INDUSTRIAL AREA
SAMPLING AND ANALYSIS PLAN
FY03 ADDENDUM #IA-03-03
IHSS GROUP 900-1

February 2003

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ACRONYMS

D&D	Decontamination and Decommissioning
DOE	Department of Energy
FY	Fiscal Year
HPGe	high-purity germanium
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
MDL	method detection limit
mg/kg	milligrams per kilogram
PAC	Potential Area of Concern
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
RFCA	Rocky Flats Cleanup Agreement
SAP	Sampling and Analysis Plan
UBC	Under Building Contamination
VOC	volatile organic compound

1.0 INTRODUCTION

This Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum #IA-03-03 includes Individual Hazardous Substance Site (IHSS) Group-specific information, sampling locations, and potential contaminants of concern (PCOCs) for IHSS, Potential Area of Concern (PAC), and Under Building Contamination (UBC) Sites proposed for characterization during Fiscal Year (FY) 03. This IASAP Addendum is a supplement to the IASAP (DOE 2001) and includes data and proposed sampling locations for IHSS Group 900-1 and associated IHSS, PAC, and UBC Sites listed in Table 1. The locations of the IHSS Group, and IHSS, PAC, and UBC Sites proposed for sampling during FY03 are shown on Figure 1 and Figure 2, respectively.

Table 1
IASAP Addendum #IA-03-03 IHSS Groups

IHSS Group	IHSS/PAC/UBC Sites
900-1	UBC 991, Weapons Assembly and R&D (including Vault Bldgs 996, 997, 998 and 999, and associated tunnels)
	Radioactive Site Building 991, IHSS 900-173
	Radioactive Site 991 Steam Cleaning Area, IHSS 900-184
	Building 991 Enclosed Area, PAC 900-1301
	Explosive Bonding Pit, PAC 900-1307 (Bldg 993)

2.0 EXISTING CHARACTERIZATION INFORMATION

Existing concentrations above the background mean plus two standard deviations, or method detection limit (MDL), are presented in Figure 3. Table 2 presents the PCOCs. Existing information and data for the IHSS, PAC, and UBC Sites are available in Appendix C of the IASAP (DOE 2001) and in the Industrial Area Data Summary Report (DOE 2000).

3.0 SAMPLING

The proposed sampling and analysis specifications for each IHSS, PAC and UBC Site are listed, by sample location, in Table 3. Proposed new sampling locations are shown in Figure 4 for UBC 991, IHSS 900-173, IHSS 900-184, and PAC 900-1301, and in Figure 5 for PAC 900-1307. Proposed new sampling locations are the starting point for IHSS Group characterization. After characterization starts, the number and type of samples may change based on sampling results. Changes to sampling specifications will be considered in consultation with the regulatory agencies.

Three types of sampling strategies are used to determine sampling locations: statistical, geostatistical and biased. Statistical grids have computer-generated random start points and orientations. Additionally, the grids have been extended outside the IHSS, PAC, or UBC Site to provide additional sampling locations if needed. Biased samples supplement the statistical grid locations. Geostatistical methods were not used at this IHSS Group.

Where a new sampling location overlaps or is adjacent to an existing sampling location, the existing sampling location data will be used during evaluation. Statistical sampling locations within a building footprint may be adjusted in the field to collect samples from specific building features (e.g., Location CM 42-004; refer to Table 3, footnote a).

For IHSS Group 900-1, the statistical grid size (i.e., the length between grid points) is 36 ft, except for UBC 991, where the grid size is 72 ft. Additional biased samples will be taken around Building 991 (i.e., along foundation and storm drain lines, at line junctions, within one storm drain and one storm culvert, and from an exterior drain near the east basement entrance). Soil samples near drain lines will be collected at a depth just below the lines to determine if lines have leaked and contaminants have been released (see Table 3 footnote). Samples associated with the storm drain (Location CM42-012), storm culvert (Location CN41-000), and exterior drain (Location CO42-009) will be sediment samples collected to determine if contaminants have been released to the environment.

In addition, biased samples will be taken from under the 991 Tunnel (Locations CJ43-000, CL43-004 and CM43-001), under Tunnel 996 (Locations CN43-003 and CN44-001) and under the 991 slab below from where radioactive contamination was found on the building floor (Location CM43-002) (DOE 2003). Samples will be taken where major cracks and/or concrete joints exist.

Process drains within Building 991, originating from the building laboratory on the first floor, discharged to an exterior tank that was located within PAC 900-1301. The tank was situated in a bermed, concrete, secondary-containment structure. A soil sample will be collected from under this structure (i.e., Location CN42-022). Building 991 was not connected to the Original Process Waste Line or the New Process Waste Line systems.

The Reconnaissance Level Characterization Report for Building 991 shows that the roof was not contaminated (DOE 2003). However, soil will be sampled near two roof drains (i.e., Sample Locations CN42-021 and CN42-023; refer to Table 3). In addition, because roof drains discharge to storm drain lines, sampling around storm drain lines could indicate if contaminants from the building roof have migrated into the environment.

After the asphalt has been removed from the Steam Cleaning Area (IHSS 900-184), additional sampling will be considered based on conditions revealed. For example, additional samples would be taken around any pad found under the current surface, or under any sump or drains that are found and removed. In addition, any stained area would be sampled.

Radiological swipe and core data from Decontamination and Decommissioning (D&D) characterization will be evaluated to determine whether UBC samples are required under the vault buildings and associated tunnels. No significant releases have occurred in these vaults and tunnels (DOE 1992 – 2001), and the associated concrete slabs are very thick. Based on similar investigations through slabs, it is very unlikely that soils under these structures have contaminant concentrations above RFCA Tier II action levels, if all the D&D data are below ALs. If the data indicate that samples are required, the existing grid will be expanded to cover suspect locations in consultation with the agencies and a contact record issued.

It should be noted that IHSSs 900-175 and 900-210 are predominantly surface sites and are not associated with the subsurface tunnels (i.e., UBC 991). IHSS 900-175 has been previously proposed for no further action.

For PAC 900-1307, the grid size was extended to 40 feet beyond the building footprint (i.e., to twice the length of the PAC) because explosive experiments disbursed debris outside Building 993. One biased sample will be taken from under the pit located within Building 993, estimated at approximately 6 feet below grade. All of the samples will be analyzed for radionuclides and metals, and six of the samples will also be analyzed for explosives [i.e., samples from under the pit, under the slab, and in the explosives buffer area (from each side of the building slab); refer to Table 3). If radionuclide and metal concentrations are found to be above ALs near the grid boundary, under the Building 993 slab, or under the Building 993 pit, additional samples will be taken in consultation with the agencies and a contact record issued. In addition, if explosives are detected, additional samples will be taken in consultation with the agencies and a contact record issued.

4.0 REFERENCES

DOE, 1992-2001, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado.

DOE, 2000, Rocky Flats Environmental Technology Site Industrial Area Data Summary Report, Golden, Colorado, September.

DOE, 2001, Industrial Area Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, 2003, Reconnaissance Level Characterization Report, Area 2, Group 2 Closure Project, Rocky Flats Environmental Technology Site, Golden, Colorado, January.

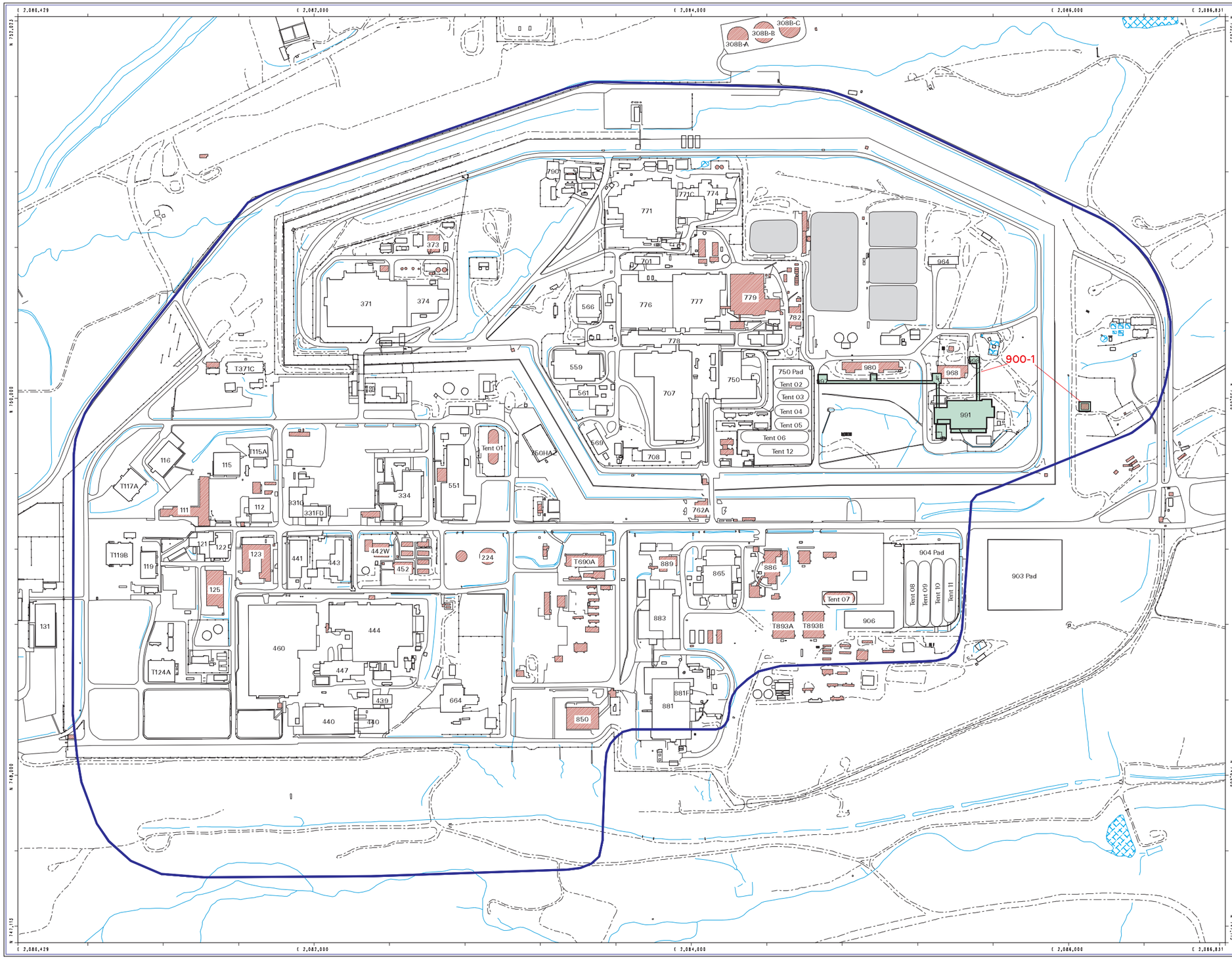

Figure 1

IHSS Group 900-1 Location Map

EXPLANATION

IHSS Group

900-1

Standard Map Features

- Buildings and other structures
- Demolished buildings
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads
- Solar Evaporation Ponds (SEPs)
- Industrial Area Operable Unit Boundary

DATA SOURCE BASE FEATURES:
PACs
Historical Release Report (HRR)
2nd Annual Update
Sept. 30, 1997
Individual Hazardous Substance Sites (IHSS)
DOE, 1992, HRR Report and Subsequent Updates.
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas.
Digitized from the orthophotographs. 1/95

Scale = 1 : 6330
1 inch represents approximately 528 feet

150 0 300 600 ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. 303-966-7707

December 03, 2002

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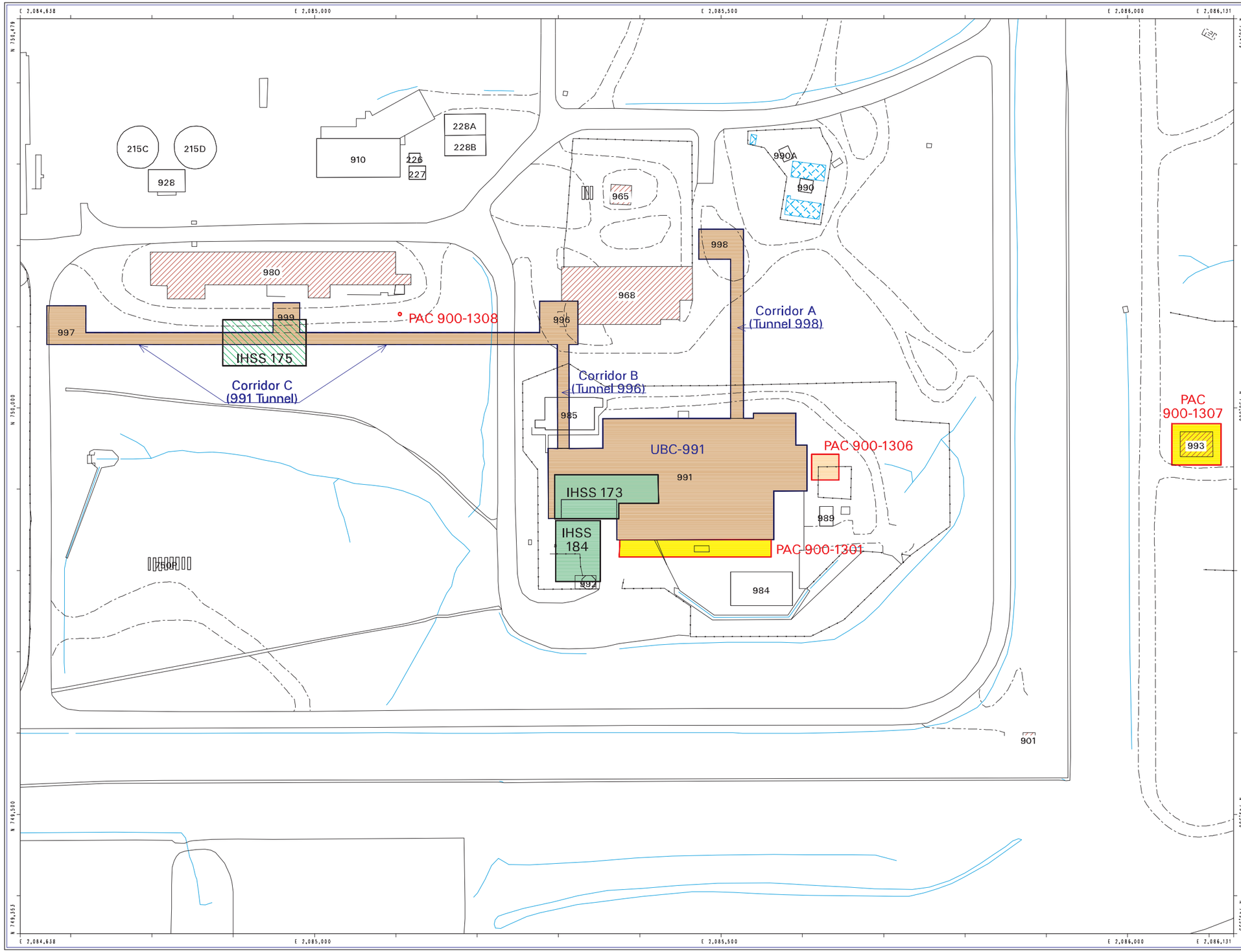

Figure 2

Potential Remediation Areas
IHSS Group 900-1

EXPLANATION

- UBCS for IHSS Group 900-1
- IHSS for IHSS Group 900-1
- PACS for IHSS Group 900-1
- IHSS not in IHSS Group 900-1
- PACS not in IHSS Group 900-1

Standard Map Features

- Buildings and other structures
- Demolished buildings
- Lakes and ponds
- Streams, ditches, or other drainage features
- Fences and other barriers
- Paved roads
- Dirt roads

DATA SOURCE BASE FEATURES:
PACs
Historical Release Report (HRR)
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DOE, 1992, HRR Report and Subsequent Updates.
Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas. Digitized from the orthophotographs. 1/95

Scale = 1 : 1450
1 inch represents approximately 121 feet

50 0 100 200ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

U.S. Department of Energy
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GIS Dept. 303-966-7707

December 03, 2002

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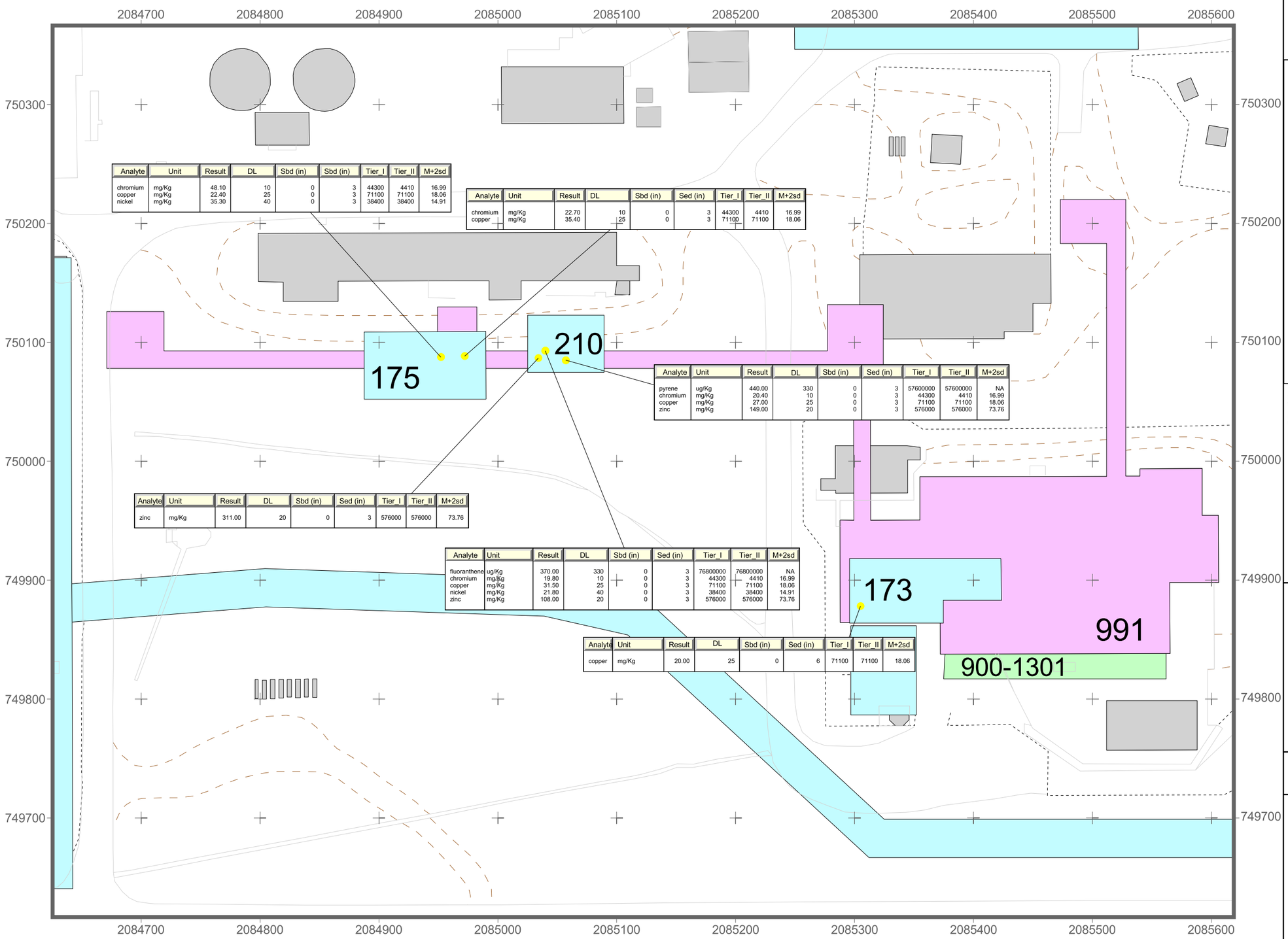

Analyte	Unit	Result	DL	Sbd (in)	Sbd (in)	Tier_I	Tier_II	M+2sd
chromium	mg/Kg	48.10	10	0	3	44300	4410	16.99
copper	mg/Kg	22.40	25	0	3	71100	71100	18.06
nickel	mg/Kg	35.30	40	0	3	38400	38400	14.91

Analyte	Unit	Result	DL	Sbd (in)	Sed (in)	Tier_I	Tier_II	M+2sd
chromium	mg/Kg	22.70	10	0	3	44300	4410	16.99
copper	mg/Kg	35.40	25	0	3	71100	71100	18.06

Analyte	Unit	Result	DL	Sbd (in)	Sed (in)	Tier_I	Tier_II	M+2sd
pyrene	ug/Kg	440.00	330	0	3	57600000	57600000	NA
chromium	mg/Kg	20.40	10	0	3	44300	4410	16.99
copper	mg/Kg	27.00	25	0	3	71100	71100	18.06
zinc	mg/Kg	149.00	20	0	3	576000	576000	73.76

Analyte	Unit	Result	DL	Sbd (in)	Sed (in)	Tier_I	Tier_II	M+2sd
zinc	mg/Kg	311.00	20	0	3	576000	576000	73.76

Analyte	Unit	Result	DL	Sbd (in)	Sed (in)	Tier_I	Tier_II	M+2sd
fluoranthene	ug/Kg	370.00	330	0	3	76800000	76800000	NA
chromium	mg/Kg	19.80	10	0	3	44300	4410	16.99
copper	mg/Kg	31.50	25	0	3	71100	71100	18.06
nickel	mg/Kg	21.80	40	0	3	38400	38400	14.91
zinc	mg/Kg	108.00	20	0	3	576000	576000	73.76

Analyte	Unit	Result	DL	Sbd (in)	Sed (in)	Tier_I	Tier_II	M+2sd
copper	mg/Kg	20.00	25	0	6	71100	71100	18.06

Figure 3
Existing Samples
Above Background Mean
Plus Two Standard Deviations
or Detection Limit

KEY

- Below Tier II AL
- Paved Roads
- IHSS
- Under Building Contamination
- Potential Area of Concern
- Building
- Dirt Roads
- Fence

Sbd = Sample begin depth
Sed = Sample end depth
DL = Detection limit

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N W E S

20 0 20 40 60 Feet

Scale = 1: 1000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: Date: 12.17.02

RADMS

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Table 2
Potential Contaminants of Concern

IHSS Group	IHSS/PAC/UBC Site	PCOCs	Media	Sources	Sampling Type
900-1	UBC 991, Weapons Assembly and R&D	Uranium Plutonium Metals VOCs	Soil Beneath Slab and Around Building and Drain Lines; Sediment in Drain	HRR (DOE 1992-2001) Process knowledge (IASAP [DOE 2001])	Statistical grid and biased locations
	Radioactive Site Building 991, IHSS 900-173	Uranium Plutonium Metals VOCs	Soil Beneath Asphalt	HRR (DOE 1992-2001) Process knowledge (IASAP [DOE 2001])	Statistical grid and biased locations
	Radioactive Site 991 Steam Cleaning Area, IHSS 900-184	Uranium Plutonium Metals VOCs	Soil Beneath Asphalt and Drain Lines; Sediment in Drain	HRR (DOE 1992-2001) Process knowledge (IASAP [DOE 2001])	Statistical grid and biased locations
	Building 991 Enclosed Area, PAC 900-1301	Uranium Plutonium Metals VOCs	Soil Beneath Asphalt, Concrete Tank Containment, and Drain Lines; Sediment in Culvert	HRR (DOE 1992-2001) Process knowledge (IASAP [DOE 2001])	Statistical grid and biased locations
	Explosive Bonding Pit, PAC 900-1307	Uranium Metals Explosives	Soil Beneath And Around Building Slab And Pit	HRR (DOE 1992-2001) Process knowledge (IASAP [DOE 2001])	Statistical grid and biased locations

R&D research and development
HRR Historical Release Report
VOC volatile organic compound

Table 3
Sampling Specifications

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
900-1	UBC 991	CM42-001	2085293.745	749869.735	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
	Near Door 7	CM42-004[a]	2085293.557	749941.734	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CN42-005	2085480.712	749906.222	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CN42-007	2085418.452	749870.059	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CN42-015	2085418.265	749942.059	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
		CN42-017	2085356.005	749905.897	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CN43-000	2085480.525	749978.221	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CN43-002	2085355.817	749977.897	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CO42-000	2085605.419	749906.547	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CO42-001	2085543.159	749870.384	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CO42-006	2085542.972	749942.384	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
	Below drain line	CM42-014[d]	2085281.639	749950.832	Subsurface Soil	2.5’-4.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5’-4.5’	Metals	6200	6010
					Subsurface Soil	2.5’-4.5’	VOCs	8260	8260
	Below drain line	CM43-000[d]	2085324.340	749967.577	Subsurface Soil	2.5’-4.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5’-4.5’	Metals	6200	6010
					Subsurface Soil	2.5’-4.5’	VOCs	8260	8260
	Below drain line	CO42-007[d]	2085609.850	749955.018	Subsurface Soil	2.5’-4.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5’-4.5’	Metals	6200	6010
					Subsurface Soil	2.5’-4.5’	VOCs	8260	8260
	Below drain line	CO42-008[d]	2085728.742	749951.669	Subsurface Soil	2.5’-4.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5’-4.5’	Metals	6200	6010
					Subsurface Soil	2.5’-4.5’	VOCs	8260	8260
		CO42-009[b]	2085575.522	749869.617	Sediment in Drain	0-0’	Radionuclides	HPGe	Alpha Spec
					Sediment in Drain	0-0’	Metals	6200	6010
	Below drain line	CO43-001[d]	2085593.942	749998.556	Subsurface Soil	2.5’-4.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5’-4.5’	Metals	6200	6010
					Subsurface Soil	2.5’-4.5’	VOCs	8260	8260
		CJ43-000	2084720.626	750085.562	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010
					Subsurface Soil	0.5’-2.5’	VOCs	8260	8260
		CL43-004	2084967.677	750086.897	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	VOCs	8260	8260
					Subsurface Soil	0.5’-2.5’	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5’-2.5’	Metals	6200	6010

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CM43-001	2085277.492	750084.226	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	VOCs	8260	8260
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CM43-002	2085306.871	749962.704	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	VOCs	8260	8260
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CN43-003	2085520.572	750098.214	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	VOCs	8260	8260
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CN44-001	2085497.752	750200.360	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	VOCs	8260	8260
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	IHSS 900-173	CM42-005	2085319.287	749866.516	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CN42-020	2085353.895	749876.431	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	IHSS 900-184	CM42-006	2085332.371	749799.346	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CM42-007	2085329.506	749835.232	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CM42-008	2085299.861	749814.807	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
		CM42-009	2085296.995	749850.693	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	Below drain line	CM42-010[d]	2085313.456	749765.795	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5'-4.5'	Metals	6200	6010
					Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
	Below drain line	CM42-011[d]	2085320.154	749789.239	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5'-4.5'	Metals	6200	6010
					Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		CM42-012[b]	2085330.201	749816.869	Sediment in Drain	0-0'	Radionuclides	HPGe	Alpha Spec
					Sediment in Drain	0-0'	Metals	6200	6010
	Below drain line	CM42-013[d]	2085281.639	749780.029	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
					Subsurface Soil	2.5'-4.5'	Metals	6200	6010
					Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
	PAC 900-1301 Near roof drain	CN42-021[e]	2085411.616	749830.252	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	Under tank containment	CN42-022[e]	2085473.955	749831.614	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	Near roof drain	CN42-023[e]	2085536.294	749832.976	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	0.5'-2.5'	Metals	6200	6010
					Subsurface Soil	0.5'-2.5'	VOCs	8260	8260
	Below drain line	CN42-024[d]	2085423.976	749795.099	Subsurface Soil	2.5'-4.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	2.5'-4.5'	Metals	6200	6010
					Subsurface Soil	2.5'-4.5'	VOCs	8260	8260
		CN41-000[b]	2085489.283	749743.189	Sediment in Culvert	0-0'	Radionuclides	HPGe	Alpha Spec
					Sediment in Culvert	0-0'	Metals	6200	6010
	PAC 900-1307	CQ42-002	2086086.608	749902.287	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	Explosives	8330	8330
		CQ42-003	2086062.411	749928.943	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
		CQ42-004	2086038.214	749955.598	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5'	Explosives	8330	8330
		CQ42-005	2086121.790	749909.914	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec

IHSS Group	IHSS/PAC/UBC Site	Location Code	Easting	Northing	Media	Depth Interval	Analyte	Onsite Method	Offsite Laboratory Method
					Surface Soil	0-0.5’	Metals	6200	6010
		CQ42-006	2086097.594	749936.570	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
		CQ42-007	2086132.776	749944.197	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	Explosives	8330	8330
	Under building pit	CQ42-008	2086085.021	749956.466	Subsurface Soil	6.0-6.5'	Radionuclides	HPGe	Alpha Spec
					Subsurface Soil	6.0-6.5'	Metals	6200	6010
					Subsurface Soil	6.0-6.5'	Explosives	8330	8330
	Under building slab	CQ43-000	2086073.397	749963.225	Surface Soil	0-0.5’	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5’	Metals	6200	6010
					Surface Soil	0-0.5’	Explosives	8330	8330
		CQ43-001	2086049.200	749989.881	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
		CQ43-002	2086108.580	749970.853	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
		CQ43-003	2086084.383	749997.508	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010
					Surface Soil	0-0.5’	Explosives	8330	8330
		CQ43-004	2086119.566	750005.135	Surface Soil	0-0.5'	Radionuclides	HPGe	Alpha Spec
					Surface Soil	0-0.5'	Metals	6200	6010

[a] Location CM42-004 is located to the west of Bldg 991 Door 7, which is where an interior floor channel/gutter discharges. This sample location will be adjusted as necessary to sample the area receiving any of the tunnel discharge.

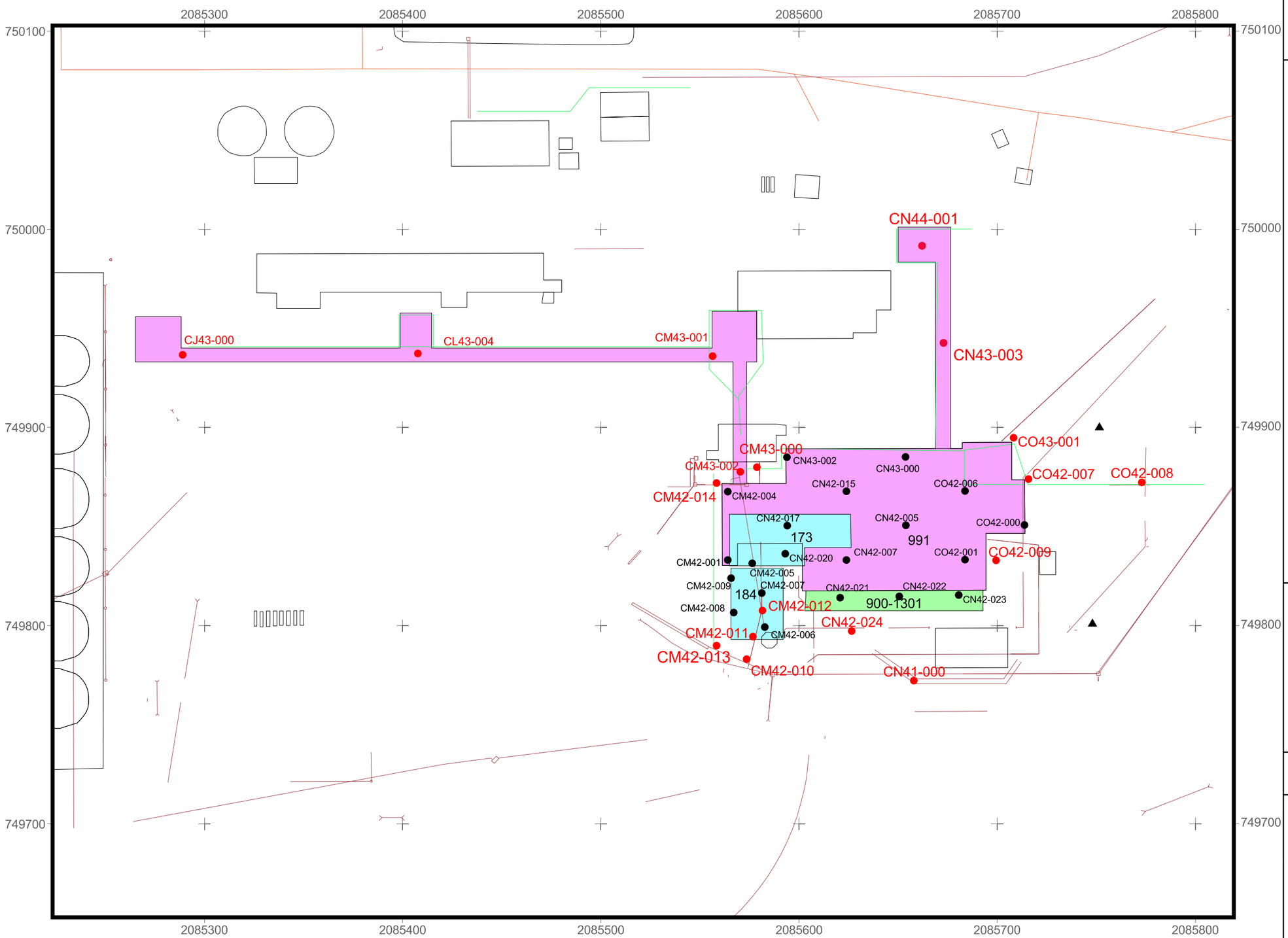
[b] Sediment sample.

[c] Location will be adjusted as necessary to ensure that soil is collected from under the concrete tank containment.

[d] Sample will be taken at a depth just below the drain line.

[e] Location will adjusted as necessary to ensure that soil is collected from as close to the roof drain as possible.

Figure 4
FY 2003 Sampling Locations for IHSS Group 900-1 Building 991 Area



Legend

- Potential Air Monitoring Location
- Biased Sample Locations
- Statistical Sample Locations
- Buildings
- IHSS
- PAC
- UBC
- Storm Drains
- Foundation Drains

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N W E S

50 0 50 100 150 Feet

Scale = 1: 1250

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

RADMS

Prepared for:

KAISER•HILL COMPANY

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Date: 17Dec02

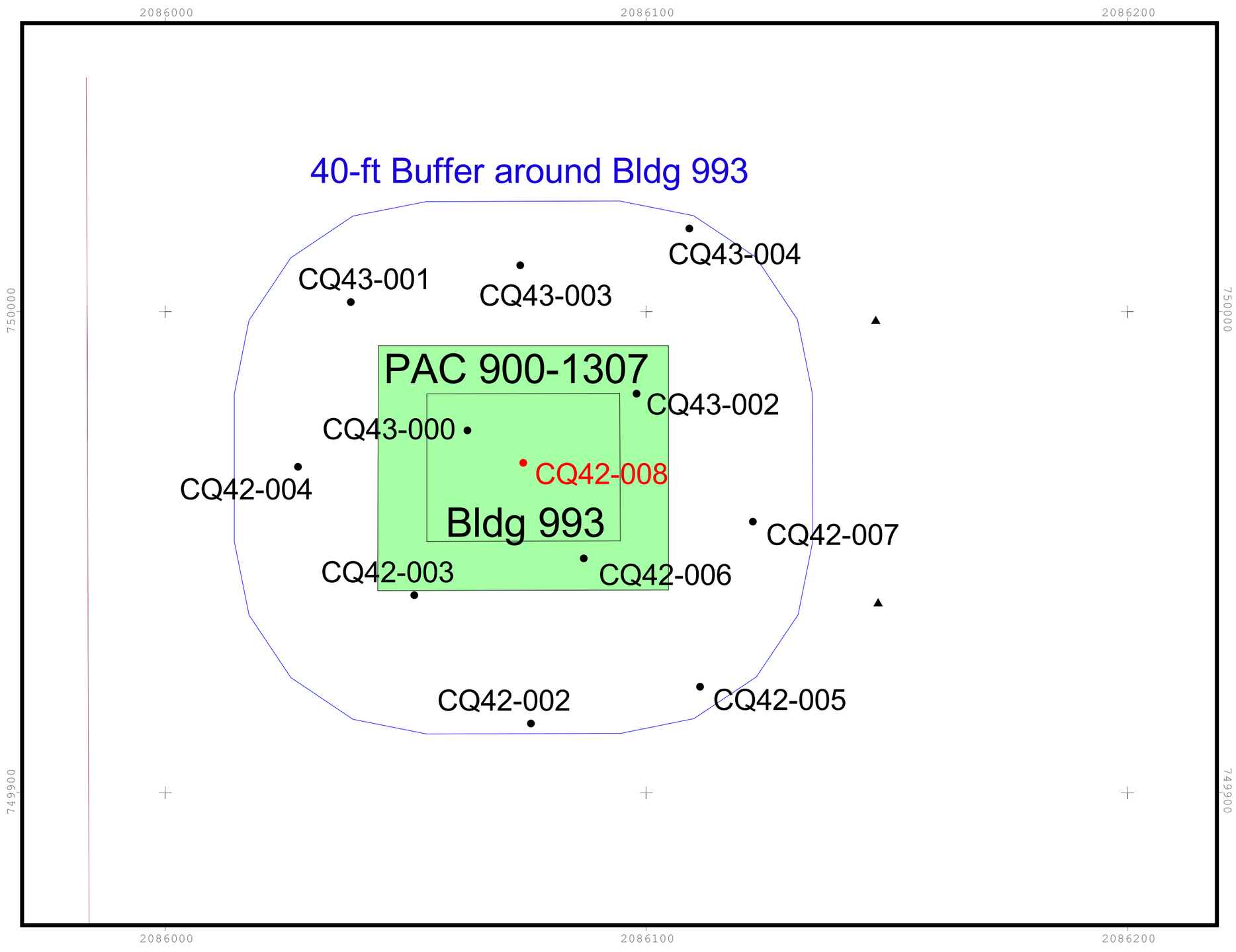

Figure 5
FY 2003 Sampling Locations for IHSS Group 900-1 Building 993 Area

Legend

- Potential Air Monitoring Location
- Biased Sample Locations
- Statistical Sample Locations
- Buildings
- Buffer around bldg 993
- PAC
- Storm Drains

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N W E S

20 0 20 Feet

Scale = 1:250

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by:

Prepared for:

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Date: 05Dec02