	Building 4009	Accumulated sediment in concrete drainage Building 4009.	Default, Ni-63, Ni-59, Tc-99, C-14, Am-243, H3
Group 2	Surface	128	West of Building 4100	Surface water run-off from the vicinity of Building 4009 into Outfall 7.	Default
Group 2	Subsurface	128	West of Building 4100	Surface water run-off from the vicinity of Building 4009 into Outfall 7.	Default
Group 2	Surface	129	West of Building 4100	Surface water run-off from the vicinity of Building 4009 into Outfall 7.	Default
Group 2	Subsurface	129	West of Building 4100	Surface water run-off from the vicinity of Building 4009 into Outfall 7.	Default
Group 2	Drainage	132	Drainage east of the Former Sodium Disposal Facility Upper Pond	Requested during Stakeholder meeting on March 16, 2011 to target accumulated sediment in ditch.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	133	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	133	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	134	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	134	East of the Former Sodium Disposal Facility Upper Pond	Stakeholder request - Possible storage area east of the Former Sodium Disposal Facility Upper Pond.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	135	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	135	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	138	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	138	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	139	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	139	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	140	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	140	Former Sodium Disposal Facility southwest of Outfall 6	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Surface	141	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 2	Subsurface	141	Former Sodium Disposal Facility southwest of Outfall 5	Stakeholder request - Potential water overflow from Former Sodium Disposal Facility ponds.	Default, Ni-63, Ni-59, Tc-99
Group 3	Surface	111	Drainage west of the Building 4056 Landfill	Potential leaching of radioactive contaminants 56 Landfill into drainage. Aerial Photo Feature "Fill Area".	Default
Group 3	Subsurface	111	Drainage west of the Building 4056 Landfill	Potential leaching of radioactive contaminants 56 Landfill into drainage. Aerial Photo Feature "Fill Area".	Default
Group 3	Surface	112	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	112	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	113	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	113	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	114	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	114	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	115	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default

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

Group	Sample Type	Sample ID	Location Description	Technical Justification	Analytes
Group 3	Subsurface	115	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	116	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	116	Drainage west of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	117	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	117	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	118	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Subsurface	118	Drainage north of the Building 4056 Landfill	Geophysical anomaly "Magnetometer and Conductivity". Potential leaching from 56 Landfill into drainage.	Default
Group 3	Surface	119	North of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	Default
Group 3	Subsurface	119	North of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	Default
Group 3	Surface	120	East of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	Default
Group 3	Subsurface	120	East of the Building 4056 Landfill	Potential leaching of radioactive contaminants from Building 4056 Landfill into drainage.	Default
Group 2	Surface	121	West side Former Sodium Disposal Facility, southwest of Outfall 5	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	121	West side Former Sodium Disposal Facility, southwest of Outfall 5	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	122	West side of the Former Sodium Disposal Facility	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	122	West side of the Former Sodium Disposal Facility	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Surface	123	West side of the Former Sodium Disposal Facility	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 2	Subsurface	123	West side of the Former Sodium Disposal Facility	Suspect potential gamma radiation anomaly.	Default, Ni-63, Ni-59, Tc-99, Pm-147
Group 3	Surface	124	Drainage west of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Subsurface	124	Drainage west of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Surface	125	Drainage west of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Subsurface	125	Drainage west of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Surface	126	Drainage north of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Subsurface	126	Drainage north of the Building 4056 Landfill	Suspect potential gamma radiation anomaly.	Default
Group 3	Surface	127	North of Building 4100	Surface water run-off from Building 4100 into Outfall 7 and elevated gamma reading.	Default
Group 3	Subsurface	127	North of Building 4100	Surface water run-off from Building 4100 into Outfall 7 and elevated gamma reading.	Default
Group 3	Surface	136	Southwest of the Building 4056 Excavation	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	Default
Group 3	Subsurface	136	Southwest of the Building 4056 Excavation	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	Default
Group 3	Surface	137	East side of the Building 4056 Landfill	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	Default
Group 3	Subsurface	137	East side of Building 4056 Landfill	Stakeholder Request - Delineate the edge of the Building 4056 Landfill Chemical Likely Remediation Zone.	Default

Notes:

All surface and subsurface soil samples will be collected following decision rules presented in the Field Sampling Plan for Soil Sampling (HGL, 2010a).

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 ANALYZED FOR DEFAULT SUITE.

Site-specific laboratory analyses Am-243, C-14, H-3, Ni-63, Ni-59, Pm-147, and Tc-99 have been added to specific samples in accordance with the criteria presented in Table 2.4 of the Field Sampling Plan for Soil Sampling (HGL, 2010a).

ESADA - Empire State Atomic Development Association

ATTACHMENT 2

Figure 1	Subarea 8N Base Map
Figure 2	Subarea 8N Group 1 Sample Locations
Figure 3	Subarea 8N Group 2 Sample Locations
Figure 4	Subarea 8N Group 3 Sample Locations

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

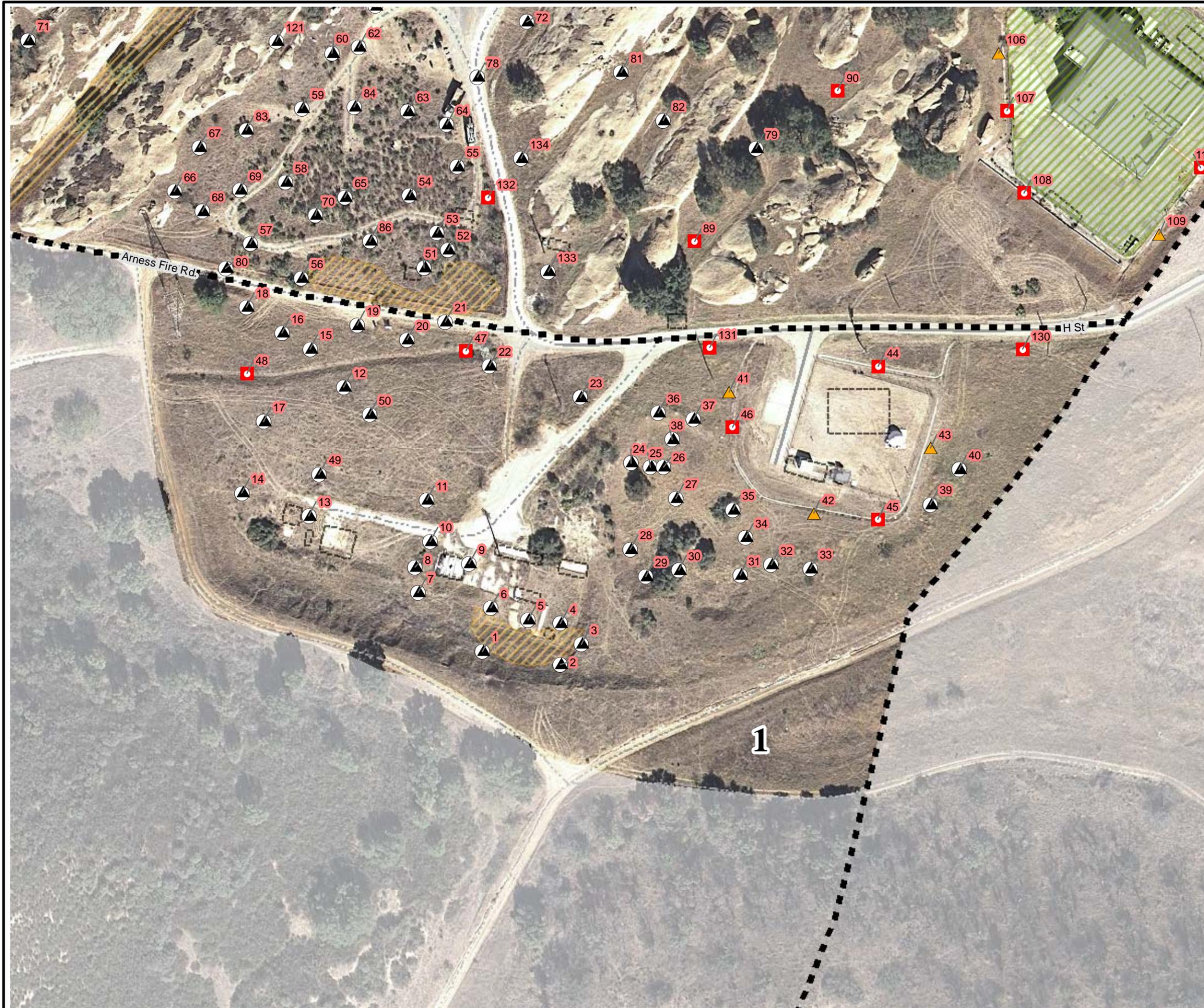
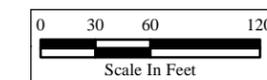
Subsurface Sample

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

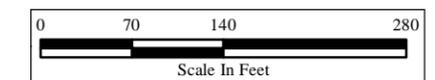
Subsurface Sample

Surface and Subsurface Sample

(Grayed Symbols Represent Soil Samples from Previous Subareas)

Likely Chemical Remediation Areas

Likely Structural Remediation Areas



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3/30/2011 pbbillock
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

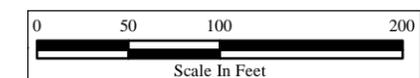
Subsurface Sample

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



ATTACHMENT 3

Gamma Scanning Results Subarea 8N
Geophysical Anomalies Subarea 8N
Past Radiological Soil Investigations Subarea 8N – Map 1
Past Radiological Soil Investigations Subarea 8N – Map 1
Aerial Photo Features Subarea 8
Excavation Areas Subarea 8
Process Knowledge Subarea 8



Legend

Subarea 8 North Groups

Centerline Roads
 Primary Roads
 Secondary Roads
 Tertiary Roads

Buildings
 Demolished
 Existing

Geophysical Anomalies

- Terrain Conductivity
- Magnetometer
- Ground Penetrating Radar
- Cut and Fill Boundaries
- Magnetometer Anomaly Linear
- Terrain Conductivity Anomaly Linear
- 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
- 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)

**Geophysical Anomalies
 Subarea 8
 Santa Susana Field Laboratory**

U.S. EPA Region 9

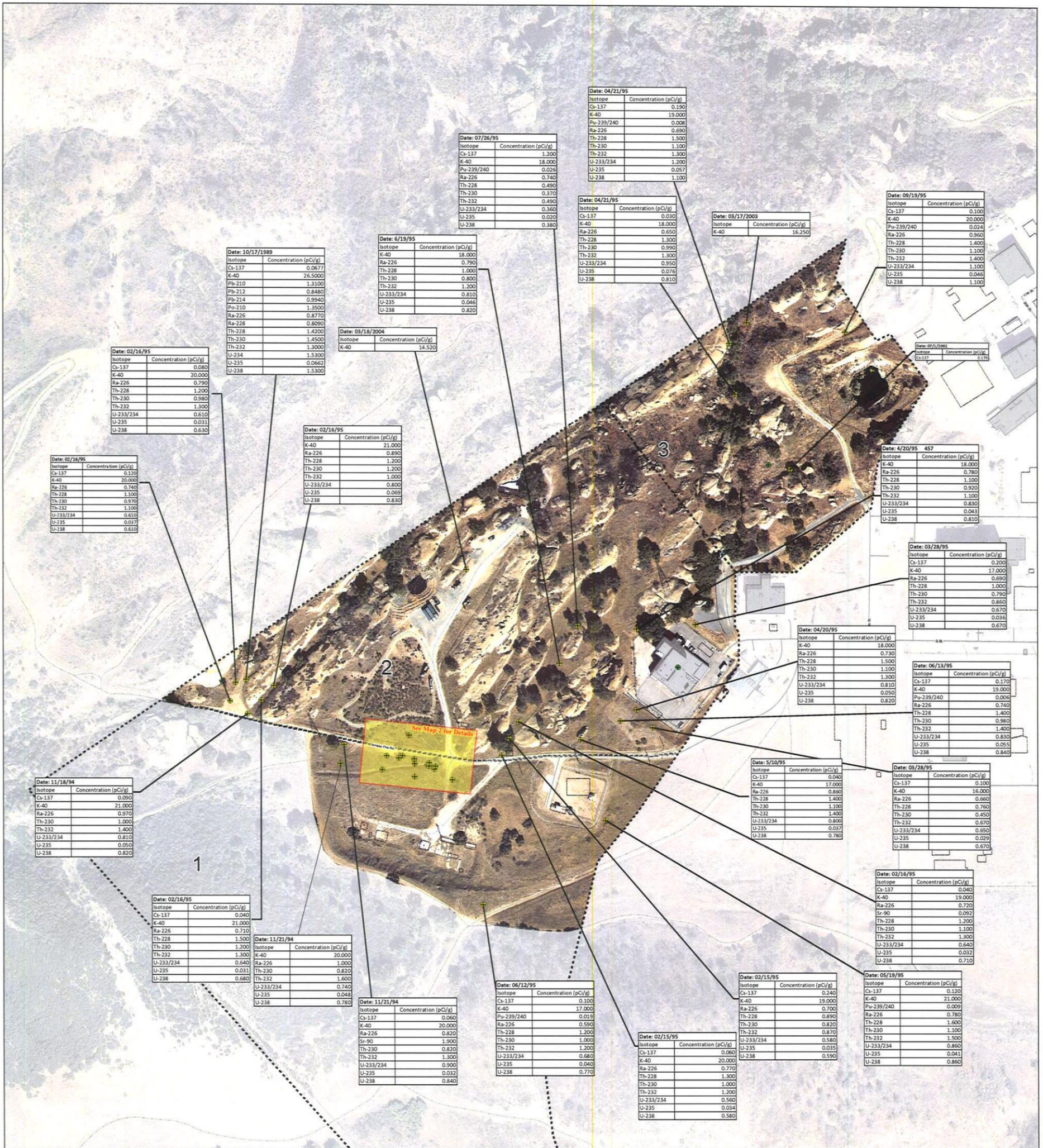


0 37.5 75 150
 Scale in Feet



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 Coordinate System: NAD83 CA State Plane Y'





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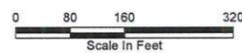
- RAD Soil Location**
- NDA Level**
- Above NDA
 - Below NDA
 - Primary Roads
 - Secondary Roads
 - Tertiary Roads
 - Map 2 Area
 - ▭ Subarea 8 Groups
 - ▭ Demolished
 - ▭ Existing
 - ▭ ScreenLayer

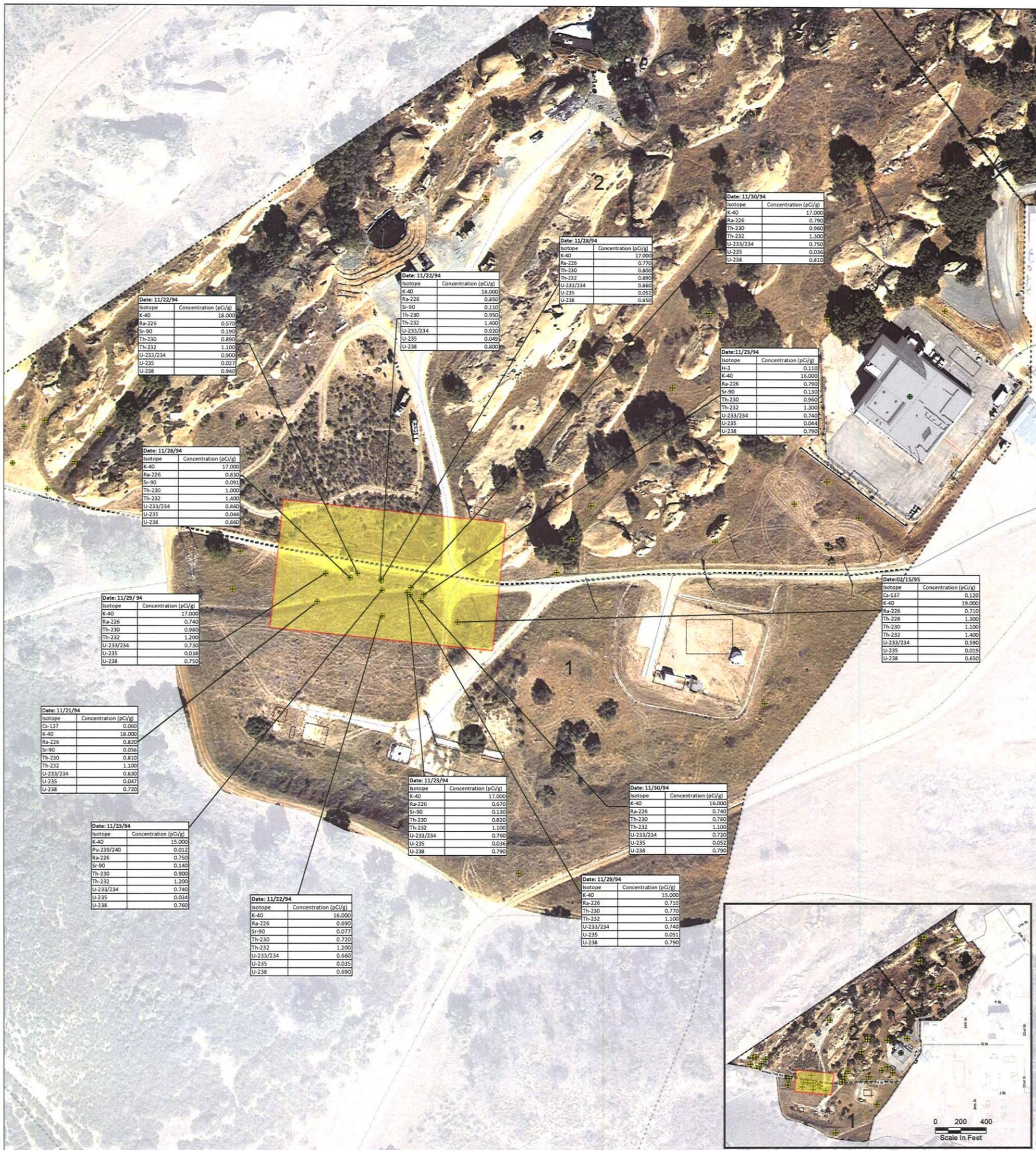
**Past Radiological Soil Investigations
Subarea 8 North - Map 1
Santa Susana Field Laboratory**

U.S. EPA Region 9



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Source: NAD 83, 2010, CIGRIS 2007
Coordinate System: NAD83 State Plane Zone 1'





Date: 11/22/94

Isotope	Concentration (pCi/g)
K-40	18.000
Ra-226	0.570
Sr-90	0.190
Th-230	0.890
Th-232	1.100
U-233/234	0.900
U-235	0.027
U-238	0.940

Date: 11/22/94

Isotope	Concentration (pCi/g)
K-40	18.000
Ra-226	0.850
Sr-90	0.110
Th-230	0.950
Th-232	1.400
U-233/234	0.920
U-235	0.049
U-238	0.800

Date: 11/28/94

Isotope	Concentration (pCi/g)
K-40	17.000
Ra-226	0.770
Th-230	0.800
Th-232	0.890
U-233/234	0.860
U-235	0.052
U-238	0.850

Date: 11/30/94

Isotope	Concentration (pCi/g)
K-40	17.000
Ra-226	0.790
Th-230	0.960
Th-232	1.300
U-233/234	0.750
U-235	0.036
U-238	0.810

Date: 11/28/94

Isotope	Concentration (pCi/g)
K-40	17.000
Ra-226	0.830
Sr-90	0.091
Th-230	1.000
Th-232	1.400
U-233/234	0.860
U-235	0.044
U-238	0.860

Date: 11/23/94

Isotope	Concentration (pCi/g)
H-3	0.110
K-40	16.000
Ra-226	0.790
Sr-90	0.130
Th-230	0.960
Th-232	1.300
U-233/234	0.740
U-235	0.044
U-238	0.790

Date: 11/29/94

Isotope	Concentration (pCi/g)
K-40	17.000
Ra-226	0.740
Th-230	0.980
Th-232	1.200
U-233/234	0.730
U-235	0.038
U-238	0.750

Date: 02/15/95

Isotope	Concentration (pCi/g)
Cs-137	0.120
K-40	19.000
Ra-226	0.710
Th-228	1.300
Th-230	1.100
Th-232	1.400
U-233/234	0.590
U-235	0.019
U-238	0.650

Date: 11/21/94

Isotope	Concentration (pCi/g)
Cs-137	0.060
K-40	18.000
Ra-226	0.820
Sr-90	0.094
Th-230	0.810
Th-232	1.100
U-233/234	0.630
U-235	0.047
U-238	0.720

Date: 11/23/94

Isotope	Concentration (pCi/g)
K-40	17.000
Ra-226	0.670
Sr-90	0.130
Th-230	0.820
Th-232	1.100
U-233/234	0.760
U-235	0.036
U-238	0.790

Date: 11/30/94

Isotope	Concentration (pCi/g)
K-40	16.000
Ra-226	0.740
Th-230	0.780
Th-232	1.100
U-233/234	0.720
U-235	0.052
U-238	0.790

Date: 11/23/94

Isotope	Concentration (pCi/g)
K-40	15.000
Pu-239/240	0.012
Ra-226	0.750
Sr-90	0.140
Th-230	0.900
Th-232	1.200
U-233/234	0.740
U-235	0.034
U-238	0.760

Date: 11/22/94

Isotope	Concentration (pCi/g)
K-40	16.000
Ra-226	0.690
Sr-90	0.077
Th-230	0.720
Th-232	1.200
U-233/234	0.660
U-235	0.035
U-238	0.690

Date: 11/29/94

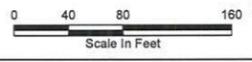
Isotope	Concentration (pCi/g)
K-40	15.000
Ra-226	0.710
Th-230	0.770
Th-232	1.100
U-233/234	0.740
U-235	0.051
U-238	0.790

- RAD Soil Location**
- NDA Level**
- Above NDA
 - Below NDA
- Primary Roads
- Secondary Roads
- Tertiary Roads
- ScreenLayer
- Map 2 Area
- ▭ Subarea 8 Groups
- ▭ Demolished
- ▭ Existing

Legend

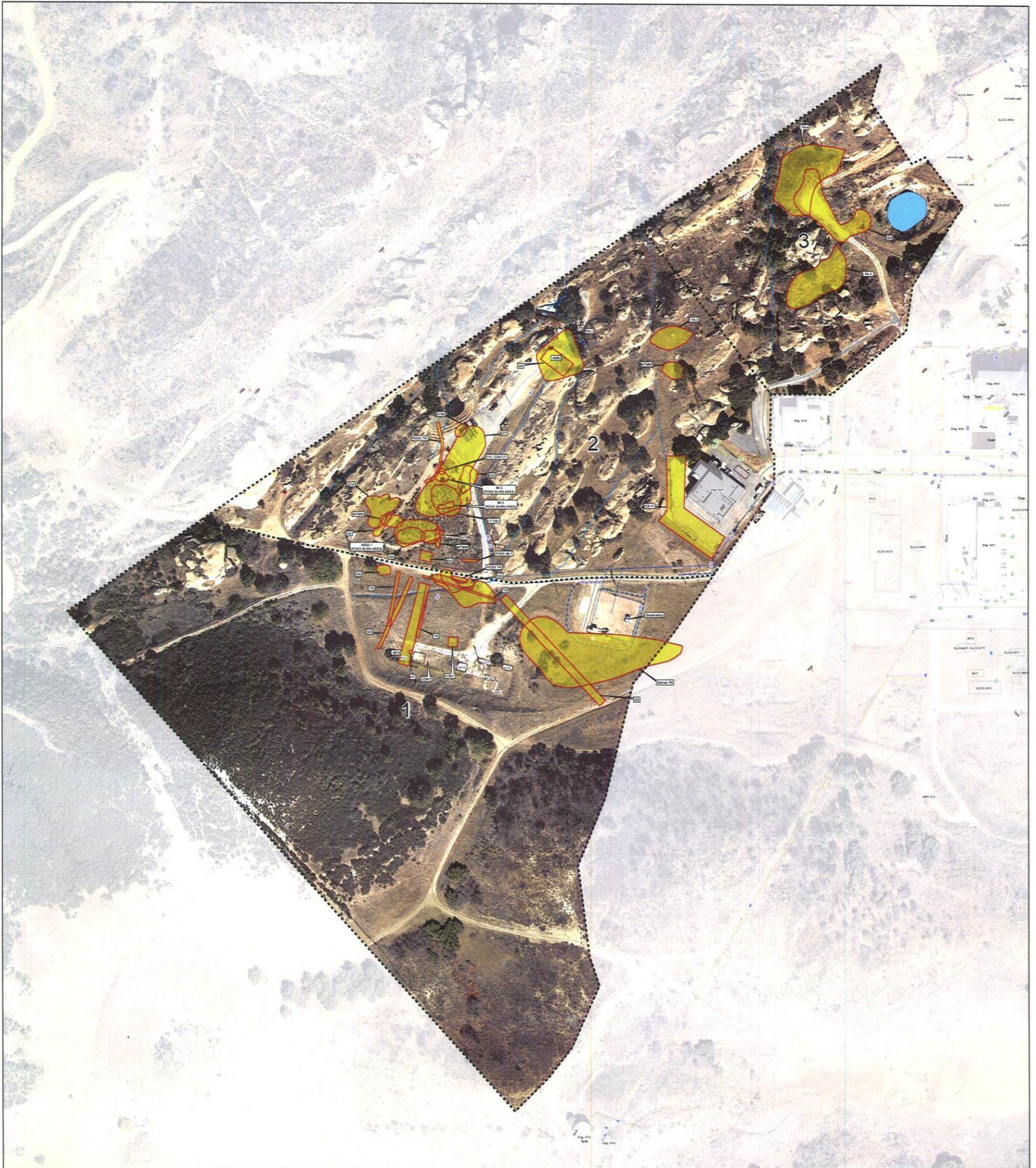
**Past Radiological Soil Investigations
Subarea 8 North - Map 2
Santa Susana Field Laboratory**

U.S. EPA Region 9



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Source: HKS, 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
 Drainage Divide
 Gutter
 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



Historical Site Assessment
 Draft Technical Memorandum - HSA-8

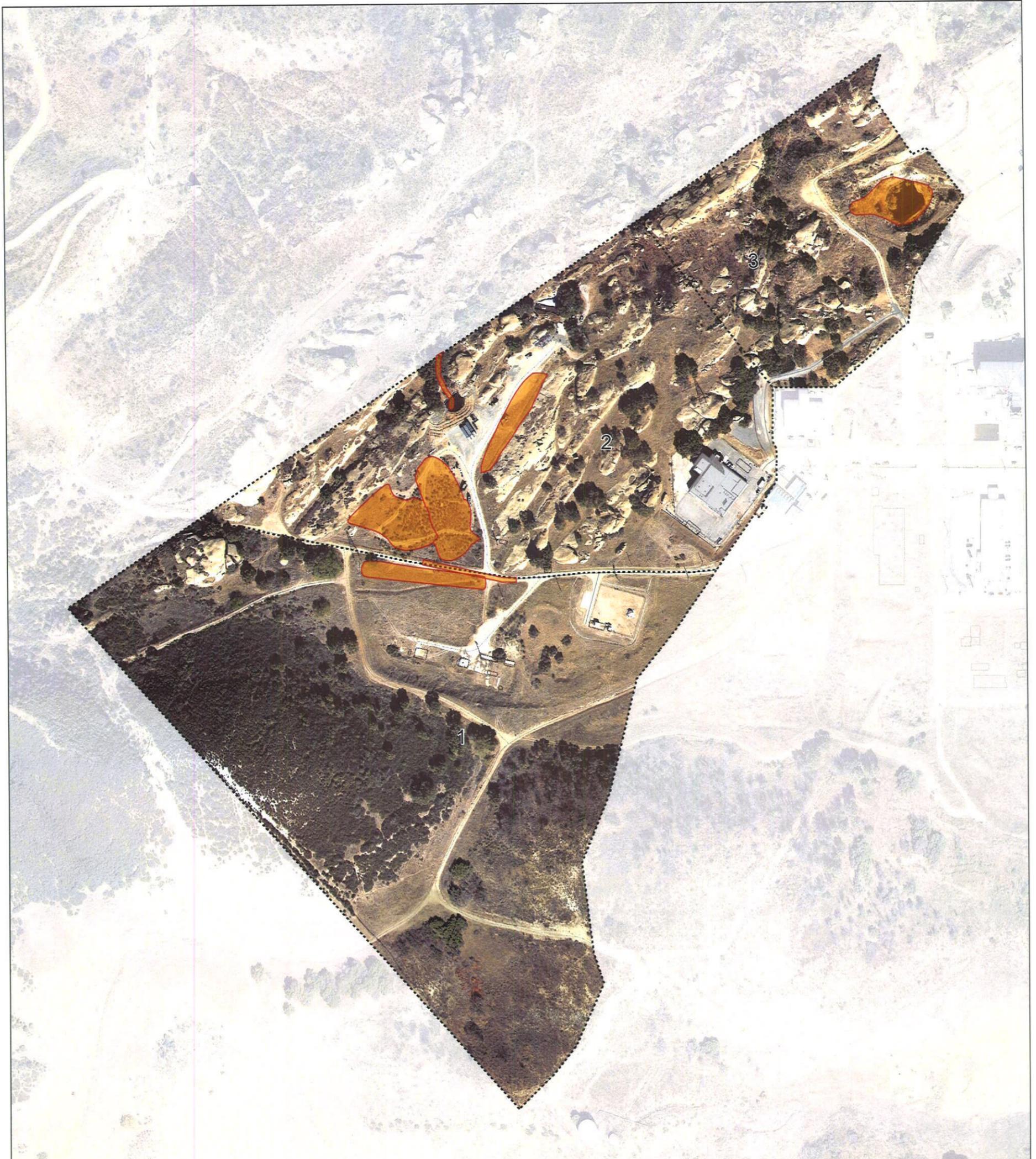
**Subarea 8
 Aerial Photo Features
 Santa Susana Field Laboratory**

U.S. EPA Region 9



1: Santa Susana EP908ATM/HSA_RANSZPL
 1/25/14: Jerral/Photo.mxd
 3/13/2011 phillack
 Source: HGL 2010, CBGHS 2007
 Coordinate System: GCS NAD83





Legend

Subarea 8 Groups

Centerline Roads
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Excavation Areas

Historical Site Assessment
 Draft Technical Memorandum - HSA-8

**Excavation Areas
 Subarea HSA-8
 Santa Susana Field Laboratory**

U.S. EPA Region 9



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 Source: HGL, 2010, CIRGIS 2007
 Coordinate System: NAD83 State Plane Zone V



