

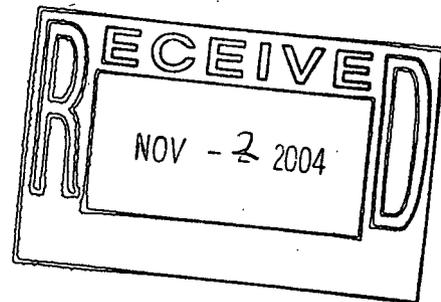
Rocky Flats Environmental Technology Site

TYPE 1 RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

BUILDING T891B CLOSURE PROJECT

October 5, 2004

REVISION 0



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

ADMIN RECORD

IA-A-002407

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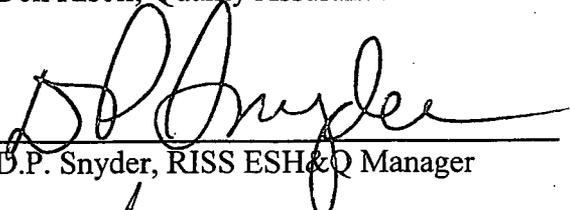
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Reviewed by:  Date: 10/5/04
Don Risoli, Quality Assurance

Reviewed by:  Date: 10/5/04
D.P. Snyder, RISS ESH&Q Manager

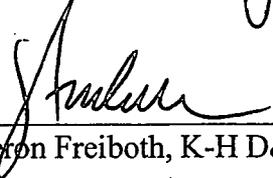
Approved by:  Date: 10/05/04
Cameron Freiboth, K-H D&D Project Manager

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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 T891B. Because this facility was anticipated to be a 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., floors, walls, ceilings and roofs). 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 Reports.

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. Laboratory results of building materials in a homogenous area 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 T891B 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 T891B. Because this facility was 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., floors, walls, ceilings and roofs). 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 T891B. The location of this facility is shown in Attachment A, *Facility Location Map*. This facility no longer supports the RFETS mission and needs to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the 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 for the Area 5-Group 2 Facilities, dated November 2002, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A RLC is performed before building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. RLC 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 T891B. Environmental media beneath and surrounding the facility is 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 review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSA was documented in a facility-specific *Historical Site Assessment Report (HSAR) for the Area 5-Group 12 Facilities*, Dated November, 2002, Revision 0. Refer to Attachment B, *Historical Site Assessment Report*, for a copy of the Building T891B HSAR. In summary, the HSAR identified a low potential for radiological and chemical hazards, except the potential for asbestos containing materials.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building T891B 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, Radiological Characterization Plans were developed during the planning phases that describe the minimum survey requirements (refer to the RISS Characterization Project files).

One radiological survey package (891B02) was developed for the interior of Building T891B. The survey 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, 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.

Twenty-seven (27) TSA measurements (15 random, 5 biased, 5 equipment and 2 QC) and twenty-five (25) RSA measurements (15 random, 5 biased, 5 equipment) were performed; and a 75% scan of the facility interior floor surfaces and 5% scan of the remaining interior surfaces of the facility were scanned. 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. Level 2 Isolation Control postings are displayed on the building to ensure no radioactive materials are inadvertently introduced.

Although there were no exterior surveys performed on Building T891B, it is assumed that the exterior is below RLC/PDS unrestricted release levels based on representative surveys performed on adjacent/surrounding buildings conducted during the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, 02-DOE-01598, dated December 13th, 2002 and approved by CDPHE letter, RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP), dated January 27, 2003; refer to the RISS Characterization Project Files for letter copies). Since all exterior building surveys performed under EXT-B-001 were less than RLC/PDS unrestricted release levels, it is assumed, based on representative survey results, that the exterior of Building T891B is also below unrestricted release level. Consequently, no exterior surveys were performed as part of this RLC. Radiological survey data, statistical analysis results, and survey map locations for the West-Side Exterior survey unit package EXT-B-001 are maintained in the RISS Characterization Project files.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building T891B 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 describes sampling requirements, the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in the aforementioned building in accordance with the RLCP criteria. A CDPHE-certified asbestos inspector conducted the inspection and survey in accordance with the *Asbestos Characterization Protocol*, PRO-563-ACPR, Revision 1. All laboratory results of building materials suspected of containing asbestos were "None Detected." Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, Building T891B 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 smear sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. 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 T891B was used primarily as an office trailer with a small laboratory used for field screening and packaging/shipping of water samples. The only RCRA/CERCLA concern would be in the lab area where nitric acid, hydrochloric acid, sulfuric acid and sodium hydroxide pellets were used to preserve the water samples. There is no history or evidence of contamination from the laboratory activities, therefore, RCRA/CERCLA constituent sampling was not performed in this facility as part of the RLC.

Sampling for lead in paint in Building T891B 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 T891B.

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSARs, interviews and facility walk-downs of Building T891B, 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 T891B as part of the RLC.

Based on the age of Building T891B (constructed after 1980), paints used do not contain PCBs. Additionally, there are no suspected PCB light ballasts in this facility.

5 PHYSICAL HAZARDS

Physical hazards associated with Building T891B 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 T891B, 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, *Data Quality Assessment Detail*.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building T891B will generate a variety of waste. Estimated waste types and 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 T891B							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
T891B	0	300	250	350	450	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building T891B is classified as a RFCA Type 1 facilities 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 T891B was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Building T891B 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

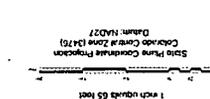
- DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. Decommissioning Program Plan, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill 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 the Area 5 - Group 12 Facilities*, Dated November, 2002, Revision 0.

ATTACHMENT A
Facility Location Map

T891B Location Map

Rocky Flats Environmental Technology Site

- Map Features**
- T891B
 - D&D Facility
 - Paved Roads
 - Dirt Roads
 - Lakes
 - Railroad Removed
 - Railroad Remaining
 - Fence Removed
 - Fence Remaining
 - Streams

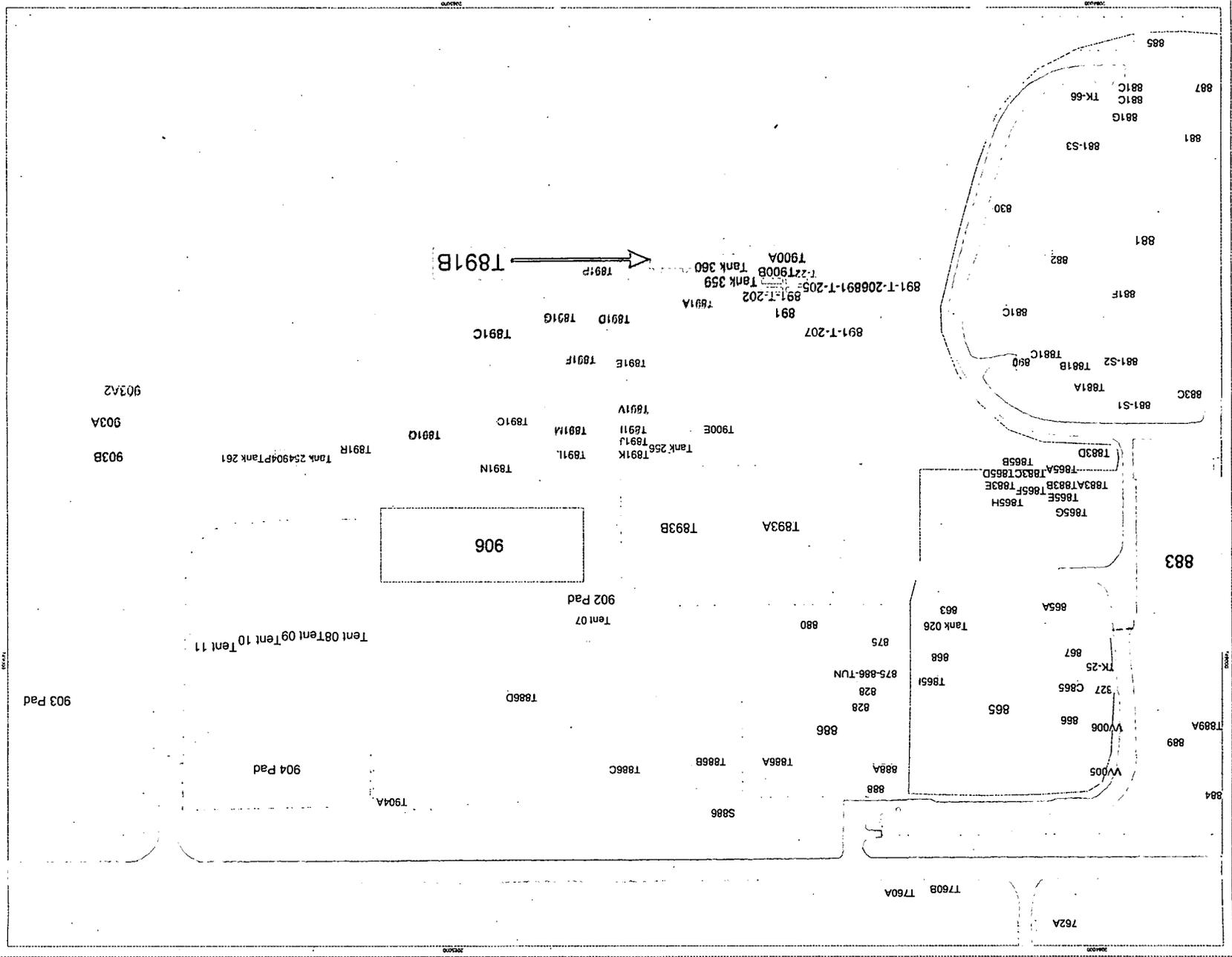


U.S. Department of Energy
Rocky Flats Environmental Technology Site

CH2MHILL
KISTNER

GIS Data: (2007) 06A-1707

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ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
November, 2002 Rev. 0**

Facility ID: (AREA 5 GROUP 12) Buildings 891, 903A1, and Trailers T891B, T900A, and T900B.

Anticipated Facility Type (1, 2, or 3): Buildings 891, 903A1, and Trailers T891B, T900A, and T900B 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

Building 891

Building 891 is a 3,000 square-foot structure built in 1991. This building is steel frame building constructed on a concrete foundation. The walls and roof are insulated corrugated metal. The building is configured with a large highbay area that houses the water treatment equipment. The east side of the building houses an office area and an electrical room. The highbay area has a concrete bermed floor, which acts as a secondary containment system. In addition, the acid tanks and the caustic tanks have secondary containment inside the bermed process area. The north east corner of the building has a 2 foot x 3 foot sump. This sump is connected to the process system and is occasionally used to introduce wastewater to the process system.

Building 891 had the following utilities: electric, Plant water, plant sanitary, natural gas, and fire protection is provided by wall mounted fire extinguishers.

Trailer 891B

Trailer T891B is a 980 square-foot general office trailer acquired in 1993. This trailer has corrugated metal siding with painted wood skirting. The entrances have wooden stairs leading to a wooded enclosure. T891B has a hard walled office on the east end of the trailer, another hard walled office on the west end and a large work area in the center, which is divided into cubicles. Interior walls are wallboard, the ceiling is a drop ceiling with acoustical tiles and recessed lights. The floor is 12-inch square vinyl tile.

Trailer T891B had the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers.

Trailer T900A

Trailer T900A is a standard, 40-foot enclosed flat bed freight trailer equipped to support the concentration and microfiltration subsystem of the CWTF. This trailer was acquired in 1992, has aluminum sides and roof, and is located on a concrete bermed pad, which acts as a secondary containment system. Both T900A and T900B share a steel platform and stairs, which lead to the entrances to both trailers.

Trailer T900A has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers.

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Trailer T900B

Trailer T900B is a standard, 40-foot enclosed flat bed freight trailer equipped to support the precipitation subsystem of the CWTF. This trailer was acquired in 1992 and has aluminum sides and roof and is located on a concrete bermed pad, which acts as a secondary containment system. Both T900A and T900B share a steel platform and stairs, which lead to the entrances to both trailers.

Trailer T900B has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers.

Building 903A1

Building 903A1 is an approximately 50 square-foot general storage shed acquired in 1993. This structure is a wood building with wood walls, wood floor and asphalt shingle roof. This building sits on a concrete pad and is located south of the 903A Main Decontamination Facility (MDF).

Building 903A1 has the following utilities: electric.

Historical Operations

Building 891

Building 891 is the main structure in the Consolidated Water Treatment Facility (CWTF). The CWTF is comprised of Building 891, T900A, T900B, and three 159,000-gallon water storage tanks. The CWTF treats water from the OU-1 groundwater project, the decontamination water from the Main Decontamination Facility and Protected Area Decontamination Facility, and other environmental remediation waters (e.g., purge water, water from environmental restoration and special projects, etc.)

Influent waters are pre-characterized or sampled to determine whether contaminants and concentrations are within pretreatment parameters prior to water treatment. Operational samples are taken to evaluate system performance. The CWTF removes small quantities of volatile organic compounds (VOCs), radionuclides, heavy metals, dissolved solids, alkaline, and treats the water for hardness. Effluent water is sampled and analyzed prior to discharge to ensure compliance with the CWTF treatment requirements. The CWTF consists of four water treatment systems. These systems are Ultraviolet (UV)/Hydrogen Peroxide (H₂O₂) Oxidation, Chemical Precipitation and Microfiltration, Ion Exchange, and Granular Activated Carbon (GAC) Adsorption. See the Building 891 Facility Safety Analysis Report for a more detailed description of the processes associated with the CWTF.

North of Building 891 is a concrete pad, which was poured as the foundation for an addition to the CWTF. This building was never completed, but the pad still remains.

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Trailer 891B

T891B houses the water treatment support personnel, which operate the Building 891 water treatment facility. This trailer houses the Resource Technology Lab (RTG) lab, which is a field laboratory used to perform field screening, and to package and ship water samples related to the Building 891 wastewater treatment facility. This field lab is located in the work area in the center of the trailer. Nitric Acid, hydrochloric acid, sulfuric acid and sodium hydroxide pellets are used to preserve the water samples. The RTG lab was moved here from T891C in 2000.

Trailer 900A

Trailer T900A is called the Microfiltration trailer and is considered a portable unit. Trailer T900A is a standard, 40-foot enclosed flat bed freight trailer equipped to support the concentration and Microfiltration subsystem. Effluent from the T900A trailer flows to the concentration tank T-8. Tank T-8 is constructed of fiberglass reinforced plastic and equipped with baffles, level controls and a recirculating pump. T-8 concentrates the solids and then pumps the liquids through the Microfiltration system. The filtrate is then gravity feed to the neutralization tank (T-11). The neutralization tank uses sulfuric acid to adjust the pH to between 6 and 9. The filtrate is discharged, recycled, or treated further as appropriate. See the Building 891 Facility Safety Analysis Report for a more detailed description of the processes associated with the CWTF.

Trailer 900B

Trailer T900B is called the precipitation trailer and is considered a portable unit. Trailer T900B is a standard, 40 foot enclosed flatbed freight trailer equipped with two reaction tanks (T-1 and T-2): one ferric sulfate addition tank (T-4); one lime tank (T-6); one auxiliary chemical addition tank (T-5); and one solids holding tank (T-12). The tanks in this trailer are used to change the pH of the influent water to precipitate out radionuclides, metal, and other contaminants. Chemicals such as biological inhibitors and coagulants may be added to enhance the total effectiveness of the process. See the Building 891 Facility Safety Analysis Report for a more detailed description of the processes associated with the CWTF.

Building 903A1

Building 903A1 is a general storage building used to support the 903 Decontamination Pad operations. This Building housed a control and power panel for the 903 Decontamination Pad and is also used to provide general storage space for the pad. There is no history of radiological or chemical contamination due to these activities.

Current Operational Status

Buildings 891, 903A1, and Trailers T891B, T900A and T900B are all operational.

Contaminants of Concern

Asbestos

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

Trailer T891B is the only building posted as potentially containing Asbestos. The remaining facilities addressed in this HSA have no postings.

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Beryllium (Be)

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

None of the facilities addressed in this HSA are on the List of known Be Areas.

Summarize any recent Be sampling results:

There have been no recent Be samples collected on any of these facilities.

Lead

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

Based on the age of some of the facilities addressed in this HSA, lead in paint should not be a concern. No processes containing lead were conducted in these facilities.

RCRA/CERCLA Constituents

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

Building 891 and Trailers T900A and T900B are all part of the CWTF. The CWTF can accept low levels of RCRA/CERCLA constituents in wastewater. Some of the GAC and other treatment media are disposed of as a hazardous material. Building 903A1 supports the 903 Decontamination Pad.

See the Historical Operations section above for a more detailed listing of the operations which occurred in the facilities addressed in this HSA.

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

Building 891 had several acid spills from a tank inside Building 891. The spills were always contained inside the tank's secondary containment system. No other facility in this HSA has had a RCRA/CERCLA spill.

Describe methods in which spills were mitigated, if any:

The acid was pumped back into the tanks.

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PCBs

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

No PCB containing processes were housed in any of the facilities addressed in this HSA. Based on the age of construction of these facilities, PCBs in paint should not be a concern.

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

No PCB spills occurred in any of the Facilities addressed in this HSA.

Describe methods in which spills were mitigated, if any:

No PCB spills occurred in any of the Facilities addressed in this HSA.

Radiological Contaminants

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

Building 891 and Trailers T900A and T900B are all part of the CWTF. The CWTF can accept low levels of radiological contaminated wastewater. Some of the GAC and other treatment media are disposed of as low level radiological waste. In addition, some of the CWTF piping is labeled as potentially internally contaminated. The sump in the north east corner of Building 891 has a contamination area posting. An interviewee indicated the sump had only very low levels of contamination. Building 903A1 has no history of radiological contamination.

See the Historical Operations section above for a more detailed listing of the operations which occurred in the facilities addressed in this HSA.

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

None

Describe methods in which spills were mitigated, if any:

None of the facilities in this HSA have had any known documented radiological spills.

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

Isotopes of concern include uranium and plutonium.

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.

**D&D RISS Facility Characterization
Historical Site Assessment Report
November, 2002 Rev. 0**

Environmental Restoration Concerns

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

The CWTF, which includes Building 891 T900A and T900B, are located near the following IHSSs, PACs, or UBCs. See individual IHSS, PAC, or UBC report for additional information.

- 1) 400-104, "Liquid Dumping", NFA approved in the 1997 OU-1 CAD/ROD.

Trailers T891B and Building 903A1 are not associated with any IHSSs, PACs, or UBCs.

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. The WSRIC for those buildings with a WSRIC. In addition, a facility walkdown and interviews were performed.

Waste Volume Estimates and Material Types

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)
Building 891	2500	0	2000	1100	400	TBD	N/A
Building 903A1	0	500	0	0	0	TBD	N/A
Trailer T891B	None	300	250	350	450	TBD	N/A
Trailer T900A	0	0	600	200	0	TBD	N/A
Trailer T900B	0	0	600	200	0	TBD	N/A

Further Actions

Recommend any further actions, if any (e.g., characterization, decontamination, special handling, etc.):

Begin the RLC/PDS process.

ATTACHMENT C

Radiological Data Summaries and Survey Maps

Survey Area: 5

Survey Unit: 891B02

Building: T891B

Description: T891B Interior, all surfaces

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 10

Nbr QC Required: 2

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 10

Nbr QC Performed: 2

Alpha

Maximum: 39.8 dpm/100cm²

Minimum: -6.7 dpm/100cm²

Mean: 11.3 dpm/100cm²

Standard Deviation: 12.6

QC Maximum: 26.0 dpm/100cm²

QC Minimum: 19.1 dpm/100cm²

QC Mean: 22.5 dpm/100cm²

Transuranic DCGL_w: 100.0 dpm/100cm²

Transuranic DCGL_{EMC}: 300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 10

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 10

Alpha

Maximum: 3.7 dpm/100cm²

Minimum: -0.6 dpm/100cm²

Mean: 0.2 dpm/100cm²

Standard Deviation: 1.1

Transuranic DCGL_w: 20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0

Nbr Biased Required: 0

Nbr Random Collected: 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.

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Survey Area: 5

Survey Unit: 891B02

Building: T891B

Description: T891B Interior, 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	09/29/04	Electra	261	DP-8	02/26/05	0.156	NA	48.0	NA	S
2	511390	09/29/04	Electra	3250	DP-6	02/14/05	0.203	NA	48.0	NA	T/Q/S
3	712467	09/29/04	Electra	1136	DP-6	02/28/05	0.215	NA	48.0	NA	T/Q/S
4	712467	09/29/04	Ludlum 292	99042	NA	10/26/04	0.349	NA	10.0	NA	R

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

Survey Area: 5

Survey Unit: 891B02

Building: T891B

Description: T891B Interior, all surfaces

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
891B02PRP-N001	4	-0.6	N/A	
891B02PRP-N002	4	-0.6	N/A	
891B02PRP-N003	4	3.7	N/A	
891B02PRP-N004	4	-0.6	N/A	
891B02PRP-N005	4	0.8	N/A	
891B02PRP-N006	4	-0.6	N/A	
891B02PRP-N007	4	-0.6	N/A	
891B02PRP-N008	4	-0.6	N/A	
891B02PRP-N009	4	-0.6	N/A	
891B02PRP-N010	4	0.8	N/A	
891B02PRP-N011	4	0.8	N/A	
891B02PRP-N012	4	-0.6	N/A	
891B02PRP-N013	4	-0.6	N/A	
891B02PRP-N014	4	-0.6	N/A	
891B02PRP-N015	4	0.8	N/A	

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Survey Area: 5

Survey Unit: 891B02

Building: T891B

Description: T891B Interior, all surfaces

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
891B02PBP-N016	4	2.3	N/A	
891B02PBP-N017	4	0.8	N/A	
891B02PBP-N018	4	-0.6	N/A	
891B02PBP-N019	4	0.8	N/A	
891B02PBP-N020	4	-0.6	N/A	
891B02PBP-N021	4	0.8	N/A	
891B02PBP-N022	4	-0.6	N/A	
891B02PBP-N023	4	0.8	N/A	
891B02PBP-N024	4	0.8	N/A	
891B02PBP-N025	4	-0.6	N/A	

Comments:

Survey Area: 5**Survey Unit:** 891B02**Building:** T891B**Description:** T891B Interior, 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)	
891B02PRP-N001	3	39.8	N/A	
891B02PRP-N002	3	-0.7	N/A	
891B02QRP-N003	2	19.1	N/A	
891B02PRP-N003	3	35.2	N/A	
891B02PRP-N004	3	30.5	N/A	
891B02PRP-N005	3	8.7	N/A	
891B02PRP-N006	2	10.1	N/A	
891B02PRP-N007	2	8.6	N/A	
891B02PRP-N008	2	10.1	N/A	
891B02PRP-N009	2	7.2	N/A	
891B02PRP-N010	2	29.8	N/A	
891B02QRP-N010	3	26.0	N/A	
891B02PRP-N011	2	0.3	N/A	
891B02PRP-N012	2	7.2	N/A	
891B02PRP-N013	3	-6.7	N/A	
891B02PRP-N014	3	24.5	N/A	
891B02PRP-N015	2	-2.7	N/A	

Survey Area: 5

Survey Unit: 891B02

Building: T891B

Description: T891B Interior, all surfaces

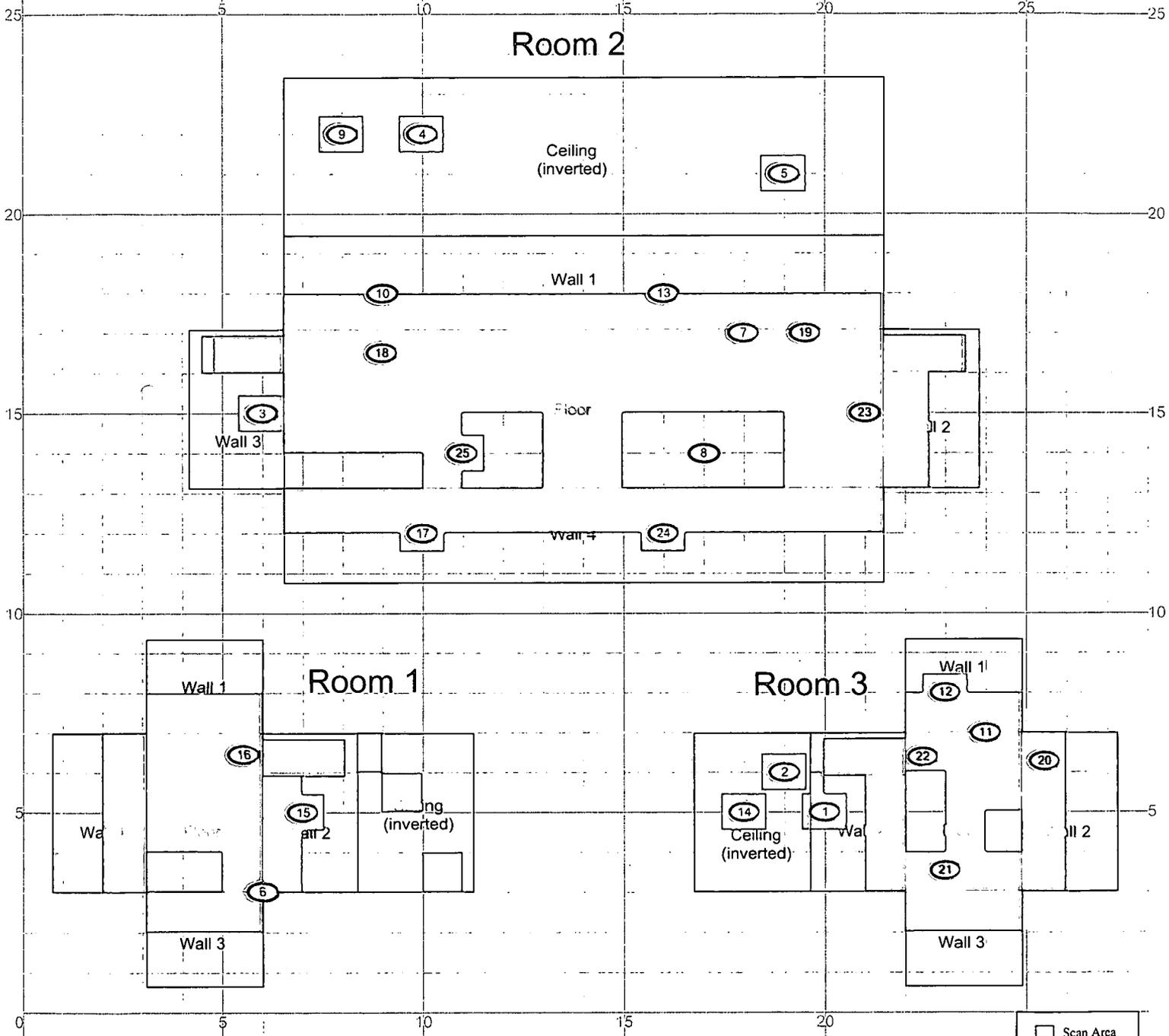
Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
891B02PBP-N016	3	12.4	N/A	
891B02PBP-N017	3	18.9	N/A	
891B02PBP-N018	3	3.0	N/A	
891B02PBP-N019	3	9.6	N/A	
891B02PBP-N020	2	-2.4	N/A	
891B02PBP-N021	2	1.0	N/A	
891B02PBP-N022	2	10.9	N/A	
891B02PBP-N023	2	4.0	N/A	
891B02PBP-N024	2	1.0	N/A	
891B02PBP-N025	3	21.7	N/A	

Comments:

RECONNAISSANCE LEVEL SURVEY FOR AREA 5/GROUP 12

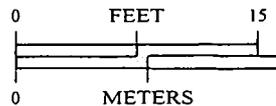
Survey Area: 5 Survey Unit: 891B02 Classification: 3
 Building: T891B
 Survey Unit Description: Interior All Surfaces
 Total Area: 318 sq. m. Total Floor Area: 81 sq. m.



SURVEY MAP LEGEND

- Smcar & TSA Location
- Smcar, 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

1 inch = 12 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:



CH2MHILL
 Communications Group



MAP ID: 03-0201/T891B-INT-SC

Oct. 4, 2004

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ATTACHMENT D

Chemical Data Summaries and Sample Maps

Asbestos Data Summary

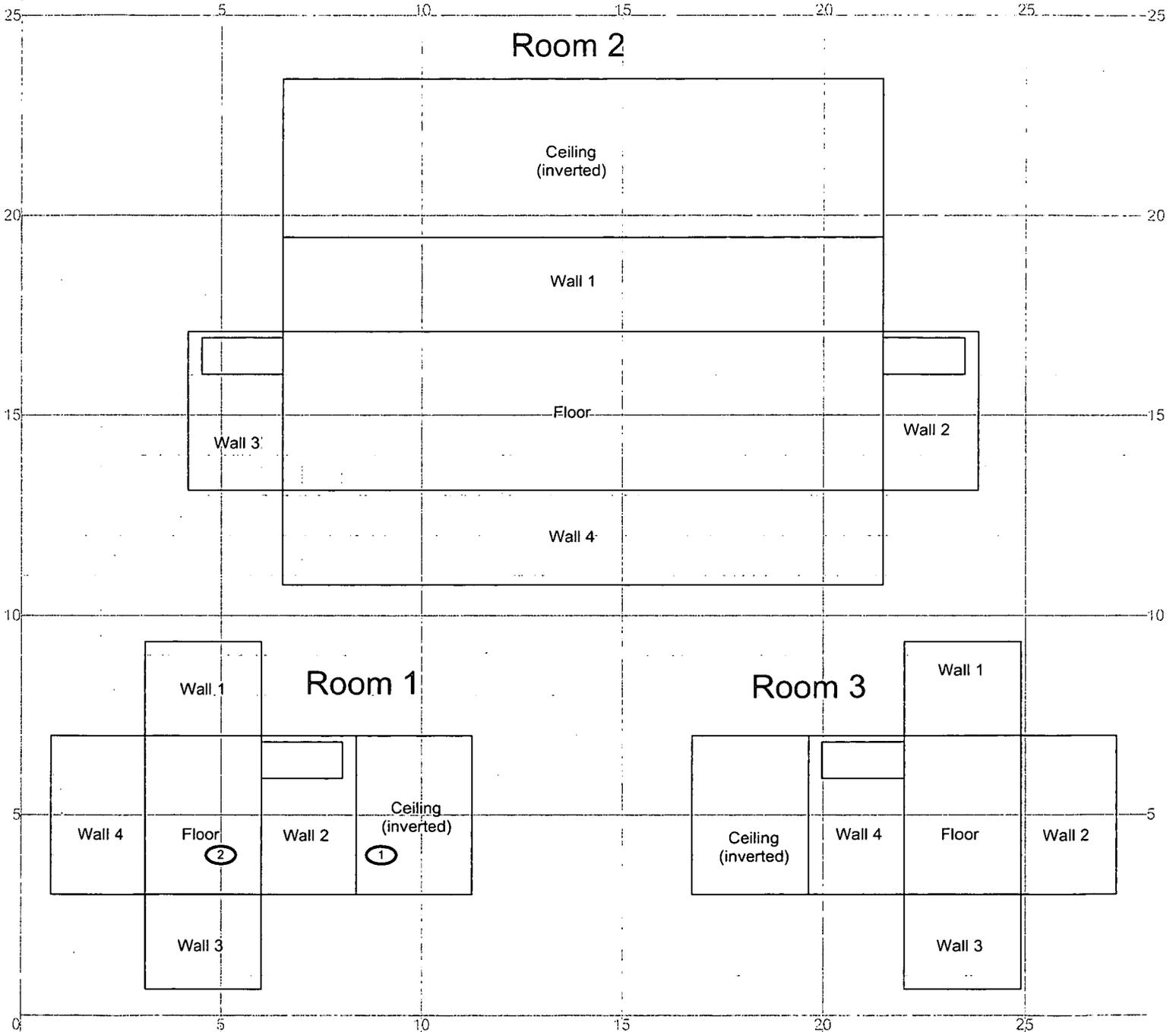
Sample Number	Map Location Point	Room	Material Sampled & Location	Analytical Results
Building T891B - RIN03Z1906				
T891B-06262003-315-201	1	1	White/tan ceiling tile	None Detected
T891B-06262003-315-202	2	1	Yellow mastic - white tile	None Detected

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CHEMICAL SAMPLE MAP

Building T891B
Asbestos

PAGE 1 of 1



<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Asbestos Sample Location Beryllium Sample Location Lead Sample Location RCRA/CERCLA Sample Location PCB Sample Location 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>		<p>FEET</p> <p>METERS</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-966-7707</p> <p>Prepared for:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p>MAP ID: 03-0201/T891B-ASB July 02, 2003</p>
<p> Open/Inaccessible Area</p> <p> Area in Another Survey Unit</p>		<p>1 inch = 12 feet 1 grid sq. = 1 sq. m.</p>		

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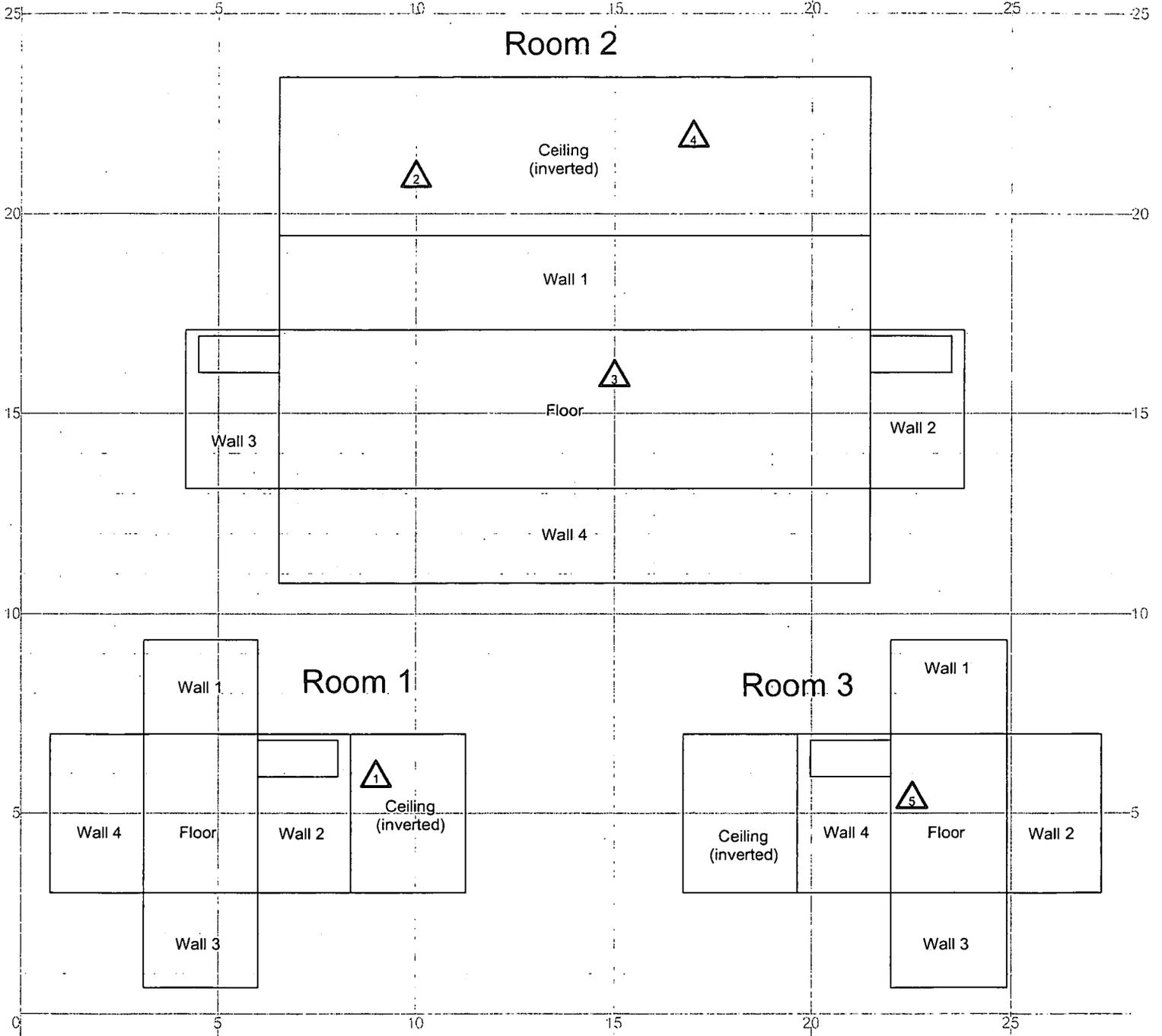
Beryllium Data Summary

Sample Number	Map Survey Point Location	Sample Location	Result ($\mu\text{g}/100\text{ cm}^2$)
Building T891B - R1N03Z1907			
T891-06262003-315-101	1	Top of fluorescent light fixture	< 0.1
T891-06262003-315-102	2	On louver of ceiling HVAC diffuser	< 0.1
T891-06262003-315-103	2	On 12 inch floor tile under the laboratory table	< 0.1
T891-06262003-315-104	2	On louver of ceiling HVAC diffuser	< 0.1
T891-06262003-315-105	3	On 12 inch floor tile under locker	< 0.1

CHEMICAL SAMPLE MAP

Building T891B
Beryllium

PAGE 1 of 1



<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Asbestos Sample Location Beryllium Sample Location Lead Sample Location RCRA/CERCLA Sample Location PCB Sample Location 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>		<p>0 FEET 15</p> <p>0 METERS 5</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-966-7707 Prepared for:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p>MAP ID: 03-0201T891B-BE July 02, 2003</p>
<p> Open/Inaccessible Area</p> <p> Area in Another Survey Unit</p>		<p>1 inch = 12 feet 1 grid sq. = 1 sq. m.</p>		

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 T891B 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 certainties.

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 unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits thereby ensuring accuracy criteria. 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 T891B meets the unrestricted release criteria with the confidences stated herein and can be demolished.

Table E-1 V&V of Radiological - Building T891B

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 Unit 891B02 (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 E-4 for details.
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm ² RA: ≤10 dpm/100cm ²	all measures	MDAs ≤ 50% DCGL _w per MARSSIM guidelines (RLC performed to PDS criteria).

Table E-2 V&V of Asbestos - Building T891B

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENT		RIN ---->	RIN03Z1906	
		Measure	Frequency	COMMENTS
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	≥ 2 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		NA	Final number of samples at Certified Inspector's discretion - See Table E-4.
		Qualitative		
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium - Building T891B

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Reservoirs Environmental, Inc	
	QUALITY REQUIREMENTS		RIN ---->	
		Measure	Frequency	
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of a Type 1 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	>95%	NA	
	usable results vs. unusable	>95%		
SENSITIVITY	detection limits	MDL of 0.012 ug/100cm ²	all measures	

Table E-4 Data Completeness Summary - Building T891B

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 T891B (interior)	6 samples (interior)	2 samples (interior)	No ACM present, all results < 1% by volume	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116 RIN03Z1906
Beryllium	Building T891B (interior)	5 biased (interior)	5 biased (interior)	No beryllium contamination found, all results are below associated action levels	OSHA ID-125G RIN03Z1907 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²).
Radiological	Survey Area 5 Survey Unit: 891B02 Building T891B (interior)	20 α TSA (15 random/5 biased) and 20 α Smears (15 random/5 biased) 5 α TSA and 5 α Smears (biased - equipment) 2 QC TSA 75% scan interior floor; 5% scan on remaining interior surfaces	20 α TSA (15 random/5 biased) and 20 α Smears (15 random/5 biased) 5 α TSA and 5 α Smears (biased - equipment) 2 QC TSA 75% scan interior floor; 5% scan on remaining interior surfaces	No contamination found at any location; all values below PDS unrestricted release limits	Transuranic DCGLs used.