

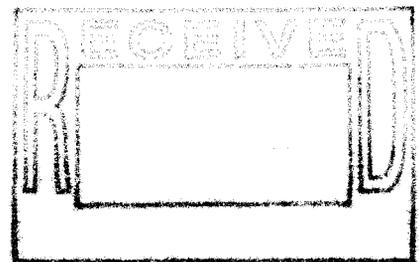
NOTICE

All drawings located at the end of the document.

**Draft Data Summary Report
For IHSS Group 700-5**

Building 770 Under Building Contamination Site

Approval received from the Colorado Department of Public Health and Environment
().
Approval letter contained in the Administrative Record.



August 2004

TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
2.0 SITE CHARACTERIZATION.....	1
2.1 Historical Information and Data.....	1
2.2 Accelerated Action Characterization Data.....	3
2.3 Sum of Ratios.....	12
3.0 RCRA UNIT CLOSURE.....	12
4.0 SUBSURFACE SOIL RISK SCREEN.....	13
5.0 NO FURTHER ACCELERATED ACTION SUMMARY.....	14
6.0 DATA QUALITY ASSESSMENT.....	14
6.1 Data Quality Assessment Process.....	14
6.2 Verification and Validation of Results.....	15
6.2.1 Accuracy.....	16
6.2.2 Precision.....	20
6.2.3 Completeness.....	21
6.2.4 Sensitivity.....	22
6.3 Summary of Data Quality.....	22
7.0 PROJECT CONCLUSIONS.....	23
8.0 REFERENCES.....	23

LIST OF FIGURES

Figure 1 IHSS Group 700-5 Location.....	2
Figure 2 IHSS Group 700-5 Existing Soil Sampling Results Greater Than Background Means Plus 2 Standard Deviations or Method Detection Limits.....	4
Figure 3 IHSS Group 700-5 Accelerated Action Sampling Locations and Results.....	7

LIST OF TABLES

Table 1 IHSS Group 700-5 Accelerated Action Characterization Specifications and Sampling Deviations.....	5
Table 2 IHSS Group 700-5 Accelerated Action Sampling and Analysis Summary.....	6
Table 3 IHSS Group 700-5 Accelerated Action Characterization Data Greater Than Background Means Plus Two SDs or RLs.....	8
Table 4 IHSS Group 700-5 Surface Soil Summary Statistics.....	11
Table 5 IHSS Group 700-5 Subsurface Soil Summary Statistics.....	11
Table 6 RFCA Radionuclide Soil SORs.....	12
Table 7 RFCA Non-Radionuclide Surface Soil SORs.....	12
Table 8 LCS Summary.....	17
Table 9 LCS Evaluation Summary.....	17
Table 10 Surrogate Recovery Summary.....	19
Table 11 Field Blank Summary.....	20
Table 12 Sample MS Evaluation Summary.....	20
Table 13 Sample MSD Evaluation.....	21
Table 14 Field Duplicate Sample Frequency Summary.....	21
Table 15 V&V Summary.....	22

LIST OF APPENDICES

Appendix A – Correspondence

ENCLOSURE

Complete Data Set Compact Disc – Accelerated Action Data

ACRONYMS

AAESE	Accelerated Action Ecological Screening Evaluation
AL	action level
CAS	Chemical Abstracts Service
CD	compact disc
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
ft	foot
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
IM/IRA	Interim Measure/Interim Remedial Action
K-H	Kaiser-Hill Company, L.L.C.
LCS	laboratory control sample
µg/kg	micrograms per kilogram (may be found as ug/kg)
mg/kg	milligrams per kilogram
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NFAA	No Further Accelerated Action
PAC	Potential Area of Concern
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
pCi/g	picocuries per gram
PCB	polychlorinated biphenyl
PCOC	potential contaminant of concern
POE	Point of Evaluation
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RL	reporting limit
RPD	relative percent difference
SAP	Sampling and Analysis Plan
Site	Rocky Flats Environmental Technology Site
SBD	sample begin depth
SD	standard deviation
SED	sample end depth
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
UBC	under building contamination
VOC	volatile organic compound
V&V	verification and validation
WRW	wildlife refuge worker

1.0 INTRODUCTION

This Data Summary Report summarizes accelerated action characterization activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-5, consisting of the Building 770 Waste Storage Facility Under Building Contamination (UBC) Site, at the Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado.

IHSS Group 700-5 consists solely of UBC 770. A general Site location map of IHSS Group 700-5 and UBC 770 is shown on Figure 1.

Characterization activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) and IASAP Addendum #IA-03-17 (DOE 2003a). The IASAP Addendum was approved by the Colorado Department of Public Health and Environment (CDPHE) on October 21, 2003 (CDPHE 2003). Ecological effects will be evaluated in the Accelerated Action Ecological Screening Evaluation (AAESE) and the ecological risk assessment portion of the Sitewide Comprehensive Risk Assessment (CRA).

Approval of this Data Summary Report constitutes regulatory agency concurrence that UBC 770 is a No Further Accelerated Action (NFAA) Site. This information and NFAA determination will be documented in the Fiscal Year (FY) 2004 (04) Historical Release Report (HRR).

2.0 SITE CHARACTERIZATION

UBC 770 characterization information consists of historical knowledge, previously collected analytical data near the UBC, and accelerated action analytical data. Historical information for the IHSS Group was derived from previous studies (DOE 1992-2003, 1992, 1995, 2000, 2001, 2003a). The historical information and data are discussed in Section 2.1.

Accelerated action analytical data for UBC 770 are summarized in Section 2.2. A compact disc (CD) is enclosed that contains the accelerated action data, as well as quality control (QC) data, for this project. The CD contains a data set in which analyte names, Chemical Abstracts Service (CAS) numbers, and units are standardized, and derived analytes are provided.

2.1 Historical Information and Data

UBC 770 is located north of Buildings 771 and 774. The UBC encompasses approximately 3,168 square feet. Building 770 is a metal prefabricated modular building constructed in 1965 on a concrete foundation. The building is currently used to store tools, materials, and supplies for Building 771 decommissioning operations. Historically, Building 770 was used for equipment storage and also as a facility for equipment assembly prior to equipment installation inside other Site buildings. Building 770 was also used to store radioactive waste.

In August 1972, a punctured scrap box stored inside Building 770 contaminated more than 3,000 square feet within the building and 500 square feet outside the building. Levels of radioactivity were measured up to 200,000 disintegrations per minute. In September 1972, a 55-gallon drum containing spent radioactive ion exchange residue leaked onto the concrete floor inside Building 770.

Drums with spent radioactive ion exchange residue (for processing in Building 771) and cargo containers were stored on the surface area located west of Building 770 from 1969 to 1974 when storage operations were moved to Building 776. Several contamination releases occurred on the ground surface located west of Building 770 between 1965 and 1971 (Potential Area of Concern [PAC] 700-150.1).

No characterization of soil beneath the Building 770 foundation slab had been conducted prior to the accelerated action characterization. As shown in Figure 2, historical data on soil near UBC 770 indicate that all contaminant concentrations are below the Rocky Flats Cleanup Agreement (RFCA) Wildlife Refuge Worker (WRW) action levels (ALs) (DOE et al. 2003). Only data greater than background means plus 2 standard deviations (SDs) (for radionuclides and metals), or method detection limits (MDL) (for organic compounds) are presented.

2.2 Accelerated Action Characterization Data

Based on historical information and data from within and around UBC 770, IASAP Addendum #IA-03-17 (DOE 2003a) specified that the potential contaminants of concern (PCOCs) for the UBC were radionuclides, metals, volatile organic compounds (VOCs), and polychlorinated biphenyls (PCBs).

Accelerated action analytical data for UBC 770 were collected in accordance with IASAP Addendum #IA-03-17 (DOE 2003a). Sampling specifications, including PCOCs and media, are presented in Table 1. Deviations from the IASAP Addendum are also presented and explained in Table 1. Table 2 presents a summary of accelerated action sampling and analyses. The locations of samples and analytical results greater than background means plus 2 SDs or reporting limits (RLs) are shown on Figure 3 and listed in Table 3. Plutonium-239/240 and uranium-234 activities based on high-purity germanium (HPGe) results (derived from americium-241 and uranium-238 gamma spectroscopy results, respectively) are shown in Table 3 in italics. As shown, all contaminant concentrations are less than the WRW ALs. Summary statistics for the project analytical results are presented in Tables 4 and 5, by analyte, for surface and subsurface soils, respectively.

Table 1
IHSS Group 700-5 Accelerated Action Characterization Specifications and Sampling Deviations

Location	Planned Easting	Planned Northing	Actual Easting	Actual Northing	Actual Media	Actual Depth Interval (ft)	Actual Analytes	Comments/Deviations
CF49-021	2083927.384	751220.084	2083929.000	751221.000	Surface Soil	0.0 – 0.5	Radionuclides, Metals & VOCs	Actual location estimated from building walls; no significant change in location.
CF49-022	2083931.668	751255.828	2083932.000	751255.000	Surface Soil	0.0 – 0.5	Radionuclides, Metals & VOCs	Actual location estimated from building walls; no significant change in location.
CG49-008	2083960.481	751234.246	2083961.000	751238.000	Surface Soil	0.0 – 0.5	Radionuclide, Metals, VOCs & PCBs	Actual location estimated from building walls; no significant change in location.
CG49-009	2083971.873	751259.396	2083971.000	751258.000	Surface Soil	0.0 – 0.5	Radionuclides, Metals, VOCs & PCBs	No significant change in location.
CG49-010	2083955.814	751267.208	2083955.785	751267.201	Surface Soil Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Radionuclides, Metals, VOCs (B interval only) & PCBs	No significant change in location.
CG49-011	2083982.724	751254.188	2083982.770	751254.198	Surface Soil Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Radionuclides, Metals, VOCs (B interval only) & PCBs	No significant change in location.
CG49-012	2083982.724	751213.389	NA	NA	NA	NA	NA	Addressed in Closeout Report for IHSS Group 700-11
CG49-013	2083982.152	751238.381	2083982.149	751238.378	Surface Soil Subsurface Soil	0.0 – 0.5 0.5 – 2.5	Radionuclides, Metals, VOCs (B interval only) & PCBs	No significant change in location.
CG49-014	2083992.996	751211.269	NA	NA	NA	NA	NA	Sampling location deleted; refer to Regulatory Contact Record dated 03/23/04 (Appendix A).
CG49-015	2084001.299	751211.947	NA	NA	NA	NA	NA	Addressed in Closeout Report for IHSS Group 700-11
CG49-016	2084035.020	751220.081	NA	NA	NA	NA	NA	Addressed in Closeout Report for IHSS Group 700-11
CG49-017	2084019.939	751220.758	NA	NA	NA	NA	NA	Sampling location deleted; refer to Regulatory Contact Record dated 03/23/04 (Appendix A).

ft = foot/feet

Table 2
IHSS Group 700-5 Accelerated Action Sampling and Analysis Summary

Criteria	Number
Number of Sampling Locations	7
Number of Samples	10
Number of Radionuclide Analyses	10
Number of Metal Analyses	10
Number of VOC Analyses	7
Number of PCB Analyses	8

10

Table 3
IHSS Group 700-5 Accelerated Action Characterization Data Greater Than
Background Means Plus Two SDs or RLLs

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RLL	Background	WRWAL	Unit
CF49-021	751221.000	2083929.000	0.0	0.5	Acetone	99.000	6.000	NA	102000000.0	ug/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Aluminum	18000.000	NA	16902.000	228000.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Barium	200.000	NA	141.260	26400.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Chromium	29.000	NA	16.990	268.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Lithium	16.000	NA	11.550	20400.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Nickel	20.000	NA	14.910	20400.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Plutonium-239/240	0.140	NA	0.066	50.0	pCi/g
CF49-021	751221.000	2083929.000	0.0	0.5	Strontium	71.000	NA	48.940	613000.0	mg/kg
CF49-021	751221.000	2083929.000	0.0	0.5	Toluene	2.100	1.000	NA	31300000.0	ug/kg
CF49-022	751255.000	2083932.000	0.0	0.5	Barium	150.000	NA	141.260	26400.0	mg/kg
CF49-022	751255.000	2083932.000	0.0	0.5	Lithium	12.000	NA	11.550	20400.0	mg/kg
CF49-022	751255.000	2083932.000	0.0	0.5	Strontium	49.000	NA	48.940	613000.0	mg/kg
CF49-022	751255.000	2083932.000	0.0	0.5	Uranium-235	0.183	NA	0.094	8.0	pCi/g
CG49-008	751238.000	2083961.000	0.0	0.5	Aluminum	21000.000	NA	16902.000	228000.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Aroclor-1254	19.000	5.300	NA	12400.0	ug/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Barium	180.000	NA	141.260	26400.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Chromium	19.000	NA	16.990	268.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Lithium	17.000	NA	11.550	20400.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Nickel	16.000	NA	14.910	20400.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Strontium	50.000	NA	48.940	613000.0	mg/kg
CG49-008	751238.000	2083961.000	0.0	0.5	Uranium-234	5.003	NA	2.253	300.0	pCi/g
CG49-008	751238.000	2083961.000	0.0	0.5	Uranium-235	0.256	NA	0.094	8.0	pCi/g
CG49-008	751238.000	2083961.000	0.0	0.5	Uranium-238	5.003	NA	2.000	351.0	pCi/g
CG49-009	751258.000	2083971.000	0.0	0.5	Aluminum	18000.000	NA	16902.000	228000.0	mg/kg
CG49-009	751258.000	2083971.000	0.0	0.5	Aroclor-1254	46.000	4.800	NA	12400.0	ug/kg
CG49-009	751258.000	2083971.000	0.0	0.5	Barium	160.000	NA	141.260	26400.0	mg/kg
CG49-009	751258.000	2083971.000	0.0	0.5	Copper	21.000	NA	18.060	40900.0	mg/kg
CG49-009	751258.000	2083971.000	0.0	0.5	Lithium	15.000	NA	11.550	20400.0	mg/kg
CG49-009	751258.000	2083971.000	0.0	0.5	Nickel	16.000	NA	14.910	20400.0	mg/kg

Draft Data Summary Report for IHSS Group 700-5

Location Code	Northing	Eastings	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRWAL	Unit
CG49-009	751258.000	2083971.000	0.0	0.5	Strontium	89.000	NA	48.940	613000.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Aluminum	19000.000	NA	16902.000	228000.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Aroclor-1254	50.000	4.900	NA	12400.0	ug/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Barium	160.000	NA	141.260	26400.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Cadmium	5.800	NA	1.612	962.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Chromium	18.000	NA	16.990	268.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Lithium	16.000	NA	11.550	20400.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Nickel	17.000	NA	14.910	20400.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Uranium-234	3.393	NA	2.253	300.0	pCi/g
CG49-010	751267.201	2083955.785	0.0	0.5	Uranium-235	0.246	NA	0.094	8.0	pCi/g
CG49-010	751267.201	2083955.785	0.0	0.5	Uranium-238	3.393	NA	2.000	351.0	pCi/g
CG49-010	751267.201	2083955.785	0.0	0.5	Zinc	1600.000	NA	73.760	307000.0	mg/kg
CG49-010	751267.201	2083955.785	0.0	0.5	Uranium-234	4.645	NA	2.640	300.0	pCi/g
CG49-010	751267.201	2083955.785	0.5	2.5	Uranium-235	0.305	NA	0.120	8.0	pCi/g
CG49-010	751267.201	2083955.785	0.5	2.5	Uranium-238	4.645	NA	1.490	351.0	pCi/g
CG49-011	751254.198	2083982.770	0.0	0.5	Americium-241	0.262	NA	0.023	76.0	pCi/g
CG49-011	751254.198	2083982.770	0.0	0.5	Aroclor-1254	360.000	4.700	NA	12400.0	ug/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Barium	150.000	NA	141.260	26400.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Cadmium	5.900	NA	1.612	962.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Chromium	21.000	NA	16.990	268.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Lithium	13.000	NA	11.550	20400.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Manganese	450.000	NA	365.080	3480.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Nickel	23.000	NA	14.910	20400.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Plutonium-239/240	1.495	NA	0.066	50.0	pCi/g
CG49-011	751254.198	2083982.770	0.0	0.5	Strontium	63.000	NA	48.940	613000.0	mg/kg
CG49-011	751254.198	2083982.770	0.0	0.5	Uranium-235	0.136	NA	0.094	8.0	pCi/g
CG49-011	751254.198	2083982.770	0.0	0.5	Zinc	150.000	NA	73.760	307000.0	mg/kg
CG49-011	751254.198	2083982.770	0.5	2.5	Aroclor-1254	280.000	4.600	NA	12400.0	ug/kg
CG49-011	751254.198	2083982.770	0.5	2.5	Cadmium	4.000	NA	1.700	962.0	mg/kg
CG49-011	751254.198	2083982.770	0.5	2.5	Zinc	160.000	NA	139.100	307000.0	mg/kg
CG49-013	751238.378	2083982.149	0.0	0.5	Americium-241	0.450	NA	0.023	76.0	pCi/g
CG49-013	751238.378	2083982.149	0.0	0.5	Aroclor-1254	1300.000	22.000	NA	12400.0	ug/kg
CG49-013	751238.378	2083982.149	0.0	0.5	Cadmium	3.100	NA	1.612	962.0	mg/kg

Draft Data Summary Report for IHSS Group 700-5

Location Code	Northing	Easting	SBD (ft)	SED (ft)	Analyte	Result	RL	Background	WRW AL	Unit
CG49-013	751238.378	2083982.149	0.0	0.5	Chromium	57.000	NA	16.990	268.0	mg/kg
CG49-013	751238.378	2083982.149	0.0	0.5	Copper	23.000	NA	18.060	40900.0	mg/kg
CG49-013	751238.378	2083982.149	0.0	0.5	Nickel	36.000	NA	14.910	20400.0	mg/kg
<i>CG49-013</i>	<i>751238.378</i>	<i>2083982.149</i>	<i>0.0</i>	<i>0.5</i>	<i>Plutonium-239/240</i>	<i>2.565</i>	<i>NA</i>	<i>0.066</i>	<i>50.0</i>	<i>pCi/g</i>
CG49-013	751238.378	2083982.149	0.0	0.5	Zinc	230.000	NA	73.760	307000.0	mg/kg
CG49-013	751238.378	2083982.149	0.5	2.5	Americium-241	0.248	NA	0.020	76.0	pCi/g
CG49-013	751238.378	2083982.149	0.5	2.5	Aroclor-1254	440.000	24.000	NA	12400.0	ug/kg
CG49-013	751238.378	2083982.149	0.5	2.5	Cadmium	9.600	NA	1.700	962.0	mg/kg
<i>CG49-013</i>	<i>751238.378</i>	<i>2083982.149</i>	<i>0.5</i>	<i>2.5</i>	<i>Plutonium-239/240</i>	<i>1.413</i>	<i>NA</i>	<i>0.020</i>	<i>50.0</i>	<i>pCi/g</i>

SBD = sample begin depth

SED = sample end depth

µg/kg = micrograms per kilogram (usually appears as ug/kg)

mg/kg = milligrams per kilogram

pCi/g = picocuries per gram

NA = not applicable

Italic font denotes result derived by calculation based on another analysis.

Table 4
IHSS Group 700-5 Surface Soil Summary Statistics

Analyte	No. of Samples Analyzed	Detection Frequency	Average Concentration	Maximum Concentration	Background Mean Plus 2SD	WRW AL	Unit
Acetone	5	20.00%	99.000	99.000	NA	102000000.0	ug/kg
Aluminum	7	57.14%	19000.000	21000.000	16902.000	228000.0	mg/kg
Americium-241	7	28.57%	0.356	0.450	0.023	76.0	pCi/g
Aroclor-1254	5	100.00%	355.000	1300.000	NA	12400.0	ug/kg
Barium	7	85.71%	166.667	200.000	141.260	26400.0	mg/kg
Cadmium	7	42.86%	4.933	5.900	1.612	962.0	mg/kg
Chromium	7	71.43%	28.800	57.000	16.990	268.0	mg/kg
Copper	7	28.57%	22.000	23.000	18.060	40900.0	mg/kg
Lithium	7	85.71%	14.833	17.000	11.550	20400.0	mg/kg
Manganese	7	14.29%	450.000	450.000	365.080	3480.0	mg/kg
Nickel	7	85.71%	21.333	36.000	14.910	20400.0	mg/kg
Plutonium-239/240	7	42.86%	1.400	2.565	0.066	50.0	pCi/g
Strontium	7	71.43%	64.400	89.000	48.940	613000.0	mg/kg
Toluene	5	20.00%	2.100	2.100	NA	31300000.0	ug/kg
Uranium-234	7	28.57%	4.198	5.003	2.253	300.0	pCi/g
Uranium-235	7	57.14%	0.211	0.256	0.094	8.0	pCi/g
Uranium-238	7	28.57%	4.198	5.003	2.000	351.0	pCi/g
Zinc	7	42.86%	660.000	1600.000	73.760	307000.0	mg/kg

Table 5
IHSS Group 700-5 Subsurface Soil Summary Statistics

Analyte	No. of Samples Analyzed	Detection Frequency	Average Concentration	Maximum Concentration	Background Mean Plus 2SD	WRW AL	Unit
Americium-241	3	33.33%	0.248	0.248	0.020	76.0	pCi/g
Aroclor-1254	3	66.67%	360.000	440.000	NA	12400.0	ug/kg
Cadmium	3	66.67%	6.800	9.600	1.700	962.0	mg/kg
Plutonium-239/240	3	33.33%	1.413	1.413	0.020	50.0	pCi/g
Uranium-234	3	33.33%	4.645	4.645	2.640	300.0	pCi/g
Uranium-235	3	33.33%	0.305	0.305	0.120	8.0	pCi/g
Uranium-238	3	33.33%	4.645	4.645	1.490	351.0	pCi/g
Zinc	3	33.33%	160.000	160.000	139.100	307000.0	mg/kg

2.3 Sum of Ratios

RFCA sums of ratios (SORs) were calculated for the IHSS Group 700-5 sampling locations based on the accelerated action analytical data for the contaminants of concern (COCs). Radionuclide SOR calculations included americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238 when analyses were greater than background means plus 2 SDs. Plutonium-239/240 activities were derived from americium-241 activities (that is, plutonium-239/240 activity = americium-241 gamma spectroscopy activity x 5.7) where HPGe detection was used for analysis. Table 6 presents the radionuclide SORs. All SORs for radionuclides in surface (0-3 feet) soil were less than 1.

Table 6
RFCA Radionuclide Soil SORs

Location	Start Depth (ft)	End Depth (ft)	SOR to WRW
CF49-021	0	0.5	0.065
CF49-022	0	0.5	0.023
CG49-008	0	0.5	0.063
CG49-010	0	0.5	0.052
CG49-010	0.5	2.5	0.067
CG49-011	0	0.5	0.033
CG49-013	0	0.5	0.028
CG49-013	0.5	2.5	0.015

Surface soil SORs for non-radionuclide COCs are shown in Table 7. Non-radionuclide SORs were calculated for all locations with analytical results greater than 10 percent of the WRW ALs. Aluminum, arsenic, iron, manganese, and polyaromatic hydrocarbons were not included in the non-radionuclide SORs. All non-radionuclide SORs for surface soil were less than 1.

Table 7
RFCA Non-Radionuclide Surface Soil SORs

Location	Start Depth (ft)	End Depth (ft)	SOR to WRW
CF49-021	0	0.5	0.108
CG49-013	0	0.5	0.318

3.0 RCRA UNIT CLOSURE

Building 770 did not contain any Resource Conservation and Recovery Act (RCRA) permitted unit, and therefore, no RCRA unit closure is required.

16

4.0 SUBSURFACE SOIL RISK SCREEN

The Subsurface Soil Risk Screen (SSRS) follows the steps identified on Figure 3 in Attachment 5 of the RFCA (DOE et al. 2003):

Screen 1 – Are the COC concentrations below RFCA Table 3 WRW soil ALs?

Yes. As shown in Table 3 (this document), COC concentrations are below WRW ALs.

Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of RFCA)?

No. IHSS Group 700-5 is not located in an area susceptible to landslides or high erosion based on RFCA Attachment 5, Figure 1 (DOE et al. 2003).

Screen 3 – Does subsurface soil radionuclide contamination exceed criteria in RFCA Section 5.3 and Attachment 14?

No. As shown in Table 3, radionuclide concentrations are below soil WRW ALs.

Screen 4 - Is there an environmental pathway and sufficient quantity of COCs that would cause an exceedance of surface water standards?

No. Contaminant migration via erosion and groundwater are two possible pathways whereby surface water could become contaminated from IHSS Group 700-5 soil. As stated in Screen 2 above, IHSS Group 700-5 is not located in an area likely to be eroded. Run-off from IHSS Group 700-5 is conveyed via storm drains and the ditch along the Protected Area Perimeter Road into North Walnut Creek through Gauging Station SW120 (DOE 2003b).

The nearest RFCA Surface Water Point of Evaluation (POE) is SW093, which is located in North Walnut Creek and receives runoff from a large part of the IA, including IHSS Group 700-5 (DOE 2003b). Monitoring results indicate that plutonium and americium loadings at SW093 have increased recently, apparently related to increased erosion occurring within the upstream project areas (personal communication, Robert Nininger to Gerard Kelly, July 17, 2004). The increased total suspended solids in the surface waters have resulted in reportable concentrations of actinides at SW093 (June 15, 2004, presentation to RFCA Coordinators, updated with available data on June 29, 2004). However, the concentrations of radionuclides observed within IHSS Group 700-5 and the limited surface area that would be potentially exposed due to erosion limit the potential for this IHSS Group to contribute significantly to the load in the drainage.

The groundwater monitoring wells in the vicinity of IHSS Group 700-5 are Wells 20298, 20398, 20498 and P219189. Data in SWD indicate that contaminant concentrations in these wells have not exceeded Tier I groundwater ALs since 1991. Wells 20298, 20498 and P219189 have historically had VOC concentrations greater than Tier II ALs. Well 20398 has had manganese and lead concentrations greater than Tier II ALs, and Well 20498 has had manganese concentrations greater than Tier II ALs. Well P219189 had

17

had uranium-234, uranium-235 and uranium-238 activities greater than Tier II ALs. Groundwater contamination at IHSS Group 700-5 may have multiple sources. Further groundwater evaluation will be conducted as part of the groundwater Interim Measure/Interim Remedial Action (IM/IRA) decision and future sitewide evaluation.

5.0 NO FURTHER ACCELERATED ACTION SUMMARY

Based on analytical results and the SSRS, action is not required, and an NFAA determination is justified for IHSS Group 700-5, UBC 770 because of the following:

- Contaminant concentrations were below WRW ALs.
- Migration of contaminants to surface water through erosion is unlikely because UBC 770 is not in an area prone to landslides or erosion.
- Migration of contaminants in groundwater will not likely impact surface water because of the low levels of soil contamination encountered in IHSS Group 700-5. The groundwater will be further evaluated in the groundwater IM/IRA.

Approval of this Data Summary Report constitutes regulatory agency concurrence that this IHSS Group is an NFAA Site. This information and the NFAA determination will be documented in the FY04 HRR. Ecological factors will be evaluated in the AAESE process and the CRA.

6.0 DATA QUALITY ASSESSMENT

All project data quality objectives (DQOs) were achieved based on the following:

- Regulatory agency-approved sampling program design (IASAP Addendum #IA-03-17 [DOE 2003a]);
- Collection of samples in accordance with the sampling design or concurrence by regulatory agencies with modifications to the sampling plan; and
- Results of the Data Quality Assessment (DQA), as described in the following sections.

6.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity, and quality of environmental data used in decision making are defensible, and is based on the following guidance and requirements:

- U.S. Environmental Protection Agency (EPA), 1994a, Guidance for the Data Quality Objective Process, QA/G-4;
- EPA, 1998, Guidance for the Data Quality Assessment Process, Practical Methods for Data Analysis, QA/G-9; and

- U.S. Department of Energy (DOE), 1999, Quality Assurance, Order 414.1A.

Verification and validation (V&V) of data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions; uncertainty within the decisions; and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA, 1994b, U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012;
- EPA, 1994c, U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013;
- Kaiser-Hill Company, L.L.C. (K-H) V&V Guidelines:
 - General Guidelines for Data Verification and Validation, DA-GR01-v2, 2002a
 - V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, 2002b
 - V&V Guidelines for Volatile Organics, DA-SS01-v3, 2002c
 - V&V Guidelines for Semivolatile Organics, DA-SS02-v3, 2002d
 - V&V Guidelines for Metals, DA-SS05-v3, 2002e; and
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Administrative Record for permanent storage 30 days after being provided to CDPHE and/or EPA.

6.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;

- Preservation and hold times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSDs);
- Laboratory control samples (LCSs);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (i.e., within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation “flags” or qualifiers to individual records.

Raw, hard-copy data (for example, individual analytical data packages) are currently filed by report identification number and maintained by K-H Analytical Services Division; older hard copies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil Water Database.

Both real and QC IHSS Group 700-5 data are included on the enclosed CD in Microsoft Access 2000 format.

6.2.1 Accuracy

The following measures of accuracy were evaluated:

- LCSs;
- Surrogates;
- Field blanks; and
- Sample MSs.

Results are compared to method requirements and project goals. The results of these comparisons are summarized for RFCA COCs where the results could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

Laboratory Control Sample Evaluation

The frequency of LCS measurements is presented in Table 8. As indicated in Table 8 LCS analyses were run for all methods except for gamma spectroscopy. The onsite laboratories are not required to provide this data.

**Table 8
LCS Summary**

Test Method	Lab Batch	Laboratory Control Sample
Alpha spectroscopy	4156483	Yes
Alpha spectroscopy	4156492	Yes
Alpha spectroscopy	4156496	Yes
SW-846 6010	4154547	Yes
SW-846 6010	4155259	Yes
SW-846 6010	4160433	Yes
SW-846 6010	4160434	Yes
SW-846 6010	4162315	Yes
SW-846 6010	4162318	Yes
SW-846 8082	4155346	Yes
SW-846 8082	4156454	Yes
SW-846 8082	4156455	Yes
SW-846 8260	4156380	Yes
SW-846 8260	MS1 VOA_040527A	Yes
SW-846 8260	MS2 VOA_040602A	Yes
SW-846 8260	MS3 VOA_040527A	Yes

Minimum and maximum LCS results are tabulated by chemical for the entire project in Table 9. LCS results that were outside of tolerances were reviewed to determine whether a potential bias might be indicated. LCS recoveries are not indicative of matrix effects because they are not prepared using Site samples. LCS results do indicate whether the laboratory may be introducing a bias in the results. Recoveries reported above the upper limit may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed.

**Table 9
LCS Evaluation Summary**

Test Method	CAS	Analyte	Minimum Result	Maximum Result	Unit
SW-846 6010	7429-90-5	Aluminum	99	103	%REC
SW-846 6010	7440-36-0	Antimony	89	94	%REC
SW-846 6010	7440-38-2	Arsenic	89	93	%REC
SW-846 6010	7440-39-3	Barium	98	101	%REC
SW-846 6010	7440-41-7	Beryllium	100	103	%REC
SW-846 6010	7440-43-9	Cadmium	86	94	%REC

Test Method	CAS	Analyte	Minimum Result	Maximum Result	Unit
SW-846 6010	7440-47-3	Chromium	93	98	%REC
SW-846 6010	7440-48-4	Cobalt	90	95	%REC
SW-846 6010	7440-50-8	Copper	92	99	%REC
SW-846 6010	7439-89-6	Iron	100	102	%REC
SW-846 6010	7439-92-1	Lead	91	95	%REC
SW-846 6010	7439-93-2	Lithium	95	95	%REC
SW-846 6010	7439-96-5	Manganese	91	98	%REC
SW-846 6010	7439-97-6	Mercury	98	104	%REC
SW-846 6010	7439-98-7	Molybdenum	91	96	%REC
SW-846 6010	7440-02-0	Nickel	92	96	%REC
SW-846 6010	7782-49-2	Selenium	90	91	%REC
SW-846 6010	7440-22-4	Silver	94	100	%REC
SW-846 6010	7440-24-6	Strontium	97	99	%REC
SW-846 6010	7440-31-5	Tin	84	90	%REC
SW-846 6010	11-09-6	Uranium, Total	99	100	%REC
SW-846 6010	7440-62-2	Vanadium	94	98	%REC
SW-846 6010	7440-66-6	Zinc	94	96	%REC
SW-846 8082	11096-82-5	Aroclor-1260	89	111	%REC
SW-846 8082	12674-11-2	Aroclor-1016	83	95	%REC
SW-846 8260	71-55-6	1,1,1-Trichloroethane	90.29	94.18	%REC
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	74.37	97.16	%REC
SW-846 8260	79-00-5	1,1,2-Trichloroethane	86.19	97.03	%REC
SW-846 8260	75-34-3	1,1-Dichloroethane	92.42	116.4	%REC
SW-846 8260	75-35-4	1,1-Dichloroethene	94.98	121	%REC
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	86	100.3	%REC
SW-846 8260	95-50-1	1,2-Dichlorobenzene	88	98.12	%REC
SW-846 8260	107-06-2	1,2-Dichloroethane	94.57	98.81	%REC
SW-846 8260	78-87-5	1,2-Dichloropropane	95.29	98.37	%REC
SW-846 8260	106-46-7	1,4-Dichlorobenzene	87	96.32	%REC
SW-846 8260	78-93-3	2-Butanone	82	128	%REC
SW-846 8260	108-10-1	4-Methyl-2-pentanone	78	120.6	%REC
SW-846 8260	67-64-1	Acetone	69	136.2	%REC
SW-846 8260	71-43-2	Benzene	94	100	%REC
SW-846 8260	75-27-4	Bromodichloromethane	92.89	96.79	%REC
SW-846 8260	75-25-2	Bromoform	82.69	96.17	%REC
SW-846 8260	74-83-9	Bromomethane	78.39	100	%REC
SW-846 8260	75-15-0	Carbon Disulfide	74	135.1	%REC
SW-846 8260	56-23-5	Carbon Tetrachloride	88.57	97.3	%REC
SW-846 8260	108-90-7	Chlorobenzene	89.24	96.56	%REC
SW-846 8260	75-00-3	Chloroethane	93.46	115.6	%REC
SW-846 8260	67-66-3	Chloroform	92.73	105.4	%REC
SW-846 8260	74-87-3	Chloromethane	93	119.3	%REC
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	93.91	100.2	%REC
SW-846 8260	124-48-1	Dibromochloromethane	84.65	98.02	%REC

Test Method	CAS	Analyte	Minimum Result	Maximum Result	Unit
SW-846 8260	100-41-4	Ethylbenzene	87.46	100.3	%REC
SW-846 8260	87-68-3	Hexachlorobutadiene	83	99.74	%REC
SW-846 8260	75-09-2	Methylene chloride	94.22	135.9	%REC
SW-846 8260	91-20-3	Naphthalene	79	98.85	%REC
SW-846 8260	100-42-5	Styrene	90	106.5	%REC
SW-846 8260	127-18-4	Tetrachloroethene	80.72	96.94	%REC
SW-846 8260	108-88-3	Toluene	84.3	97.3	%REC
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	89	104.2	%REC
SW-846 8260	79-01-6	Trichloroethene	93.63	99.58	%REC
SW-846 8260	75-01-4	Vinyl chloride	97.47	117.2	%REC
SW-846 8260	1330-20-7	Xylene	88.5	107.2	%REC

Analytes with unacceptable low recoveries were evaluated in the following manner. If the maximum sample result divided by the lowest LCS recovery for that analyte is less than the WRW AL, no further action is taken because any indicated bias is not great enough to affect project decisions. All metal and organic LCS recoveries for IHSS Group 700-5 passed the criterion, and therefore, did not impact project decisions. Any qualifications of individual results because of LCS performance exceeding upper or lower tolerance limits are also captured in the V&V flags, described in Section 6.2.3.

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 10. The minimum and maximum surrogate results are tabulated, by chemical, for the entire project. Surrogates are added to every VOC sample, and, therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. Surrogate recoveries reported above 100 percent may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed. Therefore, only the lowest recoveries were evaluated. If the maximum sample result divided by the lowest surrogate recovery is less than the WRW AL for that analyte, no further action is taken because any indicated bias is not great enough to affect project decisions. All VOC analytes passed this criterion. Therefore, surrogate recoveries did not impact project decisions with respect to IHSS Group 700-5.

**Table 10
Surrogate Recovery Summary**

VOC Surrogate Recoveries				
Number of Samples	Analyte	Minimum Result	Maximum Result	Unit
8	4-Bromofluorobenzene	100	124.9	% REC
8	Deuterated 1,2-dichloroethane	92.9	108	% REC
8	Deuterated Toluene	100	118	% REC

23

Field Blank Evaluation

Results of the field blank analyses are provided in Table 11. Detectable (non-“U” laboratory qualified) amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. Evaluation consists of multiplying the field blank results by 10 (for laboratory contaminants) or by 5 (for non-laboratory contaminants) and comparing them to the WRW ALs. When the corrected field blank result is less than the WRW AL, the associated real results are considered acceptable. In the IHSS Group 700-5 data none of the field blank results multiplied by 10 exceeded their WRW ALs. Therefore, blank contamination did not adversely impact project decisions.

**Table 11
Field Blank Summary**

Laboratory	CAS No.	Analyte	Sample QC Code	Detected Result	Unit
URS	15117-96-1	Uranium-235	FB	0.155	pCi/g
URS	15117-96-1	Uranium-235	RNS	0.12	pCi/g
URS	7440-61-1	Uranium-238	FB	1.72	pCi/g
URS	7440-61-1	Uranium-238	RNS	1.79	pCi/g

Field blank (EB = equipment, field = FB, rinse = RNS, trip = TB) results greater than detection limits (not “U” qualified)

Sample Matrix Spike Evaluation

Table 12 provides a summary of the minimum and maximum MS results by chemical for the project. According to the EPA data validation guidelines (1994b), if organic MS recoveries are low, then the LCS recovery should be checked. If the recovery is acceptable, no action is taken. LCS recoveries for organic analyses with potentially low unacceptable MS recoveries were reviewed. For this project, these checks indicate no decisions were impacted for organic analytes with low MS recoveries (refer to previous section).

**Table 12
Sample MS Evaluation Summary**

Test Method	CAS	Analyte	Minimum Result	Maximum Result	Unit	Number of MS Samples	Number of Lab Batches
SW-846 8082	12674-11-2	Aroclor-1016	95	95	%REC	1	1
SW-846 8082	11096-82-5	Aroclor-1260	136	136	%REC	1	1

6.2.2 Precision

Precision is measured by evaluating both MSDs and field duplicates, as described in the following sections.

24

Matrix Spike Duplicate Evaluation

Laboratory precision is measured through the use of MSDs which are summarized in Table 13. Analytes with the highest relative percent differences (RPDs) (greater than 35 percent) were reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs greater than 35 percent, if the highest sample results were sufficiently below the ALs, no further action was needed. For this project, all RPDs were less than 35 percent, and therefore, project decisions were not impacted.

**Table 13
Sample MSD Evaluation**

Test Method	CAS	Analyte	Maximum RPD
SW-846 8082	12674-11-2	Aroclor-1016	5.405
SW-846 8082	11096-82-5	Aroclor-1260	2.182

Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Table 14 indicates that no duplicate samples were collected within IHSS Group 700-5. Therefore, sampling precision, including duplicate sample RPDs, could not be evaluated. However, a field duplicate was collected at Sampling Location CG49-016. This location was originally part of IHSS Group 700-5 but is now addressed as part of IHSS Group 700-11 (refer to Table 1).

**Table 14
Field Duplicate Sample Frequency Summary**

Test Method	Number of Real Samples	Number of Duplicate Samples	% Duplicate Samples
Alpha Spectroscopy	1	0	0.00%
Gamma Spectroscopy	10	0	0.00%
SW-846 6010	10	0	0.00%
SW-846 8082	8	0	0.00%
SW-846 8260	8	0	0.00%

6.2.3 Completeness

Based on original program DQOs, a minimum of 25 percent of ER Program analytical (and radiological) results must be formally verified and validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements. Table 15 presents the number and percentage of validated records (codes without "1"), the number and percentage of verified records (codes with "1"), and the percentage of rejected records

25

(none for the IHSS Group 700-5 project) for each analyte group. Because the frequency of validation is within project quality requirements and in compliance with the RFETS program validation goal of 25 percent of all analytical records and no records were rejected, the results indicate that these data are adequate.

**Table 15
V&V Summary**

Validation Qualifier Code	Total of CAS Numbers	Alpha Spectroscopy Results	Gamma Spectroscopy Results	SW-846 6010 Results	SW-846 8082 Results	SW-846 8260 Results
J	21	0	0	20	0	1
J1	48	0	0	48	0	0
UJ	5	0	0	1	0	4
UJ1	13	0	0	9	0	4
V	277	5	12	71	14	175
V1	281	0	18	81	42	140
Total	645	5	30	230	56	324
Validated	303	5	12	92	14	180
% Validated	46.98%	100.00%	40.00%	40.00%	25.00%	55.56%
Verified	342	0	18	138	42	144
% Verified	53.02%	0.00%	60.00%	60.00%	75.00%	44.44%

KEY: Validations: J = Estimated, JB = Estimated with possible laboratory contamination, R = Rejected, UJ = Estimated detection limit, V = Validated
 Verifications: J1 = Estimated, JB1 = Estimated with possible laboratory contamination, R1 = Rejected, UJ1 = Estimated detection limit, V1 = Validated

6.2.4 Sensitivity

RLs, in units of micrograms per kilogram ($\mu\text{g}/\text{kg}$) for organics, mg/kg for metals, and picocuries per gram (pCi/g) for radionuclides, were compared with RFCA ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project decisions. "Adequate" sensitivity is defined as an RL less than an analyte's associated AL, typically less than one-half the AL.

6.3 Summary of Data Quality

LCS, surrogate, MS and MSD recoveries and field blank analyses are acceptable. No records were rejected. Compliance with the project quality requirements and RFETS validation goal of 25 percent of all analytical records indicates these data are adequate. Data collected and used for IHSS Group 700-5 are adequate for decision making.

26

7.0 PROJECT CONCLUSIONS

Results of the accelerated action justify an NFAA determination for IHSS Group 700-5. This justification is based on the following:

- Accelerated action sampling results were less than the WRW ALs.
- No further accelerated action is required based on the SSRS.

8.0 REFERENCES

CDPHE, 2003, Approval of the Final Industrial Area Sampling and Analysis Plan FY03 Addendum #IA-03-17, IHSS Group 700-5, October 2003, Denver, Colorado, October 21.

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

DOE, 1992, Phase I RFI/RI Work Plan, Operable Unit 8, 700 Area, Rocky Flats Environmental Technology Site, Golden, Colorado, December.

DOE, 1995, Operable Unit 8 Data Summary Report, Rocky Mountain Remediation Services, Rocky Flats Environmental Technology Site, Golden, Colorado, September.

DOE, 1999, Quality Assurance, Order 414.1A.

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

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

DOE, 2003a, Final Industrial Area Sampling and Analysis Plan FY03 Addendum #IA-03-17, IHSS Group 700-5, Rocky Flats Environmental Technology Site, Golden, Colorado, October.

DOE, 2003b, Automated Surface-Water Monitoring Report, Water Year 2002, Rocky Flats Environmental Technology Site, Golden, Colorado, November.

DOE, CDPHE, and EPA, 2003, Modifications to the Rocky Flats Cleanup Agreement Attachment, 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.

EPA, 1994a, Guidance for the Data Quality Objective Process, QA/G-4.

EPA, 1994b, U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012.

EPA, 1994c, U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013.

EPA, 1998, Guidance for the Data Quality Assessment Process, Practical Methods for Data Analysis, QA/G-9.

K-H, 2002a, General Guidelines for Data Verification and Validation, DA-GR01-v2, October.

K-H, 2002b, V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, October.

K-H, 2002c, V&V Guidelines for Volatile Organics, DA-SS01-v3, October.

K-H, 2002d, V&V Guidelines for Semivolatile Organics, DA-SS02-v3, October.

K-H, 2002e, V&V Guidelines for Metals, DA-SS05-v3, October.

Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

28

APPENDIX A
CORRESPONDENCE

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE ER REGULATORY CONTACT RECORD

Date/Time: March 23, 2004/ 9:00 a.m.

Site Contact(s): Greg Pudlik and Gerry Kelly
Phone: 303-966-7698 or x4979

Regulatory Contact: Harlen Ainscough
Phone: 303-692-3337

Agency: CDPHE

Purpose of Contact: Agreement of proposed SAP Addendum sampling locations in drainage to Bowman's Pond (IHSS Group 700-11, #IA-04-10)

Discussion

Met with Mr. Harlen Ainscough at Bowman's Pond to discuss the proposed sampling locations in the drainage leading into the pond. During the field check it was agreed by all parties to sample three locations in the drainage. These locations were originally proposed and approved in the SAP Addendum for 700-5 (UBC770); however, the data results will be included in the Closeout Report for 700-11 as well.

The first location (CG49-012) targets runoff from B770 in an open concrete channel near the downspout on the southeast corner of the building. The second sample targets the influent to the east-west trending culvert that leads to the pond. This sample (CG49-015) is also located directly downgradient of a north-south trending storm drain leading away from B774. The third location (CG49-016) is located in the upstream cattail area of the pond and directly downgradient of a second storm drain from the B774 area. This third location is also near the location of the highest recorded PCB detections in the area; therefore, this sample will include analysis for dioxins.

Mr. Ainscough was informed that the 700-11 SAP Addendum would have the agreed upon locations incorporated into the document along with previously discussed and resolved comments from the March 4, 2004 Comment Resolution Meeting at the Mountain View office.

Contact Record Prepared By: Greg Pudlik

Required Distribution

S. Bell, RFFO	M. Keating, K-H RISS	A. Primrose, K-H RISS
J. Berardini, K-H	G. Kleeman, USEPA	T. Rehder, USEPA
L. Brooks, K-H ESS	D. Kruchek, CDPHE	S. Serreze, RISS
M. Broussard, K-H RISS	D. Mayo, K-H RISS	D. Shelton, K-H
L. Butler, K-H RISS	R. McCalister, DOE	C. Spreng, CDPHE
G. Carnival, K-H RISS	J. Mead, K-H ESS	S. Surovchak, RFFO
N. Castaneda, RFFO	S. Nesta, K-H RISS	K. Wiemelt, K-H RISS
C. Deck, K-H Legal	L. Norland, K-H RISS	C. Zahm, K-H
R. DiSalvo, RFFO	K. North, K-H ESS	
S. Gunderson, CDPHE	E. Pottorff, CDPHE	

ENCLOSURE

Complete Data Set Compact Disc

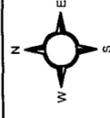
Accelerated Action Data

31/21

Figure 1
IHSS Group 700-5
Location

KEY

-  IHSS Group 700-5
-  Demolished building
-  Standing building
-  Paved road



Scale = 1:4,000

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

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

Prepared by:



Prepared for:



File: w:\projects\2003\700-5\700.5.apr

Date: 07/14/04

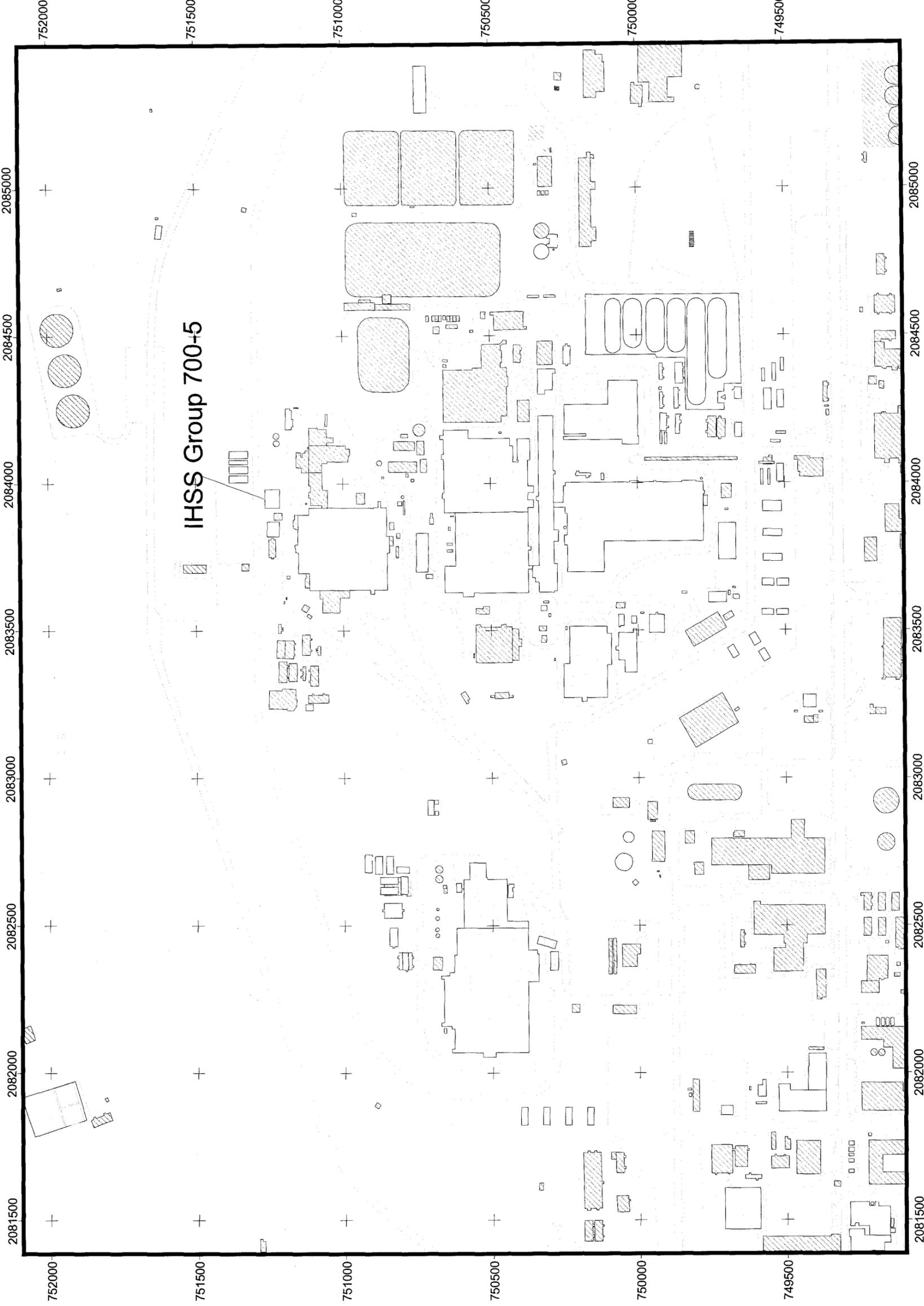
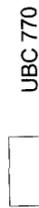


Figure 2
IHSS Group 700-5
Existing Soil Sampling Results
Greater Than Background Means
Plus 2 Standard Deviations or
Method Detection Limits

KEY

- Less than WRW ALs and greater than background or MDLs
- Less than background or MDLs



UBC 770



IHSS



PAC



Building



OPWL



Foundation drain



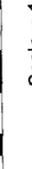
Storm sewer



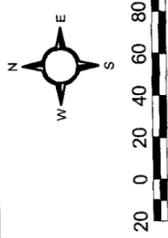
Stream



Fence



Paved road



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:



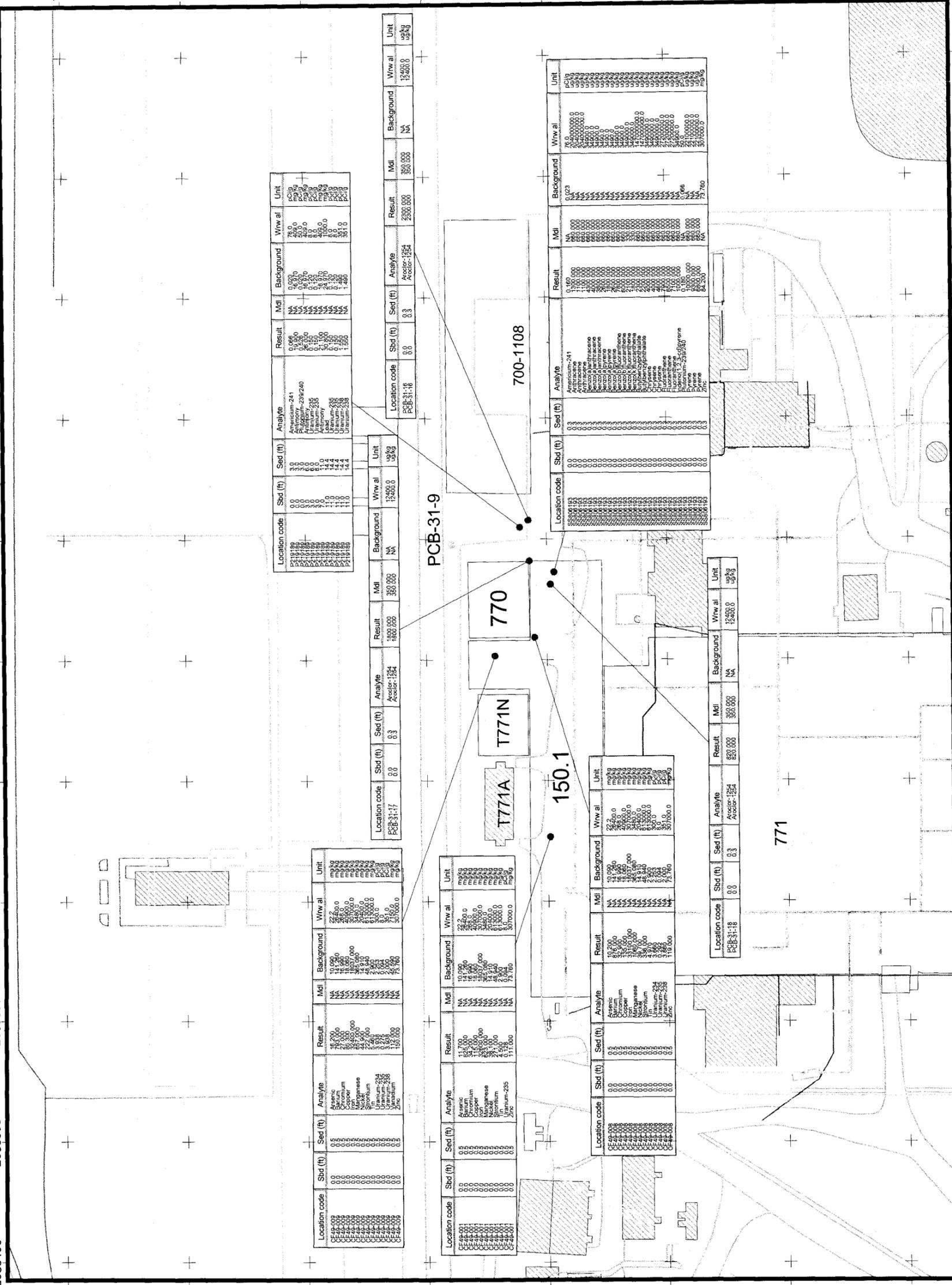
Prepared for:



File: w:\projects\2003\700-5\700-5.apr Date: 07/19/04

2083400 2083500 2083600 2083700 2083800 2083900 2084000 2084100 2084200 2084300 2084400

751600 751500 751400 751300 751200 751100 751000 750900

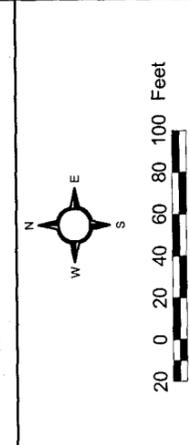
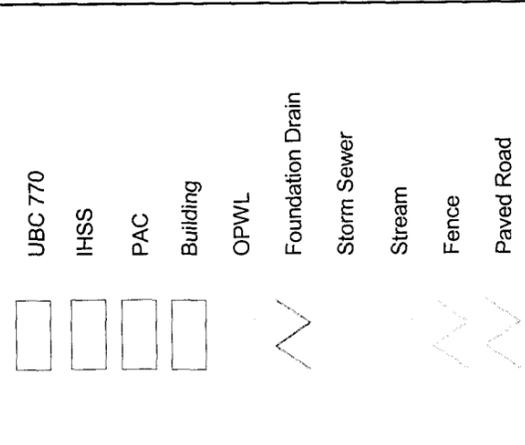


Location code	Sbd (ft)	Sed (ft)	Analyte	Result	Mdl	Background	Wrw al	Unit
P219189	0.0	0.0	Americium-241	0.066	NA	0.020	76.0	pCi/g
P219190	0.0	0.0	Plutonium-239/240	0.250	NA	0.020	50.0	pCi/g
P219191	0.0	0.0	Plutonium-239/240	0.570	NA	0.020	80.0	pCi/g
P219192	0.0	0.0	Plutonium-239/240	0.120	NA	0.020	40.0	pCi/g
P219193	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219194	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219195	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219196	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219197	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219198	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219199	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219200	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219201	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219202	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219203	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219204	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219205	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219206	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219207	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219208	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219209	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219210	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219211	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219212	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219213	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219214	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219215	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219216	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219217	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219218	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219219	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219220	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219221	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219222	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219223	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219224	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219225	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219226	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219227	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219228	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219229	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219230	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219231	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219232	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219233	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219234	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219235	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219236	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219237	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219238	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219239	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219240	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219241	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219242	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219243	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219244	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219245	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219246	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219247	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219248	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219249	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219250	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219251	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219252	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219253	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219254	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219255	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219256	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219257	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219258	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219259	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219260	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219261	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219262	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219263	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219264	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219265	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219266	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219267	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219268	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219269	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219270	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219271	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219272	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219273	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219274	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219275	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219276	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219277	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219278	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219279	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219280	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219281	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219282	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219283	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219284	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219285	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219286	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219287	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219288	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219289	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219290	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219291	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219292	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219293	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219294	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219295	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219296	0.0	0.0	Uranium-235	0.110	NA	0.020	40.0	mg/kg
P219297	0.0	0.0	Uranium-235</					

Figure 3
IHSS Group 700-5
Accelerated Action Sampling
Locations and Results

KEY

- Subsurface soil location with concentrations less than WRW ALs and greater than background means plus 2 standard deviations or reporting limits

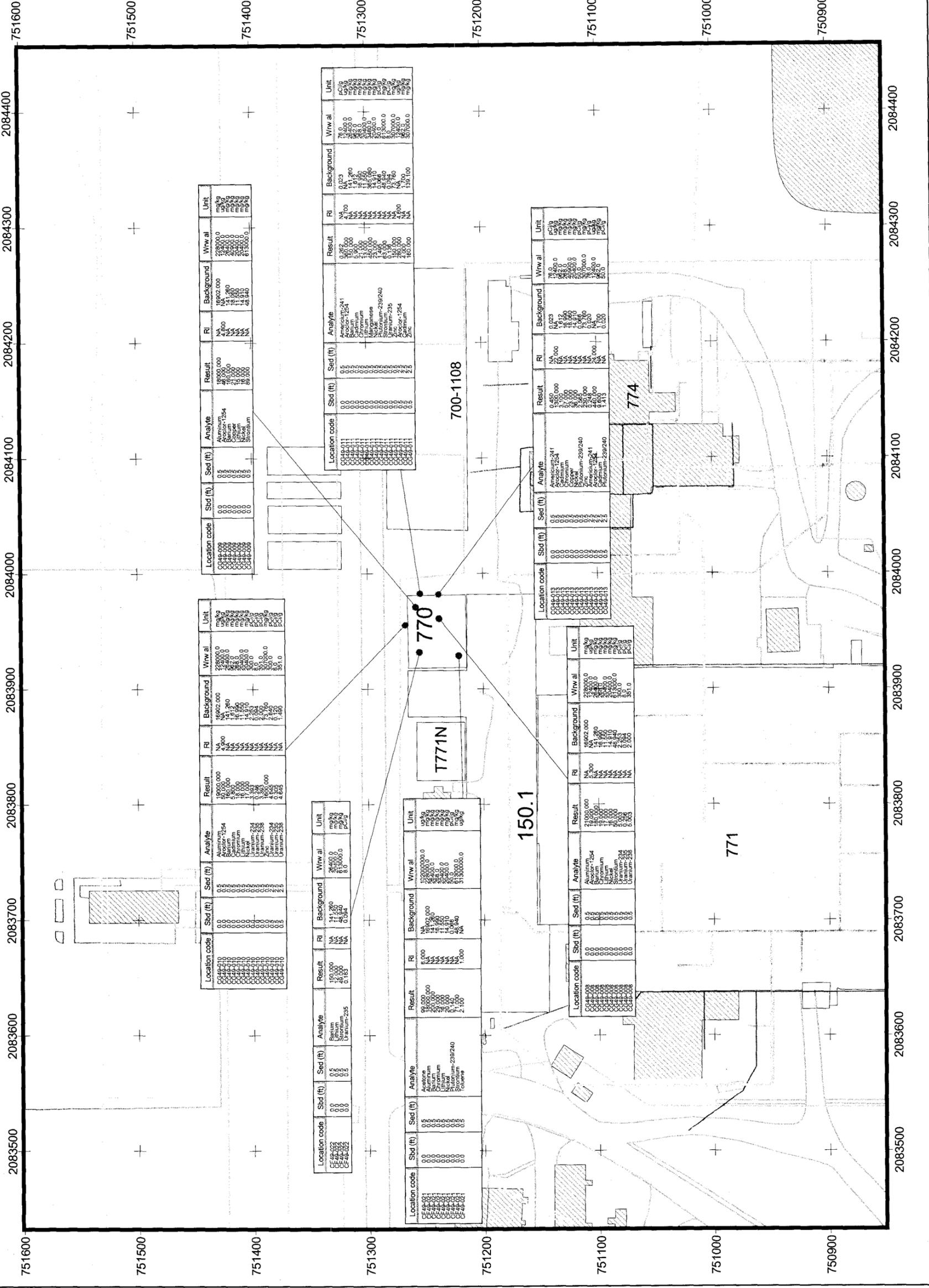


Scale = 1:1000
 State Plane Coordinate Projection
 Colorado Central Zone
 Datum: NAD 27

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



Prepared by:
 Prepared for:
 File: w:\projects\2003\700-5\700-5.apr
 Date: 07/20/04



Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-008	0.0	0.0	Aluminum-254	18000.000	N/A	18002.000	229000.0	mg/kg
CG48-009	0.0	0.0	Barium	1600.000	N/A	141.280	26400.0	mg/kg
CG48-010	0.0	0.0	Benium	1600.000	N/A	11.280	20400.0	mg/kg
CG48-011	0.0	0.0	Lithium	1600.000	N/A	11.280	20400.0	mg/kg
CG48-012	0.0	0.0	Strontium	85.000	N/A	48.840	613000.0	mg/kg

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-010	0.0	0.0	Aluminum-254	19000.000	N/A	19002.000	229000.0	mg/kg
CG48-011	0.0	0.0	Barium	1600.000	N/A	141.280	26400.0	mg/kg
CG48-012	0.0	0.0	Benium	1600.000	N/A	11.280	20400.0	mg/kg
CG48-013	0.0	0.0	Lithium	1600.000	N/A	11.280	20400.0	mg/kg
CG48-014	0.0	0.0	Strontium	85.000	N/A	48.840	613000.0	mg/kg
CG48-015	0.0	0.0	Uranium-235	3.360	N/A	2.976	307000.0	ppm
CG48-016	0.0	0.0	Uranium-238	4.825	N/A	4.280	440000.0	ppm
CG48-017	0.0	0.0	Uranium-235	3.360	N/A	2.976	307000.0	ppm
CG48-018	0.0	0.0	Uranium-238	4.825	N/A	4.280	440000.0	ppm

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-021	0.0	0.0	Acetone	99.000	N/A	171.280	26400.0	mg/kg
CG48-022	0.0	0.0	Aluminum	20000.000	N/A	141.280	26400.0	mg/kg
CG48-023	0.0	0.0	Chromium	10.000	N/A	11.280	20400.0	mg/kg
CG48-024	0.0	0.0	Nickel	20.000	N/A	14.128	26400.0	mg/kg
CG48-025	0.0	0.0	Nickel-239/240	2.000	N/A	0.148	1500.0	mg/kg
CG48-026	0.0	0.0	Toluene	2.000	N/A	0.148	1500.0	mg/kg

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-013	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-014	0.0	0.0	Barium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-015	0.0	0.0	Benium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-016	0.0	0.0	Chromium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-017	0.0	0.0	Copper	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-018	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-019	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-020	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-013	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-014	0.0	0.0	Barium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-015	0.0	0.0	Benium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-016	0.0	0.0	Chromium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-017	0.0	0.0	Copper	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-018	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-019	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-020	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-011	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-012	0.0	0.0	Barium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-013	0.0	0.0	Benium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-014	0.0	0.0	Chromium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-015	0.0	0.0	Copper	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-016	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-017	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-018	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-019	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-020	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg

Location code	Sbd (ft)	Sed (ft)	Analyte	Result	RI	Background	Wrw al	Unit
CG48-011	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-012	0.0	0.0	Barium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-013	0.0	0.0	Benium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-014	0.0	0.0	Chromium	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-015	0.0	0.0	Copper	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-016	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-017	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-018	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-019	0.0	0.0	Americium-241	0.000000	N/A	0.000000	0.000000	mg/kg
CG48-020	0.0	0.0	Plutonium-239/240	0.000000	N/A	0.000000	0.000000	mg/kg