Industrial Area
Sampling and Analysis Plan
FY04 Addendum #IA-04-09
IHSS Group 600-5

January 2004

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Sampling and Analysis Plan
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Approval received from the Colorado Department of Public Health and Environment

January 22, 2004.

Approval letter contained in the Administrative Record.

January 2004

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ACRONYMS

AL	action level
CDPHE	Colorado Department of Public Health and Environment
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
ft bgs	feet below ground surface
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
ug/kg	micrograms per kilogram
mg/kg	milligrams per kilogram
N/A	not applicable
NFAA	no further accelerated action
PAC	Potential Area of Concern
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
RFCA	Rocky Flats Cleanup Agreement
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SVOC	semivolatile organic compound
UBC	Under Building Contamination
VOC	volatile organic compound
WRW	wildlife refuge worker

1.0 INTRODUCTION

This Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) Addendum #IA-04-09 includes Individual Hazardous Substance Site (IHSS) Group-specific information, sampling locations, and potential contaminants of concern (PCOCs) for IHSSs, Potential Areas of Concern (PACs), and Under Building Contamination (UBC) Sites proposed for characterization during Fiscal Year (FY) 04. This IASAP Addendum is a supplement to the IASAP (DOE 2001) and includes data and proposed sampling locations for IHSS Group 600-5. IHSS Group 600-5 consists of the Central Avenue Ditch Cleaning (PAC 600-1004). The location of the PAC and IHSS Group 600-5 is shown on Figure 1.

2.0 EXISTING CHARACTERIZATION INFORMATION

PAC 600-1004 is an area of soil previously removed from the Central Avenue Ditch. Potentially contaminated soil from areas along the Central Avenue Ditch (IHSS 190) (Figure 1) was excavated and spread on the level area adjacent to the two large fuel oil tanks located at the southwestern corner of Central Avenue and Seventh Street (IHSS 152). This activity was observed by the Colorado Department of Health and Environment (CDPHE) in September 1993 and the operation was immediately shut down due to the potential of cross-contaminating IHSSs. The area where the excavated soil was spread is designated as Central Avenue Ditch Cleaning PAC 600-1004.

Existing concentrations and activities in soil greater than method detection limits (MDLs) or background means plus two standard deviations are presented on Figures 2 and 3. Existing information and data for this IHSS are available in Appendix C of the IASAP (DOE 2001), the Historical Release Reports (HRRs) (DOE 1992-2003, 1999), and the Final Closeout Report for IHSS Group 600-2 (PAC 400-802, Storage Shed South of Building 334) (DOE 2003). Table 1 presents the PCOCs and proposed sampling methodologies.

Table 1
IHSS Group 600-5 PCOCs

IHSS Group	IHSS/PAC/UBC Site	PCOCs	Media	Data Source	Sampling Location Method
600-5	PAC 600-1004 – Central Avenue Ditch Cleaning	Metals Radionuclides SVOCs VOCs	Surface and subsurface soil	HRRs (DOE 1992-2003, 1999) IASAP (DOE 2001) Closeout Report for IHSS Group 600-2 (DOE 2003) Process knowledge	Statistical grid Biased sampling

Previous data for IHSS Group 600-5 indicate no detections of analytes greater than the Rocky Flats Cleanup Agreement (RFCA) wildlife refuge worker (WRW) action levels (ALs) (DOE et al. 2003). Concentrations of lead in surface and subsurface soil were reported at levels exceeding the ecological receptor AL. Radionuclide activities and concentrations of metals, volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs) were reported above corresponding background means plus two standard deviations or detection limits in surface and subsurface soil (Figures 2 and 3).

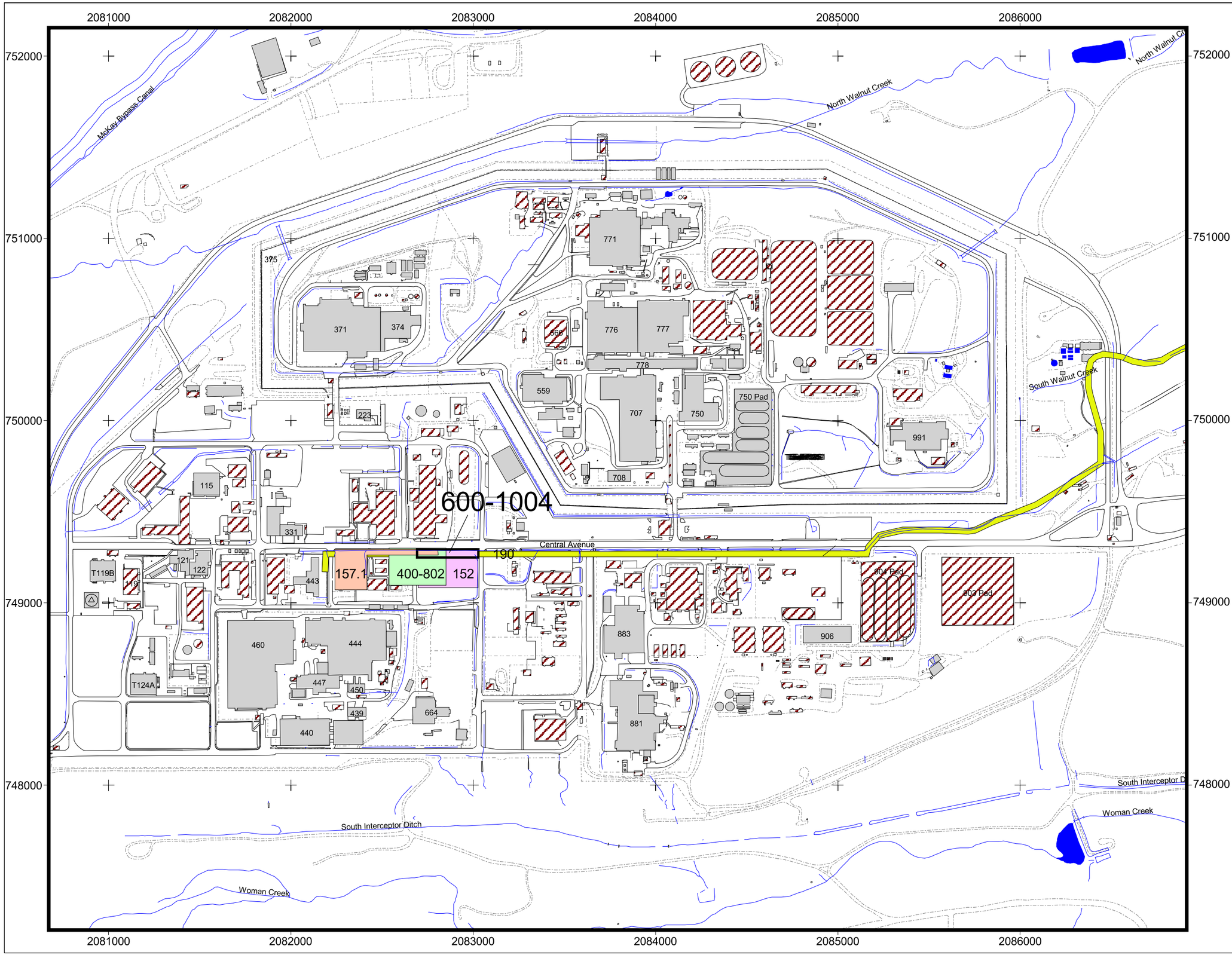

Figure 1

IHSS Group 600-5 (PAC 600-1004) and Overlapping IHSSs and PACs Location Map

KEY

PAC 600-1004

Overlapping IHSSs and PACs Not Part of IHSS Group 600-5

- IHSS 152
- IHSS 157.1
- IHSS 190
- PAC 400-802

- Demolished structure
- Structure
- Paved area
- Dirt road
- Stream, ditch, or other drainage

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N

200 0 200 400 Feet

Scale = 1:8,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:

RADMS

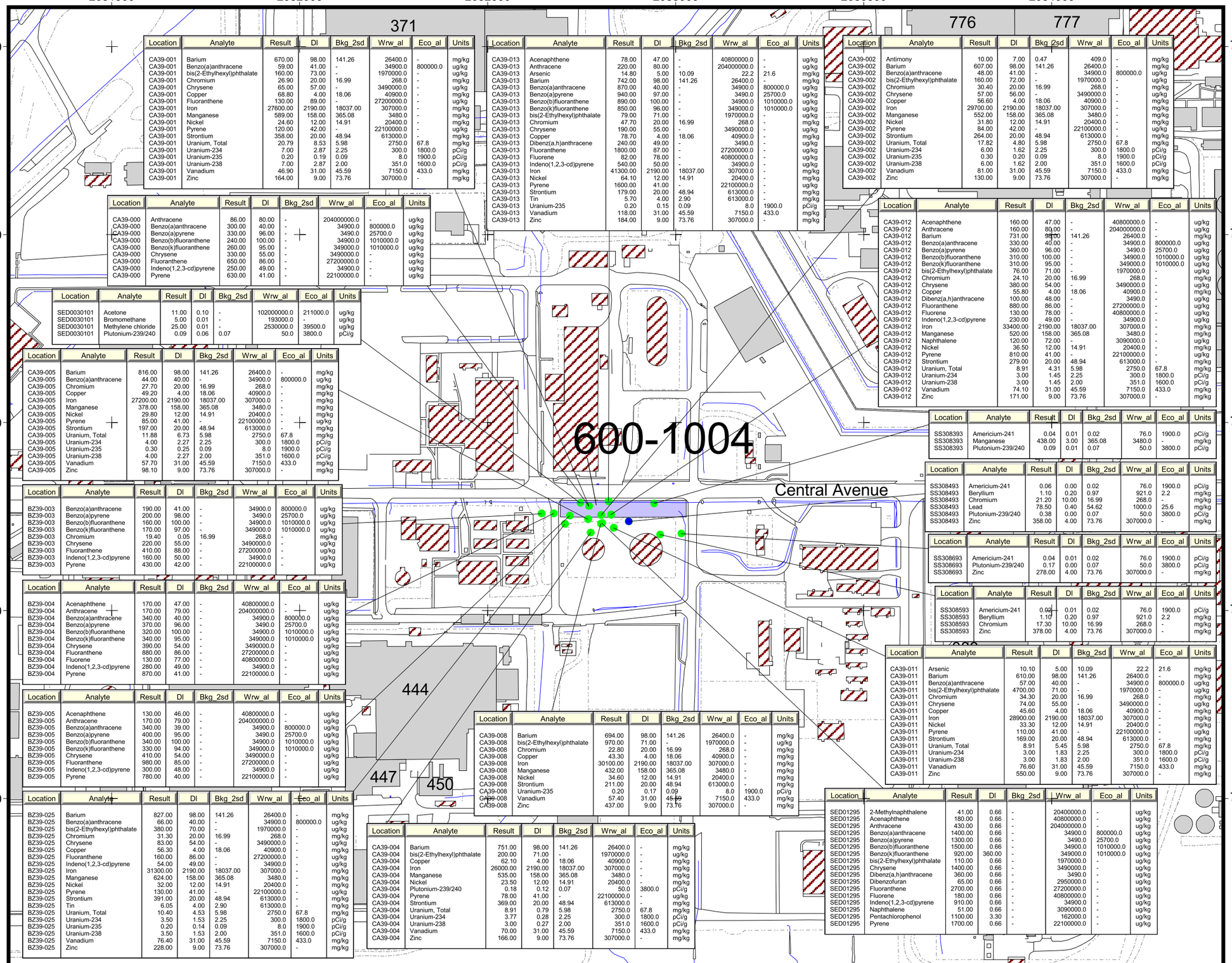
Prepared for:

KAISER-HILL COMPANY

600-5char_gpp_11_03.apr January 2004

Figure 2

IHSS Group 600-5 (PAC 600-1004) Existing Surface Soil Sampling Results Greater Than MDLs or Background Means Plus Two Standard Deviations



Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-001	Barium	670.00	98.00	141.26	26400.0	-	mg/kg
CA39-001	Benzo(a)anthracene	59.00	41.00	-	34900.0	800000.0	ug/kg
CA39-001	bis(2-Ethylhexyl)phthalate	160.00	73.00	-	1970000.0	-	ug/kg
CA39-001	Chromium	26.90	20.00	16.99	268.0	-	mg/kg
CA39-001	Chrysene	65.00	57.00	-	3490000.0	-	ug/kg
CA39-001	Copper	68.80	4.00	18.06	40900.0	-	mg/kg
CA39-001	Fluoranthene	130.00	89.00	-	27200000.0	-	ug/kg
CA39-001	Iron	27600.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-001	Manganese	589.00	158.00	365.08	3480.0	-	mg/kg
CA39-001	Nickel	24.60	12.00	14.91	20400.0	-	mg/kg
CA39-001	Pyrene	120.00	42.00	-	22100000.0	-	ug/kg
CA39-001	Strontium	358.00	20.00	48.94	613000.0	-	mg/kg
CA39-001	Uranium, Total	20.79	8.53	5.98	2750.0	67.8	mg/kg
CA39-001	Uranium-234	7.00	2.87	2.25	300.0	1800.0	pCi/g
CA39-001	Uranium-235	0.20	0.19	0.09	8.0	1900.0	pCi/g
CA39-001	Uranium-238	7.00	2.87	2.00	351.0	1600.0	pCi/g
CA39-001	Vanadium	46.90	31.00	45.59	7150.0	433.0	mg/kg
CA39-001	Zinc	164.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-013	Acenaphthene	78.00	47.00	-	40800000.0	-	ug/kg
CA39-013	Anthracene	220.00	80.00	-	204000000.0	-	ug/kg
CA39-013	Arsenic	14.80	5.00	10.09	22.2	21.6	mg/kg
CA39-013	Barium	742.00	98.00	141.26	26400.0	-	mg/kg
CA39-013	Benzo(a)anthracene	870.00	40.00	-	34900.0	800000.0	ug/kg
CA39-013	Benzo(a)pyrene	940.00	97.00	-	3490.0	25700.0	ug/kg
CA39-013	Benzo(b)fluoranthene	890.00	100.00	-	34900.0	1010000.0	ug/kg
CA39-013	Benzo(k)fluoranthene	850.00	96.00	-	349000.0	1010000.0	ug/kg
CA39-013	bis(2-Ethylhexyl)phthalate	79.00	71.00	-	1970000.0	-	ug/kg
CA39-013	Chromium	47.70	20.00	16.99	268.0	-	mg/kg
CA39-013	Chrysene	190.00	55.00	-	3490000.0	-	ug/kg
CA39-013	Copper	78.70	4.00	18.06	40900.0	-	mg/kg
CA39-013	Dibenz(a,h)anthracene	240.00	49.00	-	3490.0	-	ug/kg
CA39-013	Fluoranthene	1800.00	87.00	-	27200000.0	-	ug/kg
CA39-013	Fluorene	82.00	78.00	-	40800000.0	-	ug/kg
CA39-013	Indeno(1,2,3-cd)pyrene	540.00	50.00	-	34900.0	-	ug/kg
CA39-013	Iron	41300.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-013	Nickel	64.10	12.00	14.91	20400.0	-	mg/kg
CA39-013	Pyrene	1600.00	41.00	-	22100000.0	-	ug/kg
CA39-013	Strontium	179.00	20.00	48.94	613000.0	-	mg/kg
CA39-013	Tin	5.70	4.00	2.90	613000.0	-	mg/kg
CA39-013	Uranium-235	0.20	0.15	0.09	8.0	1900.0	pCi/g
CA39-013	Vanadium	118.00	31.00	45.59	7150.0	433.0	mg/kg
CA39-013	Zinc	184.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-002	Antimony	10.00	7.00	0.47	409.0	-	mg/kg
CA39-002	Barium	607.00	98.00	141.26	26400.0	-	mg/kg
CA39-002	Benzo(a)anthracene	48.00	41.00	-	34900.0	800000.0	ug/kg
CA39-002	bis(2-Ethylhexyl)phthalate	160.00	72.00	-	1970000.0	-	ug/kg
CA39-002	Chromium	30.40	20.00	16.99	268.0	-	mg/kg
CA39-002	Chrysene	57.00	56.00	-	3490000.0	-	ug/kg
CA39-002	Copper	56.60	4.00	18.06	40900.0	-	mg/kg
CA39-002	Iron	29700.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-002	Manganese	552.00	158.00	365.08	3480.0	-	mg/kg
CA39-002	Nickel	31.80	12.00	14.91	20400.0	-	mg/kg
CA39-002	Pyrene	84.00	42.00	-	22100000.0	-	ug/kg
CA39-002	Strontium	264.00	20.00	48.94	613000.0	-	mg/kg
CA39-002	Uranium, Total	17.82	4.80	5.98	2750.0	67.8	mg/kg
CA39-002	Uranium-234	6.00	1.62	2.25	300.0	1800.0	pCi/g
CA39-002	Uranium-235	0.30	0.20	0.09	8.0	1900.0	pCi/g
CA39-002	Uranium-238	6.00	1.62	2.00	351.0	1600.0	pCi/g
CA39-002	Vanadium	81.00	31.00	45.59	7150.0	433.0	mg/kg
CA39-002	Zinc	130.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-000	Anthracene	86.00	80.00	-	204000000.0	-	ug/kg
CA39-000	Benzo(a)anthracene	300.00	40.00	-	34900.0	800000.0	ug/kg
CA39-000	Benzo(a)pyrene	330.00	96.00	-	3490.0	25700.0	ug/kg
CA39-000	Benzo(b)fluoranthene	240.00	100.00	-	34900.0	1010000.0	ug/kg
CA39-000	Benzo(k)fluoranthene	260.00	95.00	-	349000.0	1010000.0	ug/kg
CA39-000	Chrysene	330.00	55.00	-	3490000.0	-	ug/kg
CA39-000	Fluoranthene	650.00	86.00	-	27200000.0	-	ug/kg
CA39-000	Indeno(1,2,3-cd)pyrene	250.00	49.00	-	34900.0	-	ug/kg
CA39-000	Pyrene	630.00	41.00	-	22100000.0	-	ug/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-012	Acenaphthene	160.00	47.00	-	40800000.0	-	ug/kg
CA39-012	Anthracene	160.00	80.00	-	204000000.0	-	ug/kg
CA39-012	Barium	731.00	98.00	141.26	26400.0	-	mg/kg
CA39-012	Benzo(a)anthracene	330.00	40.00	-	34900.0	800000.0	ug/kg
CA39-012	Benzo(a)pyrene	360.00	96.00	-	3490.0	25700.0	ug/kg
CA39-012	Benzo(b)fluoranthene	310.00	100.00	-	34900.0	1010000.0	ug/kg
CA39-012	Benzo(k)fluoranthene	310.00	95.00	-	349000.0	1010000.0	ug/kg
CA39-012	bis(2-Ethylhexyl)phthalate	76.00	71.00	-	1970000.0	-	ug/kg
CA39-012	Chromium	24.10	20.00	16.99	268.0	-	mg/kg
CA39-012	Chrysene	380.00	54.00	-	3490000.0	-	ug/kg
CA39-012	Copper	55.80	4.00	18.06	40900.0	-	mg/kg
CA39-012	Dibenz(a,h)anthracene	100.00	48.00	-	3490.0	-	ug/kg
CA39-012	Fluoranthene	880.00	86.00	-	27200000.0	-	ug/kg
CA39-012	Fluorene	130.00	78.00	-	40800000.0	-	ug/kg
CA39-012	Indeno(1,2,3-cd)pyrene	230.00	49.00	-	34900.0	-	ug/kg
CA39-012	Iron	33400.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-012	Manganese	520.00	158.00	365.08	3480.0	-	mg/kg
CA39-012	Naphthalene	120.00	72.00	-	3090000.0	-	ug/kg
CA39-012	Nickel	36.50	12.00	14.91	20400.0	-	mg/kg
CA39-012	Pyrene	810.00	41.00	-	22100000.0	-	ug/kg
CA39-012	Strontium	279.00	20.00	48.94	613000.0	-	mg/kg
CA39-012	Uranium, Total	8.91	4.31	5.98	2750.0	67.8	mg/kg
CA39-012	Uranium-234	3.00	1.45	2.25	300.0	1800.0	pCi/g
CA39-012	Uranium-238	3.00	1.45	2.00	351.0	1600.0	pCi/g
CA39-012	Vanadium	74.10	31.00	45.59	7150.0	433.0	mg/kg
CA39-012	Zinc	171.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SED0030101	Acetone	11.00	0.10	-	102000000.0	211000.0	ug/kg
SED0030101	Bromomethane	5.00	0.01	-	193000.0	-	ug/kg
SED0030101	Methylene chloride	25.00	0.01	-	2530000.0	39500.0	ug/kg
SED0030101	Plutonium-239/240	0.09	0.06	0.07	50.0	3800.0	pCi/g

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-005	Barium	816.00	98.00	141.26	26400.0	-	mg/kg
CA39-005	Benzo(a)anthracene	44.00	40.00	-	34900.0	800000.0	ug/kg
CA39-005	Chromium	27.70	20.00	16.99	268.0	-	mg/kg
CA39-005	Copper	49.20	4.00	18.06	40900.0	-	mg/kg
CA39-005	Iron	27200.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-005	Manganese	378.00	158.00	365.08	3480.0	-	mg/kg
CA39-005	Nickel	29.80	12.00	14.91	20400.0	-	mg/kg
CA39-005	Pyrene	85.00	41.00	-	22100000.0	-	ug/kg
CA39-005	Strontium	197.00	20.00	48.94	613000.0	-	mg/kg
CA39-005	Uranium, Total	11.88	6.73	5.98	2750.0	67.8	mg/kg
CA39-005	Uranium-234	4.00	2.27	2.25	300.0	1800.0	pCi/g
CA39-005	Uranium-235	0.30	0.25	0.09	8.0	1900.0	pCi/g
CA39-005	Uranium-238	4.00	2.27	2.00	351.0	1600.0	pCi/g
CA39-005	Vanadium	57.70	31.00	45.59	7150.0	433.0	mg/kg
CA39-005	Zinc	98.10	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SS308393	Americium-241	0.04	0.01	0.02	76.0	1900.0	pCi/g
SS308393	Manganese	438.00	3.00	365.08	3480.0	-	mg/kg
SS308393	Plutonium-239/240	0.09	0.01	0.07	50.0	3800.0	pCi/g

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SS308493	Americium-241	0.06	0.00	0.02	76.0	1900.0	pCi/g
SS308493	Beryllium	1.10	0.20	0.97	921.0	2.2	mg/kg
SS308493	Chromium	21.20	10.00	16.99	268.0	-	mg/kg
SS308493	Lead	78.50	0.40	54.62	1000.0	25.6	mg/kg
SS308493	Plutonium-239/240	0.38	0.00	0.07	50.0	3800.0	pCi/g
SS308493	Zinc	358.00	4.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SS308693	Americium-241	0.04	0.01	0.02	76.0	1900.0	pCi/g
SS308693	Plutonium-239/240	0.17	0.00	0.07	50.0	3800.0	pCi/g
SS308693	Zinc	278.00	4.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SS308593	Americium-241	0.02	0.01	0.02	76.0	1900.0	pCi/g
SS308593	Beryllium	1.10	0.20	0.97	921.0	2.2	mg/kg
SS308593	Chromium	17.30	10.00	16.99	268.0	-	mg/kg
SS308593	Zinc	378.00	4.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-003	Benzo(a)anthracene	190.00	41.00	-	34900.0	800000.0	ug/kg
BZ39-003	Benzo(a)pyrene	200.00	98.00	-	3490.0	25700.0	ug/kg
BZ39-003	Benzo(b)fluoranthene	160.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-003	Benzo(k)fluoranthene	170.00	97.00	-	349000.0	1010000.0	ug/kg
BZ39-003	Chromium	19.40	0.05	16.99	268.0	-	mg/kg
BZ39-003	Chrysene	220.00	55.00	-	3490000.0	-	ug/kg
BZ39-003	Fluoranthene	410.00	88.00	-	27200000.0	-	ug/kg
BZ39-003	Indeno(1,2,3-cd)pyrene	160.00	50.00	-	34900.0	-	ug/kg
BZ39-003	Pyrene	430.00	42.00	-	22100000.0	-	ug/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-004	Acenaphthene	170.00	47.00	-	40800000.0	-	ug/kg
BZ39-004	Anthracene	170.00	79.00	-	204000000.0	-	ug/kg
BZ39-004	Benzo(a)anthracene	340.00	40.00	-	34900.0	800000.0	ug/kg
BZ39-004	Benzo(a)pyrene	370.00	96.00	-	3490.0	25700.0	ug/kg
BZ39-004	Benzo(b)fluoranthene	320.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-004	Benzo(k)fluoranthene	340.00	95.00	-	349000.0	1010000.0	ug/kg
BZ39-004	Chrysene	390.00	54.00	-	3490000.0	-	ug/kg
BZ39-004	Fluoranthene	880.00	86.00	-	27200000.0	-	ug/kg
BZ39-004	Fluorene	130.00	77.00	-	40800000.0	-	ug/kg
BZ39-004	Indeno(1,2,3-cd)pyrene	280.00	49.00	-	34900.0	-	ug/kg
BZ39-004	Pyrene	870.00	41.00	-	22100000.0	-	ug/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-011	Arsenic	10.10	5.00	10.09	22.2	21.6	mg/kg
CA39-011	Barium	610.00	98.00	141.26	26400.0	-	mg/kg
CA39-011	Benzo(a)anthracene	57.00	40.00	-	34900.0	800000.0	ug/kg
CA39-011	bis(2-Ethylhexyl)phthalate	4700.00	71.00	-	1970000.0	-	ug/kg
CA39-011	Chromium	34.30	20.00	16.99	268.0	-	mg/kg
CA39-011	Chrysene	74.00	55.00	-	3490000.0	-	ug/kg
CA39-011	Copper	45.60	4.00	18.06	40900.0	-	mg/kg
CA39-011	Iron	28900.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-011	Nickel	33.30	12.00	14.91	20400.0	-	mg/kg
CA39-011	Pyrene	110.00	41.00	-	22100000.0	-	ug/kg
CA39-011	Strontium	169.00	20.00	48.94	613000.0	-	mg/kg
CA39-011	Uranium, Total	8.91	5.45	5.98	2750.0	67.8	mg/kg
CA39-011	Uranium-234	3.00	1.83	2.25	300.0	1800.0	pCi/g
CA39-011	Uranium-238	3.00	1.83	2.00	351.0	1600.0	pCi/g
CA39-011	Vanadium	76.60	31.00	45.59	7150.0	433.0	mg/kg
CA39-011	Zinc	550.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-005	Acenaphthene	130.00	46.00	-	40800000.0	-	ug/kg
BZ39-005	Anthracene	170.00	79.00	-	204000000.0	-	ug/kg
BZ39-005	Benzo(a)anthracene	340.00	39.00	-	34900.0	800000.0	ug/kg
BZ39-005	Benzo(a)pyrene	400.00	95.00	-	3490.0	25700.0	ug/kg
BZ39-005	Benzo(b)fluoranthene	340.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-005	Benzo(k)fluoranthene	330.00	94.00	-	349000.0	1010000.0	ug/kg
BZ39-005	Chrysene	410.00	54.00	-	3490000.0	-	ug/kg
BZ39-005	Fluoranthene	980.00	85.00	-	27200000.0	-	ug/kg
BZ39-005	Indeno(1,2,3-cd)pyrene	300.00	48.00	-	34900.0	-	ug/kg
BZ39-005	Pyrene	780.00	40.00	-	22100000.0	-	ug/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-008	Barium	694.00	98.00	141.26	26400.0	-	mg/kg
CA39-008	bis(2-Ethylhexyl)phthalate	970.00	71.00	-	1970000.0	-	ug/kg
CA39-008	Chromium	22.80	20.00	16.99	268.0	-	mg/kg
CA39-008	Copper	43.30	4.00	18.06	40900.0	-	mg/kg
CA39-008	Iron	30100.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-008	Manganese	432.00	158.00	365.08	3480.0	-	mg/kg
CA39-008	Nickel	34.60	12.00	14.91	20400.0	-	mg/kg
CA39-008	Strontium	211.00	20.00	48.94	613000.0	-	mg/kg
CA39-008	Uranium-235	0.20	0.17	0.09	8.0	1900.0	pCi/g
CA39-008	Vanadium	57.40	31.00	45.59	7150.0	433.0	mg/kg
CA39-008	Zinc	437.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-025	Barium	827.00	98.00	141.26	26400.0	-	mg/kg
BZ39-025	Benzo(a)anthracene	66.00	40.00	-	34900.0	800000.0	ug/kg
BZ39-025	bis(2-Ethylhexyl)phthalate	380.00	70.00	-	1970000.0	-	ug/kg
BZ39-025	Chromium	31.30	20.00	16.99	268.0	-	mg/kg
BZ39-025	Chrysene	83.00	54.00	-	3490000.0	-	ug/kg
BZ39-025	Copper	56.30	4.00	18.06	40900.0	-	mg/kg
BZ39-025	Fluoranthene	160.00	86.00	-	27200000.0	-	ug/kg
BZ39-025	Indeno(1,2,3-cd)pyrene	54.00	49.00	-	34900.0	-	ug/kg
BZ39-025	Iron	31300.00	2190.00	18037.00	307000.0	-	mg/kg
BZ39-025	Manganese	624.00	158.00	365.08	3480.0	-	mg/kg
BZ39-025	Nickel	32.00	12.00	14.91	20400.0	-	mg/kg
BZ39-025	Pyrene	130.00	41.00	-	22100000.0	-	ug/kg
BZ39-025	Strontium	391.00	20.00	48.94	613000.0	-	mg/kg
BZ39-025	Tin	6.05	4.00	2.90	613000.0	-	mg/kg
BZ39-025	Uranium, Total	10.40	4.53	5.98	2750.0	67.8	mg/kg
BZ39-025	Uranium-234	3.50	1.53	2.25	300.0	1800.0	pCi/g
BZ39-025	Uranium-235	0.20	0.14	0.09	8.0	1900.0	pCi/g
BZ39-025	Uranium-238	3.50	1.53	2.00	351.0	1600.0	pCi/g
BZ39-025	Vanadium	76.40	31.00	45.59	7150.0	433.0	mg/kg
BZ39-025	Zinc	228.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-004	Barium	751.00	98.00	141.26	26400.0	-	mg/kg
CA39-004	bis(2-Ethylhexyl)phthalate	200.00	71.00	-	1970000.0	-	ug/kg
CA39-004	Copper	62.10	4.00	18.06	40900.0	-	mg/kg
CA39-004	Iron	26000.00	2190.00	18037.00	307000.0	-	mg/kg
CA39-004	Manganese	535.00	158.00	365.08	3480.0	-	mg/kg
CA39-004	Nickel	23.50	12.00	14.91	20400.0	-	mg/kg
CA39-004	Plutonium-239/240	0.18	0.12	0.07	50.0	3800.0	pCi/g
CA39-004	Pyrene	78.00	41.00	-	22100000.0	-	ug/kg
CA39-004	Strontium	369.00	20.00	48.94	613000.0	-	mg/kg
CA39-004	Uranium, Total	8.91	0.79	5.98	2750.0	67.8	mg/kg
CA39-004	Uranium-234	3.77	0.28	2.25	300.0	1800.0	pCi/g
CA39-004	Uranium-238	3.00	0.27	2.00	351.0	1600.0	pCi/g
CA39-004	Vanadium	70.00	31.00	45.59	7150.0	433.0	mg/kg
CA39-004	Zinc	166.00	9.00	73.76	307000.0	-	mg/kg

Location	Analyte	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
SED01295	2-Methylnaphthalene	41.00	0.66	-	20400000.0	-	ug/kg
SED01295	Acenaphthene	180.00	0.66	-	40800000.0	-	ug/kg
SED01295	Anthracene	430.00	0.66	-	204000000.0	-	ug/kg
SED01295	Benzo(a)anthracene	1400.00	0.66	-	34900.0	800000.0	ug/kg
SED01295	Benzo(a)pyrene	1300.00	0.66	-	3490.0	25700.0	ug/kg
SED01295	Benzo(b)fluoranthene	1500.00	0.66	-	34900.0	1010000.0	ug/kg
SED01295	Benzo(k)fluoranthene	920.00	360.00	-	349000.0	1010000.0	ug/kg
SED01295	bis(2-Ethylhexyl)phthalate	110.00	0.66	-	1970000.0	-	ug/kg
SED01295	Chrysene	1400.00	0.66	-	3490000.0	-	ug/kg
SED01295	Dibenz(a,h)anthracene	360.00	0.66	-	3490.0	-	ug/kg
SED01295	Dibenzofuran	65.00	0.66	-	2950000.0	-	ug/kg
SED01295	Fluoranthene	2700.00	0.66	-	27200000.0	-	ug/kg
SED01295	Fluorene	180.00	0.66	-	40800000.0	-	ug/kg
SED01295	Indeno(1,2,3-cd)pyrene	910.00	0.66	-	34900.0	-	ug/kg
SED01295	Naphthalene	51.00	0.66	-	3090000.0	-	ug/kg
SED01295	Pentachlorophenol	1100.00	3.30	-	162000.0	-	ug/kg
SED01295	Pyrene	1700.00	0.66	-	22100000.0	-	ug/kg

KEY

- Surface soil sampling location with results greater than ecological action levels
- Surface soil sampling location with results greater than background means plus two standard deviations or DLs
- PAC 600-1004
- Demolished structure
- Structure
- Paved area
- Dirt road
- Stream, ditch, or other drainage

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N

100 0 100 200 Feet

Scale = 1:4,500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

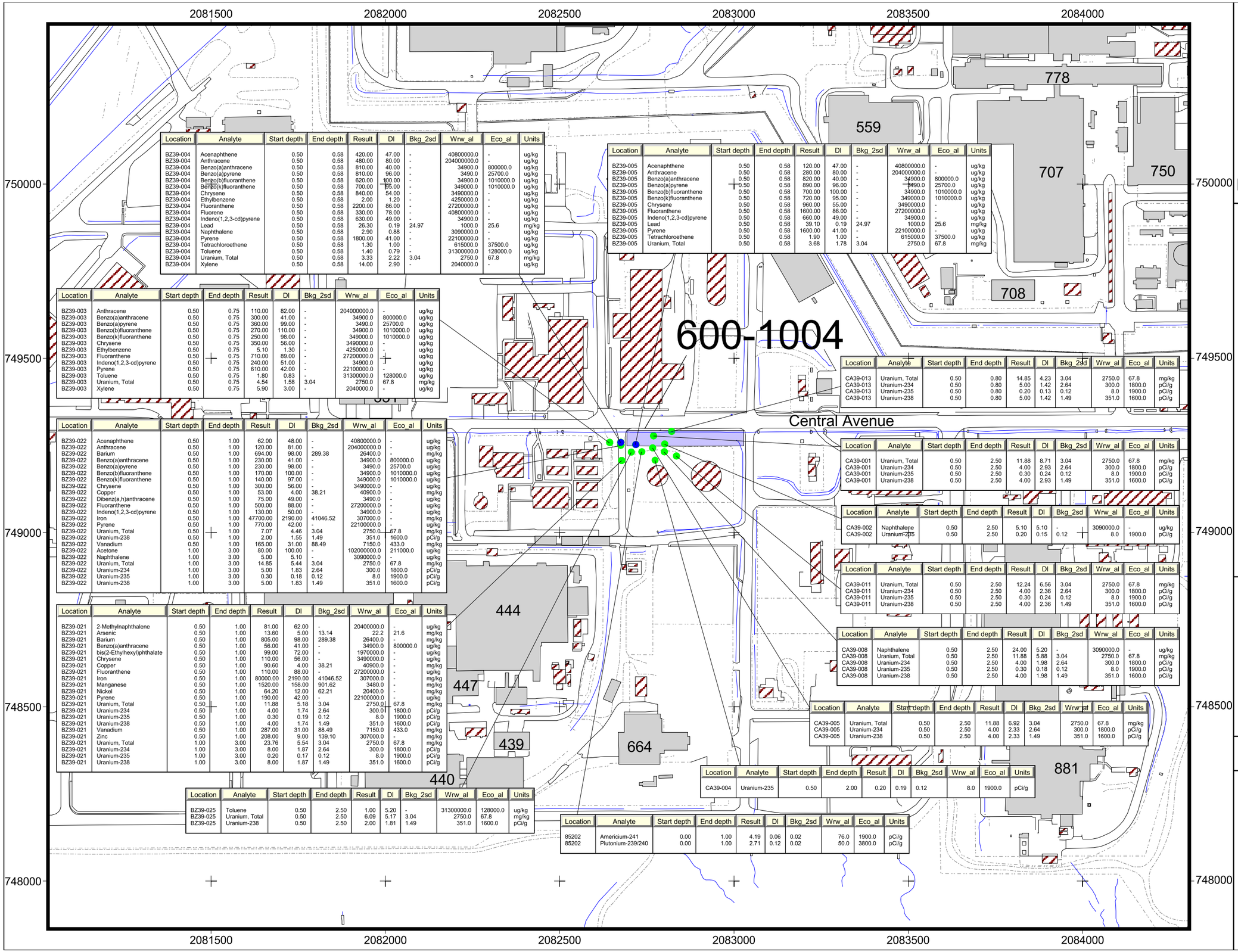
Prepared by: RADMS

Prepared fo KAISER•HILL COMPANY

600-5char_gpp_11_03.apr January 2004

Figure 3

IHSS Group 600-5 (PAC 600-1004) Existing Subsurface Soil Sampling Results Greater Than MDLs or Background Means Plus Two Standard Deviations



Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-004	Acenaphthene	0.50	0.58	420.00	47.00	-	40800000.0	-	ug/kg
BZ39-004	Anthracene	0.50	0.58	480.00	80.00	-	204000000.0	-	ug/kg
BZ39-004	Benzo(a)anthracene	0.50	0.58	810.00	40.00	-	34900.0	800000.0	ug/kg
BZ39-004	Benzo(a)pyrene	0.50	0.58	810.00	96.00	-	3490.0	25700.0	ug/kg
BZ39-004	Benzo(b)fluoranthene	0.50	0.58	620.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-004	Benzo(k)fluoranthene	0.50	0.58	700.00	95.00	-	349000.0	1010000.0	ug/kg
BZ39-004	Chrysene	0.50	0.58	840.00	54.00	-	3490000.0	-	ug/kg
BZ39-004	Ethylbenzene	0.50	0.58	2.00	1.20	-	4250000.0	-	ug/kg
BZ39-004	Fluoranthene	0.50	0.58	2200.00	86.00	-	27200000.0	-	ug/kg
BZ39-004	Fluorene	0.50	0.58	330.00	78.00	-	40800000.0	-	ug/kg
BZ39-004	Indeno(1,2,3-cd)pyrene	0.50	0.58	630.00	49.00	-	34900.0	-	ug/kg
BZ39-004	Lead	0.50	0.58	26.30	0.19	24.97	1000.0	25.6	mg/kg
BZ39-004	Naphthalene	0.50	0.58	2.90	0.88	-	3090000.0	-	ug/kg
BZ39-004	Pyrene	0.50	0.58	1800.00	41.00	-	22100000.0	-	ug/kg
BZ39-004	Tetrachloroethene	0.50	0.58	1.30	1.00	-	615000.0	37500.0	ug/kg
BZ39-004	Toluene	0.50	0.58	1.40	0.79	-	31300000.0	128000.0	ug/kg
BZ39-004	Uranium, Total	0.50	0.58	3.33	2.22	3.04	2750.0	67.8	mg/kg
BZ39-004	Xylene	0.50	0.58	14.00	2.90	-	2040000.0	-	ug/kg

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-005	Acenaphthene	0.50	0.58	120.00	47.00	-	40800000.0	-	ug/kg
BZ39-005	Anthracene	0.50	0.58	280.00	80.00	-	204000000.0	-	ug/kg
BZ39-005	Benzo(a)anthracene	0.50	0.58	820.00	40.00	-	34900.0	800000.0	ug/kg
BZ39-005	Benzo(a)pyrene	0.50	0.58	890.00	96.00	-	3490.0	25700.0	ug/kg
BZ39-005	Benzo(b)fluoranthene	0.50	0.58	700.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-005	Benzo(k)fluoranthene	0.50	0.58	720.00	95.00	-	349000.0	1010000.0	ug/kg
BZ39-005	Chrysene	0.50	0.58	960.00	55.00	-	3490000.0	-	ug/kg
BZ39-005	Fluoranthene	0.50	0.58	1600.00	86.00	-	27200000.0	-	ug/kg
BZ39-005	Indeno(1,2,3-cd)pyrene	0.50	0.58	660.00	49.00	-	34900.0	-	ug/kg
BZ39-005	Lead	0.50	0.58	39.10	0.19	24.97	1000.0	25.6	mg/kg
BZ39-005	Pyrene	0.50	0.58	1600.00	41.00	-	22100000.0	-	ug/kg
BZ39-005	Tetrachloroethene	0.50	0.58	1.90	1.00	-	615000.0	37500.0	ug/kg
BZ39-005	Uranium, Total	0.50	0.58	3.68	1.78	3.04	2750.0	67.8	mg/kg

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-003	Anthracene	0.50	0.75	110.00	82.00	-	204000000.0	-	ug/kg
BZ39-003	Benzo(a)anthracene	0.50	0.75	300.00	41.00	-	34900.0	800000.0	ug/kg
BZ39-003	Benzo(a)pyrene	0.50	0.75	360.00	99.00	-	3490.0	25700.0	ug/kg
BZ39-003	Benzo(b)fluoranthene	0.50	0.75	270.00	110.00	-	34900.0	1010000.0	ug/kg
BZ39-003	Benzo(k)fluoranthene	0.50	0.75	250.00	98.00	-	349000.0	1010000.0	ug/kg
BZ39-003	Chrysene	0.50	0.75	350.00	56.00	-	3490000.0	-	ug/kg
BZ39-003	Ethylbenzene	0.50	0.75	5.10	1.30	-	4250000.0	-	ug/kg
BZ39-003	Fluoranthene	0.50	0.75	710.00	89.00	-	27200000.0	-	ug/kg
BZ39-003	Indeno(1,2,3-cd)pyrene	0.50	0.75	240.00	51.00	-	34900.0	-	ug/kg
BZ39-003	Pyrene	0.50	0.75	610.00	42.00	-	22100000.0	-	ug/kg
BZ39-003	Toluene	0.50	0.75	1.80	0.83	-	31300000.0	128000.0	ug/kg
BZ39-003	Uranium, Total	0.50	0.75	4.54	1.58	3.04	2750.0	67.8	mg/kg
BZ39-003	Xylene	0.50	0.75	5.90	3.00	-	2040000.0	-	ug/kg

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-013	Uranium, Total	0.50	0.80	14.85	4.23	3.04	2750.0	67.8	mg/kg
CA39-013	Uranium-234	0.50	0.80	5.00	1.42	2.64	300.0	1800.0	pCi/g
CA39-013	Uranium-235	0.50	0.80	0.20	0.13	0.12	8.0	1900.0	pCi/g
CA39-013	Uranium-238	0.50	0.80	5.00	1.42	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-022	Acenaphthene	0.50	1.00	62.00	48.00	-	40800000.0	-	ug/kg
BZ39-022	Anthracene	0.50	1.00	120.00	81.00	-	204000000.0	-	ug/kg
BZ39-022	Barium	0.50	1.00	694.00	98.00	289.38	26400.0	-	mg/kg
BZ39-022	Benzo(a)anthracene	0.50	1.00	230.00	41.00	-	34900.0	800000.0	ug/kg
BZ39-022	Benzo(a)pyrene	0.50	1.00	230.00	98.00	-	3490.0	25700.0	ug/kg
BZ39-022	Benzo(b)fluoranthene	0.50	1.00	170.00	100.00	-	34900.0	1010000.0	ug/kg
BZ39-022	Benzo(k)fluoranthene	0.50	1.00	140.00	97.00	-	349000.0	1010000.0	ug/kg
BZ39-022	Chrysene	0.50	1.00	300.00	56.00	-	3490000.0	-	ug/kg
BZ39-022	Copper	0.50	1.00	53.00	4.00	38.21	40900.0	-	mg/kg
BZ39-022	Dibenz(a,h)anthracene	0.50	1.00	75.00	49.00	-	3490.0	-	ug/kg
BZ39-022	Fluoranthene	0.50	1.00	500.00	88.00	-	27200000.0	-	ug/kg
BZ39-022	Indeno(1,2,3-cd)pyrene	0.50	1.00	130.00	50.00	-	34900.0	-	ug/kg
BZ39-022	Iron	0.50	1.00	47700.00	2190.00	41046.52	307000.0	-	mg/kg
BZ39-022	Pyrene	0.50	1.00	770.00	42.00	-	22100000.0	-	ug/kg
BZ39-022	Uranium, Total	0.50	1.00	7.07	4.46	3.04	2750.0	67.8	mg/kg
BZ39-022	Uranium-238	0.50	1.00	2.00	1.55	1.49	351.0	1600.0	pCi/g
BZ39-022	Vanadium	0.50	1.00	165.00	31.00	88.49	7150.0	433.0	mg/kg
BZ39-022	Acetone	1.00	3.00	80.00	100.00	-	102000000.0	211000.0	ug/kg
BZ39-022	Naphthalene	1.00	3.00	5.00	5.10	-	3090000.0	-	ug/kg
BZ39-022	Uranium, Total	1.00	3.00	14.85	5.44	3.04	2750.0	67.8	mg/kg
BZ39-022	Uranium-234	1.00	3.00	5.00	1.83	2.64	300.0	1800.0	pCi/g
BZ39-022	Uranium-235	1.00	3.00	0.30	0.18	0.12	8.0	1900.0	pCi/g
BZ39-022	Uranium-238	1.00	3.00	5.00	1.83	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-001	Uranium, Total	0.50	2.50	11.88	8.71	3.04	2750.0	67.8	mg/kg
CA39-001	Uranium-234	0.50	2.50	4.00	2.93	2.64	300.0	1800.0	pCi/g
CA39-001	Uranium-235	0.50	2.50	0.30	0.24	0.12	8.0	1900.0	pCi/g
CA39-001	Uranium-238	0.50	2.50	4.00	2.93	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-002	Naphthalene	0.50	2.50	5.10	5.10	-	3090000.0	-	ug/kg
CA39-002	Uranium-235	0.50	2.50	0.20	0.15	0.12	8.0	1900.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-011	Uranium, Total	0.50	2.50	12.24	6.56	3.04	2750.0	67.8	mg/kg
CA39-011	Uranium-234	0.50	2.50	4.00	2.36	2.64	300.0	1800.0	pCi/g
CA39-011	Uranium-235	0.50	2.50	0.30	0.24	0.12	8.0	1900.0	pCi/g
CA39-011	Uranium-238	0.50	2.50	4.00	2.36	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-021	2-Methylnaphthalene	0.50	1.00	81.00	62.00	-	20400000.0	-	ug/kg
BZ39-021	Arsenic	0.50	1.00	13.60	5.00	13.14	22.2	21.6	mg/kg
BZ39-021	Barium	0.50	1.00	805.00	98.00	289.38	26400.0	-	mg/kg
BZ39-021	Benzo(a)anthracene	0.50	1.00	56.00	41.00	-	34900.0	800000.0	ug/kg
BZ39-021	bis(2-Ethylhexyl)phthalate	0.50	1.00	99.00	72.00	-	1970000.0	-	ug/kg
BZ39-021	Chrysene	0.50	1.00	110.00	56.00	-	3490000.0	-	ug/kg
BZ39-021	Copper	0.50	1.00	90.60	4.00	38.21	40900.0	-	mg/kg
BZ39-021	Fluoranthene	0.50	1.00	110.00	88.00	-	27200000.0	-	ug/kg
BZ39-021	Iron	0.50	1.00	80000.00	2190.00	41046.52	307000.0	-	mg/kg
BZ39-021	Manganese	0.50	1.00	1520.00	158.00	901.62	3480.0	-	mg/kg
BZ39-021	Nickel	0.50	1.00	64.20	12.00	62.21	20400.0	-	mg/kg
BZ39-021	Pyrene	0.50	1.00	190.00	42.00	-	22100000.0	-	ug/kg
BZ39-021	Uranium, Total	0.50	1.00	11.88	5.18	3.04	2750.0	67.8	mg/kg
BZ39-021	Uranium-234	0.50	1.00	4.00	1.74	2.64	300.0	1800.0	pCi/g
BZ39-021	Uranium-235	0.50	1.00	0.30	0.19	0.12	8.0	1900.0	pCi/g
BZ39-021	Uranium-238	0.50	1.00	4.00	1.74	1.49	351.0	1600.0	pCi/g
BZ39-021	Vanadium	0.50	1.00	287.00	31.00	88.49	7150.0	433.0	mg/kg
BZ39-021	Zinc	0.50	1.00	208.00	9.00	139.10	307000.0	-	mg/kg
BZ39-021	Uranium, Total	1.00	3.00	23.76	5.54	3.04	2750.0	67.8	mg/kg
BZ39-021	Uranium-234	1.00	3.00	8.00	1.87	2.64	300.0	1800.0	pCi/g
BZ39-021	Uranium-235	1.00	3.00	0.20	0.17	0.12	8.0	1900.0	pCi/g
BZ39-021	Uranium-238	1.00	3.00	8.00	1.87	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-008	Naphthalene	0.50	2.50	24.00	5.20	-	3090000.0	-	ug/kg
CA39-008	Uranium, Total	0.50	2.50	11.88	5.88	3.04	2750.0	67.8	mg/kg
CA39-008	Uranium-234	0.50	2.50	4.00	1.98	2.64	300.0	1800.0	pCi/g
CA39-008	Uranium-235	0.50	2.50	0.30	0.18	0.12	8.0	1900.0	pCi/g
CA39-008	Uranium-238	0.50	2.50	4.00	1.98	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-005	Uranium, Total	0.50	2.50	11.88	6.92	3.04	2750.0	67.8	mg/kg
CA39-005	Uranium-234	0.50	2.50	4.00	2.33	2.64	300.0	1800.0	pCi/g
CA39-005	Uranium-238	0.50	2.50	4.00	2.33	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
CA39-004	Uranium-235	0.50	2.00	0.20	0.19	0.12	8.0	1900.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
BZ39-025	Toluene	0.50	2.50	1.00	5.20	-	31300000.0	128000.0	ug/kg
BZ39-025	Uranium, Total	0.50	2.50	6.09	5.17	3.04	2750.0	67.8	mg/kg
BZ39-025	Uranium-238	0.50	2.50	2.00	1.81	1.49	351.0	1600.0	pCi/g

Location	Analyte	Start depth	End depth	Result	Dl	Bkg_2sd	Wrw_al	Eco_al	Units
85202	Americium-241	0.00	1.00	4.19	0.06	0.02	76.0	1900.0	pCi/g
85202	Plutonium-239/240	0.00	1.00	2.71	0.12	0.02	50.0	3800.0	pCi/g

KEY

- Subsurface soil sampling location with results greater than ecological action levels
- Subsurface soil sampling location with results greater than background means plus two standard deviations or DLs
- PAC 600-1004
- Demolished structure
- Structure
- Paved area
- Dirt road
- Stream, ditch, or other drainage

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N

100 0 100 200 Feet

Scale = 1:4,500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by: RADMS

Prepared fc KAISER-HILL COMPANY

600-5char_gpp_11_03.apr January 2004

IHSS Group 600-5 is located in close proximity to other potential contaminant sources (Figure 1) and overlaps with portions of the following IHSSs:

- Northeastern portion of IHSS Group 600-2 (PAC 400-802 – Storage Shed South of Building 334). No further accelerated action (NFAA) approved June 2003;
- Northern portion of IHSS 152. NFAA approved September 1999;
- Northeastern portion of IHSS 157.1 (included in IHSS Group 400-7 and currently being investigated); and
- An approximately 335-foot section of IHSS 190 (Central Avenue Ditch) that will be investigated in the future.

No portion of PAC 600-1004 lies outside of other potential contaminant sources.

3.0 SAMPLING

The proposed sampling specifications (number and type of samples) for IHSS Group 600-5 (PAC 600-1004) are listed in Table 2 and shown on Figure 4. A 36-foot statistical grid was applied at PAC 600-1004 to obtain samples in the eastern portion of the PAC. Accelerated action samples were already collected in the western portion of PAC 600-1004 as part of the IHSS Group 600-2 (PAC 400-802) characterization activities (DOE 2003). One biased sampling location is included in the northwestern portion of PAC 600-1004 to provide additional characterization coverage in this area. Sampling of subsurface soils is to be limited to emplaced soils; therefore, if native soil is encountered in the 0.0 to 0.5 feet below ground surface (ft bgs) interval, no sample is to be collected from the next interval (0.5 to 2.5 ft bgs). Alternately, if emplaced soil is encountered in the surface soil sample, the subsurface interval (0.5 to 2.5 ft bgs) will consist of a composite of only emplaced soil to the pre-existing native surface. Additionally, no samples are proposed to be collected from within the Central Avenue Ditch (IHSS 190) because this IHSS will be addressed as part of the IHSS Group 000-3 SAP Addendum and RFCA Standard Operating Protocol (RSOP) Notification.

The IHSS Group 600-5 sampling summary is presented in Table 3.

Table 3
IHSS Group 600-5 Sampling Summary

Category	Total
Number of Sampling Locations	9
Number of Samples	18
Number of Metal Analyses	18
Number of Radionuclide Analyses	18
Number of SVOC Analyses	18
Number of VOC Analyses	9

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 sample results. Changes to sampling specifications will be considered in consultation

with the regulatory agencies. If contaminant concentrations are found to be above ALs near the grid boundary, additional samples will be collected in consultation with the regulatory agencies and a contact record will be issued. Biased sampling locations will be field-checked and the locations adjusted through the consultative process.

4.0 REFERENCES

DOE, 1992-2003, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado.

DOE, 1999, Annual Historical Release Report for the Rocky Flats Plant, Golden, Colorado, September.

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

DOE, 2003, Final Closeout Report for IHSS Group 600-2 (PAC 400-802, Storage Shed South of Building 334), Rocky Flats Environmental Technology Site, Golden, Colorado, June.

DOE, CDPHE, and EPA, 2003, Modifications to the Rocky Flats Cleanup Agreement, U.S. Department of Energy, Colorado Department of Public Health and Environment, and U.S. Environmental Protection Agency, Rocky Flats Environmental Technology Site, Golden, Colorado, June.

Table 2
IHSS Group 600-5 Sampling Specifications

IHSS Group	IHSS/PAC/ UBC Site	Location Code	Easting	Northing	Media*	Depth Interval	Analyte	On-site Laboratory Method	Off-site Laboratory Method	Comments
600-5	600-1004	BZ39-034	2082701.224	749278.927	Surface soil	0.0-0.5'	Metals	6200	6010	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Subsurface soil	0.5-2.5'	Metals	6200	6010	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		BZ39-034	2082701.224	749278.927	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Biased – sample northwestern portion of IHSS to obtain more complete sampling coverage
		CA39-013	2082873.101	749248.448	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-013	2082873.101	749248.448	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004

IHSS Group	IHSS/PAC/ UBC Site	Location Code	Easting	Northing	Media*	Depth Interval	Analyte	On-site Laboratory Method	Off-site Laboratory Method	Comments
		CA39-014	2082847.257	749273.51	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-014	2082847.257	749273.51	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-015	2082907.727	749258.298	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CA39-016	2082881.883	749283.36	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-005	2082942.353	749268.148	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-006	2083002.823	749252.936	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004

IHSS Group	IHSS/PAC/ UBC Site	Location Code	Easting	Northing	Media*	Depth Interval	Analyte	On-site Laboratory Method	Off-site Laboratory Method	Comments
		CB39-007	2082976.979	749277.998	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-007	2082976.979	749277.998	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Surface soil	0.0-0.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Surface soil	0.0-0.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Surface soil	0.0-0.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Subsurface soil	0.5-2.5'	Metals	6200	6010	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Subsurface soil	0.5-2.5'	Radionuclides	HPGe	HPGe	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Subsurface soil	0.5-2.5'	SVOCs	N/A	8270	Statistical grid for PAC 600-1004
		CB39-008	2083011.606	749281.848	Subsurface soil	0.5-2.5'	VOCs	8260	8260	Statistical grid for PAC 600-1004

* - Note, sampling of subsurface soils is to be limited to emplaced soils, therefore, if native soil is encountered in the 0.0 to 0.5 ft interval, no sample is to be collected at the 0.5 to 2.5 ft interval. Alternately, if emplaced soil is encountered, the subsurface interval (0.5 to 2.5 ft bgs) should consist of a composite of ONLY emplaced soil to the pre-existing native surface if encountered.

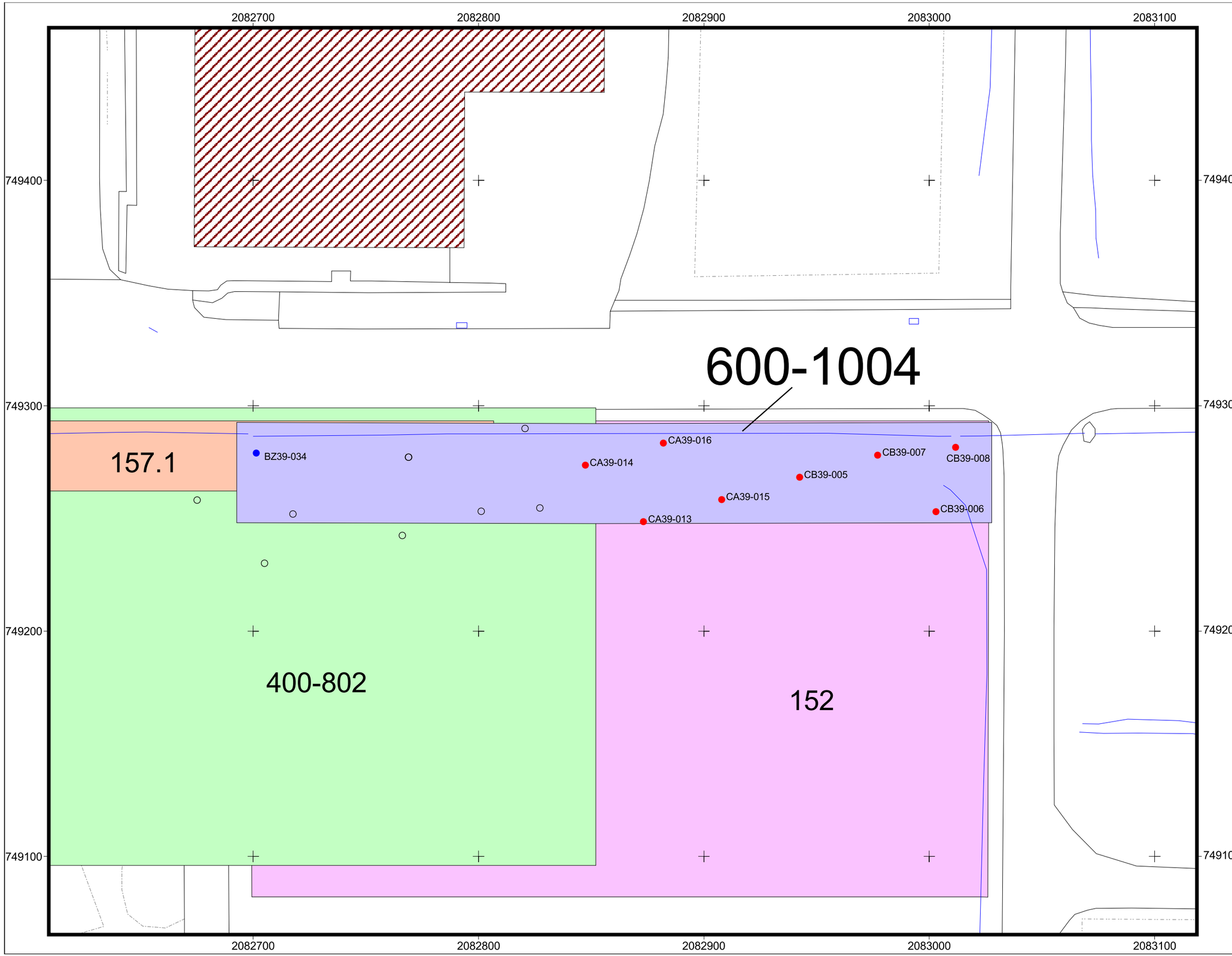

Figure 4

IHSS Group 600-5 (PAC 600-1004) Proposed Sampling Locations

KEY

- Statistical sampling location
- Biased sampling location
- Sampling location from PAC 400-802 characterization
- PAC 600-1004
- PAC 400-802
- IHSS 152
- Demolished structure
- Structure
- Paved area
- Dirt road
- Stream, ditch, or other drainage

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N

20 0 20 40 Feet

Scale = 1:750

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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