REF 03-DOE-01043, 00791-RF-03
(SEE B865-A-000055-56)

Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 867 PLENUM FAN ROOM CLOSURE PROJECT

REVISION 0

August 14, 2003

AUG 2003
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**CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02**

ADMIN RECORD

1/40

B865-A-000057

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 867 PLENUM FAN ROOM

REVISION 0

August 14, 2003

Reviewed by: _____ Date _____
Don Risoli, Quality Assurance

Reviewed by: _____ Date _____
D P Snyder, RISS ESH&Q Manager

Approved by: _____ Date _____
Karen Wiemelt, K-H D&D Project Manager

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ATTACHMENTS

ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U S Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U S Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

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EXECUTIVE SUMMARY

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 867 Because this Type 2 Facility will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) Building surfaces characterized as part of this PDS included Building 867 floor, walls, ceiling and equipment Building 867 was characterized in accordance with Pre-Demolition Survey Plan (MAN-127-PDSP) requirements as part of the Building 865 Cluster RLCR, completed September 17, 2001 Environmental media beneath and surrounding Building 867 was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA

The PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP) The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report for Building 865 Cluster

PDS results indicated that no RCRA/CERCLA constituents or PCBs contaminants exist in excess of the PDSP unrestricted release limits Asbestos abatement was conducted in the Building 867 prior to the PDS Friable and non-friable asbestos containing building materials were removed per CDPHE, Regulation No 8, Part B, *Emission Standards for Asbestos* On this basis, no additional bulk sampling was required as part of this PDS Any potential PCB-containing fluorescent light ballast and hazardous waste items (e g , mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building and do not impact demolition activities Based on the age of Building 867, paints used on the facility may contain PCBs, therefore, painted surfaces will be managed as PCB Bulk Product Waste

The Plenum side of Building 867 does contain radiological and beryllium contamination in excess of the PDSP unrestricted release limits, and will be managed as LLW/Be waste The Fan Room side of Building 867 does not contain radiological or beryllium contamination in excess of the PDSP unrestricted release limits, and will be managed as sanitary or PCB Bulk Product Waste

Based upon this PDSR, Building 867 can be demolished Appropriate controls will be in place during the demolition of the Plenum side of Building 867 to prevent the spread of radiological or beryllium contamination None of the concrete will be used for backfill on-site per the RFCA RSOP for Recycling Concrete To ensure that the facility remains free of further contamination and PDS data remain valid, Level 1 Isolation Controls have been established and the area posted accordingly

1 INTRODUCTION

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 867 Because this Type 2 Building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) Building surfaces characterized as part of this PDS included Building 867 floor, walls, ceiling and equipment Building 867 exterior was characterized in accordance with Pre-Demolition Survey Plan (MAN-127-PDSP) requirements as part of the Building 865 Cluster RLCR, completed September 17, 2001 Environmental media beneath and surrounding Building 867 was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these is Building 867 The location of this facility is shown in Attachment A, *Facility Location Map* This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs

Before this Type 2 Facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied, this document presents the PDS results for Building 867 The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP) The Building 867 PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report for Building 865 Cluster, dated July 2001, Revision 0

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 867 PDS effort A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of the facility The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types

1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of Building 867 Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP) Refer to section 2 0 of MAN-127-PDSP for these DQOs

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2 HISTORICAL SITE ASSESSMENT

A Facility-specific Historical Site Assessment (HSA) and Reconnaissance Level Characterization (RLC) was conducted to understand the facility history and related hazards The HSA consisted of facility walk-downs, interviews and document review, including review of the Historical Release Report, and were used to design the RLC The Building 867 RLC was performed in September 2001, as part of the Building 865 Cluster RLCR (refer to *Reconnaissance Level Characterization Report for Building 865 Cluster,* dated September 17, 2001, Revision 0) Based on the RLC results, beryllium and radiological contamination were identified, and accordingly, Building 867 was classified as a Type 2 facility Therefore, a PDS characterization was required before demolition of the facility The HSA and RLC results were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages HSA and RLC documentation are located in the RISS Characterization Project files

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building 867 was characterized for radiological hazards per the PDSP Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces Measurements were performed to evaluate the contaminants of concern Based upon a review of the RLC, historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files for the Building 867 Radiological Characterization Plan) Based on RLC data, and historical and process knowledge, transuranic activity was not a concern inside Building 867 On this basis, Building 867 PDS was performed to the uranium PDS unrestricted release criteria Individual radiological survey unit packages are maintained in the RISS Characterization Project files

The Building 867 survey unit package was developed in accordance with Radiological Safety Practices (RSP) 16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure* Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16 02 *Radiological Surveys of Surfaces and Structures* Radiological survey data were verified, validated and evaluated in accordance with RSP 16 04, *Radiological Survey/Sample Data Analysis* Quality control measures were implemented relative to the survey process in accordance with RSP 16 05, *Radiological Survey/Sample Quality Control* Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachment B, *Radiological Data Summary and Survey Maps*

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Survey Unit 867-PL-001 – Building 867 Plenum Fan Room

Building 867 Fan Room was classified as a MARSSIM Class 3 Survey Unit A total of seventy-three (73) TSA measurements (15 random, 5 biased, 50 equipment, 3 QC) and seventy (70) RSA measurements (15 random, 5 biased, 50 equipment) were collected Surface scan surveys of 25% of the interior surfaces (162 m^2) were also performed

All survey results were less than the applicable PDS uranium DCGL values Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 867-PL-001 are presented in Attachment B-1, *Radiological Data Summary and Survey Maps*

Building 867 Plenum and Airlocks

Early on in the 865 Project, it was determined that Building 867 Plenum and Airlocks would be managed as LLW/Be waste during the demolition Therefore, the Plenum and Airlocks were decontaminated for gross contamination and then an approved fixative was applied to all surfaces prior to demolition to minimize the spread of contamination during demolition A summary of the pre and post fixative radiological in-process surveys of the Plenum and Airlocks are contained in Attachment B-2, *Plenum and Airlock In-Process Radiological Surveys*

Building 867 Exterior

Building 867 exterior was characterized in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements as part of the Building 865 Cluster RLCR, completed September 17, 2001 All of Building 867 exterior surveys performed during the Building 865 Cluster RLCR were less than the applicable PDS transuranic and uranium DCGL values In addition, confirmatory surveys of Building 867 exterior were performed as part of the Building 865 High Bay PDS, and all results were less than the applicable PDS transuranic and uranium DCGL values Refer to Attachment B-3, *Building 867 Exterior Confirmatory Survey, Radiological Data and Survey Maps* for the confirmatory radiological survey data

To ensure the facility remains free of further contamination and PDS data remain valid, Level 1 Isolation Controls have been established and the areas posted accordingly

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4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building 867 was characterized for chemical hazards per the PDSP Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in Building 867 Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated number of samples The contaminants of concern were asbestos, beryllium, metals, RCRA/CERCLA constituents and polychlorinated biphenyls (PCBs) Refer to Attachment C, *Chemical Summary Data and Sample Maps*, for details on sample results and sample locations Level 1 Isolation Control postings are displayed on affected structures to ensure additional hazardous materials are not introduced

4.1 Asbestos

Prior to the PDS, asbestos abatement was conducted in Building 867 to remove and dispose of asbestos containing building materials Friable and non-friable asbestos containing building materials were removed per CDPHE, Regulation No 8, Part B, *Emission Standards for Asbestos* On this basis, no additional asbestos bulk sampling was performed as part of this PDS

4.2 Beryllium (Be)

Fan Room
Nine (9) random and eighteen (18) biased beryllium smear samples were collected on the interior of Building 867 Fan Room and equipment in accordance with the PDSP and the *Beryllium Characterization Procedure,* PRO-536-BCPR, Revision 0, September 9, 1999

All beryllium PDS smear sample results for the Building 867 Fan Room were less than the investigative limit of 0 1 $\mu g/100cm^2$ Fan Room PDS beryllium laboratory sample data and location maps are contained in Attachment C-1, *Fan Room Beryllium Data Summaries and Sample Maps*

Plenum and Airlocks
Early on in the 865 Project, it was determined that Building 867 Plenum and Airlocks would be managed as LLW/Be waste during the demolition Therefore, the Plenum and Airlocks were decontaminated for gross contamination and then an approved fixative was applied to all surfaces prior to demolition to minimize the spread of contamination during demolition A summary of the pre and post fixative beryllium in-process surveys of the Plenum and Airlocks are contained in Attachment C-2, *Plenum and Airlock In-Process Beryllium, Surveys*

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4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based on the HSAR for the Building 865 Cluster RLCR, personnel interviews, facility walk-downs, and review of historical WSRIC processes, no evidence of RCRA/CERCLA contamination was identified in the Building 867 Fan Room On this basis, RCRA/CERCLA sampling was not conducted as part of this PDS

The building may have contained some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, and lead-acid batteries However, these items have been removed and are being managed in accordance with the Colorado Hazardous Waste Act

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR for the Building 865 Cluster RLCR, personnel interviews, facility walk- downs and a review of historical WSRIC processes, Building 867 did not contain machinery that used PCB oil, or any other PCB reliant process Therefore, sampling for PCBs was not conducted as part of this PDS Based on the age of Building 867, paints used on the facility may contain PCBs, therefore, painted surfaces will be managed as PCB Bulk Product Waste

5 PHYSICAL HAZARDS

Physical hazards associated with Building 867 consists of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls There are no unique hazards associated with this facility The facility has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 867, and consequent waste management, is of adequate quality to support the decisions documented in this report The data presented in this report (Attachments B and C) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate

- the *number* of samples and surveys,
- the *types* of samples and surveys,
- the sampling/survey process as implemented "in the field", and
- the laboratory analytical process, relative to accuracy and precision considerations

Details of the DQA are provided in Attachment D

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 867 will generate a variety of wastes Estimated waste types and waste volumes are presented below The Plenum side of Building 867 does contain radiological and beryllium contamination in excess of the PDSP unrestricted release limits, and will be managed as LLW/Be waste PCB ballast and hazardous waste items have been removed and managed pursuant to Site PCB and waste management procedures Painted surfaces will be managed as PCB Bulk Product waste Concrete material from B867 will not be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete

WASTE TYPES AND VOLUME ESTIMATES

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
867	1,970	0	100	230	0	0	LLW/Be waste – 400 metal

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building 867 is classified as a RFCA Type 2 Facility pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1999) and is ready for demolition The PDS for Building 867 was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria Environmental media beneath and surrounding the facilities will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA

PDS results indicated that no RCRA/CERCLA constituents or PCBs contaminants exist in excess of the PDSP unrestricted release limits Asbestos abatement was conducted in Building 867 prior to the PDS Friable and non-friable asbestos containing building materials were removed per CDPHE, Regulation No 8, Part B, *Emission Standards for Asbestos* Any potential PCB-containing fluorescent light ballast and hazardous waste items (e g , mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building and do not impact demolition activities Based on the age of Building 867, paints used on the facility may contain PCBs, therefore, painted surfaces will be managed as PCB Bulk Product Waste

The Plenum side of Building 867 does contain radiological and beryllium contamination in excess of the PDSP unrestricted release limits, and will be managed as LLW/Be waste The Fan Room side of Building 867 does not contain radiological or beryllium contamination in excess of the PDSP unrestricted release limits, and will be managed as sanitary or PCB Bulk Product Waste

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Based upon this PDSR, Building 867 can be demolished Appropriate controls will be in place during the demolition of the Plenum side of Building 867 to prevent the spread of radiological or beryllium contamination None of the concrete will be used for backfill on-site per the RFCA RSOP for Recycling Concrete To ensure that the facility remains free of further contamination and PDS data remain valid, Level 1 Isolation Controls have been established and the area posted accordingly

9 REFERENCES

DOE/RFFO, CDPHE, EPA, 1996 *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996

DOE Order 5400 5, *Radiation Protection of the Public and the Environment*

DOE Order 414 1A, *Quality Assurance*

EPA, 1994 *The Data Quality Objective Process,* EPA QA/G-4

K-H, 1999 *Decommissioning Program Plan*, June 21, 1999

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev 1, November 1, 2001

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev 3, January 1, 2002

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev 4, July 15, 2002

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev 1, July 15, 2002

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016)

PRO-475-RSP-16 01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev 1, May 22, 2001

PRO-476-RSP-16 02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev 1, May 22, 2001

PRO-477-RSP-16 03, *Radiological Samples of Building Media*, Rev 1, May 22, 2001

PRO-478-RSP-16 04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev 1, May 22, 2001

PRO-479-RSP-16 05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev 1, May 22, 2001

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal

RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

Reconnaissance Level Characterization Report For Building 865 Cluster, Dated September 17, 2001, Revision 0

Building 865 Cluster Historical Site Assessment Report, incorporated as part of the Building 865 RLCR, dated July 2001

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ATTACHMENT A

Facility Location Map

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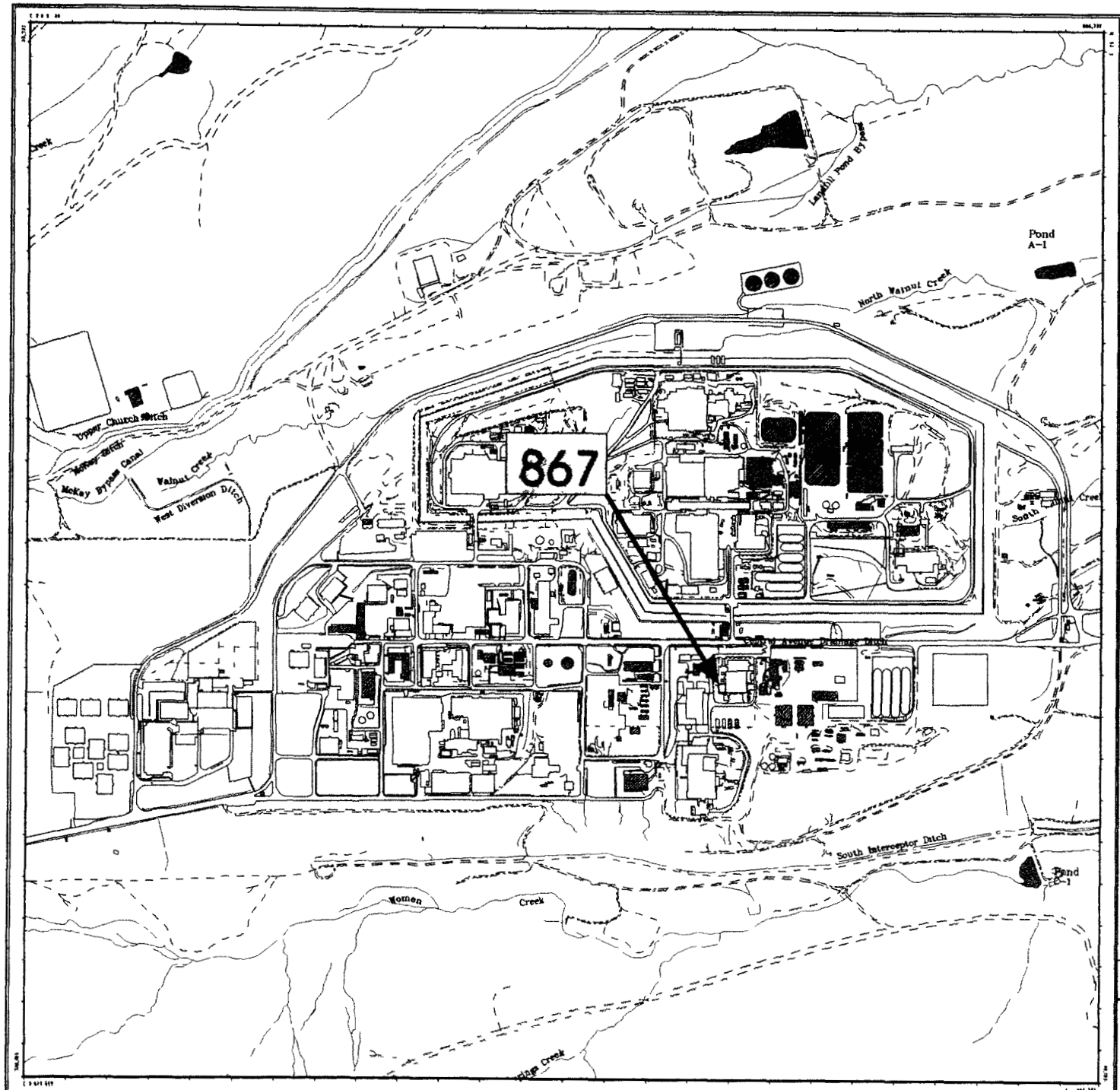

Area 1
Building 867

Standard Map Features

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

DATA SOURCE BASE FEATURES
Buildings, fences, hydrography roads and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas.
Digitized from the orthophotographs, 1/95

Scale = 1 : 2450
1 inch represents approximately 1038 feet

250 0 500 1000 ft

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD27

U S Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept 303 966-7707

Prepared by
CH2MHILL

Prepared for
KAISER-HILL

MAP ID FY2003

Aug 5, 2003

M:\arc\projects\03-0096\867-overall.cdr

ATTACHMENT B

Radiological Data Summaries and Survey Maps

ATTACHMENT B-1
Survey Unit 867-PL-001

Radiological Data Summary and Survey Map

SURVEY UNIT 867-PL-001
RADIOLOGICAL DATA SUMMARY

Survey Unit Description: B867 Plenum Fan Room

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Total Surface Activity Measurements

	50 Number Required	70 Number Obtained	
MIN	(395)		dpm/100 cm^2
MAX *	1 611		dpm/100 cm^2
MEAN	355		dpm/100 cm^2
STD DEV	548		dpm/100 cm^2
Uranium $DCGL_W$	5,000		dpm/100 cm^2

Removable Activity Measurements

	50 Number Required	70 Number Obtained	
MIN	(52)		dpm/100 cm^2
MAX	65		dpm/100 cm^2
MEAN	(2)		dpm/100 cm^2
STD DEV	25		dpm/100 cm^2
Uranium $DCGL_W$	1,000		dpm/100 cm^2

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SURVEY UNIT 867-PL-001
TSA DATA SUMMARY

Manufacturer	NE Electra	NE Electra	NE Electra	NE Electra
Model	DP 6	DP 6	DP 6	DP-6
Instrument ID#	1	2	7	12
Serial #	1547	1417	1425	2343
Cal Due Date	11/20/03	1/21/04	1/24/04	1/29/04
Analysis Date	8/7/03	8/7/03	8/11/03	8/11/03
Beta Eff (c/d)	0 301	0 296	0 298	0 302
Beta Bkgd (cpm)	406 0	453 0	405 0	418 0
Sample Time (min)	1	1	1	1
LAB Time (min)	1	1	1	1
MDC (dpm/100cm^2)	599 0	599 0	599 0	599 0

Sample Location Number	Instrument ID#	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2)
1	1	898	2 983	664	2 206	1 498
2	1	884	2 937	679	2,256	1 451
3	2	546	1 845	616	2 081	359
4	2	526	1 777	518	1 750	291
5	2	553	1 868	378	1 277	383
6	1	902	2,997	688	2,286	1,511
7	1	817	2 714	668	2 219	1 229
8	2	579	1 956	374	1 264	470
9	1	877	2 914	725	2 409	1 428
10	1	857	2 847	711	2,362	1,361
11	2	474	1 601	48	162	116
12	2	542	1 831	372	1 257	345
13	2	462	1 561	422	1 426	75
14	2	453	1 530	427	1 443	45
15	1	932	3 096	692	2 299	1 611
16	1	932	3 096	715	2,375	1 611
17	2	479	1 618	555	1 875	133
18	1	704	2 339	376	1 249	853
19	1	718	2 385	466	1 548	900
20	1	716	2 379	513	1 704	893
21	1	748	2 485	418	1 389	999
22	2	458	1 547	437	1 476	62
23	1	474	1 575	479	1 591	89
24	1	694	2 306	369	1 226	820
25	1	704	2,339	394	1 309	853
26	1	718	2 385	428	1 422	900
27	1	704	2 339	429	1 425	853
28	2	478	1 615	528	1 784	129
29	2	658	2 223	439	1 483	737
30	1	507	1 684	371	1 233	199
31	2	398	1 345	406	1 372	(141)
32	2	441	1 490	423	1 429	4
33	2	399	1 348	361	1 220	(138)
34	2	424	1 432	422	1 426	(53)
35	2	482	1 628	503	1 699	143
36	2	371	1 253	370	1 250	(232)
37	2	455	1,537	505	1 706	51
38	2	495	1 672	438	1 480	187
39	1	415	1 379	495	1 645	(107)
40	1	696	2,312	475	1 578	827
41	1	668	2 219	454	1 508	734

SURVEY UNIT 867-PL-001
TSA DATA SUMMARY

Sample Location Number	Instrument ID#*	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2)
42	1	681	2 262	439	1 458	777
43	2	464	1 568	498	1 682	82
44	1	716	2 379	379	1 259	893
45	2	511	1 726	384	1 297	241
46	2	378	1 277	421	1 422	(209)
47	2	482	1 628	443	1 497	143
48	2	478	1 615	448	1 514	129
49	2	499	1 686	468	1 581	200
50	2	554	1 872	439	1 483	386
51	7	624	2 094	465	1,560	608
52	7	623	2,091	473	1 587	605
53	7	441	1 480	389	1 305	(6)
54	7	373	1,252	349	1 171	(234)
55	7	373	1 252	332	1 114	(234)
56	7	441	1 480	331	1 111	(6)
57	7	400	1 342	317	1 064	(143)
58	7	441	1 480	452	1,517	(6)
59	7	441	1 480	320	1 074	(6)
60	7	373	1 252	335	1 124	(234)
61	7	478	1 604	375	1 258	118
62	7	325	1 091	352	1 181	(395)
63	7	325	1 091	366	1 228	(395)
64	7	325	1 091	320	1 074	(395)
65	7	448	1 503	359	1,205	18
66	7	448	1,503	330	1 107	18
67	7	448	1 503	415	1 393	18
68	7	410	1 376	423	1 419	(110)
69	7	410	1 376	288	966	(110)
70	7	325	1 091	372	1 248	(395)

1 Average LAB used to subtract from Gross Sample Activity

1 486	Sample LAB Average
MIN	(395)
MAX	1 611
MEAN	355
SD	548
Uranium DCGLW	5,000

QC Measurements

50 QC	1	715	2,375	510	1 694	439
1 QC	2	913	3 084	662	2 236	1 148
6 QC	2	892	3 014	744	2,514	1,077
58 QC	12	453	1 500	393	1,301	(436)

1 Average QC LAB used to subtract from Gross Sample Activity

1 936	QC LAB Average
QC MIN	(436)
QC MAX	1 148
QC MEAN	557
Uranium DCGLW	5,000

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SURVEY UNIT 867-PL-001
SMEAR DATA SUMMARY

Manufacturer	Eberline	Eberline	Eberline	Eberline
Model	BC-4	BC-4	BC-4	BC-4
Instrument ID#	3	4	5	6
Serial #	700	702	835	911
Cal Due Date	12/19/03	4/30/04	9/17/04	10/30/03
Analysis Date	8/7/03	8/7/03	8/7/03	8/7/03
Beta Eff (c/d)	0 25	0 25	0 25	0.25
Beta Bkgd (cpm)	36	32 4	34 9	35 7
Sample Time (min)	1	1	1	1
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm^2)	200 0	200 0	200 0	200 0

Manufacturer	Eberline	Eberline	Eberline	Eberline
Model	BC-4	BC-4	BC-4	BC-4
Instrument ID#	8	9	10	11
Serial #	700	702	835	911
Cal Due Date	12/19/03	4/30/04	9/17/04	10/30/03
Analysis Date	8/11/03	8/11/03	8/11/03	8/11/03
Beta Eff (c/d)	0 25	0 25	0 25	0.25
Beta Bkgd (cpm)	30 4	34 5	32 9	33
Sample Time (min)	1	1	1	1
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm^2)	200 0	200 0	200 0	200 0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	3	33	-12 0
2	4	43	42 4
3	5	32	-11 6
4	6	26	-38 8
5	3	30	-24 0
6	4	34	6 4
7	5	32	-11 6
8	6	52	65 2
9	3	41	20 0
10	4	32	-1 6
11	5	30	-19 6
12	6	30	-22 8
13	3	31	-20 0
14	4	30	-9 6
15	5	33	-7 6
16	6	24	-46 8
17	3	30	-24 0
18	4	37	18 4
19	5	36	4 4
20	6	42	25 2
21	3	38	8 0
22	4	45	50 4
23	5	36	4 4
24	6	50	57 2
25	3	39	12 0
26	4	35	10 4
27	5	26	-35 6

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SURVEY UNIT 867-PL-001
SMEAR DATA SUMMARY

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
28	6	32	-14 8
29	3	31	20 0
30	4	28	17 6
31	5	30	-19 6
32	6	31	-18 8
33	3	34	8 0
34	4	36	14 4
35	5	29	-23 6
36	6	32	-14 8
37	3	37	4 0
38	4	36	14 4
39	5	45	40 4
40	6	45	37 2
41	3	35	-4 0
42	4	33	2 4
43	5	36	4 4
44	6	34	6 8
45	3	32	-16 0
46	4	30	-9 6
47	5	31	-15 6
48	6	33	-10 8
49	3	32	-16 0
50	4	30	-9 6
51	8	25	-21 6
52	9	31	-14 0
53	10	38	20 4
54	11	28	-20 0
55	8	42	46 4
56	9	34	-2 0
57	10	30	-11 6
58	11	25	-32 0
59	8	30	-1 6
60	9	31	-14 0
61	10	27	-23 6
62	11	40	28 0
63	8	40	38 4
64	9	44	38 0
65	10	39	24 4
66	11	29	-16 0
67	8	28	-9 6
68	9	30	-18 0
69	10	20	-51 6
70	11	31	-8 0
		MIN	-51 6
		MAX	65 2
		MEAN	-1 7
		SD	24 6
		Uranium $DCGL_W$	**20**

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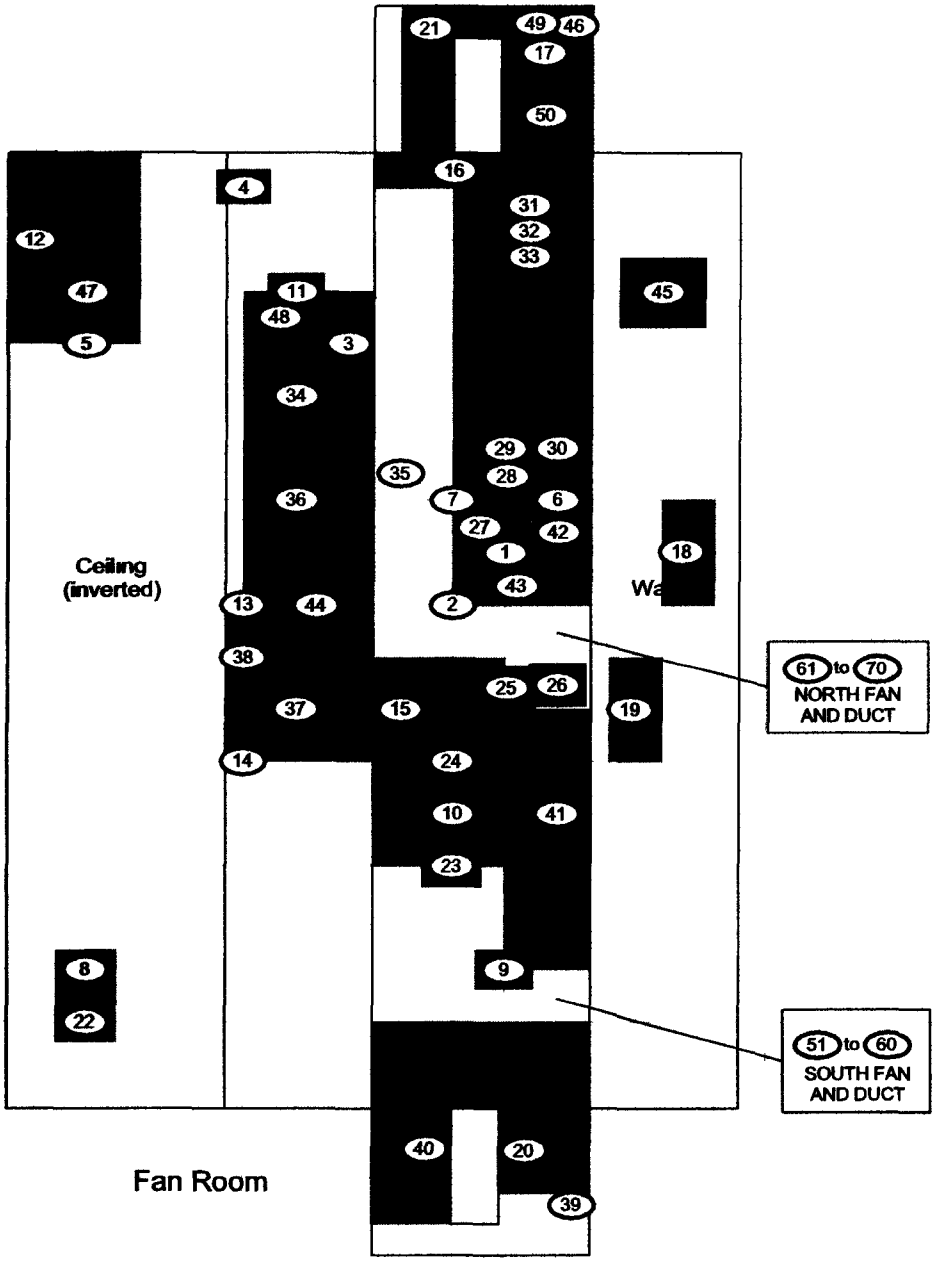
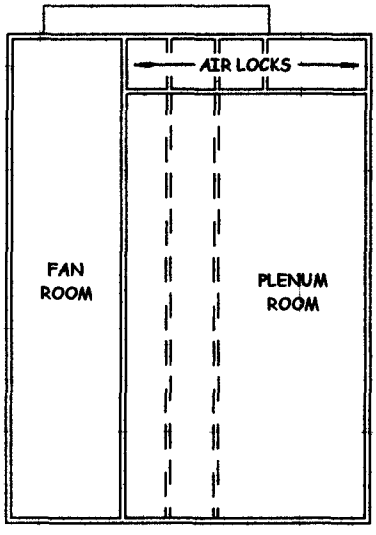
PRE-DEMOLITION SURVEY FOR B867 FAN ROOM

Survey Area 1 **Survey Unit** 867-PL-001 **Classification** 3
Building 867
Survey Unit Description Bldg 867 Fan Room Interior Floor, Walls, & Ceiling
Total Area 280 sq m **Floor Area** 76 sq m





B867 Key Plan
(1/2 Drawing Scale)

Scan Area

SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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N

0 FEET 15
0 METERS 5

1 inch = 12 feet 1 grid sq = 1 sq m.

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s)
1, 2, 7

U S Department of Energy
Rocky Flats Environmental Technology Site

Prepared by GIS Dept 303-966 7707 Prepared for:

CH2MHILL
Communications Group

MAP ID 03-0096/867-FanRm-SC Aug 11, 2003

ATTACHMENT B-2

Plenum and Airlock In-Process Radiological Surveys

Pre-Fixative - B867 West Plenum Interior

Survey Location	Average Total Beta dpm/100 cm^2	Average Removable Beta dpm/100 cm^2	Average Total Alpha dpm/100 cm^2	Average Removable Alpha dpm/100 cm^2
P117 Demister Airlock	8,000	2,000	140	30
Demister Floor	160,000	16,000	2,000	1,000
Demister Wall	34,000	3,400	600	500
1st Stage Floor	80,000	30,000	1,200	500
1st Stage Wall	5,000	1,000	600	100
2nd Stage Floor	<1000	<500	<100	<20
2nd Stage Wall	<500	<200	<100	<20

Post-Fixative - B867 West Plenum Interior

Survey Location	Average Total Beta dpm/100 cm^2	Maximum Removable Beta dpm/100 cm^2	Maximum Total Alpha dpm/100 cm^2	Maximum Removable Alpha dpm/100 cm^2
Demister Floor	3,500	< 205	< 52	< 20
Demister Framework	45,000	< 205	< 52	< 20
Demister Ceiling/Wall	< 333	< 205	< 52	< 20
1st Stage Floor	< 333	< 205	< 52	< 20
1st Stage Wall	< 333	< 205	< 52	< 20
1st Stage Lattice	40,000	< 205	< 52	< 20
2nd Stage Floor	< 333	< 205	< 52	< 20
2nd Stage Wall	< 333	< 205	< 52	< 20
2nd Stage Ceiling	< 333	< 205	< 52	< 20

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ATTACHMENT B-3
Building 867 Exterior Confirmatory Surveys

Radiological Data and Survey Map

INSTRUMENT DATA

Mfg	Eberline	Mfg	Eberline	Mfg	N/A
Model	SAC-4	Model	SAC-4	Model	
Serial #	959	Serial #	952	Serial #	
Cal Due	7/9/03	Cal Due	7/9/03	Cal Due	
Bkg	0 2 cpmα	Bkg	0 5 cpmα	Bkg	cpmα
Efficiency	33 00 %	Efficiency	33 00 %	Efficiency	%
MDA	20 dpmα	MDA	20 dpmα	MDA	N/A dpmα
Mfg	Eberline	Mfg	Eberline	Mfg	N/A
Model	BC-4	Model	BC-4	Model	
Serial #	702	Serial #	835	Serial #	
Cal Due	4/30/04	Cal Due	9/17/03	Cal Due	
Bkg	32 3 cpmβ	Bkg	36 8 cpmβ	Bkg	cpmβ
Efficiency	25 00 %	Efficiency	25 00 %	Efficiency	%
MDA	200 dpmβ	MDA	200 dpmβ	MDA	N/A dpmβ

Survey Type: Contamination
Building B865
Location Exterior of Building
Purpose Confirmatory
RWP # N/A
Date 6/30/03 **Time** 0900
R[redacted]
R[redacted]

PRN/REN # . N/A
Comments Survey of exterior of building

SURVEY RESULTS

Swipe #	Location / Description Results in DPM/100sq cm	Removable Alpha	Removable Beta	Total Alpha	Total Beta
1	Roof	<20	<200	N/A	N/A
2	Roof	<20	<200	N/A	N/A
3	Roof	<20	<200	N/A	N/A
4	Roof	<20	<200	N/A	N/A
5	Roof	<20	<200	N/A	N/A
6	Roof	<20	<200	N/A	N/A
7	Roof	<20	<200	N/A	N/A
8	Roof	<20	<200	N/A	N/A
9	Roof	<20	<200	N/A	N/A
10	Roof	<20	<200	N/A	N/A
11	East Wall	<20	<200	N/A	N/A
12	East Wall	<20	<200	N/A	N/A
13	B868 Door 2 Exterior Wall	<20	<200	N/A	N/A
14	East Wall	<20	<200	N/A	N/A
15	East Dock Door	<20	<200	N/A	N/A
16	North Wall	<20	<200	N/A	N/A
17	North Wall	<20	<200	N/A	N/A
18	West Wall Door 10	<20	<200	N/A	N/A
19	West Wall	<20	<200	N/A	N/A
20	West Wall	<20	<200	N/A	N/A
21	West Wall	<20	<200	N/A	N/A
22	B867 Door 1	<20	<200	N/A	N/A
23	B867 West Wall	<20	<200	N/A	N/A
24	B867 West Wall	<20	<200	N/A	N/A
25	B867 West Wall	<20	<200	N/A	N/A
26	South Wall	<20	<200	N/A	N/A
27	South Wall	<20	<200	N/A	N/A
28	South Wall	<20	<200	N/A	N/A
29	South Wall Rollup Door	<20	<200	N/A	N/A
30	S Wall Man Door	<20	<200	N/A	N/A

Date Reviewed 6/30/03 **RS Supervision** [redacted]
Print Name Signature Emp #

ATTACHMENT C

Chemical Data Summaries and Sample Maps

ATTACHMENT C-1

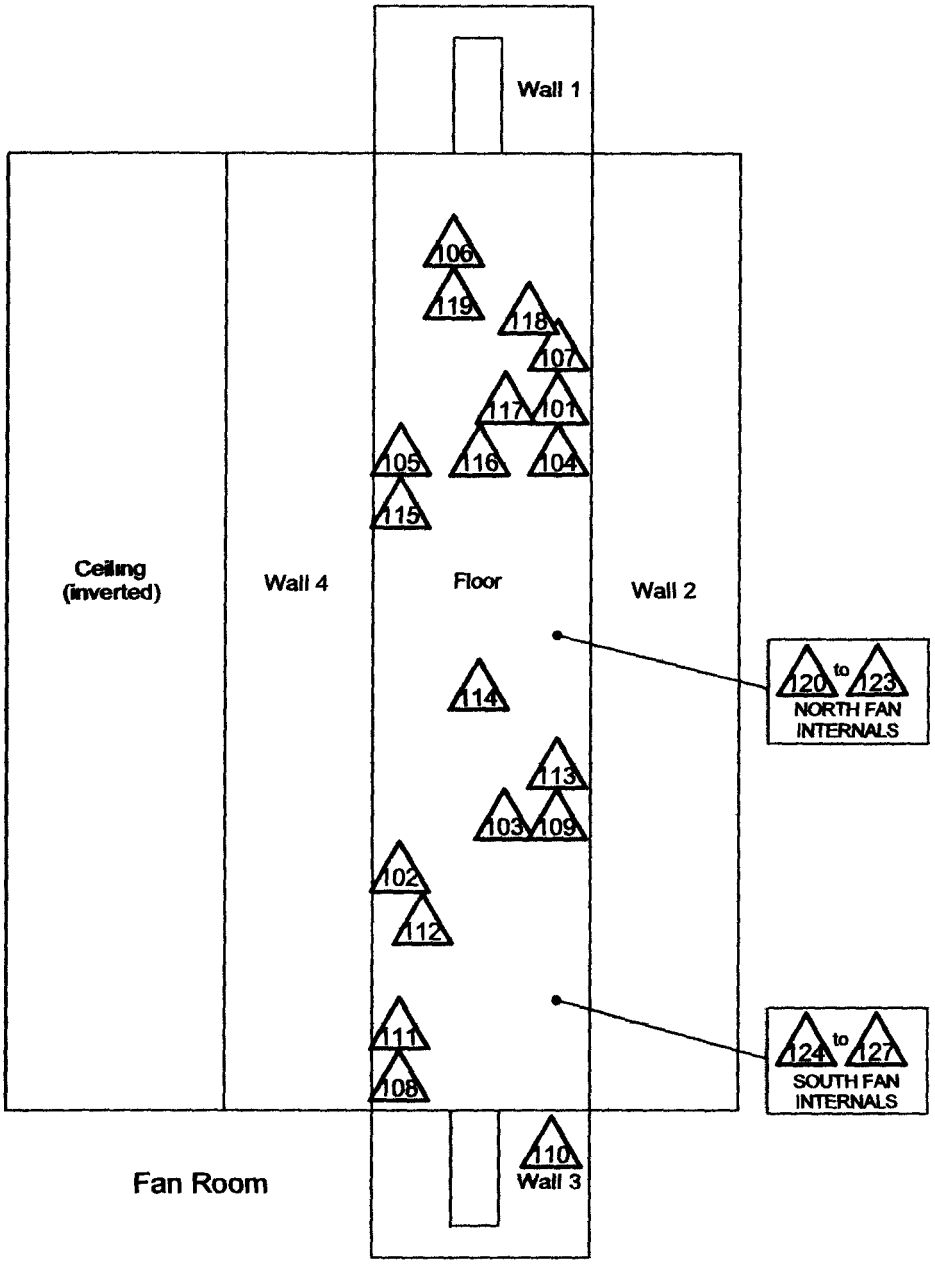
Fan Room Beryllium Data Summaries and Sample Maps

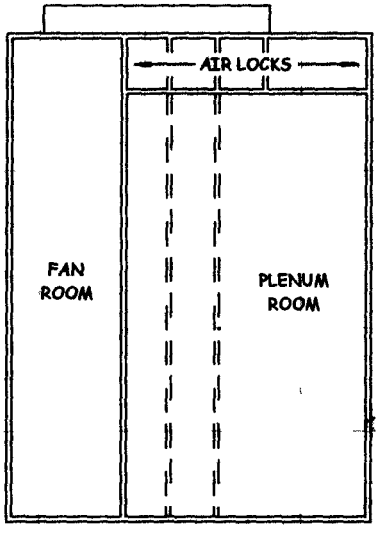
Table C-1: Building 867 Fan Room Beryllium Data Summary

Sample Number	Map Survey Point Location	Room	Sample Location	Result ($\mu g/100\ cm^2$)
Building 867 Fan Room -- RIN 03Z2112 and RIN03Z2097				
867-08082003-00-101	101	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-102	102	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-103	103	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-104	104	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-105	105	Fan Room	Top of equipment, Biased	< 0 1
867 08082003-00-106	106	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-107	107	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-108	108	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-109	109	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-110	110	Fan Room	Top of equipment, Biased	< 0 1
867-08082003-00-111	111	Fan Room	On floor, Random	< 0 1
867-08082003-00-112	112	Fan Room	On floor, Random	< 0 1
867-08082003-00-113	113	Fan Room	On floor, Random	< 0 1
867-08082003-00-114	114	Fan Room	On floor, Random	< 0 1
867 08082003-00-115	115	Fan Room	On floor, Random	< 0 1
867-08082003-00-116	116	Fan Room	On floor, Random	< 0 1
867-08082003-00-117	117	Fan Room	On floor, Random	< 0 1
867-08082003-00-118	118	Fan Room	On floor, Random	< 0 1
867-08082003-00-119	119	Fan Room	On floor Random	< 0 1
865 08112003-607-031	120	Fan Room	Inside north fan housing, top side, Biased	< 0 1
865-08112003-607-032	121	Fan Room	Inside north fan housing, bottom side, Biased	< 0 1
865-08112003-607-033	122	Fan Room	Inside north fan inlet Biased	< 0 1
865-08112003-607-034	123	Fan Room	Inside north fan inlet Biased	< 0 1
865-08112003-607-035	124	Fan Room	Inside south fan inlet, Biased	< 0 1
865-08112003-607-036	125	Fan Room	Inside south fan inlet, Biased	< 0 1
865-08112003-607-037	126	Fan Room	Inside north fan housing bottom side Biased	< 0 1
865-08112003-607-038	127	Fan Room	Inside north fan housing, top Biased	< 0 1

CHEMICAL SAMPLE MAP

Building 867 Fan Room
Beryllium





B867 Key Plan
(1/2 Drawing Scale)

SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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0 FEET 15
0 METERS 5

1 inch = 12 feet 1 grid sq = 1 sq m.

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Rocky Flats Environmental Technology Site

Prepared by GIS Dept 303-966 7707

CH2MHILL
Communications Group

Prepared for: [redacted]

MAP ID 03-0096/867-FanRmBe July 29, 2003

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ATTACHMENT C-2

Plenum and Airlock In-Process Beryllium Surveys

B867 West Plenum Interior In-Process Beryllium Survey Summary Table

Survey Location	Number of Beryllium Samples	Number Greater than Limit of Detection (0 1 µg/100cm2)	Number Less than Limit of Detection (0 1 µg/100cm2)	Maximum Result (µg/100 cm2)
Prior to decontamination	83	46	37	420
Post intial decontamination	20	18	2	2 8
Post initial encapsulation	27	0	27	Below Limit of Detection
Post louver incident, prior to encapsulation	20	7	13	1 37
Post louver incident, post encapsulation	27	3	24	0 74
Post final re-encapsulation	18	0	18	Below Limit of Detection

ATTACHMENT D

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION (V&V) OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium)

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed The radiological survey assessment is provided in Table D-1 and Beryllium in Table D-2 A data completeness summary for all results is given in Table D-3

All relevant Quality records supporting this report are maintained in the RISS Characterization Project File The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location

Beta/gamma survey designs were implemented for Building 867 based on completed RLCR data (refer to the Building 865 Cluster RLCR) and historical and process knowledge of building operations Survey designs were implemented based on the uranium limits used as DCGLs in the unrestricted release decision process Survey results for the Building 867 Fan Room were evaluated against, and were less than the uranium DCGLs (i e , < 1,000 dpm/100cm^2 removable surface activity, < 5,000 dpm/100cm^2 average total surface activity, and no hot spots within 1 m^2 over 15,000 dpm/100cm^2) Survey results for the Building 867 plenum and Air Lock Rooms were evaluated against, and were greater than the uranium DCGLs Survey results for the Building 867 exterior were evaluated against, and were less than the transuranic DCGLs (i e , < 20 dpm/100cm^2 removable surface activity, < 100 dpm/100cm^2 average total surface activity, and no hot spots within 1 m^2 over 300 dpm/100cm^2)

Consistent with EPA's G-4 DQO process, the radiological survey design for each survey unit performed per PDS requirements was optimized by checking actual measurement results acquired during pre-demolition surveys against the model output with original estimates Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired

DQA SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs All data are useable based on qualifications stated herein and are considered satisfactory without qualification All media surveyed and sampled yielded results less than their associated action levels and with acceptable certainties, except for the following anomalous conditions

- Radiological and beryllium survey results obtained during the Building 865 Cluster RLCR identified contamination in Building 867 Plenum and Airlocks The Plenum and Airlocks were decontaminated for gross contamination and then an approved fixative was applied to all surfaces prior to demolition to minimize the spread of contamination during demolition Based on the above contamination, the plenum and airlocks will be managed as LLW/Be waste during demolition A summary of the pre and post fixative radiological in-process surveys of the Plenum and Airlocks are contained in Attachment B-2, *Plenum and Airlock In-Process Radiological Surveys*

Based upon an independent review of the radiological data, it was determined that the original project DQOs satisfied MARSSIM guidance All facility contamination levels were below applicable DCGL unrestricted release levels (except the plenum and airlocks as noted above) confirming a Type 2 Facility classification Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable RSPs, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits

Chain of Custody was intact, documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process Level 1 Isolation Controls have been posted to prevent the inadvertent introduction of further contamination into Building 867 On this basis, Building 867 Plenum Fan Room meets the unrestricted release criteria with the confidences stated herein

Table D-1 V&V of Radiological Results - Building 867 Plenum Fan Room

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16 00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	**Measure**	**Frequency**	**COMMENTS**
ACCURACY	Initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field, programmatic records
	Daily source checks	80%<x<120%	≥1/day	Performed daily/within range
	Local area background Field	Typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i e , no elevated anomalies)
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology Survey Units 867-PL-001 (interior)	Statistical and biased	NA	Random w/ statistical confidence
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m
	Controlling Documents (Characterization Pkg, RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files), thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY	Units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results
COMPLETENESS	Plan vs Actual surveys Usable results vs unusable	>95% >95%	NA	See Table D-3 for details
SENSITIVITY	Detection limits	TSA ≤50 dpm/100cm^2 RA ≤10 dpm/100cm^2	all measures	MDAs ≤ 50% DCGL$_w$ per MARSSIM guidelines

Table D-2 V&V of Beryllium Results - Building 867 Plenum Fan Room

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep NMAM 7300 METHOD OSHA ID-125G	LAB ---->	Reservoirs Environmental, Inc	
		RIN ---->	RIN03Z2112	
QUALITY REQUIREMENTS		Measure	Frequency	COMMENTS
ACCURACY	**Calibrations** Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i e classification of a Type 2 Facility confirmed, all results were below associated action levels
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc)	Qualitative	NA	
COMPARABILITY	Measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs Actual samples Usable results vs unusable	>95% >95%	NA	
SENSITIVITY	Detection limits	MDL of 0 012 ug/100cm^2	all measures	

Table D-3 Data Completeness Summary - Building 867 Plenum Fan Room					
ANALYTE	**Building/Area /Unit**	**Sample Number Planned (Real & QC)**	**Sample Number Taken (Real & QC)**	**Project Decisions (Conclusions) & Uncertainty**	**Comments (RIN, Analytical Method, Qualifications, etc)**
Beryllium	Building 867 (interior)	19 interior (9 random/10 biased)	27 interior (9 random/18 biased)	No contamination found at any location, all results are below associated action levels	10CFR850, OSHA ID-125G RIN03Z2112 map sample locations 101 through 119 RIN03Z2097 map sample locations 120 through 127 (Beryllium surveys of the north and south fan interiors) No results above the action level (0 2 ug/100cm^2) or investigative level (0 1 ug/100cm^2)
Radiological	Survey Area 1 Survey Unit 867-PL-001 Building 867 Plenum Fan Room	20 β TSA (15 random/5 biased) and 20 β Smears (15 random/5 biased) 30 β TSA and 30 β Smears (equipment – including interior of fans and ductwork) 3 QC TSA 25% scan of interior surfaces	20 β TSA (15 random/5 biased) and 20 β Smears (15 random/5 biased) 50 β TSA and 30 β Smears (equipment – including interior of fans and ductwork) 4 QC TSA 25% scan of interior surfaces	No contamination found at any survey location, all results were below PDS unrestricted release levels	Uranium DCGLs (1,000 dpm/100cm^2 removable, 5,000 dpm/100cm^2 average total fixed, 15,000 dpm/100cm^2 maximum total fixed)