NOTICE

All drawings located at the end of the document.

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Industrial Area Sampling and Analysis Plan Addendum #IA-04-08 IHSS Group 400-1

December 2003

ADMIN RECORD
IA-A-001893

Industrial Area
Sampling and Analysis Plan
Addendum #IA-04-08
IHSS Group 400-1

Approval received from the Colorado Department of Public Health and Environment
(December 16, 2003)
Approval letter contained in the Administrative Record

December 2003

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ACRONYMS

Be	beryllium
DOE	U S 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
Li	lithium
MDL	method detection limit
N/A	not applicable
OU	Operable Unit
PCOC	potential contaminant of concern
RFETS	Rocky Flats Environmental Technology Site
SAP	Sampling and Analysis Plan
UBC	Under Building Contamination
VOC	volatile organic compound

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1.0 INTRODUCTION

This Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) Addendum #IA-04-08 includes Individual Hazardous Substance Site (IHSS) Group-specific information, sampling locations, and potential contaminants of concern (PCOCs) for the Building 439 Under Building Contamination (UBC) Site 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 400-1 and the associated UBC 439 Site The location of IHSS Group 400-1 is shown on Figure 1

2.0 EXISTING UBC, IHSS, AND PAC INFORMATION

IHSS Group 400-1 contains UBC 439, which is approximately 100 feet by 50 feet Building 439 is a sheet metal structure built on an at-grade slab The structure was a maintenance building, and was later used for Property Utilization & Disposition operations Building 439 was used to receive, process, and ship surplus equipment and materials released by Plant custodians Building 439 housed small portable counters to monitor alpha, beta, and gamma radiation Sources were controlled through the Site accountability procedures Smear samples collected throughout the Rocky Flats Environmental Technology Site (RFETS) were brought to Building 439 for counting The building is currently being used as the break area for Building 440 operations personnel

There are no process lines or foundation drains under the building There is one floor drain that is tied to the sanitary sewer system The sewer line exits the building near the northwestern corner (Figure 2)

Existing concentrations and activities greater than background means plus two standard deviations, or method detection limits (MDLs), in the vicinity of UBC 439 (IHSS 400-157 2) are presented on Figure 2 No characterization of soil beneath the Building 439 foundation slab has been conducted Existing information and data for UBC 439 and IHSS 400-157 2 are available in Appendix C of the IASAP (DOE 2001), the IA Data Summary Report (DOE 2000), the Historical Release Reports (HRRs) for the Rocky Flats Plant (DOE 1992-2002), and Operable Unit (OU) 12 Technical Memorandum No 2 (DOE 1995) PCOCs for this IHSS Group include radionuclides, metals (including beryllium and lithium), and volatile organic compounds (VOCs)

3.0 SAMPLING

The proposed sampling and analysis specifications for UBC 439 are summarized in Table 1 and listed, by sampling location, in Table 2 The proposed sampling locations are shown on Figure 3

Two types of sampling strategies were used to determine sampling locations statistical and biased Statistical grids have computer-generated random start points and orientations The standard statistical grid size (i e , the length between grid points) is 36 feet, however, the grid size for UBC sites is 72 feet The IASAP 72-foot grid for UBC sites was not used to determine sampling locations at UBC 439 because of the relatively small dimension of the Building 439 slab (approximately 100 feet long by 50 feet wide) A 36-foot grid size was used instead

One biased sampling location is proposed adjacent to the sewer line near the northwestern corner of the building slab (the only sewer line outlet) Another biased sampling location was added in the southwestern corner of the UBC to provide a more complete coverage of the UBC

Sampling locations will be adjusted in the field to coincide with floor joints and any cracks observed Also, additional samples will be collected near process and foundation drains, if such drains are encountered during slab removal activities [Note that no foundation drains, sumps, or process waste lines are currently known to be located beneath the Building 439 slab] Furthermore, additional samples may be collected based on sampling results Changes to sampling specifications will be considered in consultation with the regulatory agencies, and any changes will be documented in a Regulatory Contact Record

No sampling locations are proposed outside UBC 439 (in IHSS 400-157 2), because the area will be sufficiently characterized as part of IHSS Group 400-6 (DOE 2003) As shown in IASAP Addendum #IA-03-14, the area has been previously characterized, and additional samples are proposed

Table 1
Sampling and Analysis Summary

Number of Sampling Locations	5
Number of Samples	10
Number of Radionuclide Analyses	10
Number of Metal Analyses	10
Number of VOC Analyses	10

8

Table 2
Sampling Specifications for IHSS Group 400-1

IHSS Group	IHSS/PAC/ UBC Site	Location	Easting	Northing	Sample Type	Depth (Interval)	Analyte	On-Site Laboratory Method	Off-Site Laboratory Method
400-1	UBC 439	BX35-028	2082317 785	748424 337	Surface Soil	0 - 0 5'	Radionuclides	HPGe	Alpha Spec
		BX35-028	2082317 785	748424 337	Surface Soil	0 - 0 5'	Metals (including Be and Li)	N/A	6010
		BX35-028	2082317 785	748424 337	Surface Soil	0 - 0 5'	VOCs	8260	8260
		BX35-028	2082317 785	748424 337	Subsurface Soil	0 5 – 2 5	Radionuclides	HPGe	Alpha Spec
		BX35-028	2082317 785	748424 337	Subsurface Soil	0 5 – 2 5	Metals (including Be and Li)	N/A	6010
		BX35-028	2082317 785	748424 337	Subsurface Soil	0 5 – 2 5	VOCs	8260	8260
		BX35-029	2082329 262	748382 084	Surface Soil	0 - 0 5'	Radionuclides	HPGe	Alpha Spec
		BX35-029	2082329 262	748382 084	Surface Soil	0 - 0 5'	Metals (including Be and Li)	N/A	6010
		BX35-029	2082329 262	748382 084	Surface Soil	0 - 0 5'	VOCs	8260	8260
		BX35-029	2082329 262	748382 084	Subsurface Soil	0 5 – 2 5	Radionuclides	HPGe	Alpha Spec
		BX35-029	2082329 262	748382 084	Subsurface Soil	0 5 – 2 5	Metals (including Be and Li)	N/A	6010
		BX35-029	2082329 262	748382 084	Subsurface Soil	0 5 – 2 5	VOCs	8260	8260
		BY35-028	2082342 206	748407 067	Surface Soil	0 - 0 5'	Radionuclides	HPGe	Alpha Spec
		BY35-028	2082342 206	748407 067	Surface Soil	0 - 0 5'	Metals (including Be and Li)	N/A	6010
		BY35-028	2082342 206	748407 067	Surface Soil	0 - 0 5'	VOCs	8260	8260
		BY35-028	2082342 206	748407 067	Subsurface Soil	0 5 – 2 5	Radionuclides	HPGe	Alpha Spec
		BY35-028	2082342 206	748407 067	Subsurface Soil	0 5 – 2 5	Metals (including Be and Li)	N/A	6010
		BY35-028	2082342 206	748407 067	Subsurface Soil	0 5 – 2 5	VOCs	8260	8260
		BY35-029	2082378 192	748408 059	Surface Soil	0 - 0 5'	Radionuclides	HPGe	Alpha Spec
		BY35-029	2082378 192	748408 059	Surface Soil	0 - 0 5'	Metals (including Be and Li)	N/A	6010
		BY35-029	2082378 192	748408 059	Surface Soil	0 - 0 5'	VOCs	8260	8260
		BY35-029	2082378 192	748408 059	Subsurface Soil	0 5 – 2 5	Radionuclides	HPGe	Alpha Spec

IHSS Group	IHSS/PAC/ UBC Site	Location	Easting	Northing	Media	Depth (feet)	Analyte	Pre-Sit Laboratory Method	Pre-Site Laboratory Method
		BY35-029	2082378 192	748408 059	Subsurface Soil	0 5 – 2 5	Metals (including Be and Li)	N/A	6010
		BY35-029	2082378 192	748408 059	Subsurface Soil	0 5 – 2 5	VOCs	8260	8260
		BY35-030	2082397 044	748377 390	Surface Soil	0 - 0 5'	Radionuclides	HPGe	Alpha Spec
		BY35-030	2082397 044	748377 390	Surface Soil	0 - 0 5'	Metals (including Be and Li)	N/A	6010
		BY35-030	2082397 044	748377 390	Surface Soil	0 - 0 5'	VOCs	8260	8260
		BY35-030	2082397 044	748377 390	Subsurface Soil	0 5 – 2 5	Radionuclides	HPGe	Alpha Spec
		BY35-030	2082397 044	748377 390	Subsurface Soil	0 5 – 2 5	Metals (including Be and Li)	N/A	6010
		BY35-030	2082397 044	748377 390	Subsurface Soil	0 5 – 2 5	VOCs	8260	8260

4.0 REFERENCES

DOE, 1992-2002, Historical Release Reports for the Rocky Flats Plant, Golden, Colorado

DOE, 1995, Operable Unit 12 Technical Memorandum No 2, Rocky Flats Environmental Technology Site, Golden, Colorado, February

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, Industrial Area Sampling and Analysis Plan Addendum #IA-03-14, IHSS Groups 400-5 and 400-6, Rocky Flats Environmental Technology Site, Golden, Colorado, August

DATE: DECEMBER 16, 2003

TO: WIN CHROMEC - KAISER-HILL ECOLOGICAL RISK WORK GROUP PROJECT MANAGER - DOE AT ROCKY FLATS

FROM: ROBYN BLACKBURN - USFWS LIAISON TO USEPA

RE: **DRAFT COMMENTS ON DRAFT ACCELERATED ACTION ECOLOGICAL SCREENING PROCESS DATED OCTOBER 2003**

GENERAL COMMENTS

1 **Accelerated Action Objectives.** Section 1 0, Introduction, indicates that the risk screen in this document will guide the accelerated action decision process as it relates to ecological receptors However, Section 2 0, suggests that potential chemicals of concern (PCOCs) for which the 95% UCL is less than the lowest observed adverse effect level (LOAEL) preliminary remediation goal (PRG), will be considered to have acceptable risk The determination of the acceptability of risk based on a screening-level comparison to a LOAEL is not considered appropriate Risk should be determined following the risk estimate and risk characterization to be conducted as part of the Comprehensive Risk Assessment (CRA). The objective of the Accelerated Action process and the use of the LOAEL for this purpose should be clarified The following text revisions are recommended for consideration

Introduction "The accelerated action process associated with reducing human health and ecological risks, based on established human health benchmarks and a limited number of ecological benchmarks, is currently in progress at the site Ecological benchmarks, or ecological Preliminary Remediation Goals (PRGs), presented for the Accelerated Action will be used to assist in evaluating whether there is a high potential for an ecological risk to be present, based on the use of *effect level* screening benchmarks The objective of the Accelerated Action Ecological Screening process is to identify areas that will undergo an accelerated cleanup action based on human health concerns, that could simultaneously address ecological concerns The process is intended to be an efficient means of addressing areas that may require an action based on the potential for ecological risk, however, the determination of ecological risk will be evaluated during the Comprehensive Risk Assessment"

Section 2 0 and Section 3 0 Remove statements associated with 'acceptable risk' and consider "All PCOCs for which the 95%UCL is less than the LOAEL PRGs will be considered under a level of concern for the purpose of the accelerated action process and no further accelerated action will be necessary for these PCOCs" The discussion of 'acceptable risk' in Section 3 0 should be revised in a similar manner

2 **Accelerated Action Areas.** It is stated that Accelerated Actions areas are identified in the Industrial Area (IA) and Buffer Zone (BZ) Sampling and Analysis Plans (SAPs) (DOE 2001 and 2002) It should be noted that several Closeout Reports have been completed for the designated Accelerated Action areas It is recommended that the list of areas be presented in a table which includes the dates for those sites that have already been completed A table which presents a comparison of ecological PRGs to the human health PRGs would assist in identifying the chemicals that will ultimately drive cleanup decisions The comparison table will also assist in determining whether completed clean up actions that have already occurred have addressed the potential for ecological concerns

3. **Exposure Point Concentration** The proposed process suggests the use of the 95% UCL as the exposure point concentration for the Accelerated Action Ecological Screening process However, during several recent meetings with the Risk Assessment Work Group, the use of several other approaches for calculating the mean are currently being considered The calculation of two different means to be used for ecological screening during the Accelerated Action versus the screening to be conducted as part of the CRA may lead to a conflict in results between the two processes Consideration in making the process to derive the means consistent between the two screening assessments should be considered If it is determined that the 95% UCL is to be used for the accelerated action, while a different process is to be used for the CRA, then it is recommended that the CRA present the results of the Accelerated Action screening for comparison in the CRA

4 **Preliminary Remediation Goals (PRGs)** Only limited information used to calculate the PRGs has been provided and it is indicated that the complete documentation will be provided in the revised PRG Technical Memorandum Therefore, comments on the selection of TRVs and calculation of PRGs for use in the Accelerated Action will be provided upon receipt of the PRG memorandum Several general comments on Tables 3a, 3b, 4, have been provided for consideration during the finalization of the revised PRG Technical Memorandum

SPECIFIC COMMENTS

5 **Section 1.0, Introduction, Page 1, Second Paragraph:** The text correctly infers that a different screening process will be used for evaluating Threatened and Endangered (T&E) species (i e , population vs individual, NOAEL vs LOAEL) The text is clear for risk assessors and others familiar with the approach, however, please clarify the text to state that the a more sensitive screening process will be sued for evaluating T&E species

6 **Figure 1, Accelerated Action Risk Analysis for Non-PMJM Receptors, Page 3:** The

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first box states, "Post PCOCs from the CRA Sitewide Screening Process" The second box indicates that data from each Accelerated Action Exposure Unit will be aggregated. It is not clear when the results of the CRA will be completed or whether it is necessary to use the CRA screening results for this process It is recommended that the Accelerated Action process begin by aggregating all available data from each Exposure Unit as indicated in the second box Please also consider for the process associated with PMJM receptors as presented on Figure 2

7 **Section 3.0, Accelerated Action Screen for PMJM Receptors, Page 4:** Please add a statement in the text and as a footnote to Figure 2, to document that the 'Agency Consultation' includes input from the designated US Fish and Wildlife (USFWS) Endangered Species Act (ESA) biologist to ensure that ESA Section 7 informal consultation requirements are met. Informal Section 7 consultation should also be met for confirmation sampling as indicated in the final box on Figure 2

TRV/PRG COMMENTS

TOXICITY REFERENCE VALUES (TRVS) FOR WILDLIFE - TABLES 3A & 3B

It is not clear from the accompanying documentation what source hierarchy was utilized to select wildlife TRVs For example, ecological risk assessments for Superfund sites in Region 8 have used the following hierarchy – 1) Eco-SSL, 2) primary studies as selected by Sample et al , 1996, 3) primary studies from other site assessments, 4) ECOTOX search It is recommended that the PRG memorandum clearly define the TRV source selection hierarchy in screening process

Tables 3a and 3b do not provide any information on the exposure route, exposure organism, exposure duration, endpoint type, dose conversion inputs, or uncertainty factors for the selected TRV This information is critical in understanding the representativeness of the selected TRV for the purposes of establishing site risks in receptor populations

Tables 3a and 3b do not provide the primary source citation, and often the "General Source" citation provided is a third or fourth level source For example, most TRVs provided in the Pueblo Chemical Depot report are actually values derived in Sample et al (1996), which itself is a secondary source It is recommended that Tables 3a and 3b be modified to provide primary source citation

It is not clear from the accompanying documentation the rationale and procedure for selecting surrogate chemicals Subtle differences in structure can drastically change the toxicity of chemicals that may appear to be similar Surrogate chemicals should be assigned with caution It is recommended that the PRG document clearly define the procedure for identifying surrogate chemicals, the role of surrogate chemicals in assigning TRVs, and describe of how to interpret risks for those chemicals which are based on surrogate toxicity data

The Eco-SSL guidance for establishing wildlife TRVs for oral exposures rejects the use of injection studies for establishing oral dose response values For example, in Tables 3A and 3B most avian TRVs for PAH compounds are based on a chicken egg injection study conducted by Brunstrom et al (1990, 1991) as selected in the Watershed ERA report The pharmacokinetic assumptions and conversion factors utilized to convert from this injection study to dose-based TRVs are not clear It is recommended that TRVs based on injection studies be replaced with other studies that provide toxicity data from oral exposures (eg diet, drinking water, gavage, etc)

The Eco-SSL Guidance version cited (June 2000) has undergone substantial revision in the derivation methodology for wildlife TRVs The Eco-SSL TRVs for wildlife cited in Tables 3a and 3b have changed as a result of these revisions The most recent version of the Eco-SSL guidance will be released shortly (late November/early December 2003) The next version of the Los Alamos Database (v2, set for release at the end of November 2003) should also have these new Eco-SSL TRVs

In Table 3a, the General Source is often cited as "Discrete Peer Reviewed Source" or "Literature Review" No additional documentation is presented which provides any information on the selected study citation, exposure route, exposure organism, exposure duration, endpoint type, dose conversion inputs, or uncertainty factors for the selected TRV It is recommended that Tables 3a be modified to provide study details for values that were derived/selected based on a separate literature review process

If possible, the NOAEL and LOAEL TRV should be selected from the same study thus providing an upper and lower bound for the effects threshold The effects threshold can then be estimated by calculating the geomean of the NOAEL and LOAEL TRV It is recommended that the effects threshold TRV, rather than the LOAEL TRV to evaluate risks to ecological receptor populations be considered for whenever appropriate toxicological data are available

BIOACCUMULATION FACTORS (BAF) - TABLE 4

The values presented in Table 4 should be referred to as bioaccumulation factors (BAFs) rather than bioconcentration factors (BCFs) A BCF is the ratio of the concentration of chemical "x" in tissue to the concentration of chemical "x" in water (Ctissue/Cwater)

The Eco-SSL Guidance version cited (June 2000) has undergone revision and many of the BAF equations have changed as a result of these revisions The most recent version of the Eco-SSL guidance along with these new uptake equations will be released shortly (late November/early December 2003)

Table 4 does not provide the Log Kow values used in the Log Kow models to derive BAFs

For many inorganic compounds, Table 4 is currently reporting the mean uptake factor (UF) as derived by ORNL for plants, earthworms, and small mammals These ORNL reports evaluated several types of models (UFs, single-variable regression, and multiple-variable regression) and provide recommendations for the most appropriate model In most cases, the single-variable regression model provided a better fit than a simple UF

model If a simple UF is to be used, ORNL recommends using the median UF for general estimates or the 90th percentile UF for conservative estimates It is recommended that the ORNL recommended model for estimating tissue concentrations of inorganic compounds in plants, earthworms, and small mammals

Table 4 only provides the "General Reference" for the selected BAF models and uptake factors and does not provide primary source citations

References Cited

Sample, BE and CA Arenal 1999. Allometric models for extrapolation of wildlife toxicity data Bull Environ Contamin Toxicol 62(6) 653-663

Sample, BE, DM Opresko, and GW Suter II 1996 Toxicological Benchmarks for Wildlife 1996 Revision Prepared by Oak Ridge National Laboratory for the US Dept of Energy ES/ER/TM-86/R3 June 1996

US Environmental Protection Agency (USEPA) 2003 Guidance for Developing Ecological Soil Screening Levels (Eco-SSLs) OSWER Directive 92857-55 Office of Solid Waste and Emergency Response

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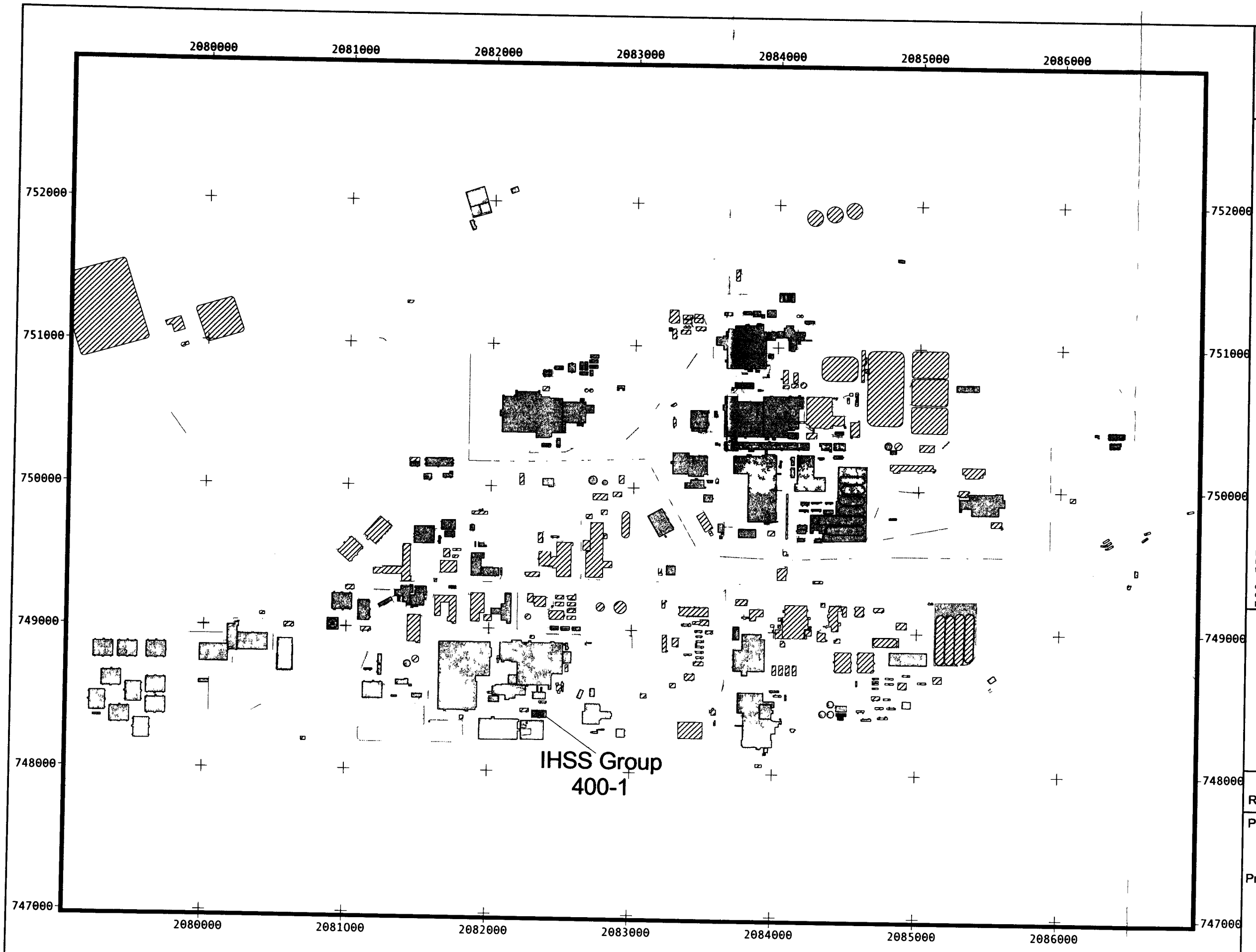
Figure 1
IHSS Group 400-1
Location



KEY

- IHSS Group 400-1
- Demolished building
- Standing building
- Paved road

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State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by [redacted]

Prepared for KAISER•HILL COMPANY

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Date 10/28/03

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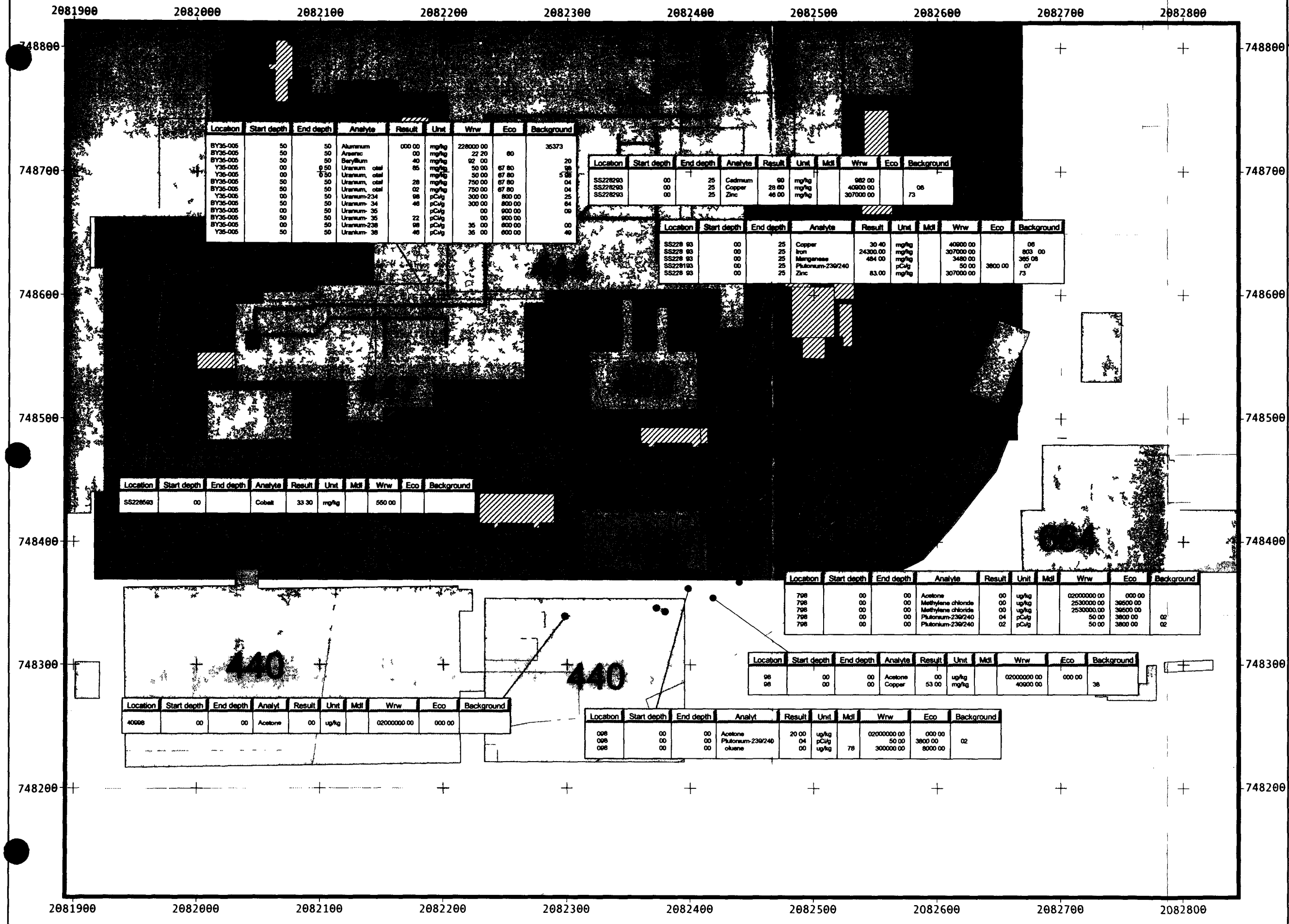
Figure 2
Existing Soil Sample Data Above Background Means Plus 2 Standard Deviations or MDLs



Location	Start depth	End depth	Analyte	Result	Unit	Wrw	Eco	Background
BY35-005	50	50	Aluminum	000 00	mg/kg	226000 00	80	35373
BY35-005	50	50	Arsenic	00	mg/kg	22 20		
BY35-005	50	50	Beryllium	40	mg/kg	92 00		20
Y35-005	00	0 50	Uranium otal	85	mg/kg	50 00	67 80	
Y36-006	00	0 50	Uranium, otal		mg/kg	50 00	67 80	5 08
BY35-005	50	50	Uranium, otal	28	mg/kg	750 00	67 80	04
BY35-005	50	50	Uranium, otal	02	mg/kg	750 00	67 80	04
Y35-005	00	50	Uranium-234	98	pCi/g	300 00	800 00	25
BY35-005	50	50	Uranium- 34	46	pCi/g	300 00	800 00	64
BY35-005	00	50	Uranium- 35		pCi/g	00	900 00	09
BY35-005	50	50	Uranium- 35	22	pCi/g	00	900 00	
BY35-005	00	50	Uranium-238	98	pCi/g	35 00	800 00	00
Y35-005	50	50	Uranium- 38	46	pCi/g	35 00	800 00	46

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228293	00	25	Cadmium	90	mg/kg		982 00		
SS228293	00	25	Copper	28 60	mg/kg		40900 00		06
SS228293	00	25	Zinc	46 00	mg/kg		307000 00		73

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228 93	00	25	Copper	30 40	mg/kg		40900 00		06
SS228 93	00	25	Iron	24300.00	mg/kg		307000 00		803 00
SS228 93	00	25	Manganese	484 00	mg/kg		3480 00		385 08
SS228193	00	25	Plutonium-239/240		pCi/g		50 00	3800 00	07
SS228 93	00	25	Zinc	83.00	mg/kg		307000 00		73

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
SS228593	00		Cobalt	33 30	mg/kg		550 00		

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
798	00	00	Acetone	00	ug/kg		02000000 00	000 00	
798	00	00	Methylene chloride	00	ug/kg		2530000 00	39500 00	
798	00	00	Methylene chloride	00	ug/kg		2530000.00	39500 00	
798	00	00	Plutonium-239/240	04	pCi/g		50 00	3800 00	02
798	00	00	Plutonium-239/240	02	pCi/g		50 00	3800 00	02

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
40998	00	00	Acetone	00	ug/kg		02000000 00	000 00	

Location	Start depth	End depth	Analyte	Result	Unit	Mdl	Wrw	Eco	Background
98	00	00	Acetone	00	ug/kg		02000000 00	000 00	
98	00	00	Copper	53 00	mg/kg		40900 00		38

Location	Start depth	End depth	Analyt	Result	Unit	Mdl	Wrw	Eco	Background
098	00	00	Acetone	20 00	ug/kg		02000000 00	000 00	
098	00	00	Plutonium-239/240	04	pCi/g		50 00	3800 00	02
098	00	00	oluene	00	ug/kg	78	300000 00	8000 00	

KEY

- Sampling location with concentration exceeding ecological receptor AL
- Sampling location with concentrations greater than background means or detection limits
- Sampling location with concentrations less than background means or detection limits

UBC 439

IHSS 400-157 2

PAC

Demolished building

Standing building

OPWL

Storm drain

Sewer line

Paved area

Stream

Fence

Di cl mer
Neither th U ed Sta es Go mment Kaiser-Hi LLC ny agency thereof nor of empl yees ma es y nty express or mp ed or as mes y ega bi ity or respon bi ty for the ccuracy completeness or usefulnes of y nformation pparatus product or process sclosed or epresen t t us ould not nf ge pr ely owned ghts

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State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by [redacted]

Prepared for KAISER•HILL COMPANY

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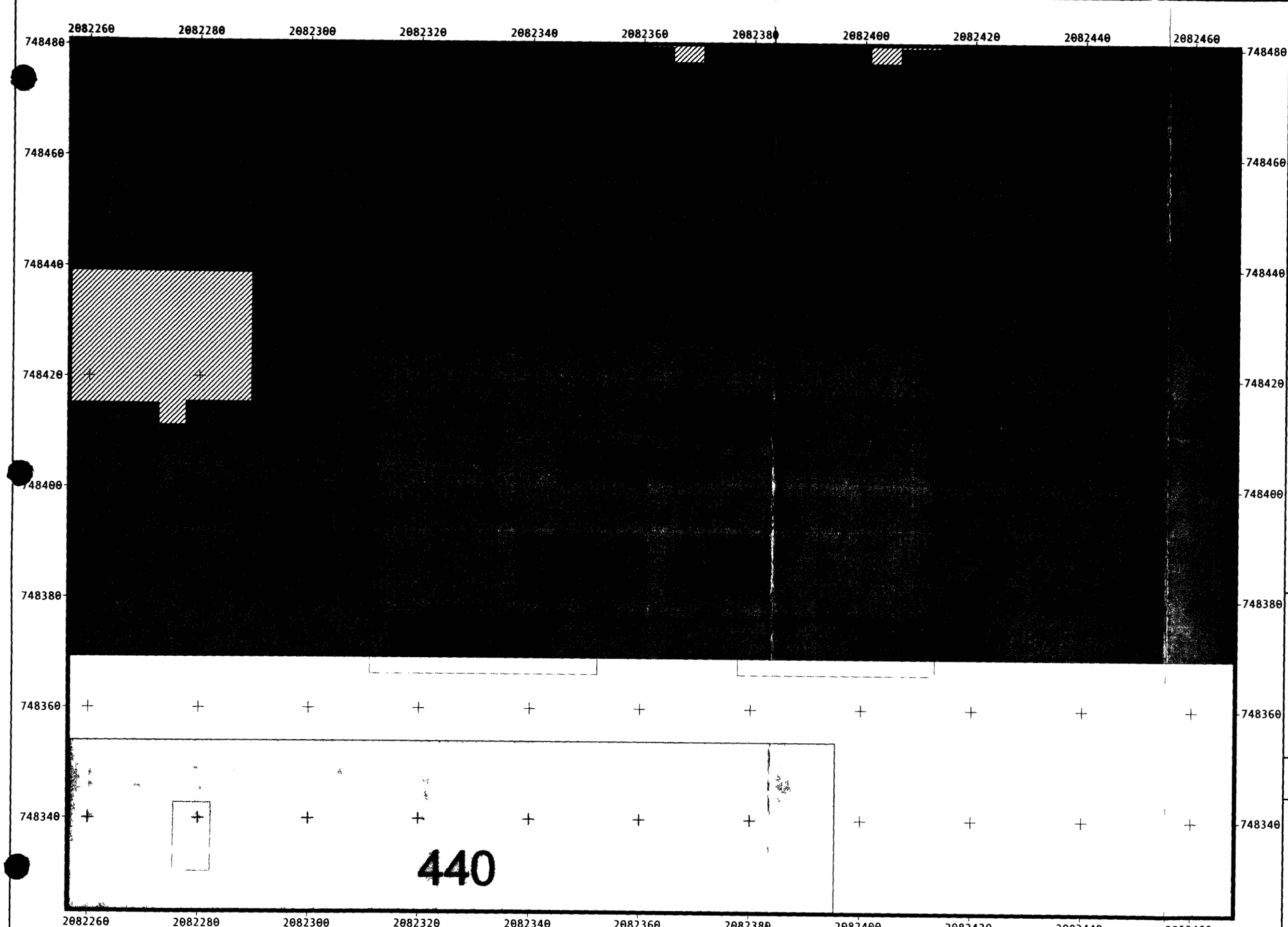

Figure 3
FY04 Sampling Locations for IA Group 400-1

KEY

- Statistical sampling location
- Biased sampling location
- UBC 439
- IHSS 400-157 2
- Demolished building
- Standing building
- Storm drain
- Sewer line
- Paved area
- Fence

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Neither th U ed States Government Kaise H LLC y agency hereof nor y of ther employees makes an ar nty express or mp ed or ass mes any egal br ity or respon br ity for the accuracy completeness or usef ness of y nformation pparatus product or process d sc osed or epresents that use would not nfr ge pr ely owned ghts

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Scale = 1 200

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD 27

U S Department of Energy
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Prepared by [redacted]

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Date 10/28/03