

Addendum No. 6 to
Master Work Plan/Field Sampling and Analysis
Plan, Co-Located Chemical Sampling at Area IV
Santa Susana Field Laboratory, Ventura County,
California

EPA Subareas 3, 5D South, 7, and 8 South
Soil Sampling

Prepared for:

Department of Energy
Energy Technology and Engineering Center
P.O. Box 10300
Canoga Park, California 91309

Prepared by:

CDM Federal Programs Corporation
155 Pringle Avenue, Suite 300
Walnut Creek, California 94596

Prepared under:

US Department of Energy
EM Consolidated Business Center
Contract DE-AM09-05SR22404
CDM Task Order DE-AT30-08CC60021/ET17

September 2011

Addendum No. 6 to

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

EPA Subarea HSAs 3, 5D South, 7, and 8 South
Soil Sampling

Contract DE-AM09-05SR22404

CDM Task Order DE-AT30-08CC60021/ET17

Prepared by: *Margaret Bloisa*
Margaret Bloisa, P.G.
CDM Geologist



9/13/11
Date

Approved by: *John Wondolleck*
John Wondolleck
CDM Project Manager

9/13/11
Date

Introduction

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

Purpose of Addendum

This addendum documents the rationale for the location of surface and subsurface chemical soil samples to be collected during Phase 1 of soil sampling within Subareas 3, 5D South, 7, and 8 South as presented in EPA's *Subareas 3, 5D South, 7, and 8 South FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study*, (HGL 2011). Phase 1 soil sampling is based on EPA's historical site assessments (HSA) of Subareas 3 and 7, 5D (North and South), and 8 (North and South) that also included a gamma survey, geophysical survey, and review of prior data. EPA and its contractor Hydrogeologic Inc. (HGL) have identified sample locations based on several lines of evidence to address radionuclide sample concerns as identified in the HSAs. DOE and its consultants have reviewed the proposed EPA sampling points compared with existing chemical information from the RCRA Facility Investigation (RFI) to be selective as to where co-located chemical samples should be collected and what analytical suite should be used to characterize the soil samples. Phase 2 and 3 chemical sampling, which is not covered by this Addendum, will involve further chemical and radionuclide characterization "step-out" samples. The need for chemical "step-out" samples will be determined on a case-by-case basis following a review of all chemical data collected for Area IV.

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

This FSAP Addendum addresses sampling in HSA Subareas 3, 5D South, 7, and 8 South. Figure 1 provides the entirety of Subarea 7. Figure 2 provides the sample

locations in Subarea 3, Figure 3 provides the sample locations in Subarea 5D South, Figures 4a, 4b, and 4c indicate the sample locations in Subarea 7, and Figure 5 the sample locations in Subarea 8 South. The proposed sample locations were taken from EPA's FSP Addendum for Subareas 3, 5D South, 7, and 8 South (HGL 2011).

Specific sample locations were identified by EPA as part of its overall site assessments of the subareas. EPA's description and rationale for the soil sample locations are summarized in Table 1 for Subarea 3, Table 2 for Subarea 5D South, Table 3 for Subarea 7, and Table 4 for Subarea 8 South.

De-Selection of Locations for Chemical Sampling

EPA's identified sample locations are based on radiological sampling needs as determined through its HSA review and lines of evidence. Sampling locations were not selected based on chemical sampling needs for the RFI of Area IV. The sampling protocol for targeting the depths of soil samples for chemical analyses are illustrated in Figures 5-1 and 5-2 of the Master WP/FSAP.

Soil samples for chemical analyses will not be collected from all EPA locations identified in each subarea addressed in this FSAP Addendum. Portions of each subarea have been subject to prior chemical investigations under the RFI program. Some locations have adequate data for use in determining the need for a soil cleanup action. Locations with adequate data were discussed with DTSC personnel on August 10, 2011 and the community on August 17. Based on the data review, DOE and DTSC jointly de-selected HGL sample locations for chemical sample collection using the following three "Sample/No Sample" decision criteria.

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

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

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

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

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

- a. No known and/or identified chemical operations and/or releases (subject to field observations)
- b. Non-point source, no preferential pathways identified, open/flat area
- c. Site is sufficiently distant from known potential chemical sources.

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

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

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

The logic and rationale for discretionary de-selection of co-located sample locations for Subareas 3, 7, 5D South, and 8 South were discussed with the community stakeholders on August 17, 2011. The criterion for each agreed-upon de-selected co-located sampling location is also noted in Tables 1 through 4 for each respective subarea.

Reduction of Analytes for Chemical Sampling

During the August 17, 2011 Technical Work Group meeting with the community, DTSC and DOE discussed the proposed analytical suites for each sample location. The primary analytical suite will form the basis for chemical analyses for all soil samples. However, chemical test methods were selected among the secondary analytical suite based on chemical process knowledge and RFI data needs. Exhibit 1 provides the chemical test methods (analytical suites) that are discussed below.

Exhibit 1 - Co-located Soil Sampling Analytical Methods and Suites

Analyses within Primary Analytical Suite	Analyses within Secondary Analytical Suite
PAHs - EPA 8270C SIM	Energetics - EPA 8330A
SVOCs - EPA 8270C	Alcohols - EPA 8015B
Polychlorinated Biphenyls - EPA 8082	Terphenyls - EPA 8015B
Perchlorate - EPA 314.0 & 6850	Glycols - EPA 8015B
Dioxins/Furans - EPA 1613B	TPH - EPA 8015B
Metals - EPA 6010B/6020/7471A	NDMA - EPA 1625
Chromium VI - EPA 7199	Formaldehyde - 8315A
Fluoride - EPA 300.0	Cyanide - EPA 9012B
pH - EPA 9045C	Nitrates - EPA 300.0
Analyses with Sample Target Rationale	
Volatile Organic Compounds - EPA 8260B	Targeted features, observed staining, field instrument readings
Dioxane - EPA 8260B SIM	Targeted features, observed staining, field instrument readings
Pesticides - EPA 8081A	Surface soil samples only
Herbicides - EPA 8151	Surface soil samples only
RMHF Suite	
Primary Suite plus: Alcohols, glycols terphenyls, TPH, and cyanide	
Reactor Suite	
Primary Suite plus Alcohols, glycols, terphenyls, TPH	
Test Vault/Sump/Cooling Tower Suite	
Primary Suite plus: TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, Dowanol (SVOC TIC)	

NDMA = n-Nitrosodimethylamine

SIM = select ion monitoring

TPH = total petroleum hydrocarbons and includes gasoline range organics (GRO) and extractable fuel hydrocarbons (EFH)

PAHs = polycyclic aromatic hydrocarbons

SVOCs = Semivolatile organic hydrocarbons

TIC = tentatively identified compound

The rationale for selecting chemical test methods from the secondary analyte list took into consideration historic operations at the site, proximity of the operation to the sample location, EPA rationale and targeted feature(s), and likelihood of multiple sources or pathways that may have contributed to contamination in the area. These include:

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

All chemical co-located samples collected within Subareas 3, 5D South, 7, and 8 South will be analyzed for all analytes included in the primary suite. Locations that have been deselected, locations that will be analyzed for the full secondary suite of analyses, and locations where the analyses in the secondary suite will be reduced are discussed below.

HSA 3

- The full secondary suite of analyses will be run for samples collected from locations at/near former storage and debris areas (locations 3, 4, 5, 9, 10, 11, and 13).
- Locations 7, 8, and 12 are within a RFI clearly contaminated area and are deselected.

HSA 5D South

- Locations 3, 11, 12, and 18 are in an area of high density radionuclide sampling and are deselected. The remainder of the locations will be analyzed for the primary suite only because there is no known chemical use operations within 5D South.

HSA 7 - Building 4133 Area:

- TPH, alcohols, glycols, and terphenyls (the “reactor suite”) will be run on samples collected at the Interim Storage Facility and area west of the Hot Waste Storage Facility due to relationship with former SRE facility (locations 37, 41, 70, and 71 to the north, and locations 39, 72, 73, 74, 75, 76, 77, 78, 156, and 158 to the south).
- The full secondary suite of analyses will be run for samples collected from locations 32, 62, 63, and 64 upslope of waste/debris areas.
- Locations 31 and 178 are in an area of high density radionuclide sampling and are deselected.

HSA 7 - RMHF Area

- The full secondary suite of analyses will be run for samples at liquid collection areas (catch basin, leach field, drainages) (locations 2, 4, 45, 46, 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 89, 122, 133, 134, 135, 136, 149, 150, 152, 153, 154, 155, 162, 163, 164, 166, 167, 168, 174, 181, and 182).
- Alcohols, glycols, terphenyls, TPH, and cyanide (the “RMHF suite”) will be run on samples collected from locations surrounding the RMHF yard and downslope from the RMHF (locations 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 52, 53, 59, 60, 61, 65, 66, 67, 68, 69, 83, 86, 87,

88, 90, 91, 92, 96, 97, 98, 99, 100, 101, 129, 130, 131, 137, 138, 139, 140, 141, 142, 143, 147, 148, 151, 157, 165, 177, 179, 184).

- TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, and dowlanol (reported as a SVOC TIC) will be run on samples collected from locations at the Building 4028 reactor, cooling tower operations, and catch basin (locations 43, 85, 102, 103, 104, 105, 106, 107, 108, 109, 110, 128, 132, 169, 170, 171, 172, 173, 180).
- Locations 16 and 44, in an area of high density radionuclide sampling and locations 93, 94, 95, and 176, in a clearly contaminated area, are deselected.

HSA 7 – Northern Slope Area

- Alcohols, glycols, terphenyls, TPH, and cyanide (the “RMHF suite”) will be run on samples collected from locations adjoining HSA 5C and HSA 5B (locations 116, 118, 119, 120, 121, 123 and, 175).
- Location 114, in an area of high density of radionuclide sampling is deselected.

HSA 8 South

- Locations 2, 4, and 6 are in an area of high density of radionuclide sampling and are deselected. All remaining locations will be sampled for primary analyses only because there are no known chemical use operations within the sampling area.

Schedule

EPA is scheduled to initiate soil sampling within Subarea 7 on September 12 and then proceed through Subareas 3, 5D South, and 8 South as sampling within each area is completed. Surface soil sampling will be conducted separately from subsurface soil borings and will be completed first.

References

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

HydroGeoLogic, Inc. 2011. *Subareas 3, 7, 5D South and 8 South FSP Addendum, Santa Susana Field Laboratory Site, Area IV Radiological Study, Santa Susana Field Laboratory*. September.

FIGURES

Figure 1
Subarea 7 Overview
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Buildings:

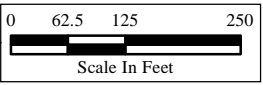
Demolished

Existing

Subarea 7

Chemical Likely
Remediation Zones

Structural Likely
Remediation Zones



Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea7\
(1)OverviewMap_11x17_7.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

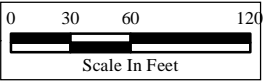
Figure 2
Subarea 3 Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- Buildings:
- Demolished
 - Existing
 - Subarea 3
 - Chemical Likely Remediation Zones
 - Subsurface Sample
 - Surface and Subsurface Sample



Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea3\
(1)Group1ProposedSampleLocations_11x17_3.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

Figure 3
Subarea 5DS Sample Locations
Santa Susana Field Laboratory

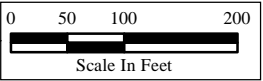
U.S. EPA Region 9



Legend

- Buildings:
- Demolished
 - Existing Water Tanks
 - Subarea 5DS

- Subsurface Sample
- Surface and Subsurface Sample
- Drainage Sample



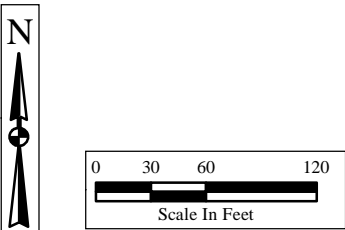
Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea8S_5DS\
(1)ProposedSampleLocations_11x17_5DS.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

Figure 4a
Subarea 7 Map 1 Sample Locations
Santa Susana Field Laboratory



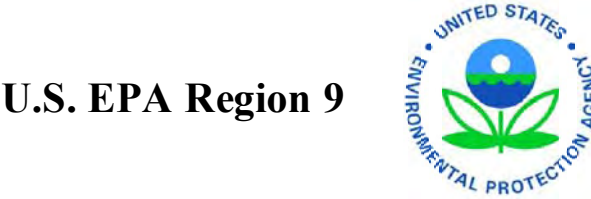
Legend

- Buildings:
- Demolished
 - Existing
 - Subarea 7
 - Chemical Likely Remediation Zones
 - Structural Likely Remediation Zones
 - Drainage Sample
 - Subsurface Sample
 - Surface and Subsurface Sample



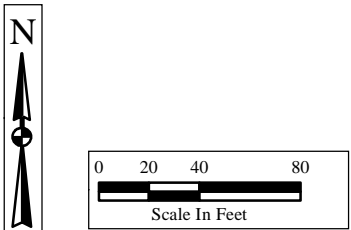
Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea7\
(2)Map1ProposedSampleLocations_11x17_7.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

Figure 4B
Subarea 7 Map 2 Sample Locations
Santa Susana Field Laboratory



Legend

- Buildings:
- Demolished
 - Existing
 - Subarea 7
 - Chemical Likely Remediation Zones
 - Structural Likely Remediation Zones
 - Drainage Sample
 - Drainage and Subsurface Sample
 - Subsurface Sample
 - Surface and Subsurface Sample



Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea7\ (3)Map2ProposedSampleLocations_11x17_7.mxd
9/7/2011 pbbilock
Source:HGL 2010, CIRGIS 2007

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

U.S. EPA Region 9




Legend

Buildings:

 Demolished

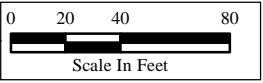
 Existing

 Subarea 7

 Drainage Sample

 Subsurface Sample

 Surface and Subsurface Sample



Y:\Santa_Susana\EP9038\Soil_Sampling\Subarea7\
(4)Map3ProposedSampleLocations_11x17_7.mxd
8/30/2011 pbillock
Source:HGL 2010, CIRGIS 2007

Figure 5
Subarea 8S Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9




Legend

Buildings:

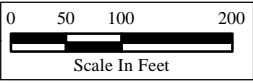
 Demolished

 Existing

 Subarea 8S

 Drainage Sample

 Surface and Subsurface Sample



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

TABLES

Table 1
Summary of Soil Sample Locations in Subarea 3

Location ID	Sample Type	EPA Sample Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
1	Surface	Northwest portion of Subarea 3.	PGRAY 1T	Primary	
1	Subsurface	Northwest portion of Subarea 3.	PGRAY 1T	Primary	
2	Surface	East of the SCE Substation in Subarea 3.	PGRAY 2T	Primary	
2	Subsurface	East of the SCE Substation in Subarea 3.	PGRAY 2T	Primary	
3	Subsurface	South side of the SCE Substation.	Potential contamination from open storage activities conducted at the Old Conservation Yard.	Primary and Secondary	Secondary suite added due to proximity to open storage.
4	Subsurface	West side of the SCE Substation	Potential contamination from open storage activities conducted at the Old Conservation Yard.	Primary and Secondary	Secondary suite added due to proximity to open storage.
5	Subsurface	South side of the SCE Substation.	Potential contamination from open storage activities conducted at the Old Conservation Yard.	Primary and Secondary	Secondary suite added due to proximity to open storage.
6	Subsurface	East side of the SCE Substation.	Potential contamination associated with open storage activities conducted at the Old Conservation Yard.	Primary	
7	Subsurface	South of the SCE Substation.	Geophysical features, "Conductivity and Magnetometer Anomalies" aerial Photo feature, "Debris Area".	Deselect	Location is within identified contamination area.
8	Subsurface	South of the SCE Substation.	Geophysical feature, "Conductivity and Magnetometer Anomalies".	Deselect	Location is within identified contamination area.
9	Subsurface	South of the SCE Substation.	Geophysical feature, "Magnetometer and GPR".	Primary and Secondary	Secondary suite added due to potential waste disposal and debris in area.
10	Subsurface	South of the SCE Substation, west of Building 204.	Geophysical feature, "Conductivity Anomaly".	Primary and Secondary	Secondary suite added due to potential waste disposal and debris in area.
11	Subsurface	South of the SCE Substation and west of Building 204.	Geophysical feature, "Conductivity".	Primary and Secondary	Secondary suite added due to potential waste
12	Subsurface	Southern portion of Subarea 3.	Geophysical feature, "Conductivity anomaly".	Deselect	Location is within identified contamination area.
13	Subsurface	North of F Street within Subarea 3.	Geophysical features, "Conductivity and Magnetometer Anomalies".	Primary and Secondary	Secondary suite added due to potential waste disposal and debris in area.

Notes:

GPR - ground penetrating radar
PGRAY - potential gamma radiation anomaly
SCE - Southern California Edison
SSFL - Santa Susana Field Laboratory

Table 2
Summary of Soil Sample Locations in Subarea 5D South

Location ID	Sample Type	EPA Location Description	EPA Radionuclide Sampling Technical Justification	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
1	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	Primary	
1	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	Primary	
2	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2T	Primary	
2	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 2T	Primary	
3	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Deselect	High density of radiological sampling at gamma anomaly.
3	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Deselect	High density of radiological sampling at gamma anomaly.
4	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	Primary	
4	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	Primary	
5	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	Primary	
5	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	Primary	
6	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	Primary	
6	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	Primary	
7	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 7T	Primary	
7	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 7T	Primary	
8	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	Primary	
8	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	Primary	
9	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 9T	Primary	
9	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 9T	Primary	
10	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	Primary	
10	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	Primary	
44	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Deselect	High density of radiological sampling at gamma anomaly.
44	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Deselect	High density of radiological sampling at gamma anomaly.
42	Surface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Deselect	High density of radiological sampling at gamma anomaly.
42	Subsurface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Deselect	High density of radiological sampling at gamma anomaly.
13	Surface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
13	Subsurface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
14	Surface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
14	Subsurface	Southeastern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
15	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
15	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 12T	Primary	
16	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Primary	
16	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Primary	
17	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Primary	
17	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 11T	Primary	
48	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	Deselect	High density of radiological sampling at gamma anomaly.
48	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 10T	Deselect	High density of radiological sampling at gamma anomaly.
19	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	Primary	
19	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 8T	Primary	
20	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	Primary	
20	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 6T	Primary	

Table 2
Summary of Soil Sample Locations in Subarea 5D South

Location ID	Sample Type	EPA Location Description	EPA Radionuclide Sampling Technical Justification	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
21	Surface	Southern portion of Subarea5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	Primary	
21	Subsurface	Southern portion of Subarea5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 5T	Primary	
22	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	Primary	
22	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 4T	Primary	
23	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Primary	
23	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Primary	
24	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Primary	
24	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 3T	Primary	
25	Surface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	Primary	
25	Subsurface	Southern portion of Subarea 5D-South.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 1T	Primary	
26	Surface	Southern portion of Subarea 5D-South, near next to the water tower.	Potential contamination from alternate uses of the vertical tank.	Primary	
26	Subsurface	Southern portion of Subarea 5D-South, near next to the water tower.	Potential contamination from alternate uses of the vertical tank.	Primary	
27	Surface	Southern portion of Subarea 5D-South.	Potential contamination from alternate use of vertical tank.	Primary	
27	Subsurface	Southern portion of Subarea 5D-South.	Potential contamination from alternate use of vertical tank.	Primary	
28	Surface	Southern portion of Subarea 5D-South, next to Tank 4702.	Potential contamination from alternate use of vertical Tank 4702.	Primary	
28	Subsurface	Southern portion of Subarea 5D-South, next to Tank 4702.	Potential contamination from alternate use of vertical Tank 4702.	Primary	
29	Surface	Southern portion of Subarea 5D-South.	Potential contamination from leaking above ground pipes.	Primary	
29	Subsurface	Southern portion of Subarea 5D-South.	Potential contamination from leaking above ground pipes.	Primary	
30	Drainage	Southern portion of Subarea 5D-South, down gradient from the vertical Tanks 4701 and 4702.	Potential contamination from surface water run-off from the vertical Tanks 4701 and 4702.	Primary	
31	Surface	Southern portion of Suarea 5D-South, next to above ground piping.	Potential contamination from leaking above ground piping associated with vertical Tanks 4701 and 4702.	Primary	
31	Subsurface	Southern portion of Suarea 5D-South, next to above ground piping.	Potential contamination from leaking above ground piping associated with vertical Tanks 4701 and 4702.	Primary	
32	Drainage	Southern portion of Subarea 5D-South, in drainage down gradient from vertical Tanks 4701 and 4702.	Potential contamination from vertical Tanks 4701 and 4702.	Primary	
33	Surface	Southern portion of Subarea 5D-South.	Geophysical Feature, "Conductivity Anomaly".	Primary	
33	Subsurface	Southern portion of Subarea 5D-South.	Geophysical Feature, "Conductivity Anomaly".	Primary	
34	Surface	Southern portion of SubArea 5D. Borrow Pit Area.	Geophysical Feature, "Conductivity Anomaly".	Primary	
34	Subsurface	Southern portion of SubArea 5D. Borrow Pit Area.	Geophysical Feature, "Conductivity Anomaly".	Primary	
35	Subsurface	Southern portion of SubArea 5D Borrow Pit Area.	Aerial Photo Feature - Grading Activity".	Primary	
36	Subsurface	Sothern portion of Subarea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity". Geophysical Feature, "Conductivity Anomaly".	Primary	
37	Subsurface	Southeastern portion of Subarea 5D-South, Borrow Pit area.	Aerial Photo Feature, "Grading Activity ". Geophysical Feature, "Conductivity Anomaly".	Primary	
38	Surface	Southern portion of SubArea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity".	Primary	
38	Subsurface	Southern portion of SubArea 5D-South, Borrow Pit Area.	Aerial Photo Feature, "Grading Activity".	Primary	
39	Subsurface	Southern portion of Subarea 5D-South.	Geophysical Feature, "Magnetometer Anomaly".	Primary	
40	Surface	Northeastern corner of Subarea 5D-South.	Gamma scanning survey results indicate slightly elevated gamma readings.	Primary	
40	Subsurface	Northeastern corner of Subarea 5D-South.	Gamma scanning survey results indicate slightly elevated gamma readings.	Primary	

Notes:
 PGRAY - potential gamma radiation anomaly

Table 3
Summary of Soil Sample Locations in Subarea 7

[illegible]

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
18	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 18C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
18	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 18C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
20	Surface	North Drainage - North of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 20C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
20	Subsurface	North Drainage - North of the RMHF.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 20C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
21	Surface	RMHF - Southeast side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 21C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
21	Subsurface	RMHF - Southeast side, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 21C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
22	Surface	RMHF - Northeast corner, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 22C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
22	Subsurface	RMHF - Northeast corner, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 22C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
23	Surface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 23C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
23	Subsurface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 23C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
24	Surface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 24C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
24	Subsurface	RMHF - East side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly - GRAY 24C	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
25	Surface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 25C	Primary	
25	Subsurface	North Drainage - Northeast of the RMHF.	Gamma scanning results show a gamma radiation anomaly - GRAY 25C	Primary	
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	Primary	
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	Primary	
27	Surface	Former Building 4133 - Northwest of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 27C	Primary	
27	Subsurface	Former Building 4133 - Northwest of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 27C	Primary	
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	Primary	
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	Primary	
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	Primary	
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	Primary	
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	Primary	
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	Primary	
34	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 31C	Deslect	High density of radiological sampling.
34	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 31C	Deslect	High density of radiological sampling.
32	Surface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 32C	Primary and Secondary	Secondary suite added since sample location is in a potential waste debris area.
32	Subsurface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 32C	Primary and Secondary	Secondary suite added since sample location is in a potential waste debris area.
33	Surface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 33C	Primary	
33	Subsurface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 33C	Primary	
34	Surface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 34C	Primary	
34	Subsurface	Building 4133 - West of former Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 34C	Primary	
35	Surface	Building 4133 - Southwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 35C	Primary	
35	Subsurface	Building 4133 - Southwest of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 35C	Primary	
36	Surface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 36C	Primary	
36	Subsurface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 36C	Primary	
37	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 37C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
37	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 37C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
38	Surface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 38C	Primary	
38	Subsurface	Building 4133 - North of Building 4133.	Gamma scanning results show a gamma radiation anomaly - GRAY 38C	Primary	
39	Surface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 39C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
39	Subsurface	Former Building 4654 - Southwest of former Building 4654.	Gamma scanning results show a gamma radiation anomaly - GRAY 39C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
40	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 40C	Primary	
40	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 40C	Primary	
41	Surface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 41C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
41	Subsurface	Northeastern corner of Subarea 7.	Gamma scanning results show a gamma radiation anomaly - GRAY 41C	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
42	Surface	Former Building 4811 - South of former Building 4811.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 42C	Primary	
42	Subsurface	Former Building 4811 - South of former Building 4811.	Gamma scanning results show a potential gamma radiation anomaly - PGRAY 42C	Primary	
43	Surface	Site 4614 - Southwest of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
43	Subsurface	Site 4614 - Southwest of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
44	Surface	RMHF - North side of the RMHF within the asphalt drainage ditch.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 47C.	Deselect	High density of radiological sampling.
44	Subsurface	RMHF - North side of the RMHF within the asphalt drainage ditch.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 47C.	Deselect	High density of radiological sampling.
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 radionuclides. Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 7C.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides. Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 7C.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
47	Surface	Site 4614 - Center of the RMHF Holding Pond.	Characterize potential residual contamination within the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
47	Subsurface ²	Site 4614 - Center of the RMHF Holding Pond.	Characterize potential residual contamination within the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
48	Surface	Site 4614 - Southwest side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
48	Subsurface	Site 4614 - Southwest side of the former RMHF Holding Pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
49	Surface	Site 4614 - Northeast side of the former holding pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
49	Subsurface	Site 4614 - Northeast side of the former holding pond.	Characterize potential residual contamination surrounding the former RMHF Holding Pond.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides. Aerial photo feature, "Debris Area".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides. Aerial photo feature, "Debris Area".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides within the area.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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 radionuclides in the area.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
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 radionuclides in the area.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and Secondary	Secondary suite added since sample location in potential waste disposal area.
63	Subsurface	Building 4133 - Approximately 70 feet southwest of Building 4133.	Geophysical feature, "Conductivity and Magnetometer Anomalies".	Primary and Secondary	Secondary suite added since sample location in potential waste disposal area.
64	Subsurface	Building 4133 - Approximately 70 feet southwest of Building 4133.	Geophysical features, "Conductivity and Magnetometer Anomalies".	Primary and Secondary	Secondary suite added since sample location in potential waste disposal area.
65	Subsurface	Building 4133 - Approximately 220 feet northwest of Building 4133.	Aerial photo feature, "Debris Area". Geophysical features, "Conductivity and Magnetometer Anomalies".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to proximity to SRE operations.
72	Subsurface	Former Building 4654 - Northwest corner of former Building 4654 foot print.	Historical records show elevated levels of radionuclides in this area. Geophysical feature, "GPR". Aerial photo feature, "Open Storage".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
77	Surface	Former Building 4654 - Southwest corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show levels of radionuclides in this area.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
77	Subsurface	Former Building 4654 - Southwest corner of former Building 4654 foot print.	Aerial photo feature, "Open Storage". Historical documents show levels of radionuclides in this area.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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.	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
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".	Primary	
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".	Primary	
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".	Primary	

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
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".	Primary	
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
84	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity Anomaly". Aerial photo feature, Ground Scar".	Primary	
85	Surface	Site 4614 - West of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
85	Subsurface	Site 4614 - West of the RMHF Holding Pond.	Aerial photo feature, "Debris Area".	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
87	Surface	RMHF - Approximately 30 north of the northwest corner of the RMHF.	Aerial photo feature, "Debris Area". Potential contamination associated with GRAY 9C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
87	Subsurface	RMHF - Approximately 30 north of the northwest corner of the RMHF.	Aerial photo feature, "Debris Area". Potential contamination associated with GRAY 9C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
90	Surface	RMHF - West side of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 7C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
90	Subsurface	RMHF - West side of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 7C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
92	Surface	RMHF - Southside of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 10C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
92	Subsurface	RMHF - Southside of the RMHF, outside of the fence.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 10C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Deselect	Sample location in identified contamination area.
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.	Deselect	Sample location in identified contamination area.
94	Surface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 14C.	Deselect	Sample location in identified contamination area.
94	Subsurface	RMHF - South side of the RMHF, outside of the fence.	Gamma scanning survey readings indicate elevated levels of cesium associated GRAY 14C.	Deselect	Sample location in identified contamination area.
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.	Deselect	Sample location in identified contamination area.
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.	Deselect	Sample location in identified contamination area.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
100	Surface	RMHF - Northeast corner of the RMHF, outside of the fence.	Gamma scanning readings indicate elevated levels of cesium associated with GRAY 22C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
100	Subsurface	RMHF - Northeast corner of the RMHF, outside of the fence.	Gamma scanning readings indicate elevated levels of cesium associated with GRAY 22C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
101	Surface	RMHF - North side of the RMHF, on north facing slope.	Process knowledge feature, "2 inch Discharge Pipe".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
101	Subsurface	RMHF - North side of the RMHF, on north facing slope.	Process knowledge feature, "2 inch Discharge Pipe".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
102	Subsurface	Former Building 4028 - East side of former Building 4028 foot print.	Former location of Fuel Storage Vault.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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).	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
104	Subsurface ³	Former Building 4028 - Southwest corner of the former Building 4028 foot print.	Former location of Reactor Pool (Drawing 301-018-P4).	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
105	Subsurface ³	Former Building 4028 - Southwest portion of former Building 4028.	Former location of the Reactor Pool (Drawing 301-018-P4).	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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)	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
107	Subsurface ³	Former Building 4028 - Western portion of former Building 4028.	Former location of the Test Vault and Cask Pit.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
108	Subsurface	Former Building 4028 - Western portion of the former Building 4028 foot print.	Former location of the Test Vault.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
109	Subsurface	Former Building 4028 - South of the former Building 4028 foot print.	Geophysical feature, "Conductivity Anomaly".	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary	
112	Subsurface	Site 4614 . Approximately 165 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil". Potential residual contamination from remediation of the RMHF Holding Pond.	Primary	
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".	Primary	
114	Subsurface	Southwest Portion of Subarea 7. Approximately 180 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Deslect	High density of radiological sampling.
115	Subsurface	Approximately 240 feet southwest of the RMHF Holding Pond .	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Primary	
116	Subsurface	Approximately 180 feet southwest of the RMHF Holding Pond.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil". Potential residual contamination from remediation activities conducted at the RMHF Holding Pond (Site 4614).	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary	
118	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity". Aerial photo feature, "Disturbed Soil".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary	

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
125	Surface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Conductivity Anomaly".	Primary	
125	Subsurface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Conductivity Anomaly".	Primary	
126	Subsurface	Former Building 4028 - South of former Building 4028.	Geophysical feature, "Magnetometer Anomaly".	Primary	
127	Subsurface	Former Building 4028 - South of former Building 4028 and north of former Building 4025.	Geophysical feature, "Conductivity Anomaly".	Primary	
128	Subsurface	Former Building 4028 - West side of former Building 4028 foot print.	Test Vault Access way.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
135	Surface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
135	Subsurface	Site 4614 - Southeast corner of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 4C.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
138	Surface	Site 4614 - North of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
138	Subsurface	Site 4614 - North of the former RMHF Holding Pond.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 3C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
139	Surface	Northern Drainage - North of the RMHF.	Gamma scanning survey results indicate elevated levels of cesium associated with GRAY 16C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
139	Subsurface	Northern Drainage - North of the RMHF.	Gamma scanning survey results indicate elevated levels of cesium associated with GRAY 16C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
140	Surface	Northern Drainage - North of the RMHF.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 16C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
140	Subsurface	Northern Drainage - North of the RMHF.	Gamma survey readings indicate elevated levels of cesium associated with GRAY 16C.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
144	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Primary	
144	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Primary	
145	Surface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Primary	
145	Subsurface	Building 4133 - Northwest of Building 4133.	Gamma scanning survey readings indicate elevated levels of cesium associated with GRAY 31C.	Primary	
146	Surface	Building 4133 - West side of Building 4133.	Gamma scanning survey readings indicate elevated reading of cesium associated with GRAY 34C.	Primary	
146	Subsurface	Building 4133 - West side of Building 4133.	Gamma scanning survey readings indicate elevated reading of cesium associated with GRAY 34C.	Primary	

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
147	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Characterize potential residual contamination from remediation activities.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
148	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
149	Subsurface ¹	RMHF - North of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
150	Subsurface ¹	RMHF - North edge of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
151	Surface	RMHF - East side of the RMHF.	Aerial photo feature, "Debris Area".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
151	Subsurface	RMHF - East side of the RMHF.	Aerial photo feature, "Debris Area".	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
152	Drainage	Northern Drainage - North of the RMHF,	Potential contamination in the drainage that may have originated from the RMHF Septic Leach Field.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
153	Drainage	Northern Drainage - North of the RMHF Septic Leach Field.	Potential contamination in drainage fro RMHF Septic Leach Field.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
154	Subsurface ¹	RMHF - Septic Leach Field. West end of the RMHF Septic Leach Field.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
157	Surface	Northwest portion of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 9.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
157	Subsurface	Northwest portion of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 9.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
158	Subsurface	Former Building 4654 - Eastern edge of former Building 4654 foot print.	Geophysical feature, "GPR". Aerial photo feature, "Open Storage".	Primary and TPH, alcohols, glycols, terphenyls	TPH, alcohols, glycols, and terphenyls added due to storage related to SRE operations.
159	Subsurface	Southwest corner of Subarea 7.	Aerial photo feature, "Debris Area".	Primary	
160	Subsurface	Southwest corner of Subarea 7.	Aerial photo feature, "Debris Area".	Primary	
161	Subsurface	Southwest portion of Subarea 7.	Geophysical feature, "Conductivity Anomaly". Aerial photo feature, "Ground Scar".	Primary	
162	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
163	Subsurface	Northern Drainage - Upgradient (East) of Outfall 3.	Geophysical feature, "Conductivity Anomaly".	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
166	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
167	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
168	Subsurface ²	Site 4614 - Center of the former RMHF Holding Pond.	Potential residual contamination from remediation activities.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
169	Subsurface	Site 4614 - West of the RMHF Holding Pond.	Potential residual contamination from remediation activities.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
171	Subsurface	Former Building 4028 - South of former Building 4028 foot print.	Potential contamination within the former cooling unit piping trench.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
172	Subsurface	Former Building 4028 - South of former Building 4028 foot print.	Potential contamination within the former cooling unit piping trench and pit.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
173	Surface	Site 4614 - West of the former RMHF Holding Pond.	Potential contamination within soil pile associated with remedial activity at the holding pond	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
173	Subsurface	Site 4614 - West of the former RMHF Holding Pond.	Potential contamination within soil pile associated with remedial activity at the holding pond	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
174	Subsurface ¹	RMHF Septic Leach Field - West of the former RMHF Leach Field.	Down gradient of the former RMHF Leach Field.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
175	Surface	Southwest corner of Subarea 7.	Potential contamination from surface water run-off from the SNAP area.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
175	Subsurface	Southwest corner of Subarea 7.	Potential contamination from surface water run-off from the SNAP area.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
176	Surface	South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 10C.	Deslect	Sample location in identified contamination area.
176	Subsurface	South side of the RMHF, outside of the fence.	Gamma scanning results show a gamma radiation anomaly associated with GRAY 10C.	Deslect	Sample location in identified contamination area.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
178	Surface	Northeast portion of Subarea 7.	Gamma Scanning survey readings indicate elevated readings of cesium associated with GRAY 37C.	Deslect	High density of radiological sampling.
178	Subsurface	Northeast portion of Subarea 7.	Gamma Scanning survey readings indicate elevated readings of cesium associated with GRAY 37C.	Deslect	High density of radiological sampling.

Table 3
Summary of Soil Sample Locations in Subarea 7

Location ID	Sample Type	EPA Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
179	Surface	East side of the RMHF.	Surface water run-off from the RMHF.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
179	Subsurface	East side of the RMHF.	Surface water run-off from the RMHF.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and TPH, alcohols, glycols, terphenyls, formaldehyde, NDMA, nitrate, SVOC TIC (dowanol)	TPH, alcohols, glycols, and terphenyls added due to Building 4028 reactor operations. Formaldehyde, NDMA, nitrates, SVOC TIC (dowanol) added to address cooling tower.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
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.	Primary and Secondary	Secondary suite added since sample location at a liquid collection point.
183	Surface	North of Building 4133.	Geophysical feature, "Magnetometer Anomaly".	Primary	
183	Subsurface	North of Building 4133.	Geophysical feature, "Magnetometer Anomaly".	Primary	
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
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.	Primary and alcohols, glycols, terphenyls, TPH, and cyanide.	Alcohols, glycols, terphenyls, TPH, and cyanide added due to operations at RMHF.
185	Subsurface	Southwest portion of Subarea 7.	Areal photo feature, "Debris Area".	Primary	

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.

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

Table 4
Summary of Soil Sample Locations in Subarea 8 South

Location ID	Sample Type	EPA Sample Location Description	EPA Technical Justification for Radionuclide Sampling	Co-located Chemical Analytical Suites	Co-located Chemical Sample Analytical Suite Rationale
1	Surface	Southern most corner of Subarea 8-South.	Historical data show elevated levels of radionuclides.	Primary	
1	Subsurface	Southern most corner of Subarea 8-South.	Historical data show elevated levels of radionuclides.	Primary	
2	Surface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
2	Subsurface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
3	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
3	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
4	Surface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
4	Subsurface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
5	Surface	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Primary	
5	Subsurface	West side of Subarea 8-South, next the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Primary	
6	Surface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
6	Subsurface	West side of Subarea 8-South, next to the Area IV boundary. _____	Aerial photo feature, "Disturbed Soil". _____	Deselect	High density of radiological sampling.
7	Surface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Primary	
7	Subsurface	West side of Subarea 8-South, next to the Area IV boundary.	Aerial photo feature, "Disturbed Soil".	Primary	
8	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
8	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
9	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
9	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
10	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
10	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
11	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
11	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
12	Surface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
12	Subsurface	West side of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
13	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Primary	
13	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Primary	
14	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	Primary	
14	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination from associated with off-site debris pile.	Primary	
15	Surface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Primary	
15	Subsurface	Northwest portion of Subarea 8-South.	Aerial photo feature, "Off-site Debris Pile". Potential contamination associated with off-site debris pile.	Primary	
16	Surface	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Historical data show elevated levels of radionuclides. Potential contamination from Open Storage activities associated with the FSDF.	Primary	
16	Subsurface	Northern portion of Subarea 8-South, just south of the Arness Fire Road.	Historical data show elevated levels of radionuclides. Potential contamination from Open Storage activities associated with the FSDF.	Primary	
17	Surface	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Potential contamination from Open Storage activity conducted at the FSDF.	Primary	
17	Subsurface	Northwest corner of Subarea 8-South, south of the Arness Fire Road.	Potential contamination from Open Storage activity conducted at the FSDF.	Primary	
18	Surface	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Potential contamination from Open Storage activities associated with the FSDF.	Primary	
18	Subsurface	Northwest portion of Subarea 8-South, south of Arness Fire Road.	Potential contamination from Open Storage activities associated with the FSDF.	Primary	
19	Surface	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
19	Subsurface	North central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
20	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
20	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
21	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
21	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
22	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
22	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
23	Surface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
23	Subsurface	Central portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
24	Surface	West portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	
24	Subsurface	West portion of Subarea 8-South.	Aerial photo feature, "Disturbed Soil".	Primary	

Notes:
FSDF - Former Sodium Disposal Facility