



Rocky Flats Environmental Technology Site

TYPE 1 RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

BUILDING T707C CLOSURE PROJECT

REVISION 0

March 31, 2005



CLASSIFICATION REVIEW NOT REQUIRED PER
EXEMPTION NUMBER CEX-005-02

ADMIN RECORD

IA-A-C
IA-A-002597

**TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION
REPORT (RLCR)**

BUILDING T707C CLOSURE PROJECT

REVISION 0

March 31, 2005

Reviewed by:



Don Risoli, Quality Assurance

Date:

4/4/05

Reviewed by:



D.P. Snyder, RISS ESH&Q Manager

Date:

4/4/05

Approved by:



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04/04/05

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- A Facility Location Map
- B Historical Site Assessment Report
- C Radiological Data Summaries and Survey Maps
- D Chemical Data Summaries and Sample Maps
- E Data Quality Assessment (DQA) Detail

ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
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
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
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of Building T707C. Because this facility was an anticipated Type 1 facility, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces (i.e., floor, walls, ceiling and roof). Environmental media beneath and surrounding the facility was not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

The RLC 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.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. Representative laboratory results of building materials suspected of containing asbestos were "None Detected." All beryllium sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Based upon this RLCR, Building T707C is considered a Type 1 facility and can be demolished. To ensure the facility remains free of contamination and the RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Building T707C. Because this facility is an anticipated Type 1 facility, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facility (i.e., floor, walls, ceiling and roof). Environmental media beneath and surrounding the facility was not within the scope of this RLC Report (RLCR) and will be addressed at a future date using 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 T707C. The location of this facility is shown in Attachment A. This facility no longer supports the RFETS mission and needs to be removed to reduce Site infrastructure, risks and/or operating costs.

Before this facility can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. 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 PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report.

1.1 Purpose

The purpose of this report is to communicate and document the results of the PDS effort. A PDS is performed before building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the unrestricted 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 T707C. Environmental media beneath and surrounding this facility are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC 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.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment (HSA) was conducted to understand the facility history and related hazards. The assessment consisted of facility walkdowns, interviews and document reviews, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). These assessments were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. The facility-specific HSA was documented in a Historical Site Assessment Report (HSAR) for the Area 0 – Group 3 Facilities (Buildings T707C and T707E), Dated March 2005, Revision 0. Refer to Attachment B for a copy of the HSAR. In summary, the HSAR identified a low potential for radiological and chemical hazards.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building T707C 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 historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describe the minimum survey requirements (refer to the RISS Characterization Project files).

One radiological survey package was developed for the interior and exterior of Building T707C. Survey package 707C01 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*.

A total of thirty-two (32) TSA measurements (15 random, 15 biased and 2 QC) and thirty (30) RSA measurements (15 random and 15 biased) were performed, and a minimum 10% scan of the interior and exterior surfaces of the facility was performed. The RLC data confirmed that this facility does not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, Radiological Data Summary and Survey Maps. The radiological survey unit package is maintained in the RISS Characterization Project files. Isolation control postings are displayed on the facility to ensure no radioactive materials are inadvertently introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building T707C 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 the facility. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describe sampling requirements and the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs. Refer to Attachment D, Chemical Data Summaries and Sample Maps, for details on sample results and sample locations.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in Building T707C in accordance with the RLCP. A CDPHE-certified asbestos inspector conducted the inspection in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. A visual and tactile inspection of Building T707C was completed. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

A comprehensive, invasive asbestos inspection was conducted to determine the presence of friable and non-friable asbestos containing building materials. All sample results were "Non Detect". The trailer has a sheet metal roof that covers a layer of fibrous glass insulation. Asbestos laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, Building T707C was an anticipated Type 1 facility. There was not, however, adequate historical and process knowledge to conclude that beryllium was not used or stored in this building. Therefore, biased beryllium sampling was performed in accordance with the PDSP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

All beryllium results were less than $0.1 \mu\text{g}/100\text{cm}^2$ and meet the unrestricted release limits. Beryllium laboratory sample data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*.

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

Based on a review of the HSAR and a facility walk-down, Building T707C was used primarily as an office trailer, and never contained any operations that could lead to RCRA/CERCLA contamination, therefore, RCRA/CERCLA constituent sampling was not performed in this facility as part of the RLC.

Sampling for lead in paint in Building T707C was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) waste, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal. There were no high contamination areas in Building T707C.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSARs, interviews and facility walk-downs of Building T707C, no PCB-containing equipment was ever present in the building, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed in Building T707C as part of the RLC. Based on the age of Building T707C (constructed after 1980), paints used do not contain PCBs. Additionally, there are no suspected PCB light ballasts in this facility. However, all light ballasts will be inspected and if leaking PCB ballasts are discovered, they will be removed and managed accordingly.

5 PHYSICAL HAZARDS

Physical hazards associated with Building T707C consist of those common in standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. The facility has been relatively well maintained and is in good physical condition, and 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 T707C, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

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 E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building T707C will generate sanitary waste. Estimated waste volumes are presented below. All waste can be disposed of as sanitary waste, there is no radioactive or hazardous waste.

Waste Volume Estimates and Material Types – Building T707C							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
T707C	0	350	500	700	900	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building T707C is classified as a RFCA Type 1 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and can be demolished. The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC/PDS data.

The RLC of Building T707C was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Building T707C did not contain radiological or hazardous waste. Environmental media beneath and surrounding the facility will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

To ensure this Type 1 facility remains free of contamination and the RLC data remain valid, Level 2 Isolation Controls have been established and the facility posted accordingly.

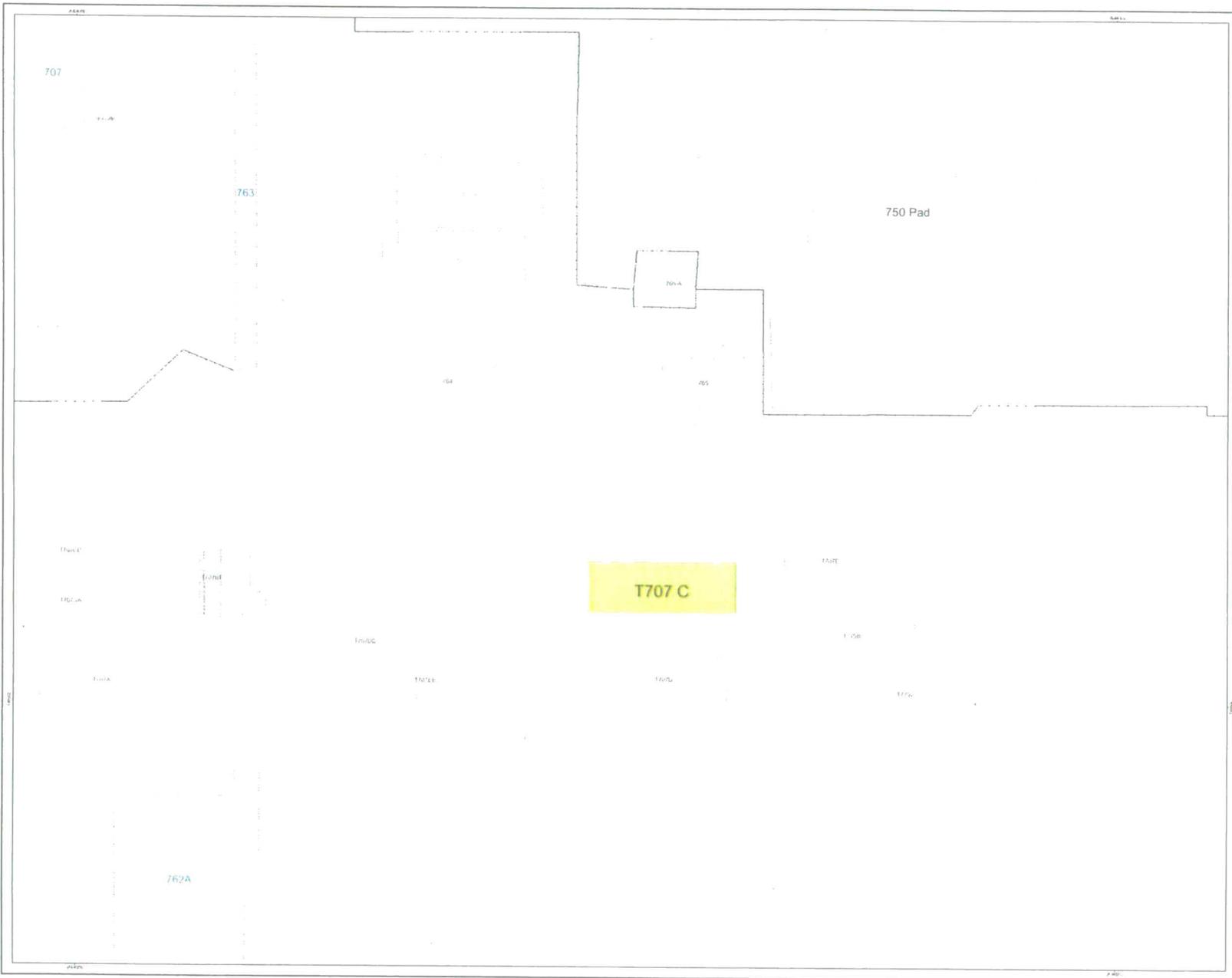
9 REFERENCES

- 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.*"
- 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. 3, 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*, December 1997 (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.*
- RFCA Standard Operation Protocol for Recycling Concrete*, September 28, 1999.
- Historical Site Assessment Report for Area 0 – Group 3 Facilities*, Dated March 2005, Revision 0.

ATTACHMENT A

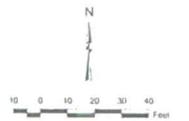
Facility Location Map

13



Buildings T707C Location Map

- Standard Map Features**
- Demolished Facility
 - Buildings Remaining
 - T707C
 - Lakes and Ponds
 - Demolished Roads
 - Paved Roads
 - Dirt Roads
 - Railroad Removed
 - Railroad Remaining
 - Fence Remaining
 - Streams, Ditches, or Other Drainage Features



State Plane Coordinate Projection
Colorado Central Zone (3478)
Datum NAD27

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

Prepared By
CH2MHILL
GIS DEPT. (303) 966-7707



DAT: 10/11/07

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ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
March 2005, Rev. 0**

Facility ID: (Area 0 – Group 3) – Trailers 707C (T707C) and 707E (T707E)

Anticipated Facility Type (1, 2, or 3): Trailers T707C and T707E are anticipated Type 1 facilities.

This facility-specific Historical Site Assessment (HSA) has been performed in accordance with:

D&D Characterization Protocol, RFETS MAN-077-DDCP, latest version, and
Facility Disposition Program Manual, RFETS MAN-076-FDPM, latest version

Physical Description

Trailer T707C is a 1,960 square-foot general office trailer and was acquired in 1991. Trailer T707E is a 520 square-foot general office trailer and was acquired in 1995. The trailers have aluminum siding and aluminum skirting. The entrances have wooden stairs leading to a wooded enclosure. The interior walls are wallboard and the ceiling is wallboard with flush mounted light fixtures. The floors are carpeted.

Trailers T707C and T707E have the following utilities: electrical, natural gas, and phone lines. Fire protection is provided by wall mounted fire extinguishers.

Historical Operations

Trailers T707C was formally trailer T111A. Trailer T707E was formally Trailer T442A. Trailer T707C has historically been a general office trailer in support of either the Building 111 operations or the Building 707/776 operations. When T707C was located near Building 111, it was used by finance personnel and DOE Tiger teams.

Trailer T707E has historically been a general office and storage trailer in support of either the Building 442 operations or the Building 707/776 operations. When T707E was located near Building 442, it was used by filter change and custodial personnel. These trailers do not have a history of radiological or hazardous operations.

Current Operational Status

Trailers T707C and T707E currently house personnel.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos:

There are no asbestos postings in the trailers. However the trailers will undergo an asbestos inspection, and sampling if necessary.

Beryllium (Be)

Describe any potential, likely, or known Be production or storage locations:

The trailers are not on the List of known Be Areas.

Summarize any recent Be sampling results:

No recent Be samples have been collected in the trailers.

**D&D RISS Facility Characterization
Historical Site Assessment Report
March 2005, Rev. 0**

Lead

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.):

Lead in paint and lead in electrical equipment should not be a concern due to the age of construction.

RCRA/CERCLA Constituents

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, and processes):

T707C and T707E were not used as RCRA/CERCLA storage facilities. The only chemicals used in these facilities were general cleaning supplies.

See the "Environmental Concerns" section below for IHSSs and PACs associated with these buildings.

Describe any potential, likely, or known spill locations (and sources, if any):

No known spills.

Describe methods in which spills were mitigated, if any:

No known spills.

PCBs

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.):

Due to the age of these facilities, there should not be a concern with PCBs in paint, light ballasts, and electrical equipment. No PCBs operation where housed in the facilities.

Describe any potential, likely, or known spill locations (and sources, if any):

No known PCB spills occurred in these facilities.

Describe methods in which spills were mitigated, if any:

No known PCB spills occurred in these facilities.

**D&D RISS Facility Characterization
Historical Site Assessment Report
March 2005, Rev. 0**

Radiological Contaminants

Describe any potential, likely, or known radiological production or storage locations:

T707C and T707E were not radiologically posted nor housed any radiological operations.

See the "Environmental Concerns" section below for IHSSs and PACs associated with these buildings.

Describe any potential, likely, or known spill locations (e.g., known leaking sealed radioactive sources, leaking waste drums, potentially contaminated drains, etc.):

No known spills have occurred inside T707C and T707E.

Describe methods in which spills were mitigated, If any:

No known spills have occurred inside T707C and T707E.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.):

The primary Isotope of concern includes, but is not limited to plutonium. There were no mixed fission products or pure beta emitters used in T707C and T707E.

Describe any potential, likely, or known external facility contamination (e.g., stack release points, unfiltered ventilation, facility's physical location to known site releases, etc.):

See section below for information on IHSSs PACs, and UBCs.

Environmental Restoration Concerns

Describe any ER concerns that could affect facility characterization (e.g., IHSSs, PACs, UBCs):

None applicable.

Additional Information

Describe any additional information that may be useful during facility characterization (e.g., contaminant migration routes, waste handling operations, physical hazards, Historical Release Reports, WSRIC data, etc.):

None

References

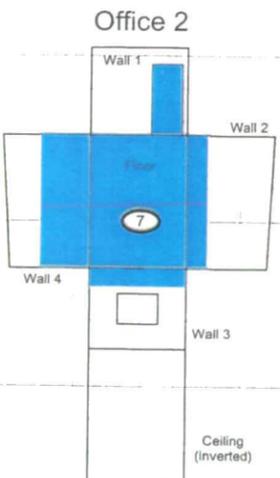
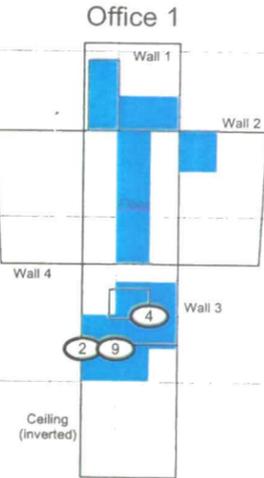
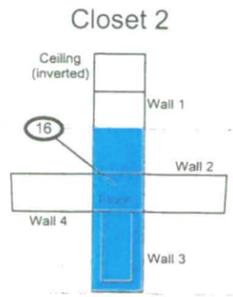
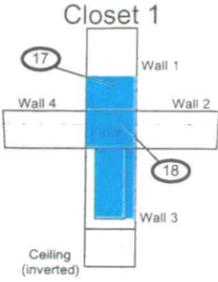
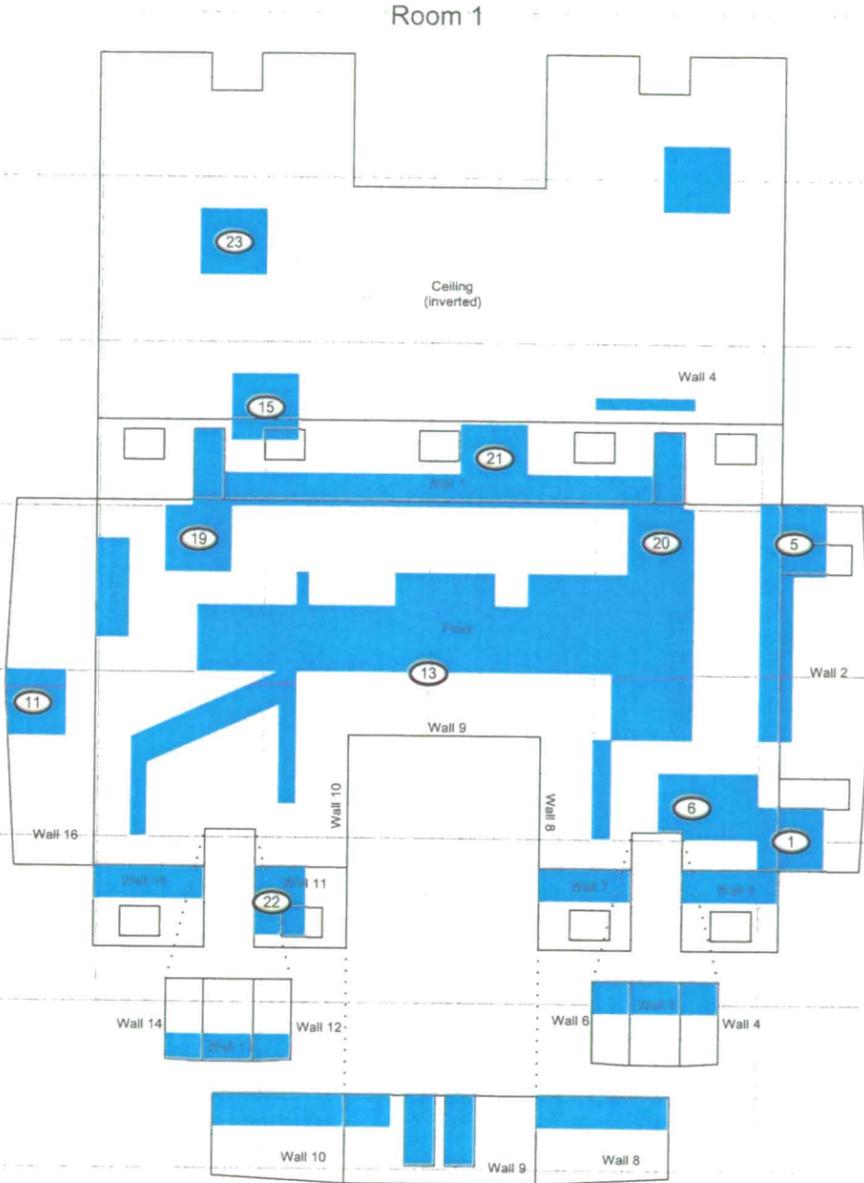
Provide all sources of information utilized to gather data for facility history (e.g., documents, files, interviews):

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases. None of the Buildings in this HSA have a WSRIC. In addition, a facility walkdown and interviews were performed.

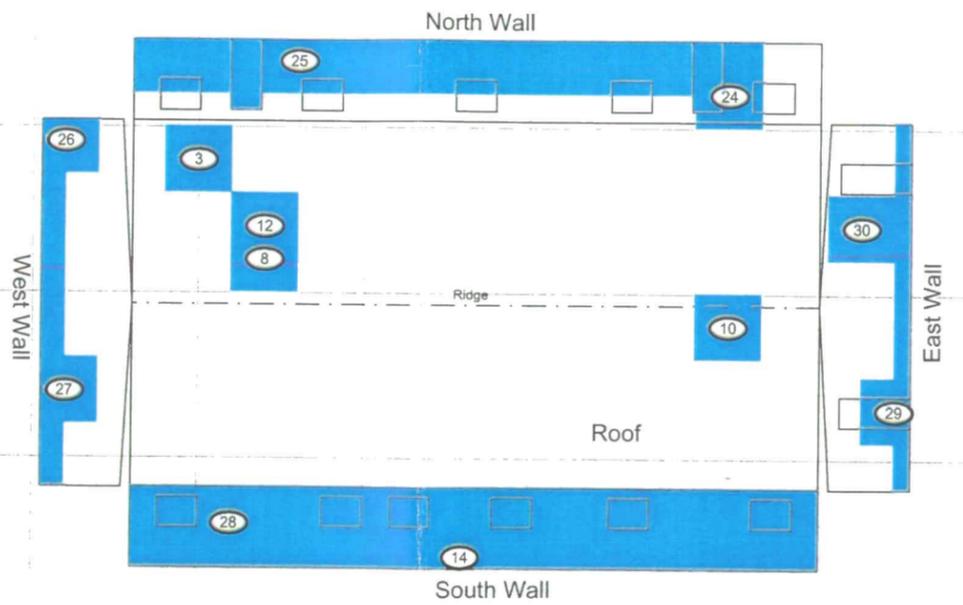
ATTACHMENT C

Radiological Data Summaries and Survey Maps

Interior



Exterior

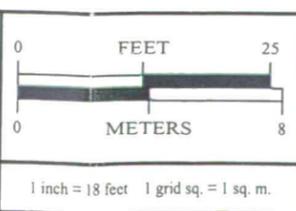


SURVEY MAP LEGEND

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

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Scan Survey Information
 Survey Instrument ID #(s) & RCT ID #(s):
 1, 2, 3, 5, 6



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

Prepared by: GIS Dept. 303-966-7707 Prepared for:

CH2MHILL
 Communications Group

MAP ID: 05-0302\T707C_SC Mar. 17, 2005

20

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15
Nbr Random Measurements Performed: 15

Nbr Biased Measurements Required: 15
Nbr Biased Measurements Performed: 15

Nbr QC Required: 2
Nbr QC Performed: 2

Alpha

Maximum:	53.0 dpm/100cm ²
Minimum:	-6.5 dpm/100cm ²
Mean:	12.2 dpm/100cm ²
Standard Deviation:	15.0
QC Maximum:	29.6 dpm/100cm ²
QC Minimum:	17.1 dpm/100cm ²
QC Mean:	23.4 dpm/100cm ²
Transuranic DCGL _w :	100.0 dpm/100cm ²
Transuranic DCGL _{EMC} :	300.0 dpm/100cm ²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15
Nbr Random Measurements Performed: 15

Nbr Biased Measurements Required: 15
Nbr Biased Measurements Performed: 15

Alpha

Maximum:	4.2 dpm/100cm ²
Minimum:	-0.3 dpm/100cm ²
Mean:	0.7 dpm/100cm ²
Standard Deviation:	1.5
Transuranic DCGL _w :	20.0 dpm/100cm ²

Media Sample Results

Nbr Random Required: 0
Nbr Random Collected: 0

Nbr Biased Required: 0
Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm ²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	712467	03/14/05	Electra	657	AP-6	06/13/05	0.184	NA	48.0	NA	S
2	712467	03/14/05	Electra	2340	DP-6	05/15/05	0.222	NA	48.0	NA	T/S
3	515538	03/14/05	Electra	3370	DP-6	07/27/05	0.213	NA	48.0	NA	T/S
4	511390	03/14/05	SAC-4	767	NA	08/03/05	0.330	NA	10.0	NA	R
5	511390	03/15/05	Electra	3102	DP-6	06/16/05	0.216	NA	48.0	NA	Q/S
6	712467	03/15/05	Electra	1366	DP-6	04/05/05	0.212	NA	48.0	NA	T/S
7	515538	03/15/05	SAC-4	767	NA	08/03/05	0.330	NA	10.0	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

22

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Comments Sheet

General N/A
Comments:

TSA N/A
Comments:

RSA N/A
Comments:

Media N/A
Comments:

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707C01PRP-N001	4	-0.3	N/A	N/A
707C01PRP-N002	4	-0.3	N/A	N/A
707C01PRP-N003	7	1.2	N/A	N/A
707C01PRP-N004	4	4.2	N/A	N/A
707C01PRP-N005	4	-0.3	N/A	N/A
707C01PRP-N006	4	4.2	N/A	N/A
707C01PRP-N007	4	-0.3	N/A	N/A
707C01PRP-N008	7	4.2	N/A	N/A
707C01PRP-N009	4	-0.3	N/A	N/A
707C01PRP-N010	7	2.7	N/A	N/A
707C01PRP-N011	4	-0.3	N/A	N/A
707C01PRP-N012	7	-0.3	N/A	N/A
707C01PRP-N013	4	1.2	N/A	N/A
707C01PRP-N014	4	-0.3	N/A	N/A
707C01PRP-N015	4	1.2	N/A	N/A

29

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707C01PBP-N016	4	1.2	N/A	N/A
707C01PBP-N017	4	-0.3	N/A	N/A
707C01PBP-N018	4	2.7	N/A	N/A
707C01PBP-N019	4	-0.3	N/A	N/A
707C01PBP-N020	4	-0.3	N/A	N/A
707C01PBP-N021	4	-0.3	N/A	N/A
707C01PBP-N022	4	-0.3	N/A	N/A
707C01PBP-N023	4	1.2	N/A	N/A
707C01PBP-N024	4	1.2	N/A	N/A
707C01PBP-N025	4	-0.3	N/A	N/A
707C01PBP-N026	4	-0.3	N/A	N/A
707C01PBP-N027	4	-0.3	N/A	N/A
707C01PBP-N028	4	-0.3	N/A	N/A
707C01PBP-N029	4	-0.3	N/A	N/A
707C01PBP-N030	4	-0.3	N/A	N/A

25

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707C01PRP-N001	2	17.3	N/A	N/A
707C01QRP-N001	5	29.6	N/A	N/A
707C01PRP-N002	3	-0.3	N/A	N/A
707C01PRP-N003	6	43.6	N/A	N/A
707C01PRP-N004	3	15.2	N/A	N/A
707C01PRP-N005	2	14.2	N/A	N/A
707C01PRP-N006	2	5.2	N/A	N/A
707C01PRP-N007	2	5.2	N/A	N/A
707C01PRP-N008	6	53.0	N/A	N/A
707C01PRP-N009	3	24.6	N/A	N/A
707C01QRP-N009	5	17.1	N/A	N/A
707C01PRP-N010	6	5.9	N/A	N/A
707C01PRP-N011	2	5.2	N/A	N/A
707C01PRP-N012	6	24.7	N/A	N/A
707C01PRP-N013	2	-6.5	N/A	N/A
707C01PRP-N014	3	3.0	N/A	N/A
707C01PRP-N015	2	-0.7	N/A	N/A

26

Survey Area: 0

Survey Unit: 707C01

Building: T707C

Description: Trailer 707C (Interior and Exterior) all surfaces

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
707C01PBP-N016	3	4.4	N/A	N/A
707C01PBP-N017	2	-2.4	N/A	N/A
707C01PBP-N018	2	-5.1	N/A	N/A
707C01PBP-N019	2	0.7	N/A	N/A
707C01PBP-N020	2	0.7	N/A	N/A
707C01PBP-N021	2	12.9	N/A	N/A
707C01PBP-N022	2	6.6	N/A	N/A
707C01PBP-N023	3	10.5	N/A	N/A
707C01PBP-N024	3	2.5	N/A	N/A
707C01PBP-N025	3	23.2	N/A	N/A
707C01PBP-N026	2	9.7	N/A	N/A
707C01PBP-N027	2	45.8	N/A	N/A
707C01PBP-N028	3	29.3	N/A	N/A
707C01PBP-N029	2	6.6	N/A	N/A
707C01PBP-N030	3	10.5	N/A	N/A

ATTACHMENT D

Chemical Data Summaries and Sample Maps

Asbestos Data Summary

Building T707C – RIN05Z1026

Sample Number	Map Survey Point Location	Room	Sample Location	Result
T707C-0325-2005-76-001	1	1	White tan ceiling tile	Non-Detect
T707C-0325-2005-76-002	2	1	White tan ceiling tile	Non-Detect
T707C-0325-2005-76-003	3	1	Tan fibrous material with white/gray resinous mater, yellow mastic, tan cove base	Non-Detect

Building T707C – RIN05Z1027

Sample Number	Map Survey Point Location	Room	Sample Location	Result
T707C-0328-2005-76-002	4	Roof	Roofing tar - side facing street in middle of roof, black resinous material	Non-Detect

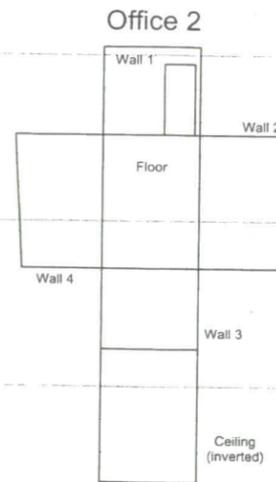
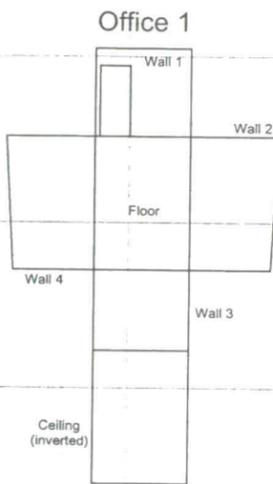
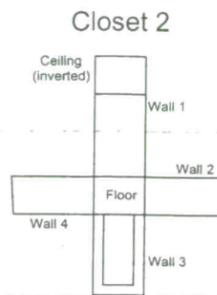
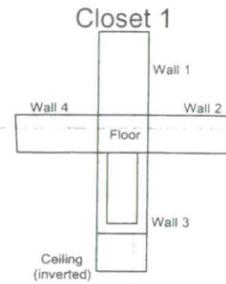
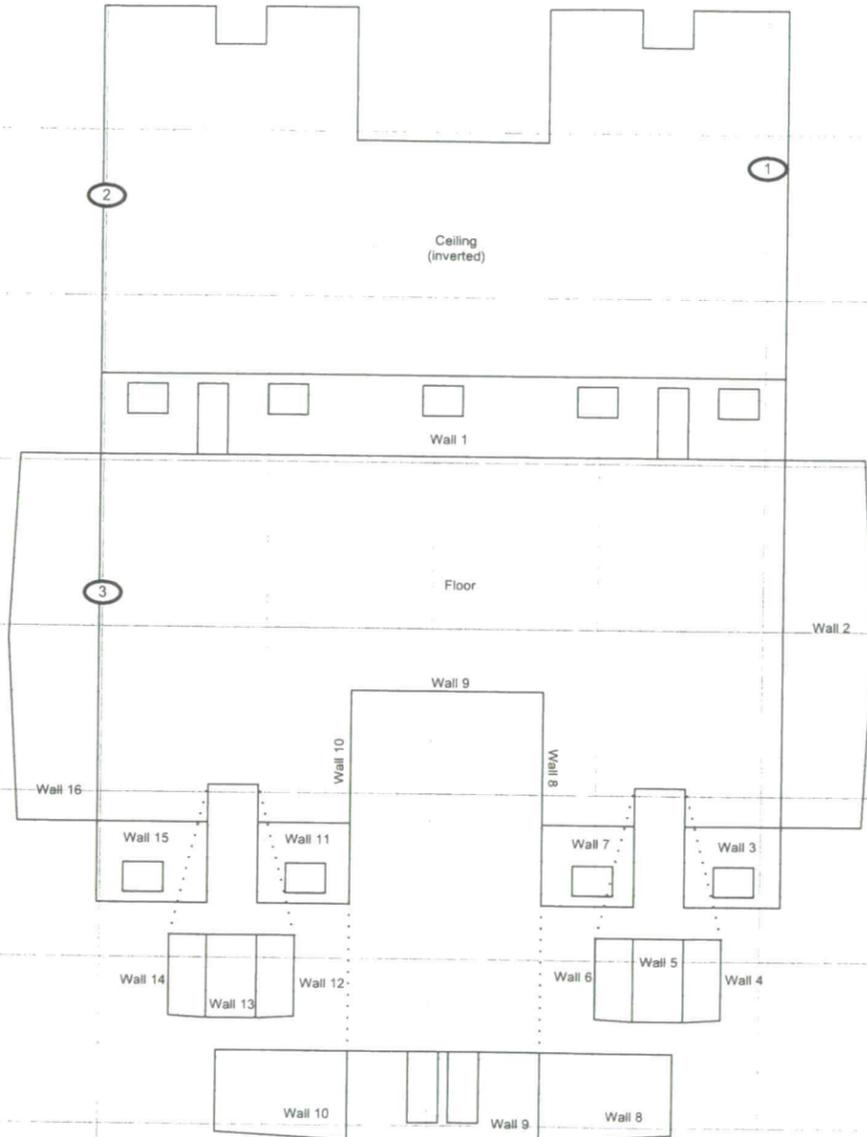
CHEMICAL SAMPLE MAP

Building 707C
Asbestos

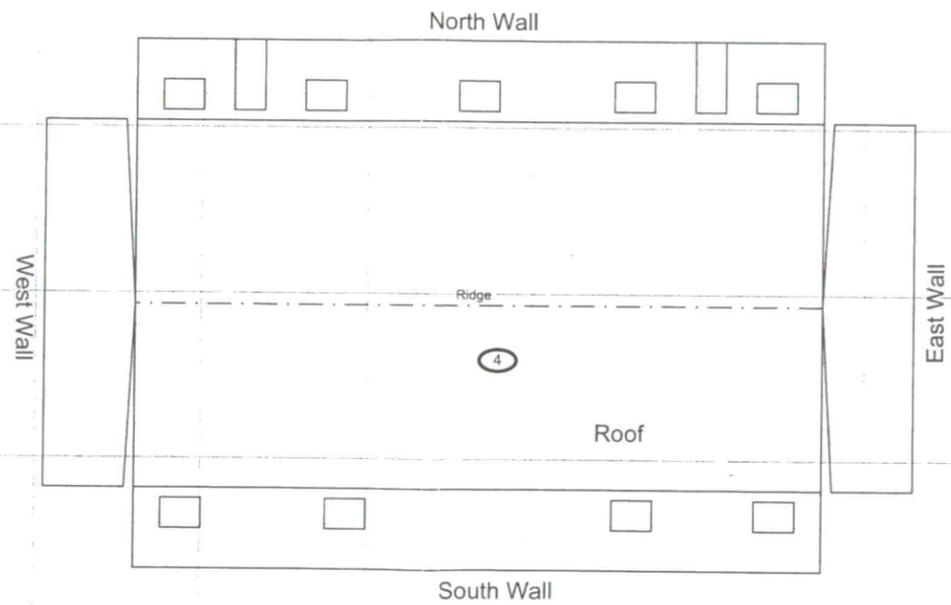
PAGE 1 OF 1

Interior

Room 1



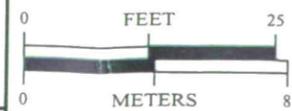
Exterior



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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1 inch = 18 feet 1 grid sq. = 1 sq. m.

- Open/Inaccessible Area
- Area in Another Survey Unit

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

Prepared by: GIS Dept. 303-966-7707

Prepared for:



MAP ID: 05-03021707C_ASB

Mar. 30, 2005

Beryllium Data Summary

Building T707C – RIN05D0642

Sample Number	Map Survey Point Location	Room	Sample Location	Result ($\mu\text{g}/100\text{ cm}^2$)
707-03212005-00-001	1	3	On top of Desk	< 0.1
707-03212005-00-002	2	3	On top of Desk	< 0.1
707-03212005-00-003	3	2	Top of refrigerator	< 0.1
707-03212005-00-004	4	2	Window sill	< 0.1
707-03212005-00-005	5	1	On top of electronic equipment	< 0.1

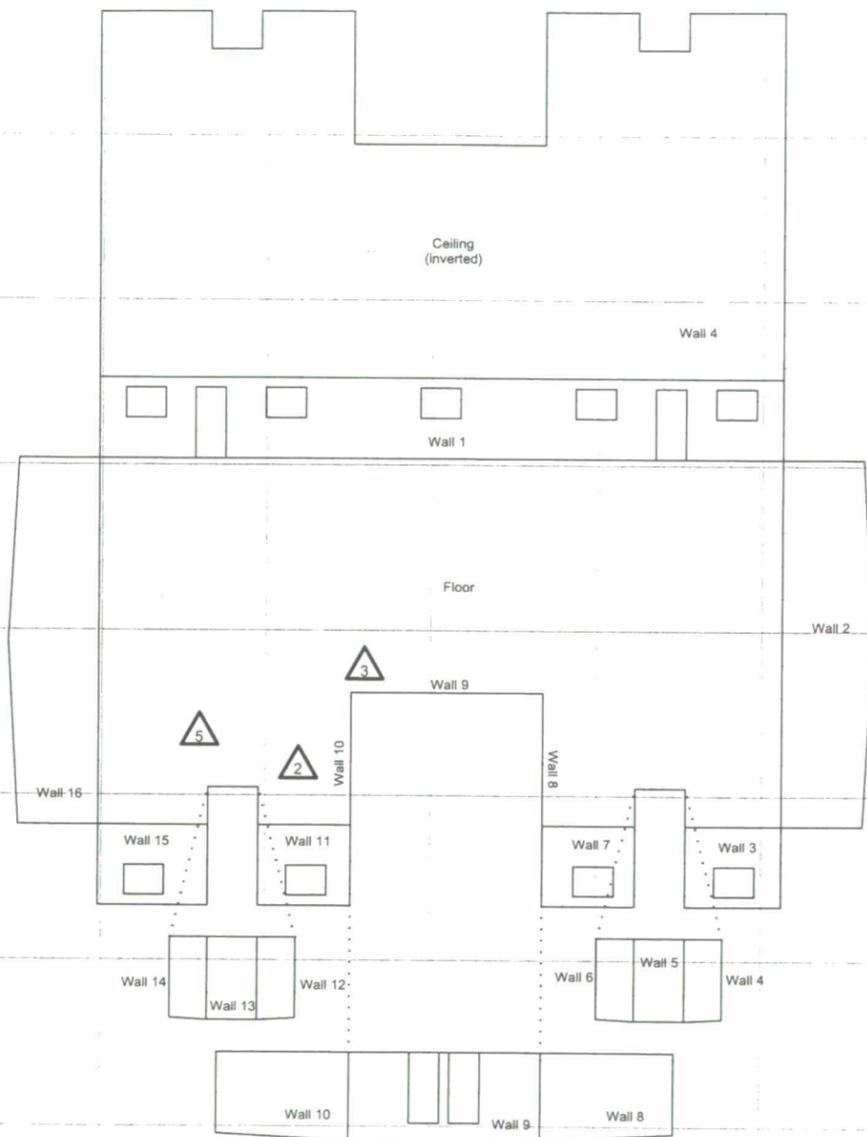
CHEMICAL SAMPLE MAP

Building 707C
Beryllium

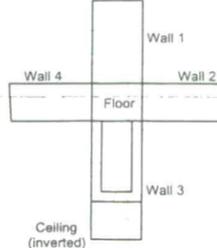
PAGE 1 OF 1

Interior

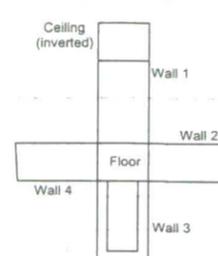
Room 1



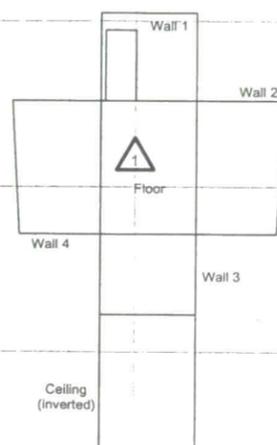
Closet 1



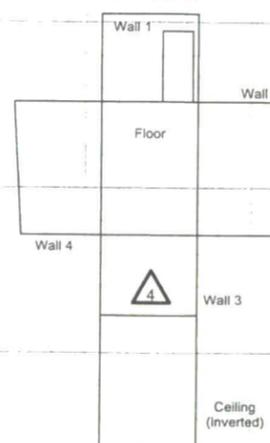
Closet 2



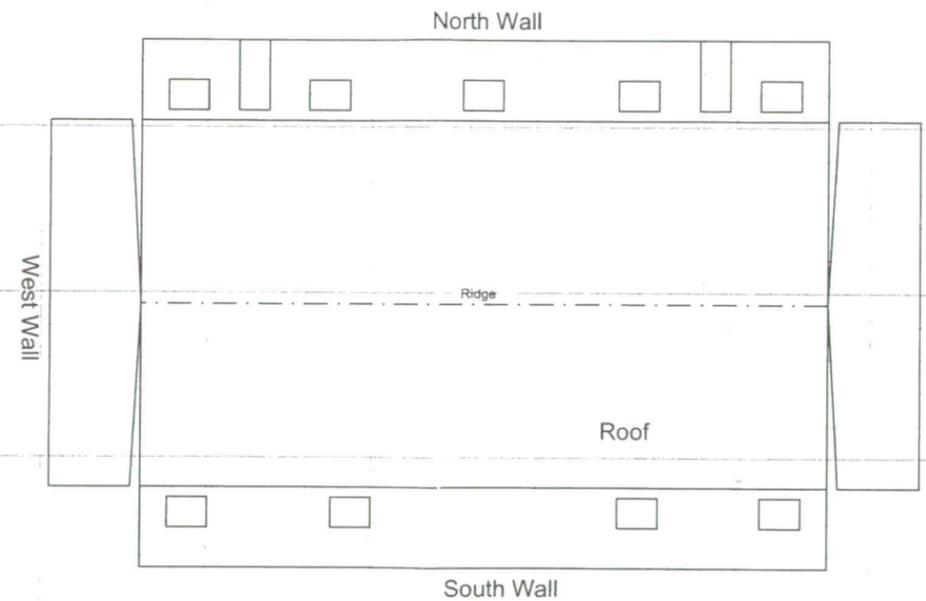
Office 1



Office 2



Exterior



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 18 feet 1 grid sq. = 1 sq. m.

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

Prepared by: GIS Dept. 303-966-7707

Prepared for:



MAP ID: 05-03021707C_BE

Mar. 30, 2005

ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION 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 asbestos and 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 E-1, asbestos in E-2 and beryllium in E-3. A data completeness summary for all results is given in Table E-4.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This 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 not implemented for Building T707C based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGL_w (100 dpm/100cm²) and the Uranium DCGL_w (5,000 dpm/100cm²) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design (for those survey units performed per PDS requirements) was optimized by checking actual measurement results (acquired during pre-demolition surveys) against 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.

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 uncertainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable RSP procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits. All results meet the PDS unrestricted release criteria.

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 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, Building T707C meets the unrestricted release criteria with the confidences stated herein.

Table E-1 V&V of Radiological Surveys - Building T707C

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 707C01 (interior and exterior).	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 E-4 for details.
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm ² RA: ≤10 dpm/100cm ²	all measures	MDAs ≤ ½ DCGL _w per MARSSIM guidelines.

Table E-2 V&V of Asbestos Results - Building T707C

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc. Denver, Colorado	
QUALITY REQUIREMENT		RIN ---->	RIN05Z1026 RIN05Z1027	
		Measure	Frequency	
ACCURACY	Calibrations: Initial/continuing	below detectable amounts	≥ 1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 4 samples	Semi-quantitative, per (microscopic) visual estimation.
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals.
	Hold times/preservation	Qualitative	NA	N/A
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	See original Chemical Characterization Package (planning document); for field/sampling procedures (located in project file;) thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Measurement Units	% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	See Table E-4, final number of samples at Certified Inspector's discretion.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium Results - Building T707C

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville Corp. Denver, Co.	
	QUALITY REQUIREMENTS		RIN ----> RIN05D0642	
		Measure	Frequency	
ACCURACY	Calibrations Initial	linear calibration	≥1	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 0.00084 ug/swipe	all measures	

Table E-4 Data Completeness Summary - Building T707C

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building T707C (interior and exterior)	5 samples (biased)	4 samples (biased)	No ACM present, all results < 1% by volume	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116 RIN05Z1026: sample map locations 1, 2 and 3 RIN05Z1027: sample map location 4
Beryllium	Building T707C (interior)	5 samples (biased)	5 samples (biased)	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN05D0642 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Radiological	Survey Area 0 Survey Unit: 707C01 Building T707C (interior and exterior)	30 α TSA (15 random/15 biased) and 30 α Smears (15 random/15 biased) 2 QC TSA 10% scan of the interior and exterior surfaces	30 α TSA (15 random/15 biased) and 30 α Smears (15 random/15 biased) 2 QC TSA 10% scan of the interior and exterior surfaces	No elevated contamination at any location; all values below PDS unrestricted release levels	Transuranic DCGLs used.