

NOTICE

All drawings located at the end of the document.

**ENVIRONMENTAL RESTORATION
RFCA STANDARD OPERATING PROTOCOL
FOR ROUTINE SOIL REMEDIATION
FY2002
NOTIFICATION #02-02**



March 2002

**ADMIN RECORD
SW-A-004484**

**ENVIRONMENTAL RESTORATION
RFCA STANDARD OPERATING PROTOCOL
FOR ROUTINE SOIL REMEDIATION
FY2002
NOTIFICATION #02-02**

Approval received from the Colorado Department of Public Health and Environment
March 13, 2002

Approval letter contained in the Administrative Record

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ACRONYMS

AL	action level
BMP	best management practice
cy	cubic yard
D&D	Decontamination and Decommissioning
EDDIE	Environmental Data Dynamic Information Exchange
EPA	U S Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RSOP for Routine Soil Remediation
FY	Fiscal Year
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
MCL	maximum contaminant level
NPWL	New Process Waste Lines
OPWL	Original Process Waste Lines
PAC	Potential Area of Concern
pCi/g	picocuries per gram
PCOC	potential contaminant of concern
POC	Point of Compliance
POE	Point of Evaluation
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RSOP	RFCA Standard Operating Protocol
SVOC	semivolatile organic compound
UBC	Under Building Contamination
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
VOC	volatile organic compound

1.0 INTRODUCTION

This Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) (DOE 2002) Fiscal Year (FY)02 Notification #02-02 includes the notification to remediate Individual Hazardous Substance Sites (IHSSs), Potential Areas of Concern (PACs), and Under Building Contamination (UBC) Sites at the Rocky Flats Environmental Technology Site (RFETS) Industrial Area (IA) during FY02

This FY02 Notification includes the proposed remediation sites listed in Table 1. The locations of these sites are shown on Figure 1.

**Table 1
FY02 Potential Remediation Areas**

IHSS Group	IHSS/PAC/UBC Site	POCs	Media	Quantity
400-10	400-807 – Sandblasting Area	Aluminum	Surface Soil	<1 cubic yard (cy)
	600 - 120 2 – Fiberglass Area West of Building 664	Metals Radionuclides	Surface and Subsurface Soil	<1 cy <1 cy
		VOCs	Subsurface Soil	<1 cy
	600 - 161 – Radioactive Site West of Building 664	Metals Radionuclides	Surface and Subsurface Soil	<1 cy
VOCs		Subsurface Soil	<1 cy	
800-6	UBC 889 – Decontamination and Waste Reduction	Metals Radionuclides SVOCs VOCs	Surface and Subsurface Soil	<1 cy
		VOCs	Subsurface Soil	<1 cy
	800-164 3 – Radioactive Site 800 Area Site #2 Building 889 Storage Pad	Metals Radionuclides SVOCs	Surface and Subsurface Soil	<1 cy
		VOCs	Subsurface Soil	<1 cy
	000-121 - Tank 28 – Two 1,000-Gallon Concrete Sumps	Metals Radionuclides SVOCs VOCs	Subsurface Soil	Two 1,000 Gallon tanks
	000-121 - Tank 40 – Two 400-Gallon Underground Concrete Tanks	Metals Radionuclides SVOCs VOCs	Subsurface Soil	1,333 cy
	Tank/Sump beneath eastern portion of B889 slab	Metals Radionuclides SVOCs VOCs	Subsurface Soil	Tank/Sump
Original Process Waste Lines (OPWL) and New Process Waste Lines (NPWL)+	Radionuclides	Pipeline and Soil	448 linear feet (OPWL) 635 linear feet (NPWL)	

2.0 IHSS GROUP 400-10

IHSS Group 400-10 includes PAC 400-807 Sandblasting Area, IHSS 600-120 2 – Fiberglass Area West of Building 664, and IHSS 600-161 – Radioactive Site West of Building 664. A map of IHSS Group 400-10 is shown in Figure 2.

2.1 Potential Contaminants of Concern

Potential contaminants of concern (PCOCs) at this location, listed in Table 1, are based on existing analytical data (DOE 2000a) and process knowledge. PCOCs may change based on characterization sampling data.

2.2 Project Conditions and Assumptions

The following conditions are present at this site:

- Several surface water drainages are within or very close to IHSS Group 400-10, and
- The new section of Building 440 is directly west of IHSS Group 400-10.

2.3 Remediation Plan

The remediation plan for IHSS Group 400-10 consists of remediating surface and subsurface soil contamination to below RFCA Tier I Action Levels (ALs) if areas with contaminant concentrations greater than RFCA Tier I ALs are found during characterization. Confirmation samples will be collected in accordance with the Industrial Area Sampling and Analysis Plan (IASAP) (DOE 2001a).

Existing data indicate that all contaminant concentrations are below RFCA Tier I ALs. Beryllium and arsenic were detected in concentrations slightly greater than RFCA Tier II ALs in surface soil. Vinyl chloride and methylene chloride were detected in concentrations slightly greater than Tier II ALs in subsurface soil.

Because current data indicate there are no RFCA Tier I exceedances, it is anticipated that after characterization and remediation to below RFCA Tier I ALs, there will be very few areas with concentrations above RFCA Tier II ALs.

2.4 Stewardship Analysis

This stewardship analysis is based on existing data as of October 1, 2001.

2.4.1 Proximity to Other Contaminant Sources

IHSS Group 400-10 is in the RFETS IA. Nearby potential contaminant sources include IHSS Groups 400-1 (UBC 439), 400-3 (UBC 444), 400-6, 600-3, and 600-4. The location of these IHSS Groups is also shown on Figure 2.

**Table 2
Other Potential Contaminant Sources for IHSS Group 400-10**

IHSS Group	PCOCs	Media	Distance from IHSS Group 400-10
400-1 – UBC 439	Radionuclides	Surface Soil	Approximately 60 feet to the west
400-3 – UBC 444	Radionuclides Beryllium Metals SVOCs VOCs	Surface and Subsurface Soil	Approximately 100 feet to the west
400-6 – Radioactive Site South Area	Radionuclides Beryllium Metals SVOCs VOCs	Surface and Subsurface Soil	Surrounds parts of IHSS Group 400-10
600-3 – Fiberglass Area North of Building 664	Radionuclides SVOCs VOCs	Surface and Subsurface Soil	Approximately 55 feet to the east
600-4 – Radioactive Site Building 444 Parking Lot	Radionuclides Beryllium Metals SVOCs VOCs	Surface and Subsurface Soil	Approximately 100 feet to the east

Nearby IHSS Groups have PCOCs similar to, and in the same media as, IHSS Group 400-10 as shown in Table 2. It is anticipated that after remediation of these IHSS Groups, they will have residual contamination in subsurface soil similar to the residual contamination anticipated at IHSS Group 400-10.

2.4.2 Surface Water Protection

Surface water protection includes the following considerations:

Is there a pathway to surface water from potential erosion to streams or drainages?

There is a drainage east of PAC 400-807. Although the site is flat-lying, runoff from this site could reach this drainage, however, the drainage ends at Cottonwood Avenue and is isolated from other Site drainages. There is a drainage north of IHSS 400-161 and west of PAC 400-807. This drainage heads north, ends at Cottonwood Avenue, and is isolated from other Site drainages. There is a drainage at the southern end of IHSS 400-161. This drainage is cut off south of Building 664. Additionally, this IHSS Group is at the edge of the IA, close to the South Interceptor Ditch.

Do characterization data indicate there are contaminants in surface soil?

Process knowledge indicates that aluminum is in the surface soil of PAC 400-807. Existing analytical data indicate that beryllium and arsenic are present in the surface soil at this IHSS Group. Beryllium is present at concentrations greater than RFCA Tier II ALs at one surface soil location and at concentrations greater than RFCA Tier II ALs in the drainage north of IHSS 400-161. Arsenic is present at concentrations greater than RFCA Tier II ALs at two surface soil locations.

Do monitoring results from Points of Evaluation (POEs) or Points of Compliance (POCs) indicate that there are surface water impacts from the area under consideration?

Surface water station SW027 is the closest POE to IHSS Group 400-10. SW027 measures surface water from the 400 Area, 600 Area, and 800 Area. Analytical data (DOE 2001b) indicate that beryllium is present at concentrations up to 0.19 microgram per liter ($\mu\text{g/L}$) at SW027. However, because SW027 receives water from a variety of sources, it is difficult to attribute potential surface water impacts at this POE to this site. There are no POCs near IHSS Group 400-10.

Is the IHSS Group in an area with high erosion potential, based on the 100-Year Average Erosion Map?

Not applicable. The 100-Year Average Erosion Map does not include areas in the IA.

2.4.3 Monitoring

Monitoring includes the following considerations:

Do monitoring results from POEs or POCs indicate there are groundwater impacts from the area under consideration?

Well P419689 is the closest well to this IHSS Group, but is upgradient of the site. Well P416889 is the closest downgradient well and is southeast of the site. Both wells are within the composite IA volatile organic compound (VOC) plume (concentration equal to maximum contaminant levels [MCLs]). Data from Well P416889 indicate that all analytes are below reportable limits (DOE 2001c). There is no data from surrounding wells indicating groundwater was impacted from this site.

Can the impact be traced to a specific IHSS Group?

No. Contaminants in groundwater monitoring stations cannot be traced to this site.

Are additional monitoring stations needed?

No. There is no existing evidence that POCs from this site have impacted groundwater.

Can existing monitoring locations be deleted if additional remediation is conducted?

Not applicable.

2.4.4 Stewardship Recommendations

The stewardship actions and recommendations for IHSS Group 400-10 are as follows

- Use best management practices (BMPs) to control runoff to nearby surface water during remediation
- Implement near-term institutional controls until final closure and stewardship decisions are implemented, including the following
 - Signs and barriers,
 - Restrictions on soil excavation, and
 - Soil excavations controlled through the Site Soil Disturbance Permit process
- Implement long-term stewardship actions including the following
 - Federal ownership, and,
 - Land use restrictions to prevent soil excavation Specific land use restrictions will be discussed in the Site Long-Term Stewardship Plan

These recommendations may change based on characterization and in-process remediation activities and other future Site remedial activities

2.5 Interim Remediation Goals

ER RSOP remedial action objectives include the following

- 1 Provide a remedy consistent with the RFETS goal of protection of human health and the environment,
- 2 Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls, and
- 3 Minimize the spread of contaminants during implementation of accelerated actions

The accelerated action remediation goals for IHSS Group 400-10 include the following

- 1 Remediate surface and subsurface soil contamination to below RFCA Tier I ALs

2.6 Treatment

Not applicable

2.7 Project-Specific Monitoring

It is not anticipated that air sampling will be required at this site

2.8 Resource Conservation and Recovery Act Units (RCRA) and Intended Waste Disposition

Not applicable

2.9 Administrative Record Documents

DOE, 2000, Second Quarter RFCA Groundwater Monitoring Report for Calendar Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, November

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

DOE, 2001, Source Evaluation Report for Point of Evaluation SW027 Water Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, March

DOE, 2001, Fourth Quarter RFCA Groundwater Monitoring Report for Calendar Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, May

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, January

2.10 Projected Schedule

It is anticipated that remediation of this site will begin in March 2002

3.0 IHSS GROUP 800-6

IHSS Group 800-6 includes UBC 889 – Decontamination and Waste Reduction, IHSS 800 – 164 3 – Radioactive Site 800 Area Site #2 Building 889 Storage Pad, and IHSS 121 Original Process Waste Line (OPWL) Tanks 28 and 40. A map of IHSS Group 800-6 is shown in Figure 3. Figure 4 presents the locations of the OPWL and New Process Waste Lines (NPWL) associated with this IHSS Group. Tank 40, a RCRA Interim Status Unit is shown on Figure 5.

3.1 Potential Contaminants of Concern

PCOCs at this location, listed in Table 1, are based on existing analytical data (DOE 2000a) and process knowledge. PCOCs may change based on characterization sampling data. Radionuclides were detected at concentrations above background plus two standard deviations but below RFCA Tier II ALs in surface soil. No other PCOCs were detected in surface soil. Table 3 lists radionuclide data from IHSS Group 800-6 along with background values and RFCA ALs for comparison.

Table 3
Surface Soil Characterization Summary for IHSS Group 800-6

Analyte	Minimum Result (Detection Limit) (pCi/g)	Background Plus Two Standard Deviations (pCi/g)	Tier II AL (pCi/g)	Tier I AL (pCi/g)
Americium-241	0.36	0.0227	38	215
Plutonium-239/240	2.2	0.066	252	1,429
Uranium-233/234	3.9	2.253	307	1,738
Uranium-235	0.4	0.0939	24	135
Uranium-238	14	2	103	586

Radionuclides, VOCs, and semivolatile organic compounds (SVOCs) were detected at concentrations above background plus two standard deviations or method detection limits (organics) in subsurface soil as presented in Table 4.

Figure 5
IHSS Group 800-6 RCRA Tank 40

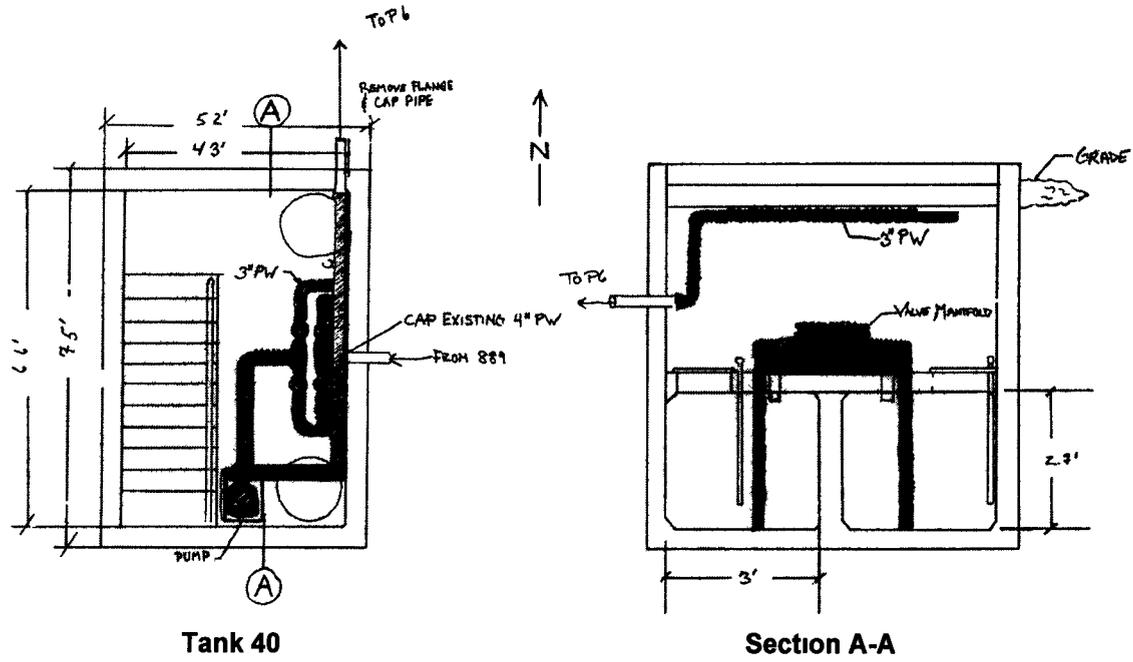


Table 4
Subsurface Soil Characterization Summary for IHSS Group 800-6

Analyte	Maximum Result (pCi/g)	Background Plus Two Standard Deviations (pCi/g)	Tier II AL (pCi/g)	Tier I AL (pCi/g)
Americium-241	0.46	0.0227	38	215
Plutonium-239/240	0.25	0.066	252	1,429
Uranium-234	5.12	2.253	307	1,738
Uranium-235	0.18	0.0939	24	135
Uranium-238	14	2	103	586
Analyte	Maximum Result (mg/kg)	Method Detection Limit (mg/kg)	Tier II AL (mg/kg)	Tier I AL (mg/kg)
Acetone	45	13	272,000	27,200,000
Benzo(b)fluoranthene	420	390	4,950	495,000
Fluoranthene	550	390	5,370,000	537,000,000
Pyrene	520	370	3,970,000	397,000,000
Toluene	320	5	7,070	707,000
Xylene	180	62	97,400	9,740,000

3.2 Project Conditions and Assumptions

The following conditions are present at this site

- The UBC 889 floor slab, which will be disposed of or recycled in accordance with the RSOP for Recycling Concrete (DOE 1999),
- Two concrete sumps (Tank 28),
- RCRA Interim Status Tank 40 (emptied, rinsed, and foamed [July, 1996]),
- A tank/sump located beneath the eastern portion of the B889 slab,
- Portions of OPWL P10 that are beneath the slab and within IHSS 800-164 3 (Figure 4),
- Portions of the NPWL and Valve Vaults 4 within IHSSs 800-164 3, and
- Underground utilities that may result in access problems

3.3 Remediation Plan

The remediation plan for IHSS Group 800-6 consists of remediating surface and subsurface soil contamination to below RFCA Tier I ALs if areas with contaminant

concentrations greater than RFCA Tier I ALs are found during characterization Existing data indicate that all contaminant concentrations are below RFCA Tier II ALs

OPWL will be removed and associated soil will be removed to below RFCA Tier I ALs (Figure 4) Tanks 40, 28, and the tank/sump beneath the eastern portion of the B889 slab if contaminated above RFCA Tier I ALs or if within 3 feet of the surface will be removed NPWL and Valve Vault 4 may be removed OPWL in IHSS Group 800-6 will be excavated as close as possible to Valve Vaults 5 and 6 (east of IHSS Group 800-6) and Valve Vault 3 (west of IHSS Group 800-6) The extent of this excavation will depend on access to the area, not contamination Additional remediation, if required, for Valve Vaults 3, 5, and 6 will be conducted when IHSS Group 000-2 is addressed Confirmation samples will be collected in accordance with the IASAP (DOE 2001a)

It is anticipated that after the OPWL, tanks, and associated soil are removed there will be areas with concentrations of metals, radionuclides, and organics greater than background plus two standard deviations or method detection limits, but below RFCA Tier II ALs at this site Additionally, it is anticipated that there will be very few areas with concentrations above RFCA Tier II ALs

3.4 Stewardship Analysis

This stewardship analysis is based on existing data as of October 1, 2001

3.4.1 Proximity to Other Contaminant Sources

IHSS Group 800-6 is in the RFETS IA Nearby potential contaminant sources are IHSS Groups 800-1 (UBC 865), 800-3 (UBC 883), 000-3 (Central Avenue Ditch Caustic Leak), and 000-2 (Radioactive Site 700 Area) These sites are listed in Table 5 and shown on Figure 3

Table 5
Other Potential Contaminant Sources for IHSS Group 800-6

IHSS Group	PGOCs	Media	Location
800-1 - UBC 865	Radionuclides Beryllium Metals SVOCs VOCs	Surface and Subsurface Soil	Approximately 90 feet to the east
800-3 - UBC 883	Radionuclides Beryllium Metals SVOCs VOCs	Surface and Subsurface Soil	Approximately 95 feet to the south
000-3 - Central Avenue Ditch Caustic Leak IHSS 000-190	Sodium Hydroxide	Surface Soil	Adjacent to the north
000-2 - Radioactive Site 700 Area IHSS 700-162	Radionuclides Metals SVOCs VOCs	Subsurface Soil	Approximately 90 feet to the east

Nearby IHSS Groups, except for IHSS Group 000-3, have PCOCs similar to, and in the same media as, IHSS Group 800-6. It is anticipated that after remediation of these IHSS Groups, they will have residual contamination in subsurface soil similar to the residual contamination anticipated at IHSS Group 800-6.

3.4.2 Surface Water Protection

Surface water protection includes the following considerations

Is there a pathway to surface water from potential erosion to streams or drainages?

This site is in a flat-lying area not prone to erosion. However, two drainage ditches on the eastern and western side of IHSS Group 800-6 drain into the Central Avenue Ditch, which flows west to east along the northern perimeter of IHSS 800-164 3.

Do characterization data indicate there are contaminants in surface soil?

Plutonium, americium, and uranium were detected above background in surface soil. However, no sample result concentrations were detected above RFCA ALs.

Do monitoring results from POEs or POCs indicate that there are surface water impacts from the area under consideration?

Surface water station SW022 is southeast of IHSS Group 800-6 and measures surface water from the 400 Area, 600 Area, and 800 Area. However, because SW022 receives water from a variety of sources, it is difficult to attribute potential surface water impacts at this POE to this site. There are no POCs near IHSS Group 800-6.

Is the IHSS Group in an area with high erosion potential, based on the 100-Year Average Erosion Map?

Not applicable. The 100-Year Average Erosion Map does not include areas in the IA.

3.4.3 Monitoring

Monitoring includes the following considerations

Do monitoring results from POEs or POCs indicate there are groundwater impacts from the area under consideration?

There are no POEs or POCs near IHSS Group 800-6.

Can the impact be traced to a specific IHSS Group?

Well 6186 (a plume extent monitoring well) is located on the western edge of IHSS Group 800-6, in IHSS 800-164 3. Antimony, strontium, uranium-233/234, uranium-238, thallium, and methylene chloride were detected at this well at concentrations greater than the RFCA groundwater Tier II ALs but well below the Tier I ALs (DOE 2001d). A groundwater sample was collected from a borehole on the northwestern corner of Tank 40. Results of the analysis of this sample indicated that manganese, nitrate, nitrite,

uranium-233/234, and uranium-238 concentrations were greater than the RFCA groundwater Tier II ALs (DOE 2001c) None of the analytes detected in groundwater from this borehole were detected in the subsurface soil from that location

Based on process knowledge, it is likely that groundwater exceedances are related to IHSS Group 800-6

Are additional monitoring stations needed?

Additional wells are not needed at this time

Can existing monitoring locations be deleted if additional remediation is conducted?

Not applicable

3.4.4 Stewardship Recommendations

The stewardship actions and recommendations for IHSS Group 800-6 include the following

- Use BMPs to control runoff to nearby surface water during remediation
- Implement near-term institutional controls until final closure and stewardship decisions are implemented, including the following
 - Signs and barriers,
 - Restrictions on soil excavation, and
 - Soil excavations controlled through the Site Soil Disturbance Permit process
- Implement long-term stewardship actions including the following
 - Federal ownership and,
 - Land use restrictions to prevent soil excavation Specific land use restrictions will be discussed in the Site Long-Term Stewardship Plan

These recommendations may change based on in-process remediation activities and other future Site remedial activities

3.5 Interim Remediation Goals

ER RSOP remedial action objectives include the following

- 1 Provide a remedy consistent with the RFETS goal of protection of human health and the environment,
- 2 Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls, and
- 3 Minimize the spread of contaminants during implementation of accelerated actions

The accelerated action remediation goals for IHSS Group 800-6 include the following

- 1 Remove the UBC 889 floor slab, which will be dispositioned in accordance with the RSOP for Recycling Concrete (DOE 1999),
- 2 Remove two concrete sumps (Tank 28),
- 3 Remove RCRA Interim Status Tank 40 (emptied, rinsed, and foamed [July 1996]) (Figures 4 and 5),
- 4 Remove the tank/sump beneath the eastern portion of the B889 slab if contaminated above RFCA Tier I ALs or if within 3 feet of the surface,
- 5 Remove portions of OPWL P10 that are beneath the slab and within IHSS 800-164 3 (Figure 4),
- 6 Potentially remove portions of NPWL and Valve Vault 4 within IHSS 800-164 3 to as close to Valve Vaults 3, 5, and 6 as possible, and
- 7 Remediate surface and subsurface soil contamination to below RFCA Tier I ALs

3.6 Treatment

Not applicable

3.7 Project-Specific Monitoring

High-volume air samplers may be used at the remediation area consistent with work controls to determine airborne radioactivity concentrations. Approximate locations of air samplers are shown on Figure 3.

3.8 RCRA Units and Intended Waste Disposition

Tank 40 is a RCRA Interim Status Unit. Additionally, portions of NPWL and two valve vaults (Figure 4) are within IHSS 800-164 3. Tank 40 was emptied, rinsed, and foamed in 1996. The U.S. Environmental Protection Agency (EPA) waste codes for wastes managed in this unit include D003, D004, D005, D009, D011, F001, F002, F003, and F005 (DOE 1995). Tank 40 will be excavated for disposal. NPWL and the valve vault may be excavated. It is anticipated that waste from these units will be classified as low level mixed waste.

3.9 Administrative Record Documents

DOE, 1995, Building 889 Process Waste System RCRA Closure Plan, Rocky Flats Environmental Technology Site, Golden, Colorado

DOE, 1996, Building 889 Process Waste System RCRA Closure Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, June

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, 2001, First Quarter RFCA Groundwater Monitoring Report for Calendar Year 2001, Rocky Flats Environmental Technology Site, Golden, Colorado, August

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, January

3.10 Projected Schedule

It is anticipated that remediation of this site will begin in March 2002

4.0 PUBLIC PARTICIPATION

ER RSOP Notification #02-02 activities were discussed at the February 2002 ER/Decontamination and Decommissioning (D&D) Status meeting. This Notification is available at the Rocky Flats Reading Rooms and on the Environmental Data Dynamic Information Exchange (EDDIE) website at www.rfets.gov

5.0 REFERENCES

DOE, 1995, Building 889 Process Waste System RCRA Closure Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, July

DOE, 1999, RFCA Standard Operating Protocol for Recycling Concrete, Rocky Flats Environmental Technology Site, Golden, Colorado, September

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

DOE, 2000b, Second Quarter RFCA Groundwater Monitoring Report for Calendar Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, November

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

DOE, 2001b, Source Evaluation Report for Point of Evaluation SW027 Water Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, March

DOE, 2001c, Fourth Quarter RFCA Groundwater Monitoring Report for Calendar Year 2000, Rocky Flats Environmental Technology Site, Golden, Colorado, May

DOE, 2001d, First Quarter RFCA Groundwater Monitoring Report for Calendar Year 2001, Rocky Flats Environmental Technology Site, Golden, Colorado, August

DOE, 2002, Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation, Rocky Flats Environmental Technology Site, Golden, Colorado, January

23/23

Post Available Copy

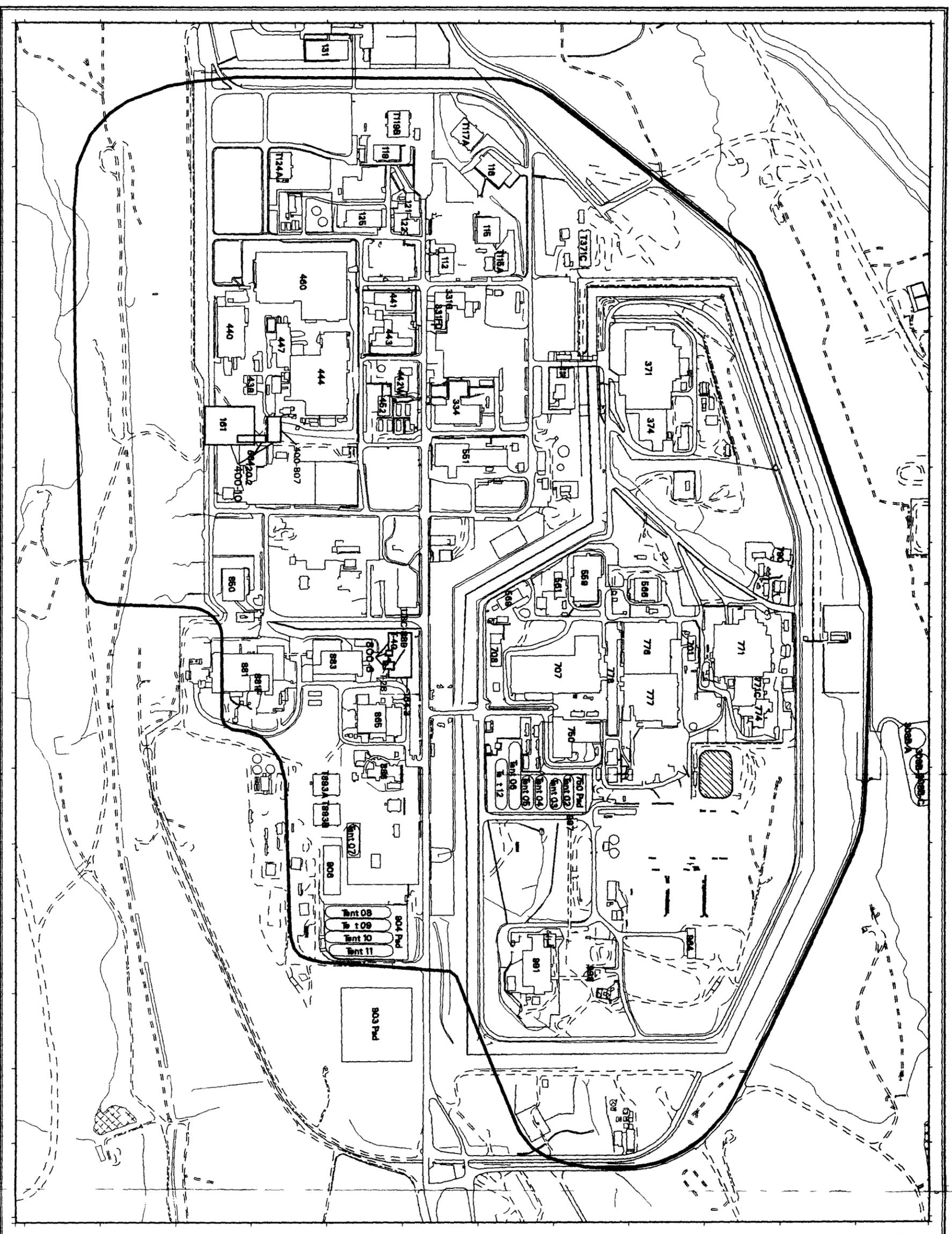


Figure 1
IA Group Location Map

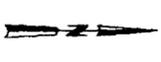
EXPLANATION

- 400 10
- 800 6

Standard Map Features

- Buildings and other structures
- ▨ Solar Evaporation Pond (SEPs)
- Lakes and pond
- Stream, ditches, or other drainage features
- - - Fences and other barriers
- Paved road
- - - Dirt roads
- N Industrial Area Operable Unit Boundary

DATE 02/03/95
PROJECT Rocky Flats Environmental Technology Site
MAP IA Group Location Map
SCALE 1 inch = 520 feet
DRAWN [Name]
CHECKED [Name]
APPROVED [Name]



Scale 1/6240
 1 inch represents 520 feet



State: Ft. Collins, Colorado
 County: Weld
 Section: 27
 Township: 70N
 Range: 10W

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

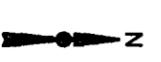
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MAP ID: 02-0305
 January 29, 2002

Figure 2
IHSS Group 400 10
(400 120 2, 400 161
and 400-807)

KEY

-  FY 2002 IHSS location
-  FY 2002 PAC location
-  FY 2002 UBC location
-  IHSS Groups
-  Building/structure
-  Paved area
-  Dirt road
-  Stream ditch or other drainage feature
-  Existing soil sampling locations (50-ft buffer)
-  Both subsurface and surface soil
-  Subsurface soil
-  Surface soil



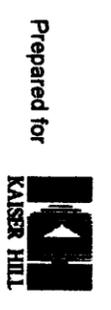
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State Plane Coordinate Projection
 Colorado Central Zone
 Datum NAD 27

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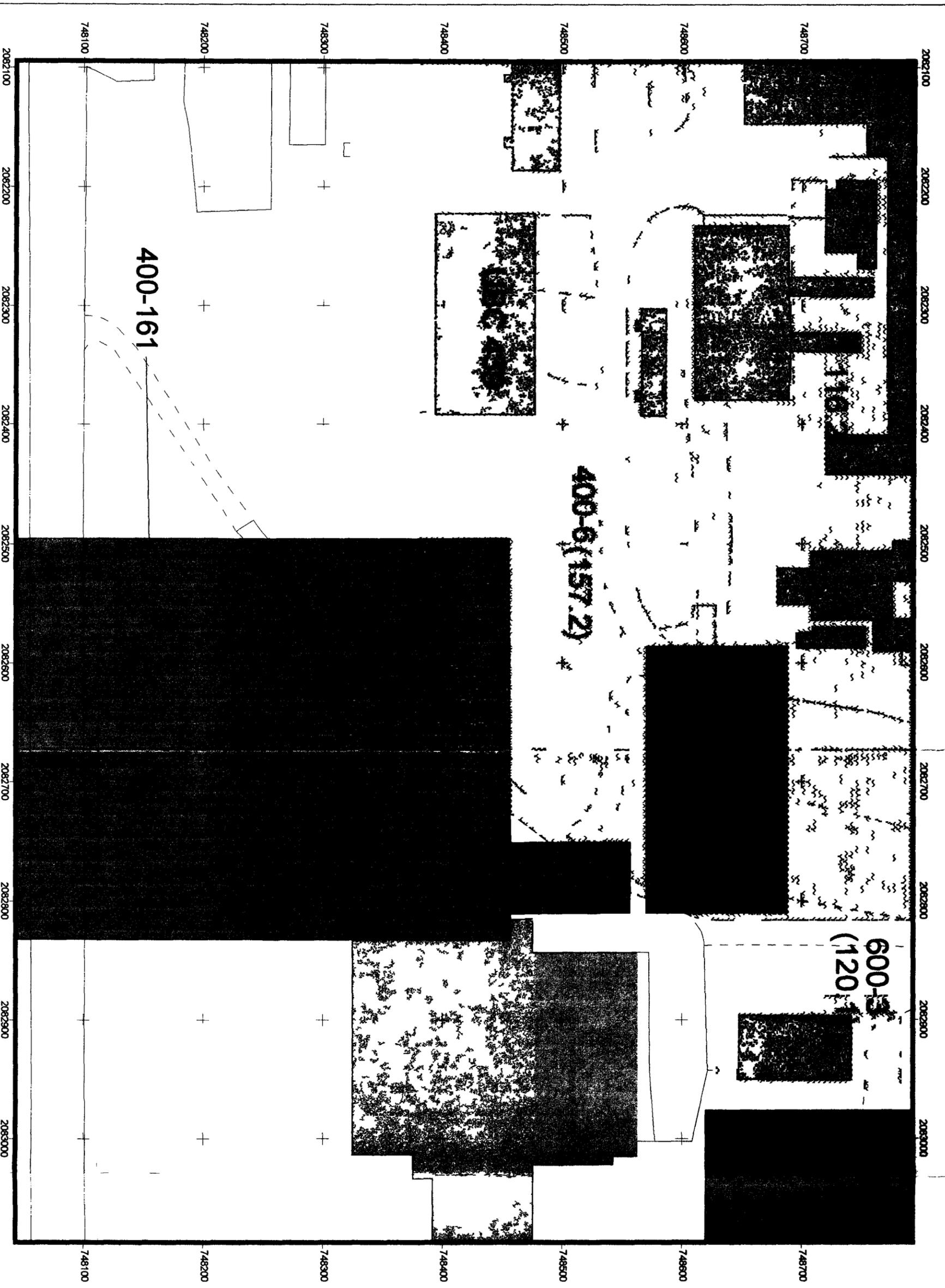
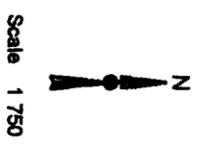


Figure 3
IHSS Group 800-6
(800 164 3, UBC 889, and
OPWL Tanks 28 and 40)

KEY

- Potential Air Sampling Locations
- Other IHSSs
- FY 2002 IHSS location
- FY 2002 PAC location
- FY 2002 UBC location
- Building/structure
- Paved area
- Dirt road
- Stream ditch or other drainage feature
- OPWL location (estimated)
- OPWL tank location (estimated)
- Existing soil sampling locations (50-ft buffer)
- Both subsurface and surface soil
- Subsurface soil
- Surface soil



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 Colorado Central Zone
 Datum NAD 27

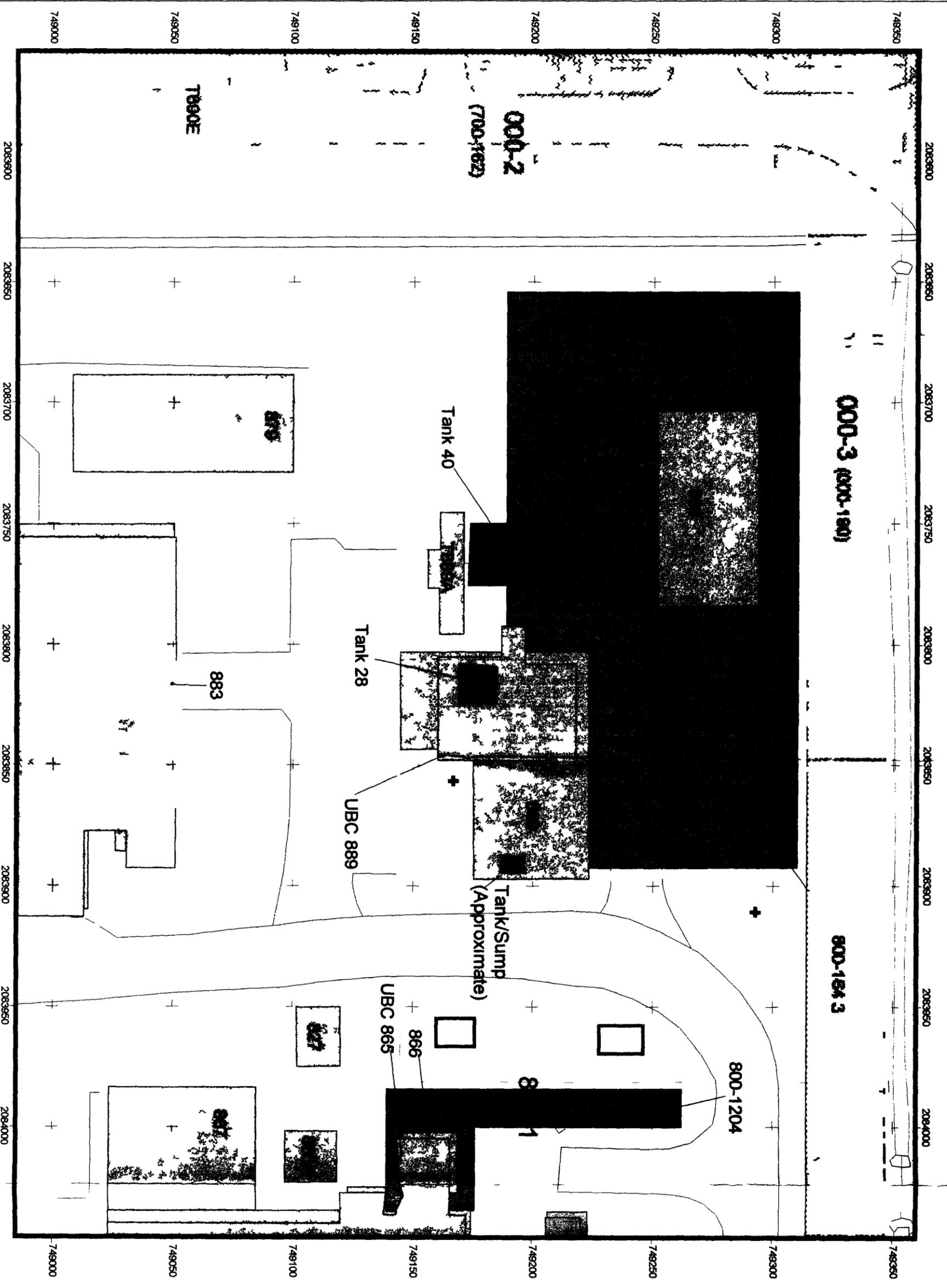
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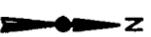


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Figure 4
IHSS Group 800-6
OPWL and NPWL

KEY

- NPWL
- OPWL
- Random start 36-ft triangular grid line
- FY 2002 IHSS location
- FY 2002 PAC location
- FY 2002 UBC location
- Building/structure
- Paved area
- Dirt road
- Stream ditch or other drainage feature
- ⊕ Existing soil sampling locations (50-ft buffer)
- ⊕ Both subsurface and surface soil
- △ Subsurface soil
- Surface soil



Scale 1:700

10 0 10 20 30 40 Feet

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