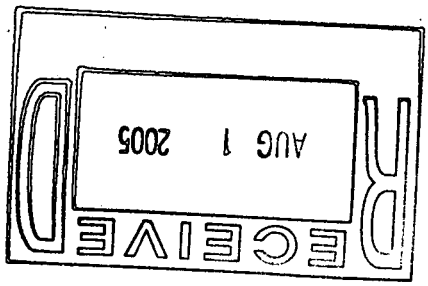
Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)/PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 891 CLOSURE PROJECT

REVISION 0

July 18, 2005



Change Control:

Rev. 1 Fixed typo in Section 3.0 and added text about sump scan – 7/21/05
Rev. 1 Fixed typo in Section 4.4 – 7/21/05
Rev. 1 Revised text in Section 5.0 – 7/21/05
Rev. 1 Revised Attachment C, Survey Unit 891501 Rad map (showing Electrical and Office room roofs) – 7/21/05
Rev. 1 Revised Attachment D, Beryllium table room locations – 7/21/05
Rev. 1 Revised Attachment D, Beryllium map (moved sample location #9) – 7/21/05

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

1/44

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)/PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 891 CLOSURE PROJECT

REVISION 0

July 18, 2005

Reviewed by: _____ Date: 7/19/05
Robert Plappert, Quality Assurance

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Approved by: _____ Date: 7.19.05
Mike Swartz, K-H Project Manager

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ATTACHMENTS

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
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) and a Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 891. Building 891 was anticipated to be a Type 2 Facility, however, based on the results of the RLC/PDS that was performed, it has been determined to be a Type 1 Facility. Because this Type 1 structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Structure surfaces characterized as part of this PDS included the floors, walls, ceiling, and roof. Environmental media beneath and surrounding the structure was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific *Historical Site Assessment Report for the Area 5-Group 12 Facilities*, dated March 2003, Revision 1. All contaminated and potentially contaminated equipment and systems had already been stripped out and removed from the building in accordance with the RSOP for Component Removal, Size Reduction and Decontamination Activities (RSOP approval letter dated 6/24/05) prior to the performance of this PDS.

Results indicate that no radiological, beryllium, asbestos, RCRA/CERCLA constituents, or PCB contamination exists in excess of the PDSP unrestricted release limits. Based on the analysis of radiological, chemical and physical hazards, Building 891 is classified as RFCA Type 1 structure pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Building 891 can be demolished and the waste managed as sanitary waste. To ensure the facility remains free of contamination and PDS data remain valid, Level 2 Isolation Controls have been established with the required postings.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) and a Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Building 891. Building 891 was anticipated to be a Type 2 Facility, however, based on the results of the RLC/PDS that was performed, it has been determined to be a Type 1 Facility. Because this Type 1 structure will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as a part of this PDS included the floors, walls, ceiling and roof. Environmental media beneath and surrounding the facility was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

Building 891 was an "anticipated" Type 2 RFCA facility prior to the performance of this RLC/PDS effort. A Type 2 RLC had not yet been performed in this building because the building had been in operation until recently, thus the majority of the structure surfaces were inaccessible for characterization. Since the performance of this RLC/PDS effort was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP), no further characterization of this structure is necessary. All contaminated and potentially contaminated equipment and systems had already been stripped out and removed from the building in accordance with the RSOP for Component Removal, Size Reduction and Decontamination Activities (RSOP approval letter dated 6/24/05) prior to the performance of this PDS.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is Building 891. The location of this structure is shown in Attachment A, *Facility Location Map*. This structure no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 1 structure can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for Building 891. 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 was built upon physical, chemical and radiological hazards identified in the facility-specific *Historical Site Assessment Report for the Area 5-Group 12 Facilities*, dated March 2003, Revision 1.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 891 PDS effort. A PDS is performed prior to building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

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1.2 Scope

This report presents the final radiological and chemical conditions of the Building 891 structure. Environmental media beneath and surrounding the structure are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Historical Site Assessment Report (HSAR) was conducted to understand the facility history and related hazards. The assessment consisted of facility walk-downs, 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 were documented in a facility specific *Historical Site Assessment Report for the Area 5-Group 12 Facilities,* dated March 2003, Revision 1. Refer to Attachment B, *Historical Site Assessment Report,* for a copy of the Building 891 HSAR. In summary, the HSAR identified a potential for radiological, chemical, beryllium and asbestos hazards.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building 891 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 structure surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, structure walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files for the Building 891 Radiological Characterization Plan).

All contaminated and potentially contaminated equipment and systems had already been stripped out and removed from the building in accordance with the RSOP for Component Removal, Size Reduction and Decontamination Activities (RSOP approval letter dated 6/24/05) prior to the performance of this PDS. One Class 2 radiological survey unit package was developed for Building 891 interior, 891501. A Class 2 designation was chosen since this facility was not expected to contain any residual radioactivity greater than the $DCGL_W$. However, the Historical Site Assessment and process knowledge of this survey unit showed that the equipment in the building may have processed contaminated liquids during past operations. Individual radiological survey unit packages are maintained in the RISS Characterization Project files.

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Building 891 survey unit package 891501 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*. Media samples were collected in accordance with RSP 16.03 *Radiological Samples of Building Media*. 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 38 total surface activity (TSA) measurements (25 random, 10 biased and 3 QC) and 35 removable surface activity (RSA) measurements (25 random and 10 biased) and eight (8) surface media (paint) samples and eight (8) Pre and Post TSA and RSA measurements were collected from floor painted surfaces within the survey unit. Wall and ceiling surfaces were factory original paint and thus were not media (paint) sampled. Therefore, the eight (8) floor samples were adequate to properly characterize Building 891. A minimum alpha scan survey of 75% of interior floor surfaces (including a 100% scan of the NE Sump Pit) and 10% of all remaining surfaces at biased locations including remaining equipment was performed. None of the measurements or scans indicated elevated activity above applicable DCGL values.

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Exterior radiological surveys for Building 891 were performed as part of the West Side Exterior PDS Report, which was approved on March 24, 2005 by DOE and CDPHE. The West Side Exterior PDS Report confirmed that the exterior surfaces of Building 891 do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. The West Side Exterior PDS Report and survey data, statistical analysis results, and survey map locations are maintained in the RISS Characterization Project files.

Radiological survey data, statistical analysis results, survey locations, surveys, and radiological scan maps are presented in Attachment C, *Radiological Data Summary and Survey Maps*. Level 2 Isolation Control postings are displayed on the building entrances to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building 891 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 structure. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. The contaminants of concern were asbestos, beryllium, RCRA/CERCLA, and PCBs. Refer to Attachment D, *Chemical Summary Data and Sample Maps*, for details on sample results and sample locations. Isolation control postings are displayed on affected structures to ensure no hazardous materials are introduced.

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4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in Building 891 as part of PDS activities. A CDPHE-certified asbestos inspector conducted the inspections and sampling was performed in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1.* Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspector.

Sampling and analysis was performed inside Building 891 on November 14, 2003 by a CDPHE-certified building inspector. Asbestos was not found by the analytical laboratory. PDS asbestos laboratory sample data and location maps are contained in Attachment C, "Chemical Data Summaries and Sample Maps."

4.2 Beryllium

Based on the HSAR, Interview Checklists, and the Known Beryllium Area list, there was not adequate historical or process knowledge to conclude that beryllium was not present in Building 891. Consequently, biased beryllium sampling was conducted in Building 891 in accordance with PRO-536-BCPR, Beryllium Characterization Procedure. Biased beryllium sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition. All PDS beryllium laboratory results from Building 891 were less than the investigative limit of 0.1 $\mu g/100cm^2$. PDS 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, Volatile Organic Compounds (VOCs) and Semi Volatile Organic Compounds (SVOCs)]

Based on the HSAR, facility walk-downs and a review of RFETS waste management databases, Building 891 did not store or use significant quantities of materials containing RCRA/CERCLA constituents. There were no stains, residues, or other evidence of RCRA/CERCLA constituent contamination. Based on the above historical and process knowledge, RCRA/CERCLA sampling was not performed as part of this PDSR.

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

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR for Building 891, interviews, facility walk-downs and a review of historical WSRIC processes, the facility did not have a history of PCB use or storage. The structure may have contained PCB fluorescent light ballasts, however, all leaking PCB ballasts have been removed from the structure. Additionally, the facility was constructed in the early 1990's and therefore would not have been painted with PCB containing paints. Consequently, PCB sampling and analysis was not conducted as part of this RLC/PDS and will not impact decontamination and decommissioning activities.

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5 PHYSICAL HAZARDS

Physical hazards associated with Building 891 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition. Therefore, the facility does not present any hazards associated with building deterioration. However, care should be taken as Building 891 is located near the following IHSSs, PACs or UBCs:

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

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 891, 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 project DQOs.

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

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

Details of the DQA are provided in Attachment E.

7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 891 will generate sanitary waste. Estimated waste volumes are presented below. PCB ballast and hazardous waste items have been removed and managed pursuant to Site PCB and waste management procedures.

WASTE TYPES AND VOLUME ESTIMATES							
Facility	**Concrete (cu ft)**	**Wood (cu ft)**	**Metal (cu ft)**	**Corrugated Sheet Metal (cu ft)**	**Wall Board (cu ft)**	**ACM (cu ft)**	**Other Waste (cu ft)**
891	2,500	0	2,000	1,100	400	0	NONE

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8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building 891 is classified as a RFCA Type 1 structure pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Building 891 does not possess any radiological, asbestos, beryllium, or RCRA/CERCLA constituent contamination in excess of the PDSP unrestricted release criteria. PCB ballast and hazardous waste items have been removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations.

The RLC/PDS for Building 891 was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Building 891 can be demolished and the waste managed as sanitary waste. Environmental media beneath and surrounding the facility will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA. To ensure Building 891 remains free of contamination, Level 2 Isolation Controls have been established with the required postings.

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9 REFERENCES

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

DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

DOE Order 414.1A, "Quality Assurance."

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

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

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

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

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

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

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual,* dated August 2000, Revision 1 (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

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

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

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

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

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

RFETS, *Historical Site Assessment Report for Area 5-Group 12*, dated March 2003.

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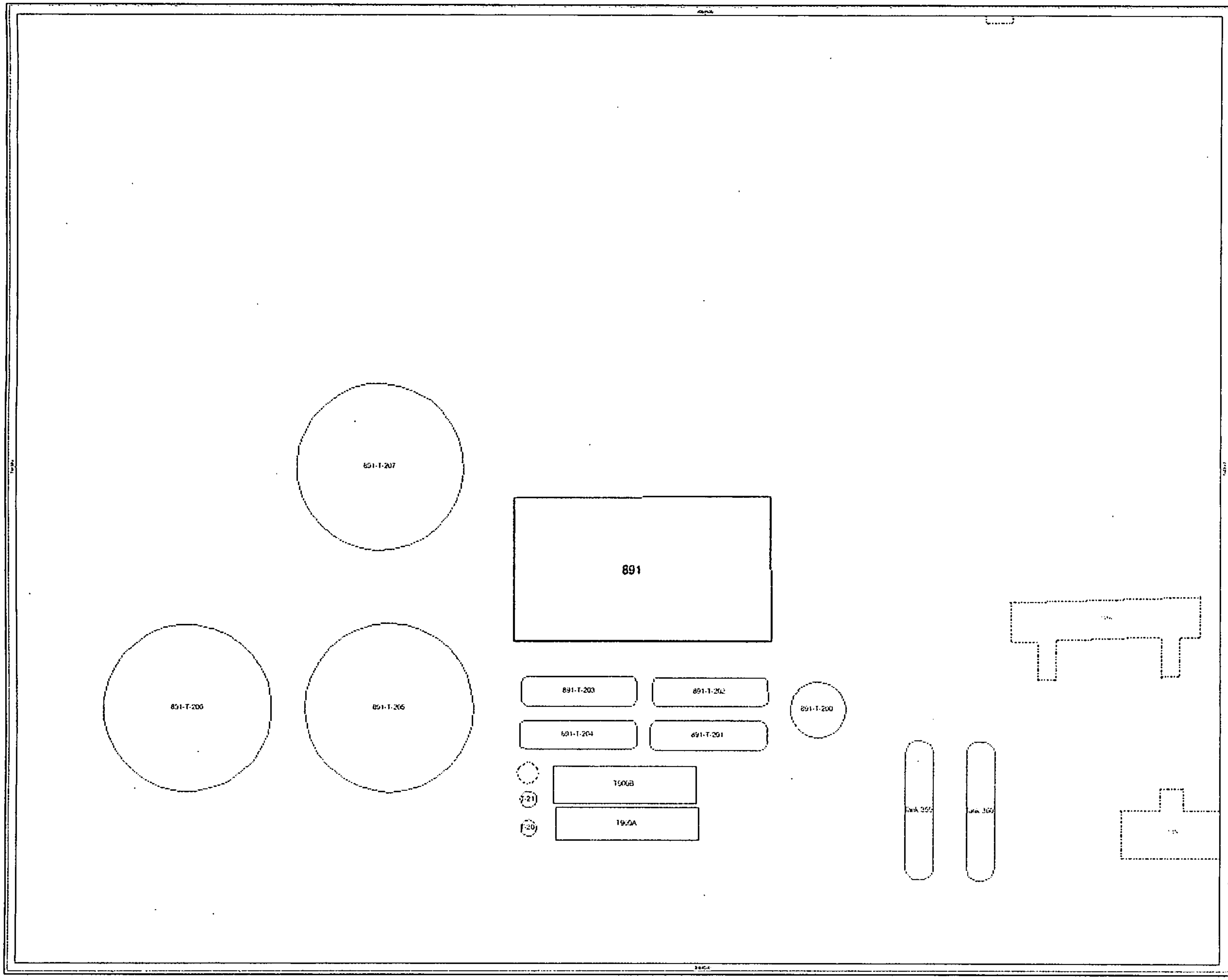
ATTACHMENT A

Facility Location Map



Rocky Flats Environmental Technology Site

Building 891 Location Map

Standard Map Features

- Demolished Facility
- Lakes and Ponds
- Demolished Roads
- Paved Roads
- Dirt Roads
- Railroad Removed
- Railroad Remaining
- Fence Remaining
- Streams, Ditches, or Other Drainage Features
- Remaining Facility
- 891

N

8 0 8 16 24 32 Feet

State Plane Coordinate Projection
Colorado Central Zone (3476)
Datum: NAD27

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

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

Prepared For:
KAISER-HILL COMPANY

DATE: 6/28/2005

ATTACHMENT B

Historical Site Assessment Report

D&D RISS Facility Characterization
Historical Site Assessment Report
March, 2003 Rev. 1

Facility ID: (AREA 5 GROUP 12) Buildings 891, 903A1, and Trailers T891B, T900A, and T900B.
Anticipated Facility Type (1, 2, or 3): Buildings 903A1, and Trailers T891B, T900A, and T900B are anticipated Type 1 facilities. Building 891 is an anticipated Type 2 facility.

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 are 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 system 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 detaild 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.

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.

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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.

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Note:
This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. SMEs should evaluate and/or verify all information during the RLC/PDS process. SMEs may need to review additional documentation and perform additional interviews. Information contained in this HSA only represents a "snapshot" in time. Subsequent data may be obtained during SME walkdowns and chemical and radiological characterization package preparations, which may conflict with this report. However, this report will not be amended, and the newer data will take precedence over the data in this report. Newer Data will appear in the RLCR/PDSR.

Prepared By:	Duane Parsons	/s/	March 2003
	Name	Signature	Date

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ATTACHMENT C

Radiological Data Summaries and Survey Maps

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 20 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 20 | Nbr QC Performed: 3

Alpha

Maximum:	28.0 dpm/100cm²
Minimum:	-11.0 dpm/100cm²
Mean:	4.9 dpm/100cm²
Standard Deviation:	9.5
QC Maximum:	11.2 dpm/100cm²
QC Minimum:	0.5 dpm/100cm²
QC Mean:	5.6 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: 20

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 20

Alpha

Maximum:	4.2 dpm/100cm²
Minimum:	-0.3 dpm/100cm²
Mean:	0.4 dpm/100cm²
Standard Deviation:	1.1
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 5 | Nbr Biased Required: 3

Nbr Random Collected: 5 | Nbr Biased Collected: 3

Uranium

Maximum:	46 dpm/100cm²
Minimum:	31 dpm/100cm²
Mean:	38 dpm/100cm²
Standard Deviation:	6
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	0 dpm/100cm²
Minimum:	0 dpm/100cm²
Mean:	0 dpm/100cm²
Standard Deviation:	0
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

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: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

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/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	511466	06/17/05	Electra	1244	DP-6	12/01/05	0.210	NA	48.0	NA	T
2	510643	06/17/05	Electra	1369	DP-6	09/10/05	0.223	NA	48.0	NA	T
3	511466	06/17/05	SAC-4	767	NA	08/03/05	0.330	NA	10.0	NA	R
4	510774	07/17/05	Electra	3552	DP-6	12/02/05	0.215	NA	48.0	NA	T/Q/S
5	512203	07/17/05	Electra	3104	DP-6	09/24/05	0.219	NA	48.0	NA	T/S
6	511466	07/17/05	SAC-4	1044	NA	11/30/05	0.330	NA	10.0	NA	R

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

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Comments Sheet

General Comments: N/A

TSA Comments: 1. For instruments that were used for both TSAs and scans (T/S) on the Instrument Data Sheet, The TSA A-Priori MDA is 48.0 and the scan A-Priori MDA is 300.0.
2. Most biased locations were collected on equipment such as tanks, electrical panels and pumps. Scans were performed on these items also. No contamination above the DCGL was detected.

RSA Comments: N/A

Media Comments: Media samples were collected from floor locations only. Wall and ceiling surfaces were either not painted or factory original paint.

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891501PRP-N001	3	1.2	N/A	N/A
891501PRP-N002	3	1.2	N/A	N/A
891501PRP-N003	6	2.7	N/A	N/A
891501PRP-N004	6	-0.3	N/A	N/A
891501PRP-N005	6	-0.3	N/A	N/A
891501PRP-N006	3	-0.3	N/A	N/A
891501PRP-N007	3	1.2	N/A	N/A
891501PRP-N008	6	-0.3	N/A	N/A
891501PRP-N009	3	1.2	N/A	N/A
891501PRP-N010	6	2.7	N/A	N/A
891501PRP-N011	6	-0.3	N/A	N/A
891501PRP-N012	6	1.2	N/A	N/A
891501PRP-N013	6	-0.3	N/A	N/A
891501PRP-N014	3	-0.3	N/A	N/A
891501PRP-N015	6	1.2	N/A	N/A

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Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Biased Removable Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891501PBP-N016	3	1.2	N/A	N/A
891501PBP-N017	3	1.2	N/A	N/A
891501PBP-N018	6	-0.3	N/A	N/A
891501PBP-N019	6	-0.3	N/A	N/A
891501PBP-N020	6	-0.3	N/A	N/A
891501PBP-N021	6	-0.3	N/A	N/A
891501PBP-N022	6	1.2	N/A	N/A
891501PBP-N023	6	-0.3	N/A	N/A
891501PBP-N024	6	-0.3	N/A	N/A
891501PBP-N025	6	-0.3	N/A	N/A
891501PBP-N026	6	4.2	N/A	N/A
891501PBP-N027	6	-0.3	N/A	N/A
891501PBP-N028	6	-0.3	N/A	N/A
891501PBP-N029	6	-0.3	N/A	N/A
891501PBP-N030	6	-0.3	N/A	N/A
891501PBP-N031	6	1.2	N/A	N/A
891501PBP-N032	6	-0.3	N/A	N/A
891501PBP-N033	6	-0.3	N/A	N/A
891501PBP-N034	6	-0.3	N/A	N/A
891501PBP-N035	6	-0.3	N/A	N/A

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891501PRP-N001	1	2.4	N/A	N/A
891501PRP-N002	2	-7.9	N/A	N/A
891501PRP-N003	5	13.3	N/A	N/A
891501PRP-N004	5	24.3	N/A	N/A
891501QRP-N005	4	11.2	N/A	N/A
891501PRP-N005	5	-1.7	N/A	N/A
891501PRP-N006	1	-4.3	N/A	N/A
891501PRP-N007	2	28.0	N/A	N/A
891501QRP-N007	4	5.2	N/A	N/A
891501PRP-N008	5	19.7	N/A	N/A
891501PRP-N009	1	-4.3	N/A	N/A
891501PRP-N010	5	16.5	N/A	N/A
891501PRP-N011	5	-10.9	N/A	N/A
891501PRP-N012	5	1.5	N/A	N/A
891501PRP-N013	5	7.4	N/A	N/A
891501PRP-N014	2	-11.0	N/A	N/A
891501QRP-N014	4	0.5	N/A	N/A
891501PRP-N015	5	19.7	N/A	N/A

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

Biased Total Surface Activity Data Sheet

Biased Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
891501PBP-N016	1	-4.9	N/A	N/A
891501PBP-N017	2	3.2	N/A	N/A
891501PBP-N018	4	-5.3	N/A	N/A
891501PBP-N019	4	-0.6	N/A	N/A
891501PBP-N020	4	1.3	N/A	N/A
891501PBP-N021	4	16.6	N/A	N/A
891501PBP-N022	4	10.6	N/A	N/A
891501PBP-N023	4	7.3	N/A	N/A
891501PBP-N024	4	-0.6	N/A	N/A
891501PBP-N025	4	10.6	N/A	N/A
891501PBP-N026	4	1.3	N/A	N/A
891501PBP-N027	4	4.1	N/A	N/A
891501PBP-N028	4	-0.6	N/A	N/A
891501PBP-N029	4	7.3	N/A	N/A
891501PBP-N030	4	1.3	N/A	N/A
891501PBP-N031	4	10.6	N/A	N/A
891501PBP-N032	4	7.3	N/A	N/A
891501PBP-N033	4	-2.0	N/A	N/A
891501PBP-N034	4	7.3	N/A	N/A
891501PBP-N035	4	5.9	N/A	N/A

Survey Area: 5	Survey Unit: 891501	Building: 891

Description: Building 891(Interior)

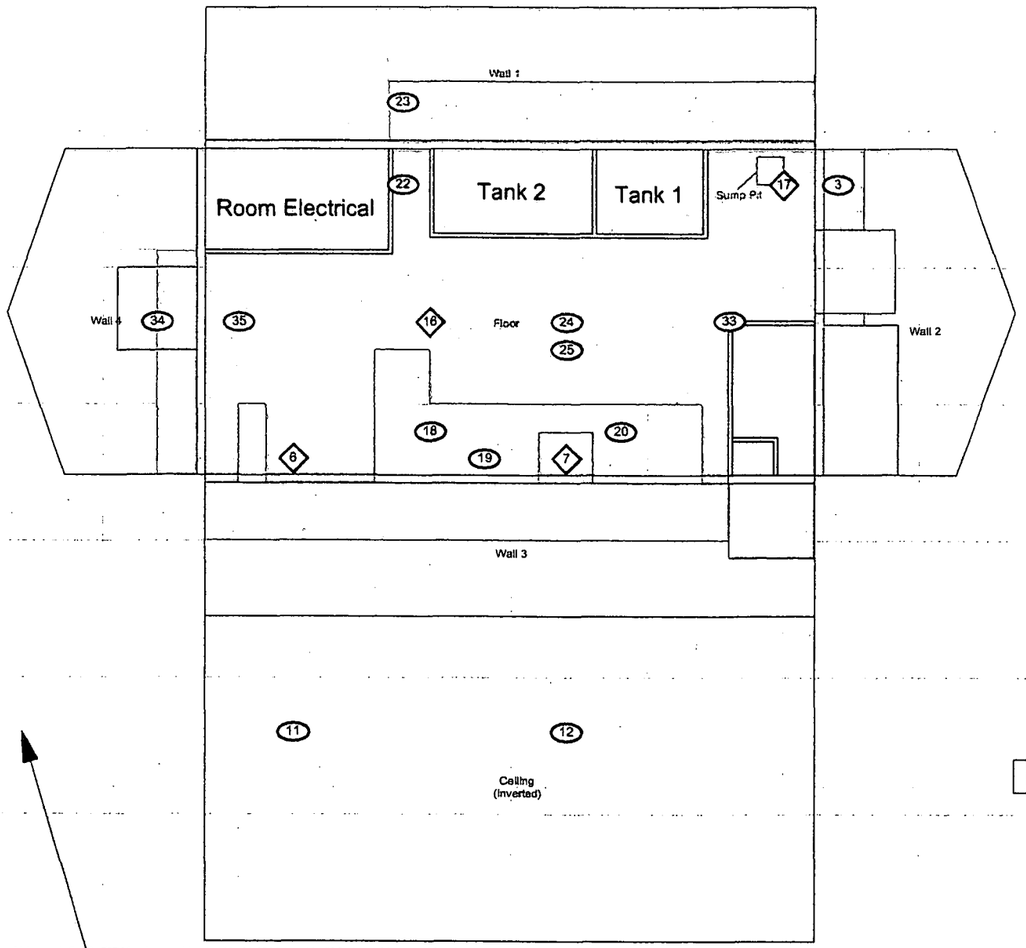
Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in²)	Sample Nuclide (dpm/100cm²)	Sample Nuclide MDA (dpm/100cm²)	Sample Total (dpm/100cm²)
05Z1232-011.001 11 1, 2	U234	0.0000	47.0000	20.90	26.3	0	1,285	
	U235	0.2570	0.1810			7	5	Uranium
	U238	1.0700	0.9160			29	25	36
	Pu239/240	0.0000	0.8801			0	24	Transuranic
	Am241	0.0000	0.1270			0	4	0
05Z1232-012.001 12 6, 7	U234	0.0000	51.3000	21.00	26.3	0	1,410	
	U235	0.3240	0.1770			9	5	Uranium
	U238	1.0900	0.9410			30	26	39
	Pu239/240	0.0000	0.9078			0	25	Transuranic
	Am241	0.0000	0.1310			0	4	0
05Z1232-013.001 13 9, 16	U234	0.0000	51.8000	22.00	26.3	0	1,491	
	U235	0.2310	0.1470			7	4	Uranium
	U238	0.8380	1.1200			24	32	31
	Pu239/240	0.0000	1.0049			0	29	Transuranic
	Am241	0.0000	0.1450			0	4	0
05Z1232-014.001 14 14, 17	U234	0.0000	46.2000	23.40	26.3	0	1,415	
	U235	0.3090	0.1620			10	5	Uranium
	U238	1.2000	1.0000			37	31	46
	Pu239/240	0.0000	0.9771			0	30	Transuranic
	Am241	0.0000	0.1410			0	4	0

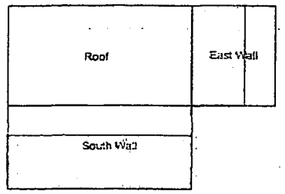
PRE-DEMOLITION SURVEY FOR B891

Survey Area: 5 **Survey Unit: 891501** **Classification: 2**
Building: B891
Survey Unit Description: Building 891 (Interior)
Total Area: 1,438 sq. m. **Total Floor Area: 337 sq. m.**
Grid Spacing for Survey Points: 10m. X 10m.

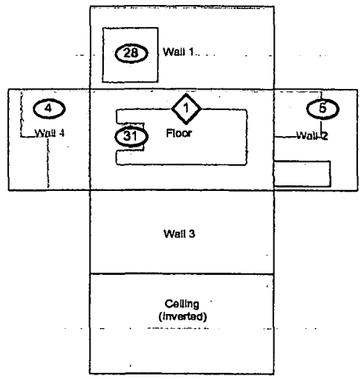
Main Room

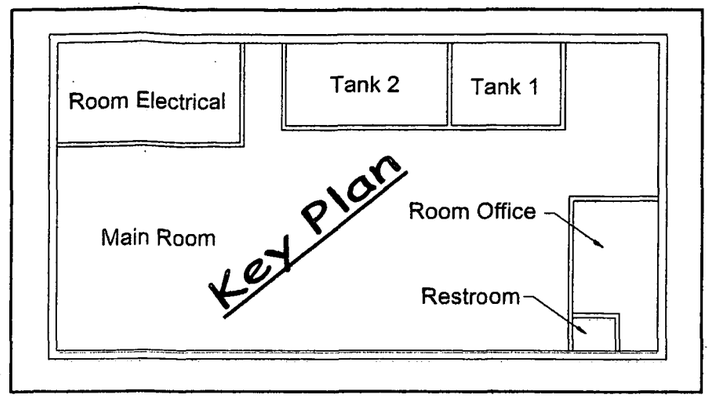


STARTING POINT FOR SQUARE SAMPLING GRID (X2, Y18)

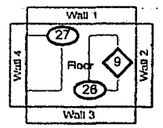


Room Electrical

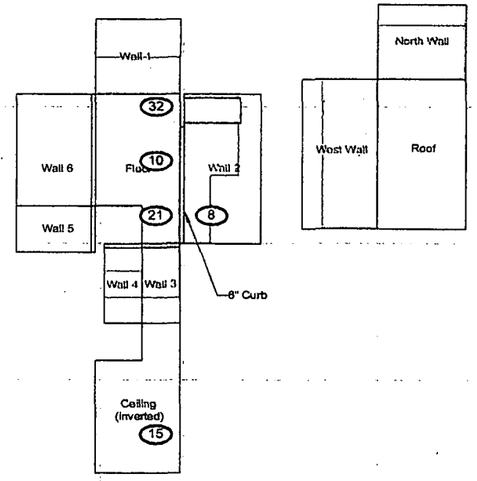




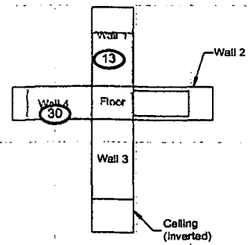
Tank 1



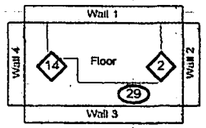
Room Office



Restroom



Tank 2



SURVEY MAP LEGEND

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

N

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):

0 FEET 25
0 METERS 8
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:

CH2MHILL Communications Group

KAISER-HILL COMPANY

MAP ID: 03-0201/891-IN Nov. 4, 2003

ATTACHMENT D

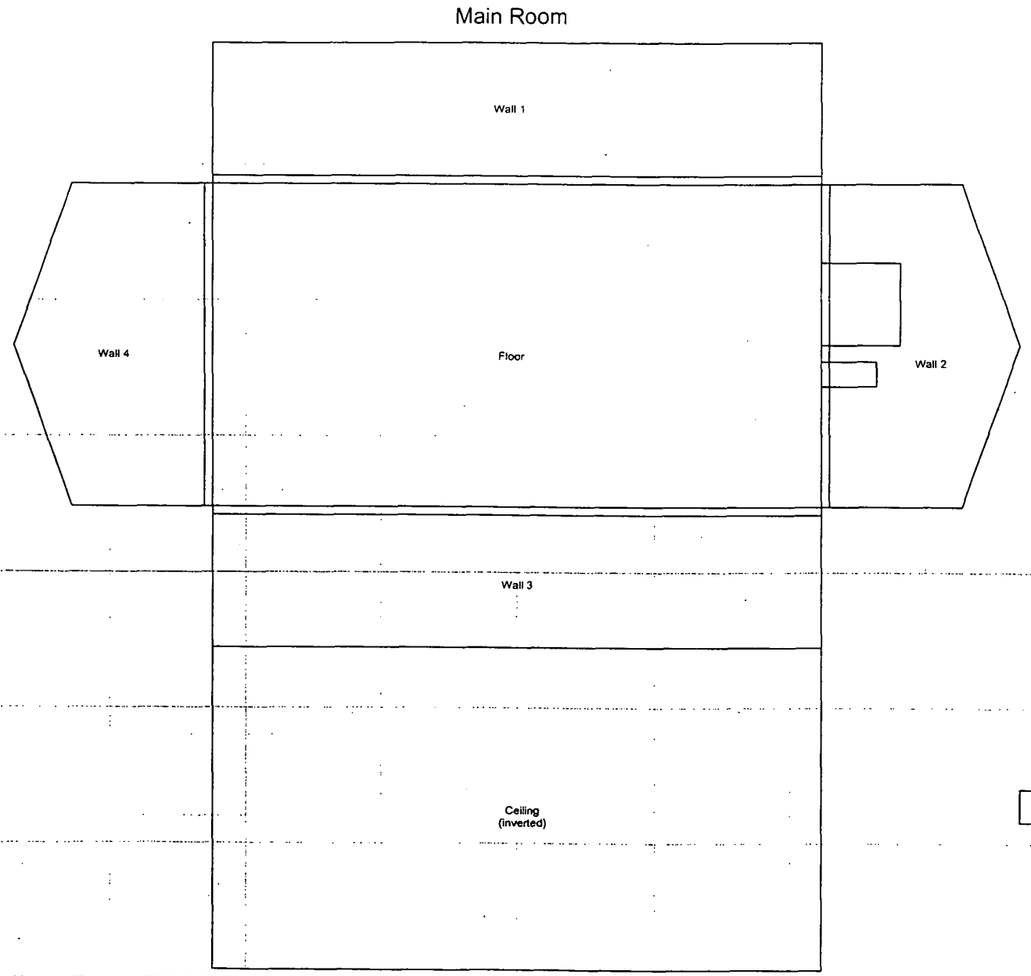
Chemical Data Summaries and Sample Maps

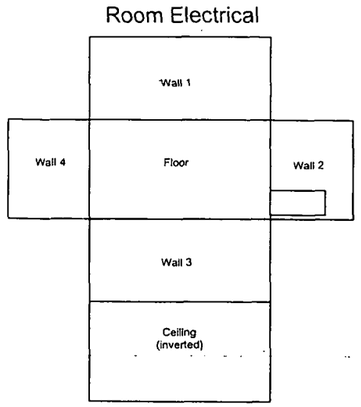
Asbestos Data Summary

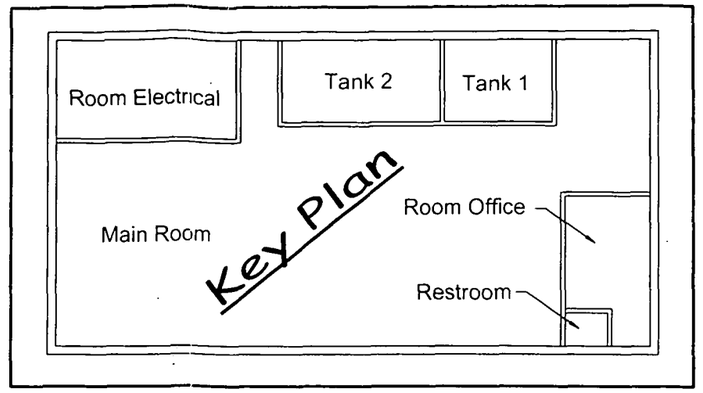
Sample Number	Map Survey Point Location	Room	Sample Location	Analytical Results
RIN 04Z0380				
891-11142003-4-101	1	Office	Floor Tile and Mastic	ND
891-11142003-4-102	2	Office	White mud, paint and drywall	ND

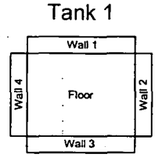
CHEMICAL SAMPLE MAP

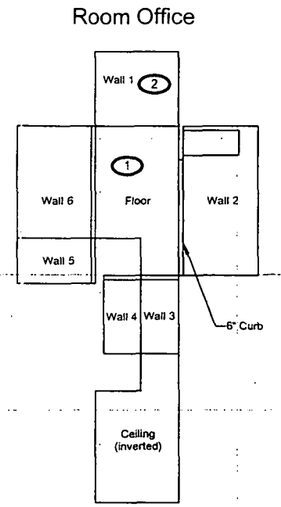
Building 891
Asbestos

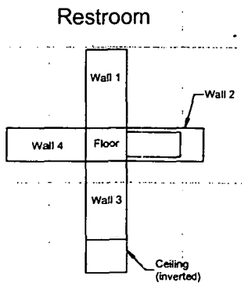


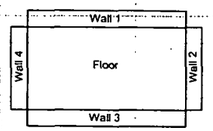












SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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:

CH2MHILL Communications Group

KAISER HILL

MAP ID: 03-0201/891-IN-ASB

Dec. 17, 2003

Beryllium Data Summary

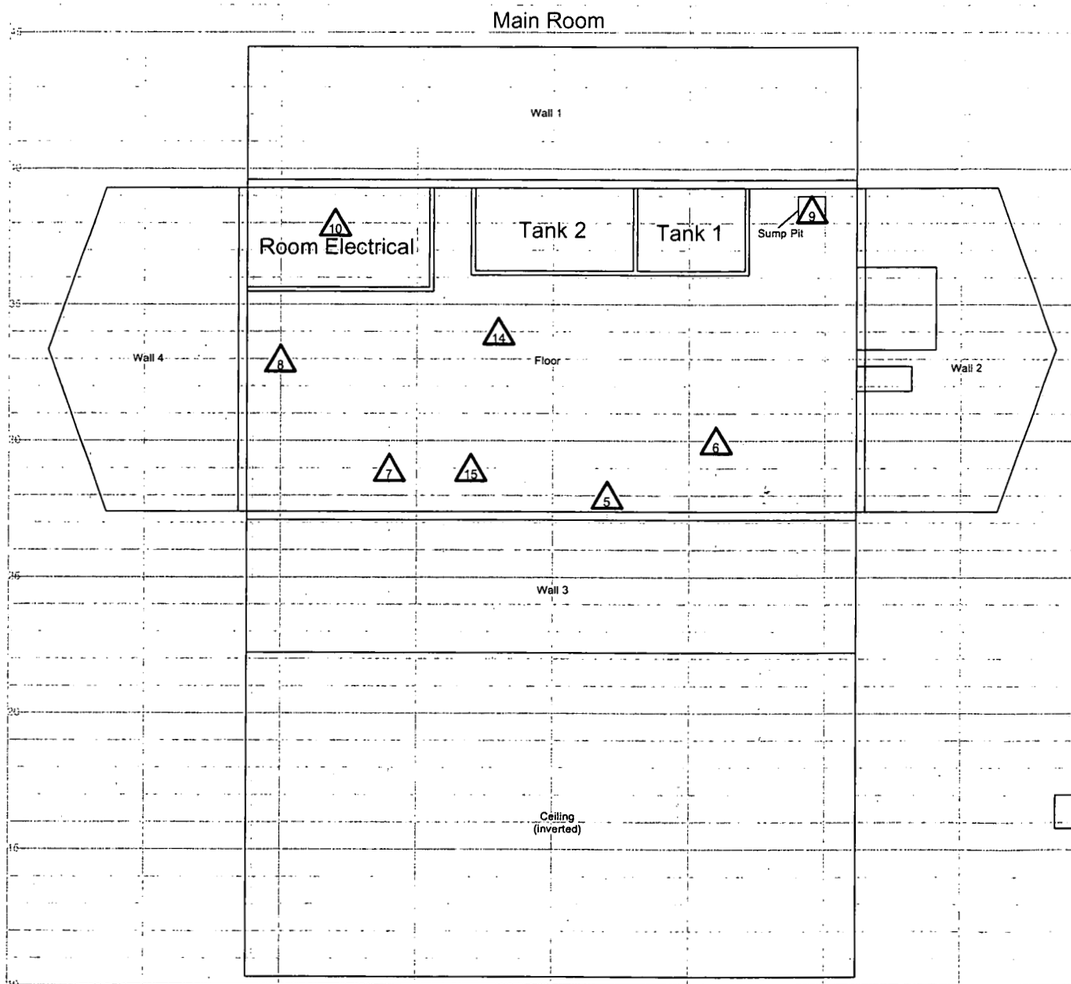
Sample Number	Map Survey Point Location	Room	Sample Location	Result ($\mu g/100\ cm^2$)
RIN 05B0129, Biased Samples				
891-06212005-214-001	1	Tank 1	Floor, tank # 1	< 0.1
891-06212005-214-002	2	Tank 1	Top of tank # 1	< 0.1
891-06212005-214-003	3	Tank 2	Floor, tank # 2	< 0.1
891-06212005-214-004	4	Tank 2	Top of tank #2	< 0.1
891-06212005-214-005	5	Main	South side, top of influent line	< 0.1
891-06212005-214-006	6	Main	Top of Perox Pure Process	< 0.1
891-06212005-214-007	7	Main	Top of 891-IX-1 Tank	< 0.1
891-06212005-214-008	8	Main	Floor, west roll up door entrance	< 0.1
891-06212005-214-009	9	Main	Inside sump	< 0.1
891-06212005-214-010	10	Main	Top of MCP-LP-1-6-12	< 0.1
891-06212005-214-011	11	Restroom	Inside sink	< 0.1
891-06212005-214-012	12	Electrical	Conduit line above electrical room	< 0.1
891-06212005-214-013	13	Office	Floor	< 0.1
891-06212005-214-014	14	Main	Floor	< 0.1
891-06212005-214-015	15	Main	Top of GAC influent line	< 0.1

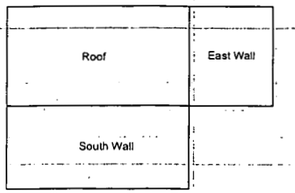
Rev1.

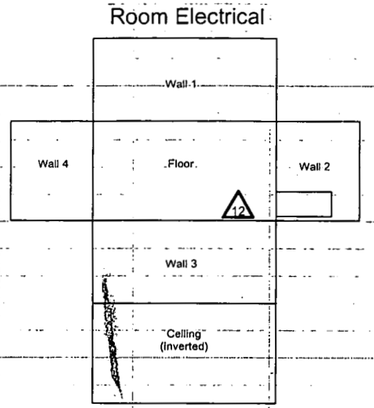
Rev1.

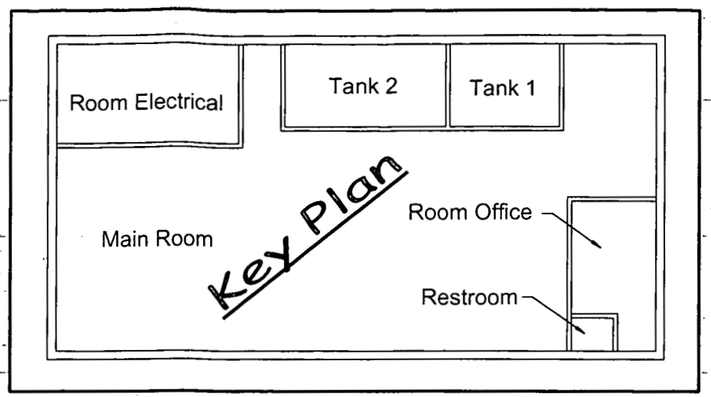
CHEMICAL SAMPLE MAP

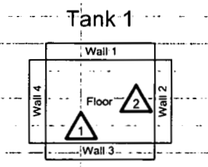
Building: 891
Beryllium

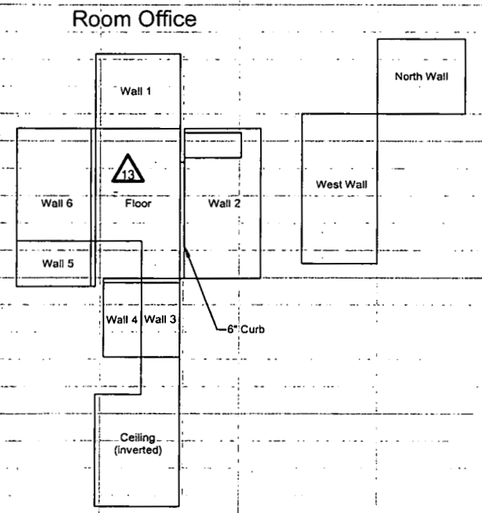


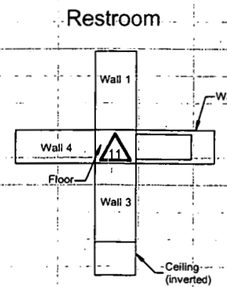


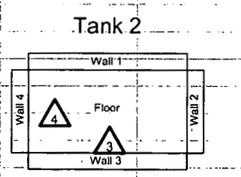












SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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

CH2MHILL
Communications Group

Prepared for: KAISER HILL COMPANY

MAP ID: 03-0201/891-IN_BE

July 12, 2005

ATTACHMENT D

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION (V&V) OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses [specifically 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 Table E-2, and beryllium in Table 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 File. The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Building 891based 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. Coupon and/or media samples were taken and analyzed by ISOCS Canberra gamma spectroscopy. Transuranic isotope activity and Uranium and/or other naturally occurring isotope activity were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2) and the Uranium $DCGL_w$ (5,000 dpm/100cm^2) unrestricted release limits. Media results were converted to dpm/100cm^2 using the Media Conversion Table, evaluated against the transuranic DCGL limits, and are the values reported in the Radiological TSA Data Summary in support of the unrestricted release decision process.

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

DQA SUMMARY

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

Based upon an independent review of the radiological data, it is determined that the PDSP DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable DCGL unrestricted release levels confirming Type 1 facility classification. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable Radiological Safety Practice procedures, survey units were properly designed and bounded, and instrument performance and calibration was verified as acceptable thereby ensuring data accuracy criteria. All results meet the PDSP 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 891 meets the unrestricted release criteria with the confidences stated herein.

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Table E-1 V&V of Radiological Results – Building 891

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 891501 (interior) and EXT-B-001 (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	PDS MDAs ≤ 50% $DCGL_w$

Table E-2 V&V of Asbestos Results – Building 891

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENT		RIN ---->	RIN 04Z0380	
		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	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 891

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	**Prep: NMAM 7300** **METHOD: OSHA ID-125G**	**LAB ---->**	Johns Manville, Littleton, Co.	
		RIN ---->	RIN 05B0129	
				COMMENTS
QUALITY	**REQUIREMENTS**	**Measure**	**Frequency**	All results were below associated action levels.
ACCURACY	**Calibrations** Initial	linear calibration	≥1	
	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/100cm^2	all measures	

Table E-4 Data Completeness Summary - Building 891

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building 891 (interior)	2 biased (interior)	2 biased (interior)	No ACM present, all results < 1% by volume	40 CFR 763.86; CCR 1001-10; EPA 600/R-93/116 RIN 04Z0380
Beryllium	Building 891 (interior)	6 samples (biased)	15 samples (biased)	No Be contamination found at any location, all results were < associated action levels	10CFR850; OSHA ID-125G – RIN 05B0129 No results above the action level (0.2 ug/100cm^2) or investigative level (0.1 ug/100cm^2.)
Radiological	Survey Area 5 Survey Class 2 Survey Unit: 891501 Bldg. 891 (interior)	35 á TSA (15 systematic/20 biased) 35 α Smears (15 systematic/20 biased) 8 Media samples and 8 PRE and 8 POST TSA and RSA 2 QC TSA 50% scan of floors; 10% scan of remaining surfaces	35 á TSA (15 systematic/20 biased) 35 α Smears (15 systematic/20 biased) 8 Media samples and 8 PRE and 8 POST TSA and RSA 3 QC TSA 75% scan of floors; 10% scan of remaining surfaces	No contamination at any location; all results below unrestricted release levels	Transuranic DCGLs used.