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# Rocky Flats Environmental Technology Site

## RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

### Group 9 CLOSURE PROJECT (Trailers T891G, O, R and V)

REVISION 0

October 10, 2001



1/89

ALPHA RECORDS

IA-A-000847

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REVISION 0

October 10, 2001

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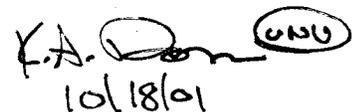
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G	Decommissioning Waste Types And Volume Estimates
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## ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
DCGL <sub>EMC</sub>	Derived Concentration Guideline Level – elevated measurement comparison
DCGL <sub>w</sub>	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 Decommissioning Program Plan (DPP) (10/8/98) and compliant disposition and waste management of facilities T891G, O, R and V (a.k.a. Group 9). Because these facilities were anticipated to be Type 1 facilities, the characterization was performed in accordance with MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities* (PDSP), Rev 1. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities (i.e., floors (slabs), walls, ceilings and roofs). Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process, in compliance with Rocky Flats Cleanup Agreement (RFCA).

The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to MAN-077-DDCP, *The D&D Characterization Protocol*, Rev 3. 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 prescribed release limits. No friable asbestos containing materials were identified. Non-friable vinyl asbestos floor tile, non-friable asbestos mastic adhesives, and non-friable asbestos containing, tar-impregnated roofing materials may be present. Fluorescent light ballasts may contain PCBs. Any PCB ballasts will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in accordance with Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable.

Based upon this RLCR and subject to concurrence by the CDPHE, the Group 9 facilities are considered to be Type 1 facilities. Established isolation controls and facility isolation postings ensure that the facilities remain free of contamination and that the RLC data remains valid.

## **1 INTRODUCTION**

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of facilities T891G, O, R and V (a.k.a. Group 9). Because these facilities were anticipated to be Type 1 facilities, a Pre-Demolition Survey (PDS) characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities (i.e., floors (slabs), walls, ceilings and roofs). Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process, in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are the Group 9 facilities. The locations of these facilities are shown in Attachment A. These facilities no longer support the RFETS mission and need to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, a PDS must be conducted; this document presents the PDS results. The PDS was conducted pursuant to MAN-077-DDCP and MAN-127-PDSP. The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Reports.

### **1.1 Purpose**

The purpose of this report is to communicate and document the results of the RLC effort. PDSs are performed before building demolition/resale 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 management 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 final radiological and chemical conditions of the Group 9 facilities. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process, in compliance with RFCA. Both facilities and environmental media will be dispositioned pursuant to the RFCA.

### **1.3 Data Quality Objectives**

The Data Quality Objectives (DQOs) used in designing this RLC are the DQOs established in MAN-127-PDSP, section 2.0.

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## 2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) were conducted to understand facility histories and related hazards. The assessments consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to 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 HSAs were documented in facility-specific Historical Site Assessment Reports (HSARs). Refer to Attachment B, Historical Site Assessment Reports, for copies of the Group 9 HSARs. In summary, the HSARs identified some potential for radiological and chemical hazards.

## 3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Group 9 was characterized for radiological hazards per the PDSP. Section 3.1 describes the radiological characterization process that was performed, and Section 3.2 summarizes the radiological hazards that were identified, if any.

### 3.1 Radiological Characterization

Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on or in the facilities. Measurements were performed to evaluate the contaminants of concern. Based on facility histories, building walkdowns, and MARSSIM guidance, the facilities were broken down into survey areas, survey units, and classifications. Radiological Characterization Packages (refer to Attachment C) were developed during the planning phases that describes how the facilities were broken-down into survey units, the justification for the survey unit classifications, and the minimum measurement requirements per survey unit.

Radiological survey unit packages were developed for each survey unit in accordance with Radiological Safety Practices (RSP) PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*, Rev 1. Total Surface Activity (TSA), removable and scan measurements were collected in accordance with PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev 1. Radiological survey data were verified, validated and evaluated in accordance with PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis For Final Status Survey*, Rev 1. Quality Control measures were implemented throughout the survey and sampling process in accordance with PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control For Final Status Survey*, Rev 1.

Radiological data, statistical analysis results, and survey locations are presented in Attachment E, Radiological Data Summaries and Survey Maps. Radiological survey packages are maintained in the Group 9 Characterization Project files.

### 3.2 Radiological Hazards Summary

No areas within Group 9 had any radiological contamination above the transuranic DCGLs. The RLC (serving also as the PDS) confirmed that the Group 9 facilities (i.e., all interior and exterior facility surfaces) do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Isolation control postings are displayed at all entrances to the Group 9 facilities to ensure no radioactive materials are introduced.

## 4 CHEMICAL CHARACTERIZATION AND HAZARDS

Group 9 was characterized for chemical hazards per the PDSP. Section 4.1 describes the chemical characterization process that was performed, and Section 4.2 summarizes the chemical hazards that were identified.

### 4.1 Chemical Characterization

Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the Group 9 facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. Chemical Characterization Packages (refer to Attachment D) were developed during the planning phases that describes sampling requirements and the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs. Refer to Attachment F, Chemical Summary Data and Sample Maps, for details on sample results and sample locations.

#### 4.1.1 Asbestos

Based on limited historical asbestos inspection data, an asbestos inspection and sampling of suspect friable asbestos containing material (ACM) was required for the PDS. A CDPHE-certified asbestos inspector conducted the inspection and sampling in accordance with PRO-563-ACPR, *Asbestos Characterization Protocol*, Rev 0. Potential ACM was identified for sampling at the discretion of the inspector. Any potential non-friable ACM was not sampled.

#### 4.1.2 Beryllium (Be)

There is no documented, supporting data, or process history that proves beryllium was not used or stored in these buildings. Therefore, biased smears were collected based upon the PDSP requirements and the size of the respective facilities. Beryllium samples were obtained at locations specified on the sample maps in accordance with PRO-536-BCPR, *Beryllium Characterization Procedure*, Rev. 0. Biased sample locations corresponded to the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

#### **4.1.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]**

Based on the HSARs and facility walkdowns of Group 9, there was no record of RCRA/CERCLA constituent operations, storage or spills, therefore RCRA/CERCLA constituent sampling was not performed in these facilities.

Sampling for lead in paint in Group 9 was not required. 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) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

#### **4.1.4 Polychlorinated Biphenyls (PCBs)**

Based on the HSARs and facility walkdowns of the Group 9 facilities, there was no record of PCB operations or storage, therefore PCB sampling was not performed in these facilities. The Group 9 facilities contain fluorescent light ballasts that may contain PCBs. Therefore, fluorescent light fixtures will be inspected to identify PCB ballasts during removal operations. PCB ballasts will be identified based on factors such as labeling (e.g., PCB-containing and non-PCB-containing), manufacturer, and date of manufacturing. All ballasts that do not indicate non-PCB-containing are assumed to be PCB-containing.

Based on the age of the buildings, historical data, and process knowledge, there is no reason to suspect that any specialized paints or coatings containing PCBs were applied to any of the painted surfaces within the Group 9 facilities. Current plans are to dispose of demolition debris from Group 9 in an off-site, non-hazardous solid waste landfill, or re-sell the facilities.

### **4.2 Chemical Hazards Summary**

The following sections summarize the chemical hazards identified during the PDS.

#### **4.2.1 Asbestos**

Suspect, friable asbestos containing materials were sampled in each of the trailers composing Group 9. Asbestos sample data and sample location maps are contained in Attachment F, Chemical Summary Data and Sample Maps. All results were negative for asbestos.

#### **4.2.2 Beryllium**

Beryllium sample results of the Group 9 facilities were all less than 0.1  $\mu\text{g}/100\text{cm}^2$ . Beryllium sample data and sample location maps are contained in Attachment F, Chemical Summary Data and Sample Maps.

### 4.2.3 RCRA/CERCLA Constituents

Based on the HSARs and facility walkdowns of Group 9, there was no record of RCRA/CERCLA constituent operations, storage or spills. Therefore, there are no RCRA/CERCLA constituent hazards in these facilities.

### 4.2.4 PCBs

Based on the HSARs and facility walkdowns of the Group 9 facilities, no PCB sampling was necessary or performed. It is not suspected that any paints or coatings containing PCBs were applied to painted surfaces within Group 9. PCB ballasts may be found in the Group 9 and will be removed and disposed of in accordance with site procedures prior to building demolition. Plans are to dispose of demolition debris in an off-site, non-hazardous solid waste landfill, or re-sell the facilities.

## 5 PHYSICAL HAZARDS

Physical hazards associated with the Group 9 facilities consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. There are no unique hazards associated with the facilities. The facilities have been relatively well maintained and are in good physical condition, and therefore, do 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 the Group 9, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments A–G) 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 H.

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## **7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES**

The demolition/resale and disposal of Group 9 will generate a variety of wastes. Attachment G presents the estimated waste types and waste volumes by facility. All wastes can be disposed of as non-routine sanitary waste, except asbestos containing material and PCB Bulk Product Waste. There is no radioactive or hazardous waste. Asbestos and PCB ballasts will be managed pursuant to Site asbestos and PCB abatement and waste management procedures. All fluorescent light bulbs will be removed and managed as universal waste prior to final facility disposition.

## **8 FACILITY CLASSIFICATION AND CONCLUSIONS**

Based on the analysis of radiological, chemical and physical hazards, the Group 9 facilities (i.e., T891G, O, R and V) are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). The Type 1 classification is based on a review of historical and process knowledge, and newly acquired RLC data, and will be subject to concurrence by the Colorado Department of Public Health and the Environment (CDPHE).

The RLC of Group 9 was performed in accordance with MAN-077-DDCP and MAN-127-PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These facilities do not contain radiological or hazardous wastes. PCB ballasts will be removed and disposed of in compliance with EPA and CDPHE regulations. Environmental media beneath and surrounding the facilities will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

Established isolation controls and facility isolation postings ensure that the facilities remain free of contamination and that the RLC data remains valid.

## 9 REFERENCES

- ANSI-N323A-1997, *Radiation Protection Instrumentation Test and Calibration*.
- DOE/RFPO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.
- DOE Order 414.1A, *Quality Assurance*.
- EPA, 1994. *The Data Quality Objective Process*, EPA QA/G-4.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 0, November 15, 2000.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 1, September 1999.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, April 23, 2001.
- K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 0, April 23, 2001.
- 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, *Abestos Characterization Procedure*, Rev. 0, August 24, 1999
- PRO-536-BCPR, *Beryllium Characterization Procedure*, Rev. 0, August 24, 1999
- RFETS, *Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*.
- RFETS, *Historical Site Assessment Report for Trailers T891G, O, R and V*.

# ATTACHMENT A

## Facility Location Map

# T891 Building Cluster

## EXPLANATION



T891 buildings

## Standard Map Features



Buildings and other structures



Solar Evaporation Ponds (SEPs)

Lakes and ponds

Streams, ditches, or other drainage features

Fences and other barriers

Paved roads

Dirt roads

**DATA SOURCE BASE FEATURES:**  
Buildings, fences, hydrography, roads, and other structures from 1994 aerial fly-over data captured by EG&G RSL, Las Vegas.  
Digitized from the orthophotographs, 1995



Scale = 1:12450  
1 inch represents approximately 1038 feet



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD 27

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

Prepared for:  
GIS Dept. 303-966-7707



MAP ID: FY 2002

October 16, 2001



# ATTACHMENT B

## Historical Site Assessment Report

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**D&D RISS Facility Characterization  
Historical Site Assessment Report  
JULY 2001, Rev. 0**

**Facility ID:** Trailers T891B, T891D, T891E, T891F, T891G, T891O, T891P, T891R, T891V, T893A and T893B.

**Anticipated Facility Type (1, 2, or 3):** All of the trailers in this cluster are anticipated Type 1 facilities.

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

*D&D Characterization Protocol*, RFETS MAN-077-DDCP, latest version, and

*Facility Disposition Program Manual*, RFETS MAN-076-FDPM, latest version

**Physical Description**

**Trailer T891B**

T891B is an approximately 975 square-foot wide office trailer, which was acquired in 1993 and is located east of the B891 Consolidated Water Treatment Facility. This trailer is approximately 14-feet wide and 65-feet long with two entrance doors on the north side of the structure. One entry has a wooden stair attached to a 4-foot x 4-foot deck leading to the entry door. The other entry has a wooden handicapped ramp attached to a 4-foot x 4-foot deck leading to the entry door. The trailer has aluminum siding, and the skirting is painted pressboard. 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. The ceiling is a drop ceiling with 2-foot by 4-foot acoustical tiles with recessed lighting. The floor is 12-inch vinyl tile. The walls in this trailer are a vinyl-covered wallboard and are commonly constructed with steel studs. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

T891B uses electrical heat and electrical air conditioning. This trailer is not hooked up to plant water or plant sanitary systems. Fire protection is provided by individual wall-mounted fire extinguishers. T891B is not connected to the LSDW system or the fire alarm system.

**Trailer T891D**

T891D is an approximately 720 square-foot general field office trailer, which was acquired in 1993 and is located in the 800-Area contractor support yard. This trailer measures approximately 15-feet by 48-feet and has 2 entrance doors on the north side of the trailer. Both entries have wooden stairs attached to a 4-foot x 4-foot deck leading the entry door. Both entrances have wooden enclosures. The siding and skirting for the trailer are painted wood. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

T891D is configured with an office at each end of the trailer and a large work area in the center, which is divided into partitioned work areas. The interior walls and ceilings are constructed of plasterboard, and the lights are surface mounted on the plasterboard ceilings. Trailer construction during this time period commonly used metal studs. The floors are 12-inch vinyl tiles. The fire suppression is provide by wall-mounted fire extinguishers. T891D uses electrical heat and electrical air conditioning. This trailer has hook ups to plant water and plant sanitary systems and has a restroom. T891D is not connected to the LSDW system or the fire alarm system.

**Trailer T891E**

T891E is an approximately 1440 square-foot general field office trailer, which was acquired in 1991 and is located in the 800-Area contractor support yard. This trailer is approximately 30-feet wide x 48-feet long. The exterior is painted wood siding with painted wood skirting. The trailer has two entrances on the south side of the structure. One entrance has wooded steps connected to a 4-foot x 4-foot deck, which leads to the entry door. The other entrance has wooden steps connected to a 4-foot x 8-foot deck, which also acts as a dock. Both entrances have wooden enclosures. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

**D&D RISS Facility Characterization  
Historical Site Assessment Report  
JULY 2001, Rev. 0**

T891E is configured with two offices on each end of the trailer with two large work areas in the center. The interior walls and ceiling are constructed of plasterboard with the light fixture surface mounted on the plasterboard. Trailer construction during this time frame commonly uses metal studs. The floors are 12-inch vinyl tiles. The fire suppression is wall-mounted fire extinguishers. T891E uses electrical heat and electrical air conditioning. T891E has plant water and plant sanitary hook ups and has a restroom. T891E is not connected to the LSDW system or the fire alarm system.

**Trailer T891F**

T891F is an approximately 720 square-foot field office trailer, which was acquired in 1991 and is located in the 800-Area contractor support yard. The Site Facility List said this trailer was acquired in 1993. The RFETS Facility List states this trailer was purchased in 1993. A visual inspection indicated that the trailer was likely constructed some time in the late 1970's or early 1980's. This trailer is approximately 15-feet wide and 48-feet long. The exterior is painted wood siding with painted wood skirting. T891F has two entries on the south side of the building. Both of the entries have wooden stairs attached to a 4-foot x 4-foot deck, which leads to the entry door. The roof is asphalt shingle. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

The interior is configured with an office on each end of the trailer and a large work area in the center. The interior walls are wood paneling and the floors were 12-inch vinyl tiles. Trailers manufactured during the 1970's and 1980's have either wood or steel wall studs. The ceiling is 4-foot x 12-foot vinyl-covered wallboard with surface mounted light fixtures. T891F has electric heat and air conditioning. T891F has plant water and plant sanitary hook ups and has a restroom. Fire suppression is provided by wall-mounted fire extinguishers. T891F is not connected to the LSDW system or the fire alarm system.

**Trailer T891G**

T891G is an approximately 720 square-foot field office trailer, which was acquired in 1993. This trailer is approximately 15-feet wide by 48-feet long and is located in the 891 contractor yard. The exterior is painted wood siding with a painted wood skirting. The trailer has two entrances on the north side of the structure. Both entrances have wooded steps connected to a 4-foot x 4-foot deck, which leads to the entry door. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

This trailer could not be entered for an internal walkdown. The interior is configured with an office on each end of the trailer and a large work area in the center. The interior wall is vinyl-covered wallboard, and the floor is 12-inch vinyl tile. The ceiling is 2-foot x 4-foot acoustical tile ceiling with recessed lighting. Trailer construction during this time period commonly used metal studs. The building has propane heat and the air conditioning. The building is not connected to plant water or plant sanitary hook ups. Fire suppression is provided by wall-mounted fire extinguishers. T891G is not connected to the LSDW system or the fire alarm system.

**Trailer T891O**

Trailer T891O is an approximately 2880 square-foot general field office trailer, which is approximately 60-feet by 48-feet and was acquired in 1993 and is located in the 891 contractor yard. This trailer has painted wood siding with painted wood skirting. There are 2 access doors on the south side of the structure and one access door on the east side of the trailer. The two south-side access doors each have wood stairs attached to a 4-foot by 4-foot deck leading to the entry door. The east side access door has wood stairs and a 4-foot by 8-foot deck leading to the door and is also used as a loading dock. The roof construction could not be determined from this ground-inspection. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

T891O is configured with hard-walled offices, several larger conference rooms, and large work areas. The interior walls and ceiling are constructed of 4-foot x 10-foot vinyl-covered wallboard with the light fixture surface mounted on the wallboard. The walls on a trailer of this age are usually constructed with steel studs. The floors are 12-inch vinyl tiles. The fire suppression is individual wall-mounted fire extinguishers. T891O uses electrical heat and electrical air conditioning. T891O has no plant water and plant sanitary hook ups. T891O is not connected to the LSDW system or the fire alarm system.

**D&D RISS Facility Characterization  
Historical Site Assessment Report  
JULY 2001, Rev. 0**

**Trailer T891P**

T891P is an approximately 720 square-foot general field office trailer, and is approximately 15-feet wide and 48-feet long. This trailer was placed into service in 1994 and is located east of B891. T891P has aluminum siding and aluminum skirting. There are two entrances on the north side of the trailer. Both entrances have wooden stairs attached to a 4-foot x 8-foot deck, which leads to the entry door. One of the entrances has a handicapped ramp. Both entrances have enclosures. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible , but likely have insulation.

T891P is configured with one office on each end of the trailer with a large work area in the center. The interior walls are vinyl-covered wallboard, and the ceiling is 2-foot by 4-foot acoustical drop ceiling with recessed lights. The floors are 12-inch vinyl tiles. Trailer construction during this time period commonly used metal studs. The fire suppression is individual wall-mounted fire extinguishers. T891P uses electrical heat and electrical air conditioning. T891P has no plant water and plant sanitary hook ups. T891P is not connected to the LSDW system or the fire alarm system.

**Trailer T891R**

Trailer T891R is an approximately 2880 square-foot general field office and sample shipping trailer, which is approximately 60-feet long by 48-feet wide. This trailer was acquired in 1993 and is located south east of the 904 pad. T891R has aluminum siding and aluminum skirting. There are 2 entry doors on the south side of the structure and three entry doors on the east side of the trailer. The two south-side access doors each have wood stairs attached to a 4-foot by 4-foot deck leading to the entry door. One of the south-side entrance doors has a wood enclosure. Two of the east-side access doors have wood stairs and a 4-foot by 4-foot deck leading to the entry door. The third door has a 4-foot by 8-foot deck and is also used as a loading dock. The roof construction could not be determined from the ground-level inspection. This trailer does not have roof drains or down spouts. Trailer walls were not accessible , but likely have insulation.

T891R is configured of hard-walled offices with several larger work areas and conference rooms. The interior walls are constructed of vinyl-covered wallboard, and the ceiling is a 2-foot x 4-foot acoustical drop ceiling with recessed light fixtures. The floors are 12-inch vinyl tiles. The fire suppression is individual wall-mounted fire extinguishers. T891R uses electrical heat and electrical air conditioning. T891R has no plant water or plant sanitary hook ups. T891R is not connected to the LSDW system or the fire alarm system.

**Trailer T891V**

Trailer T891V is an approximately 720 square-foot office field trailer located north east of B891. T891V was acquired in 1986 and is approximately 15-feet by 48-feet in size. This trailer has aluminum siding, aluminum skirting, and a tin roof. There are two entry doors on the south side of the trailer. Each entry has wood stairs attached to a 4-foot x 4-foot deck which leads to the entry door. Each entry has a wooden enclosure. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible , but likely have insulation.

The interior floor is primarily vinyl-sheet covering, and one of the offices is carpeted. The interior walls are wood paneling. The interior ceiling is 4-foot x 8-foot vinyl-covered wallboard with surface mounted light fixtures. The trailer has a main work area in the center of the trailer and two smaller offices at each end of the trailer. Trailer construction during this time period commonly used metal studs. The fire suppression is individual wall-mounted fire extinguishers. T891V uses electrical heat and electrical air conditioning. T891V has plant water and plant sanitary hook ups and has a restroom. T891V is not connected to the LSDW system or the fire alarm system.

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**Trailer T893A**

T893A is an approximately 15,600 square-foot general field office trailer and was acquired in 1991. This modular trailer is approximately 120-feet wide by 130-feet long and is located south east of B865. B893A has corrugated metal siding with corrugated metal skirting. Trailer construction during this time period commonly used metal studs.

T893A has a total of 6 entrances. Three of the entrances are on the east side of the structure, and three are on the west side of the structure. The east and west side each have one entry constructed with wood steps leading to a 4-foot by 4-foot deck which leads to the entry door; one entry with wooden steps leading to a 4-foot by 8-foot deck which acts as a dock; and one entry constructed of a wooden handicapped ramp attached to a 4-foot by 4-foot deck leading to the entry door. All entries are covered with a wooden enclosure. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

The interior is primarily a cubical layout, but has several hard-walled offices, conference rooms, and rest rooms. Interior walls are paper-covered wallboard on metal studs. The ceiling is a drop ceiling with 2-foot by 4-foot acoustical tiles and recessed lights. The floor is primarily covered with carpet except in the bathrooms and dock entranceways, which are covered with vinyl tile.

B893A has electrical heat and electrical air conditioning. The fire suppression system is a overhead sprinkler system with hand held fire extinguishers in some areas. This trailer is supplied water from the site water system and drains into the site sanitary system and has restrooms. T891A is connected to the LSDW system or the fire alarm system.

**Trailer T893B**

T893B is an approximately 15,600 square-foot general field office trailer and was acquired in 1991. This modular trailer is approximately 120-feet wide by 130-feet long and is located south east of B865. B893B has corrugated metal siding with corrugated-metal skirting. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer construction during this time period commonly used metal studs.

T893B has a total of 6 entrances. Three of the entrances are on the east side of the structure, and three are on the west side of the structure. The east and west side each have one entry constructed with wood steps leading to a 4-foot by 4-foot deck which leads to the entry door; one entry with wooden steps leading to a 4-foot by 8-foot deck which acts as a dock; and one entry constructed of a wooden handicapped ramp attached to a 4-foot by 4-foot deck leading to the entry door. All entries are covered with a wooden enclosure. An inspection of the roof could not be made from the ground-level walkdown. This trailer does not have roof drains or down spouts. Trailer walls were not accessible, but likely have insulation.

The interior is primarily a cubical layout, but has a few hard-walled offices and conference rooms. Interior walls are vinyl-covered wallboard on metal studs. The ceiling is a drop ceiling with 2-foot by 4-foot acoustical tiles and recessed lights. The floor is primarily covered with carpet except in the bathrooms and dock entranceways, which are covered with vinyl tile.

T893B has electrical heat and electrical air conditioning. The fire suppression system is a overhead sprinkler system with hand-held fire extinguishers in some areas. This trailer is supplied water from the site water system and drains into the site sanitary system and has restrooms. T891B is connected to the LSDW system or the fire alarm system.

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**Historical Operations**

T891B has historically been used as a general field office trailer. T891B also houses a field laboratory in the large work area in the center of the trailer. Although this area is called a laboratory, it is only used to store and ship B891 environmental samples and to calibrate field instruments such as pH, conductivity and temperature meters. At one time this area was used to store acids and bases to preserve water samples, which are now stored in B891. Samples are stored in a refrigerator labeled as a RMA. Sample size range from 1 L to 4 L. Sample matrixes are both liquids and solids. This field lab was moved to T891B from T891C in 1999.

T891D, T891E, T891F and T891G have historically been used as a general field trailer. Activities did not involve any hazardous substances or radioactive materials.

T891O has historically been a general field office trailer and has supported the Ground Water Monitoring Operations Group. Support activities included coordinating ground water sampling activities, sample management, and sample shipping. Support also involved filtering ground water samples prior to shipping to a laboratory for analysis. Samples filtered and managed in this trailer were environmental samples, which usually contain very low levels of radiological and chemical contamination. Room 12 and Room 10 of T891O are designated as a RMA for storing radioactive samples. Room 9 was used to store acids for groundwater sample preservation and other miscellaneous sampling supplies. This trailer was also used to coordinate lead-lined drum recycling activities.

T891P has historically been used as a general field office trailer, and currently supports the water treatment support organization and is also used to coordinate water treatment sampling activities. The west room of T891P is used for radiological monitoring (counting smears) by the water treatment support group and currently is posted as a RMA. The smears are collected for the release of samples from B891 as well as collected during operations and maintenance activities for the B891 Water Treatment Facility. The B891 Water Treatment Facility primarily treats groundwater, which is considered to have only very low levels of contamination.

T891R has historically been used as a general field office trailer and sample storage and shipping trailer. T891R historically supported the bioassay program and surface water support organization. The north end of the trailer was used to receive bioassay samples from RFETS employees. The surface Water Support Group used Room 7 as a radiological instrument calibration and instrument storage room. Room 7 also had an acid cabinet used to store acids used to preserve surface water samples. Room 9A was used to store material to package and ship surface water samples to offsite laboratories. The east end of the trailer had several refrigerators used to store samples at a controlled temperature until they could be shipped off-site for analysis. These refrigerators were labeled as a RMA. The trailer had no known radiological or hazardous operations other than those identified above.

T891V was currently empty, but was occupied by the CASI sampling organization to coordinate sampling activities. T891V was moved to its current location in 1997. Prior to 1997, T891V was labeled T690J and was located west of Building 881. T690J was used as an on-site analytical laboratory and sample preparation facility. The trailer at that time was equipped with gamma detectors and also used 2 chemical hoods to perform sample preparation activities (e.g., addition of acids and bases). This trailer was primarily used to prepare pond-crete samples for off-site shipment to an analytical laboratory for analysis.

T893A and T893B have historically been used as a general field office trailer. Activities did not involve any hazardous substances or radioactive materials.

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**Current Operational Status**

T891B is currently used as a general field office trailer, and recently the old RTG field lab was moved here. T891B currently houses the water treatment support group. T891D and T891E currently houses Surface Water Operation Support personnel and Buffer Zone Support personnel. T891F currently houses Surface Water Operation Support personnel.

T891G was emptied in July of 2001 and had housed Ecology support personnel.

T891O was emptied in June of 2001 of all personnel due to the increased background radiation from the waste stored on the 904 pad and B906.

T891P is currently being used as a general field office trailer by the water treatment support organization to coordinate water treatment sampling activities. The west room of T891P is used for radiological monitoring (counting swipes) by the water treatment support group and currently is posted as a RMA.

T891R was emptied of all personnel in May of 2001 due to the increased background radiation from the waste stored on the 904 pad and B906.

Trailer T891V was emptied in July 2001 due to the increased background radiation from the waste stored on the 904 pad and B906.

Trailer T893A and Trailer T893B currently houses the Material Stewardship Support Group.

**Contaminants of Concern**

**Asbestos**

Describe any potential, likely, or known sources of Asbestos: All of the T891 trailers and the T893A and T893B trailers are posted as "Potentially Containing Asbestos Material". No records of asbestos building inspections were found on any of these buildings.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

**Beryllium (Be)**

Describe any potential, likely, or known Be production or storage locations: None of the T891 trailers nor T893A and T893B trailers are on the RFETS list of known Be locations.

Summarize any recent Be sampling results: No recent Be sampling has been conducted .

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

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**Lead**

Describe any potential, likely, or known sources of Lead (e.g., paint, shielding, etc.): Some trailers may contain lead-based paints, lead wiring, and lead solder. Trailer T891O has a WSRIC, which addresses the management of lead-lined drum recycling activities. T891O never stored any lead and only administered the paper work. The lead-lined drums were stored in seven cargo container east of T891C. The seven cargo containers storing the lead lined drums for recycling have been relocated to the south side of T886D and are used to provide area radiation shielding for the analytical activities provided by Eberline. No lead operations were known to have occurred in any of these trailers.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

**RCRA/CERCLA Constituents**

Describe any potential, likely, or known sources of RCRA/CERCLA constituents (e.g., chemical storage, waste storage, processes): The field labs in T891B, T891O, T891R and T891V used acids and bases to preserve samples. See Building 891 WSRIC for detailed explanation of waste streams that are sampled and stored in the T891B field lab. Samples stored in these field labs were environmental samples with very low levels of radiological and chemical contamination. Most of the samples were well below RCRA regulatory levels. The 891 trailers and T893A & T893B trailers are not listed on "The Master List of RCRA Units".

Describe any potential, likely, or known spill locations (and sources, if any): None.

Describe methods in which spills were mitigated, if any: None.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

**PCBs**

Describe any potential, likely, or known sources of PCBs (e.g., light ballasts, paints, equipment, etc.): Some trailers may contain PCB-based paints and light ballasts with PCBs. No equipment containing PCBs were ever located in any of these trailers.

Describe any potential, likely, or known spill locations (and sources, if any): None.

Describe methods in which spills were mitigated, if any: None.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

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**Radiological Contaminants**

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

The T891B sample storage refrigerator was a RMA. See Building 891 WSRIC for detailed explanation of waste streams that were sampled and shipped by the T891B field lab. Samples stored in the field lab were environmental samples with very low levels of contamination.

Room 12 and Room 10 of T891O are designated as a RMA for storing radioactive samples.

The west room of T891P is used for radiological monitoring (counting smears) by the water treatment support group and currently is posted as a RMA.

The north end of T891R is used to receive bioassay samples from RFETS employees. Room 7 is used as a radiological calibration and instrument storage room. The east end of the trailer has several refrigerators used to store samples at a controlled temperatures until they can be shipped off-site for analysis. The refrigerators are designated as RMAs.

Trailer T891V is currently used to coordinate field sampling activities and sometime store sampling equipment. T891V did act as a counting lab as part of it operational history and currently has 2 chemical hoods, which are not in use.

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.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.): None.

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.): None.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

**Environmental Restoration Concerns**

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

No known IHSSs, PACs, or UBCs are related to these trailer.

Note: SME should evaluate and/or verify this information during the RLC/PDS process. SME may need to review additional documentation and perform additional interviews.

**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.): Trailer T891O has a WSRIC for sample filtering and lead-lined drum recycling activities, even though T891O only handled the paperwork related to the lead-lined drum recycling. The lead-lined drums were stored in a cargo container west of the trailer.

See Building 891 WSRIC for detailed explanation of waste streams that are sampled and stored in the T891B field lab.

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**References**

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

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. This trailers do not have a Facility Safety Analysis or a WSRIC. In addition, facility walkdown were performed and the Building Coordinator was interviewed.

**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	Other Waste (cu ft)
T891B	None	300	250	350	450	TBD	50
T891D	None	800	250	0	450	TBD	50
T891E	None	1400	500	0	800	TBD	200
T891F	None	800	250	0	450	TBD	75
T891G	None	800	250	0	450	TBD	75
T891O	None	1800	800	0	1800	TBD	200
T891P	None	275	250	350	450	TBD	50
T891R	None	600	800	1100	1400	TBD	200
T891V	None	275	250	350	450	TBD	50
T893A	None	3500	1500	3000	4500	TBD	400
T893B	None	3500	1500	3000	4500	TBD	400

**Further Actions**

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

Begin the RLC/PDS process.

**Note:**

This HSA was performed prior to SME walkdowns, and chemical and radiological characterization package preparations. 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 the report. Newer Data will appear in the RLCR/PDSR

Prepared By:

DOUG BRYANT

Name

 10-9-01

signature

Date

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**D&D RISS Facility Characterization  
Historical Site Assessment - Interview Checklist**

**Facility ID:** T891B, T891D, T891 E, T 891F, T891G, T891O, T891P T891 R, T891V, T893A and T893B.

**Anticipated Facility Type (1, 2, or 3):** All of the trailers in this cluster are anticipated type 1 facilities.

This facility specific Historical Site Assessment (HSA) - Interview Checklist has been conducted in accordance with:  
*D&D Characterization Protocol*, RFETS MAN-077-DDCP, latest version, and  
*Facility Disposition Program Manual*, RFETS MAN-076-FDPM, latest version

**Personnel Interviewed (Name, Title, and Function)**

Russ Cirillo, Building Coordinator – Building Coordinator for all the 891 Trailers. Although Mr. Cirillo was not the Building Coordinator for T893 A and T893 B, he was familiar with the operations of these trailers over the last 5 years.

**What time frame did the interviewee work in the facility? What was his/her function(s)?**

Mr. Cirillo has been Building Coordinator for the T891 trailers for 7 to 8 years.

**Has the building configuration changed since you worked in the building (e.g., rooms & equipment)? Have there been any building renovations? If so, in what way?**

The field lab for B891 was moved to the center work area of T891B from T891C trailer in 1999. This field lab is really not a lab, but an area used to ship and store samples from the B891 Water Treatment Facility.

Trailer T891V was moved to its current location in about 1999.

**What operations/processes were conducted in the building during the interviewee's time in the facility?**

T891B stores samples from the B891 Water Treatment Facility.

T891D, T891E, T891F, T891G, T893A and T893B have always been used as general field trailers.

T981O -Ground water monitoring activities included sample packaging and shipping, sample storage, and sample filtration. This trailer was also used to coordinate lead-lined drums recycling. The lead-lined drums were stored in seven cargo container east of the T891C and never entered T891O.

Trailer T891P houses the Water Treatment Support Group.

Trailer T891R housed the bioassay receiving and shipping facility, as well as the Surface Water Support Group. The Surface Water Support Group collected field samples and shipped these samples to off-site laboratories for analysis. T891R housed a Radiological Support Group, which supported the Surface Water Support Group, used hand-held and table radiological measurement instruments. This group stored sealed calibration sources. Radiological support operations were primarily in the northwestern offices.

T891V - East and west offices were used as general offices, and the center work area has two chemical hoods. These hoods are used to manage samples.

**D&D RISS Facility Characterization  
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Were there any Asbestos Containing Materials (e.g., transite wall board, ceiling tiles, floor tile), lead shielding, equipment utilizing PCB oils (e.g., process equipment, lifts, hydraulic systems, etc.), or any other chemical hazards (past or present)?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Did any spills or uncontrolled release of radioactive materials or chemicals occur while you worked in the building? If so, what types, quantities, and where?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Were these spills/releases cleaned up or mitigated? If so, how, and to what extent?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Do you know of any additional issues, concerns, or process knowledge that could affect facility characterization?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Prepared By:

Doug Bryant      Doug Bryant      7-16-01  
Print Name                      Signature                      Date

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## D&D RISS Facility Characterization Historical Site Assessment - Interview Checklist

**Facility ID:** T891B, T891D, T891 E, T 891F, T891G, T891O, T891P T891 R, T891V, T893A and T893B.

**Anticipated Facility Type (1, 2, or 3):** All of the trailers in this cluster are anticipated type 1 facilities.

This facility specific Historical Site Assessment (HSA) - Interview Checklist has been conducted in accordance with:  
*D&D Characterization Protocol*, RFETS MAN-077-DDCP, latest version, and  
*Facility Disposition Program Manual*, RFETS MAN-076-FDPM, latest version

Personnel Interviewed (Name, Title, and Function)

Richard Link is the Radiological Engineer for RISS Closure Support project and PU&D Radiological Support

What time frame did the interviewee work in the facility? What was his/her function(s)?

Mr. Link has worked throughout the 800 Area as a RCT and Health Physicist for over 30 years

Has the building configuration changed since you worked in the building (e.g., rooms & equipment)? Have there been any building renovations? If so, in what way?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

What operations/processes were conducted in the building during the interviewee's time in the facility?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

What types of equipment were used, and where was the equipment located? (specific rooms/areas)

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Were any radioactive materials or equipment handled in the building (e.g., wastes, residues, product, feed material, sealed radioactive sources)? If so, what types and where?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Were there any Research & Development area (past or present) located in the facility or area? If so, where?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

Were any chemicals (e.g., Beryllium, RCRA/CERCLA Constituents, PCBs, etc.) handled in the building? If so, what types and where?

Richard Link stated that he had no comments or concerns with these trailers, and no interview was performed.

**D&D RISS Facility Characterization  
Historical Site Assessment - Interview Checklist**

What type of equipment were used, and where was the equipment located? (specific rooms/areas)

General office equipment throughout all the T891 trailers and the T893A and T893 B trailers.

T891B and T891R had sample refrigerators.

T891O-General office equipment, sampling equipment, and sample storage and shipping equipment.

The west office of Trailer T891P is used to count smears collected during operation and maintenance activities of the B891 Water Treatment Facility.

T891R - General office equipment, sample storage and shipping equipment, hand-held and table radiological measurement equipment, sealed sources, and refrigerators. This equipment was throughout the trailer.

T891V- General office equipment and two hoods. Stored some misc. sampling equipment as well as acids and basis for preserving samples.

Were any radioactive materials or equipment handled in the building (e.g., wastes, residues, product, feed material, sealed radioactive sources)? If so, what types and where?

Samples from the B891 Water Treatment Facility are stored in the central work area of T891B.

T891O stored samples in Room 12 and Room 10. These rooms were labeled RMA. T891O housed some radiological operation personnel who supported ground water monitoring, and they used hand-held survey equipment with sealed sources.

T891P had a RMA established in the west office for counting smears taken during the sampling and maintenance activities related to B891.

T891R stored bioassay and environmental samples, hand-held instruments, smear counters, and sealed calibration sources. None of the sources were known to have leaked.

Were there any Research & Development area (past or present) located in the facility or area? If so, where?

The T891 trailer supported field investigation activities, but these activities would not meet the definition of "Research and Development".

Were any chemicals (e.g., Beryllium, RCRA/CERCLA Constituents, PCBs, etc.) handled in the building? If so, what types and where?

Small quantities of acids and bases for sample preservation. The samples handled in T891B, T891O, T891R and T891V were environmental samples and generally contained contamination levels below RCRA and CERCLA regulatory limits.

Were there any Asbestos Containing Materials (e.g., transite wall board, ceiling tiles, floor tile), lead shielding, equipment utilizing PCB oils (e.g., process equipment, lifts, hydraulic systems, etc.), or any other chemical hazards (past or present)?

None.

**D&D RISS Facility Characterization  
Historical Site Assessment - Interview Checklist**

Did any spills or uncontrolled release of radioactive materials or chemicals occur while you worked in the building? If so, what types, quantities, and where?

None

Were these spills/releases cleaned up or mitigated? If so, how, and to what extent?

None

Do you know of any additional issues, concerns, or process knowledge that could affect facility characterization?

None

Prepared By:

Doug Bryant  
Print Name

Doug Bryant  
Signature

7-16-01  
Date

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**D&D RISS Facility Characterization  
Historical Site Assessment - Interview Checklist**

**Facility ID:** T891O and T891V

**Anticipated Facility Type (1, 2, or 3):** Both of these trailers are anticipated type 1 facilities.

This facility specific Historical Site Assessment (HSA) - Interview Checklist has been conducted in accordance with:  
*D&D Characterization Protocol*, RFETS MAN-077-DDCP, latest version, and  
*Facility Disposition Program Manual*, RFETS MAN-076-FDPM, latest version

**Personnel Interviewed (Name, Title, and Function)**

Craig Huyett is the CASI Sampling Team Lead. Mr. Huyett was recently working in T891V and also worked in this trailer when it was called T890J

John Boylan is the Field Manager of Groundwater Monitoring Program that worked in T891O until it was vacated in July of 2001.

**What time frame did the interviewee work in the facility? What was his/her function(s)?**

Mr. Huyett has worked on site for 20 years.

Mr. Boylan has worked in the Groundwater Monitoring Program for 7 years.

**Has the building configuration changed since you worked in the building (e.g., rooms & equipment)? Have there been any building renovations? If so, in what way?**

This question was not addressed.

**What operations/processes were conducted in the building during the interviewee's time in the facility?**

During Mr. Boylan's tenure as Field Manager filtration of groundwater samples was conducted in the field. At the end of each day the sampling team put the filters in the RMA that was established in room 12.

**What type of equipment were used, and where was the equipment located? (specific rooms/areas)**

This question was not addressed.

**Were any radioactive materials or equipment handled in the building (e.g., wastes, residues, product, feed material, sealed radioactive sources)? If so, what types and where?**

This question was not addressed.

**Were there any Research & Development area (past or present) located in the facility or area? If so, where?**

This question was not addressed.

**D&D RISS Facility Characterization  
Historical Site Assessment - Interview Checklist**

Were any chemicals (e.g., Beryllium, RCRA/CERCLA Constituents, PCBs, etc.) handled in the building? If so, what types and where?

This question was not addressed.

Were there any Asbestos Containing Materials (e.g., transite wall board, ceiling tiles, floor tile), lead shielding, equipment utilizing PCB oils (e.g., process equipment, lifts, hydraulic systems, etc.), or any other chemical hazards (past or present)?

This question was not addressed.

Did any spills or uncontrolled release of radioactive materials or chemicals occur while you worked in the building? If so, what types, quantities, and where?

Mr. Huyett stated that he knows of no spills in the hood or in T891V (a.k.a. T690J) during his time in this facility.

Mr. Boylan stated the vinyl floor in room 9 was discolored, but he was not aware of any chemical spills in room 9 or any other room in the trailer during his 7 years working in T891O. In addition, Mr. Boylan confirmed that the stain in room 13 is from a 5-gallon bucket of Liquinox™ (detergent) that leaked.

Were these spills/releases cleaned up or mitigated? If so, how, and to what extent?

This question was not addressed.

Do you know of any additional issues, concerns, or process knowledge that could affect facility characterization?

This question was not addressed.

Prepared By:

JIM MOORE

Print Name

  
Signature

8/1/01  
Date

# ATTACHMENT C

## Radiological Characterization Package



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION

RADIOLOGICAL CHARACTERIZATION PLAN

GROUP 9 CLOSURE PROJECT  
(T891G, O, R & V)

REVISION 0

August 9, 2001

Prepared by:

  
Jay Britten, Radiological Engineer

Date: 8/10/01

Reviewed by:

  
Duane Parsons, Facility Characterization Coordinator

Date: 8/13/01

Reviewed by:

  
Steve Luker, Quality Assurance

Date: 8/13/01

Approved by:

  
Kent Dorr, Closure Project Facility Manager

Date: 8/14/01

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Not Available Copy

**Radiological Characterization Plan**  
**Group 9 (T891G, O, R & V)**

**Notes and Assumptions:**

- This characterization Plan was prepared in accordance with MAN-077-DDCP, D&D Characterization Protocols (07/26/00), and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities (02/14/01).
- PDSP Data Quality Objectives were used to develop this characterization plan.

**Instructions:**

1. Verify characterization activities are on the Plan-of-the-Day (POD).
2. Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual.
3. Verify personnel have appropriate training for the applicable tasks they will be performing.
4. Comply with RWP requirements, if applicable.
5. Comply with JHA and facility PPE requirements, as applicable.
6. Inform the Facility Manager, or designee prior to starting characterization activities.
7. Follow applicable characterization and sampling procedures.
8. Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs.
9. Coordination with the Environmental Restoration Program organization will be required to further characterize underneath facility foundations and slabs prior to removal.
10. Collect and maintain all characterization paperwork in the Project File(s).
11. All radiological surveys shall be conducted in accordance with the sampling and instruction forms included in Group 9 Survey Package numbers GR9-A-001, GR9-A-002, GR9-A-003 and GR9-A-004. Sample locations are denoted on scaled maps attached to each survey package.

**Radiological Characterization Plan  
Group 9 (T891G, O, R & V)**

**Non-Impacted Areas**

Survey Area	Survey Unit	Class	Description	Total m <sup>2</sup>	Floor m <sup>2</sup>	Scan m <sup>2</sup>	TSA	Smears	Media	Class Justification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Non-Impacted Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
<b>Non-Impacted Totals</b>				0	0	0	0	0	0	

**Class 1 Areas**

Survey Area	Survey Unit	Class	Description	Total m <sup>2</sup>	Floor m <sup>2</sup>	Scan m <sup>2</sup>	TSA	Smears	Media	Class Justification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Class 1 Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
<b>Class 1 Totals</b>				0	0	0	0	0	0	

**Class 2 Areas**

Survey Area	Survey Unit	Class	Description	Total m <sup>2</sup>	Floor m <sup>2</sup>	Scan m <sup>2</sup>	TSA	Smears	Media	Class Justification
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Class 2 Areas identified in this characterization unit. Historical Site Assessment and process knowledge indicate no need for this classification.
<b>Class 2 Totals</b>				0	0	0	0	0	0	

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**Radriological Characterization Plan  
Group 9 (T891G, O, R & V)**

**Class 3 Areas**

Survey Area	Survey Unit	Class	Description	Total (ft <sup>2</sup> )	Floor (ft <sup>2</sup> )	Scan (ft <sup>2</sup> )	TSA	Smears	Media	Class Justification
A	GR9-A-001	3	Interior & Exterior of T891G	509 259 - Interior 250 - Exterior	69	13 - Interior 8 - Exterior	15-random 15-biased 2-QC	15-random 15-biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the DCGL <sub>w</sub> . Historical Site Assessment and process knowledge of this unit provide a high degree of confidence that no individual measurement will exceed the DCGL <sub>w</sub> . A 5% scan on interior surfaces and a 3% scan on exterior surfaces will be biased towards areas of greatest potential for contamination. Scan percentages are justified due to the historical process knowledge of the facility and exterior characterization results of surrounding facilities. Additional biased measurements have been prescribed and will be collected to ensure uniform coverage of all building surfaces. These additional biased measurements are above and beyond requirements set forth in the RFETS PDSP and will not be used in any statistical analysis (i.e., MARSSIM Sign Test).
A	GR9-A-002	3	Interior & Exterior of T891O	963 572 - Interior 391 - Exterior	259	29 - Interior 12 - Exterior	15-random 15-biased 2-QC	15-random 15-biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the DCGL <sub>w</sub> . Historical Site Assessment and process knowledge of this unit provide a high degree of confidence that no individual measurement will exceed the DCGL <sub>w</sub> . A 5% scan on interior surfaces and a 3% scan on exterior surfaces will be biased towards areas of greatest potential for contamination. Scan percentages are justified due to the historical process knowledge of the facility and exterior characterization results of surrounding facilities. Additional biased measurements have been prescribed and will be collected to ensure uniform coverage of all building surfaces. These additional biased measurements are above and beyond requirements set forth in the RFETS PDSP and will not be used in any statistical analysis (i.e., MARSSIM Sign Test).

Biased measurement locations include high traffic areas such as building entrances, exits, and hallways; HVAC intakes and exhaust ducts; storage areas; areas of frequent personnel contact such as doors and door frames; and horizontal surfaces.

**Radiological Characterization Plan  
Group 9 (11891G O R & V)**

**Class 3 Areas**

Survey Area	Survey Unit	Class	Description	Total m <sup>2</sup>	Floor m <sup>2</sup>	Scan m <sup>2</sup>	TSA	Smears	Media	Class Justification
A	GR9-A-003	3	Interior & Exterior of T891R	1396 886 - Interior 510 - Exterior	256	45 - Interior 16 - Exterior	15-random 15-biased 2-QC	15-random 15-biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the DCGL <sub>w</sub> . Historical Site Assessment and process knowledge of this unit provide a high degree of confidence that no individual measurement will exceed the DCGL <sub>w</sub> . A 5% scan on interior surfaces and a 3% scan on exterior surfaces will be biased towards areas of greatest potential for contamination. Scan percentages are justified due to the historical process knowledge of the facility and exterior characterization results of surrounding facilities. Additional biased measurements have been prescribed and will be collected to ensure uniform coverage of all building surfaces. These additional biased measurements are above and beyond requirements set forth in the RFETS PDSP and will not be used in any statistical analysis (i.e., MARSSIM Sign Test).
A	GR9-A-004	3	Interior & Exterior of T891V	494 252 - Interior 242 - Exterior	63	13 - Interior 8 - Exterior	15-random 20-biased 2-QC	15-random 20-biased	0	Areas are not expected to contain, or have ever contained, any residual radioactivity greater than the DCGL <sub>w</sub> . Historical Site Assessment and process knowledge of this unit provide a high degree of confidence that no individual measurement will exceed the DCGL <sub>w</sub> . A 5% scan on interior surfaces and a 3% scan on exterior surfaces will be biased towards areas of greatest potential for contamination. Scan percentages are justified due to the historical process knowledge of the facility and exterior characterization results of surrounding facilities. Additional biased measurements have been prescribed and will be collected to ensure uniform coverage of all building surfaces. These additional biased measurements are above and beyond requirements set forth in the RFETS PDSP and will not be used in any statistical analysis (i.e., MARSSIM Sign Test).
<b>Class 3 Totals</b>				<b>3362</b>	<b>647</b>	<b>144</b>	<b>120</b>	<b>120</b>	<b>0</b>	
<b>All Class Areas</b>				<b>3362</b>	<b>647</b>	<b>144</b>	<b>120</b>	<b>120</b>	<b>0</b>	

\* Biased measurement locations include high traffic areas such as building entrances, exits, and hallways; HVAC intakes and exhaust ducts; storage areas; areas of frequent personnel contact such as doors and door frames; and horizontal surfaces.

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# ATTACHMENT D

## Chemical Characterization Package



**Rocky Flats Environmental Technology Site**

**CHEMICAL CHARACTERIZATION PLAN**

**Group 9 CLOSURE PROJECT**  
(Trailers T891G, O, R & V)

**REVISION 0**

**August 9, 2001**

Prepared by: *Andre Gonzalez* Date: 8/8/01  
Andre Gonzalez, Industrial Hygiene

Prepared by: *Jim Moore* Date: 8/8/01  
Jim Moore, Environmental Compliance

Reviewed by: *Steve Luker* Date: 8/9/01  
Steve Luker, Quality Assurance

Reviewed by: *Duane Parsons* Date: 8/9/01  
Duane Parsons, Characterization Coordinator

Approved by: *Kent A. Dorr* Date: 8/14/01  
Kent Dorr, KH Closure Project Manager

REVIEWED FOR CLASSIFICATION  
By *KAD*  
Date 8/14/01

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## CHEMICAL CHARACTERIZATION PLAN

**BUILDING(s):** Group 9 (Trailers T891G, O, R & V)

**Notes:**

- This characterization plan was prepared in accordance with MAN-077-DDCP, D&D Characterization Protocols, and MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities.
- PDSP Data Quality Objectives were used to develop this characterization plan.
- These facilities will be re-sold to an offsite vender and not demolished onsite.

**Instructions:**

1. Verify characterization activities are on the Plan-of-the-Day (POD).
2. Perform a Pre-Evolution Brief and/or Job Task Brief in accordance with the Site Conduct of Operations Manual.
3. Verify personnel have appropriate training for the applicable tasks they will be performing.
4. Comply with RWP requirements, if applicable.
5. Comply with JHA and facility PPE requirements, as applicable.
6. Inform the Facility Manager, or designee prior to starting characterization activities.
7. Follow applicable characterization and sampling procedures.
8. Notify Wackenhut Security (x2444) and the Shift Supervisor (x2914), and verify appropriate safety precautions/requirements are followed prior to accessing facility roofs.
9. Prior to any intrusive or invasive survey or sampling activities, contact IH and Radiological Operations to determine requirements and/or restrictions during sampling activities.
10. Coordination with the Environmental Restoration Program organization will be required to further characterize underneath facility foundations and slabs prior to removal.
11. Collect and maintain all characterization paperwork in the Project File(s), and all electronic data in the appropriate D&D RISS subdirectory.

<b>ASBESTOS</b>		
<b>Sample Location</b>	<b>Estimated Number of Samples</b>	<b>Sample location and justification/rational</b>
T891G, O, R & V	0	A visual asbestos inspection/walkdown will be performed to identify any potential friable ACM. If potentially friable ACM is visually observed during the walkdown, an appropriate number of samples will be collected. If no potentially friable ACM is visually observed, then no further sampling will be performed and a disclosure statement will be provided to future bidder that states that the facility may contain non-friable ACM.
<b>Total Samples:</b>	0	Sample numbers and locations, if any, will be determined during the facility walkdown. If sampling is required, then sample locations will be specified on sample maps during characterization efforts. Samples will be obtained in accordance with PRO-653-ACPR, Asbestos Characterization Procedure and 40 CFR 763.

<b>BERYLLIUM</b>		
<b>Sample Location</b>	<b>Number of Samples (smears)</b>	<b>Sample location and justification/rational</b>
T891G and T891V	10 – Biased in each facility	There is no documented supporting data or process history that proves beryllium was not used or stored in this building. Therefore, ten biased samples will be obtained based on the PDSP requirements (i.e. five minimum) and facility size.
T891O and T891R	5 – Biased in each facility	There is no documented supporting data or process history that proves beryllium was not used or stored in this building. Therefore, five biased samples will be obtained based on the PDSP requirements (i.e. five minimum) and facility size.
<b>Total Samples:</b>	30	Samples will be obtained at locations specified on sample map(s) in accordance with PRO-536-BCPR, Beryllium Characterization Procedure. Biased sample locations will correspond with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

<b>LEAD</b>		
<b>Sample Location</b>	<b>Number of Samples</b>	<b>Sample location and justification/rational</b>
T891G, O, R & V	0	Lead sampling is not required for the Group 9 Closure Project. Based on the age of the trailers (circa early 1990s) the exterior paint (T891G and T891O) appears to be latex based. In addition, the Group 9 trailers are not scheduled for onsite demolition; instead PU&D will sell these four trailers for offsite use.
<b>Total Samples:</b>	0	

RCRA/CERCLA CONSTITUENTS		
Sample Location	Number of Samples	Sample location and justification/rational
T891G, O, R & V	0	Based on the Historical Site Assessment Report, Interview Checklists and facility walkdowns, no hazardous activities resulting in a release of RCRA/CERCLA constituents occurred in these trailers. During the walkdowns for each trailer several small iron oxide stains were noted on the vinyl floors of each trailer due to rusting office furniture. No other visible stains were observed during the walkdowns except for a small spill of Liquinox™ (Room 11, T891O). Liquinox™ is a non-hazardous material, and the Groundwater Field Operations Manager confirmed the nature of the spill. Therefore, sampling for RCRA/CERCLA constituents is not required for the Group 9 Closure Project. However, prior to resale all fluorescent light bulbs will be removed (to prevent breakage during transit) and managed on site as Universal Waste.
<b>Total Samples:</b>	0	

PCBs*		
Sample Location	Number of Samples	Sample location and justification/rational
T891G, O, R & V	0	PCB sampling is not required for the Group 9 Closure Project. During the walkdown none of the fluorescent light ballasts were observed to be leaking. However, prior to resale of the trailers by PU&D each light ballast <b>must be inspected individually</b> . If any ballast is labeled “contains PCBs” the ballast will be removed and managed onsite according to the TSCA Regulations. In addition, the exterior paint (T891G and T891O) appears to be latex and since the trailers were constructed circa early 1990s would not contain any PCBs.
<b>Total Samples:</b>	0	

\* PCB ballasts and fluorescent light bulbs, shall be removed and managed onsite prior to resale.

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# ATTACHMENT E

## Radiological Data Summaries and Survey Maps

**SURVEY UNIT DATA SUMMARY: GR9-A-001**

**Survey Unit Description:**

Interior and Exterior of T891G

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## Survey Unit GR9-A-001 Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	30	30		30	30
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-11.9	dpm/100 cm <sup>2</sup>	MIN	-1.2	dpm/100 cm <sup>2</sup>
MAX	92.3	dpm/100 cm <sup>2</sup>	MAX	7.8	dpm/100 cm <sup>2</sup>
MEAN	18.2	dpm/100 cm <sup>2</sup>	MEAN	0.9	dpm/100 cm <sup>2</sup>
STD DEV	26.9	dpm/100 cm <sup>2</sup>	STD DEV	2.0	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>	TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

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**Survey Unit GR9-A-001 Total Surface Activity Results**

<b>Manufacturer:</b>	NE Electra	NE Electra
<b>Model:</b>	DP-6	DP-6
<b>Instrument ID#:</b>	7	8
<b>Serial #:</b>	1136	394
<b>Cal Due Date:</b>	1/17/02	11/23/01
<b>Analysis Date:</b>	8/29/01	8/29/01
<b>Alpha Eff. (c/d):</b>	0.211	0.218
<b>Alpha Bkgd (cpm)</b>	2.0	0.0
<b>Sample Time (min)</b>	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	34.9	9.2

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm <sup>2</sup> )
1	7	3.3	1.3	3.7
2	7	4.0	1.3	7.0
3	7	1.3	2.7	-5.8
4	7	2.0	2.7	-2.4
5	7	6.7	2.7	19.8
6	7	7.3	2.0	22.7
7	7	20.0	0.0	82.9
8	7	4.0	2.7	7.0
9	7	4.0	2.0	7.0
10	7	6.0	2.0	16.5
11	7	3.3	2.0	3.7
12	7	2.0	1.3	-2.4
13	7	4.7	2.7	10.3
14	7	22.0	0	92.3
15	7	16.7	4.7	67.2
16	7	16.7	1.3	67.2
17	7	5.3	4.7	13.2
18	7	7.3	4.0	22.7
19	7	5.3	0.7	13.2
20	7	13.3	2.7	51.1
21	7	8.0	4.0	26.0
22	7	6.7	0.7	19.8
23	7	4.0	6.0	7.0
24	7	0.0	3.3	-11.9
25	7	2.0	4.7	-2.4
26	7	1.3	3.3	-5.8
27	7	2.7	2.7	0.9
28	7	4.0	1.3	7.0
29	7	2.0	1.3	-2.4
30	7	4.7	4.7	10.3
Average LAB				2.5
MIN				-11.9
MAX				92.3
MEAN				18.2
SD				26.9
Transuranic DCGL <sub>w</sub>				100

6 QC	8	1.3	0.0	6.0
20 QC	8	10.7	0.0	49.1
Average LAB				0.0
MIN				6.0
MAX				49.1
MEAN				27.5
SD				30.5
Transuranic DCGL <sub>w</sub>				100

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## Survey Unit GR9-A-001 Smear Results

<b>Manufacturer:</b>	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4
<b>Instrument ID#:</b>	1	2
<b>Serial #:</b>	155596	966
<b>Cal Due Date:</b>	9/13/01	11/8/01
<b>Analysis Date:</b>	8/29/01	8/30/01
<b>Alpha Eff. (c/d):</b>	0.372	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.4
<b>Sample Time (min)</b>	2	2
<b>Bkgd Time (min)</b>	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	6.2	9.4

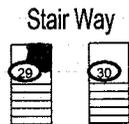
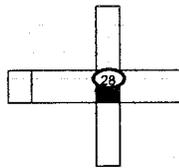
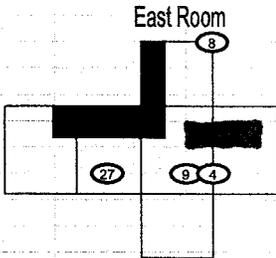
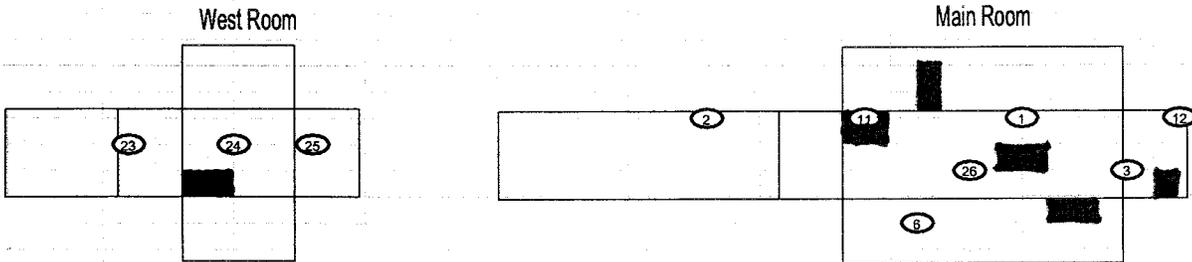
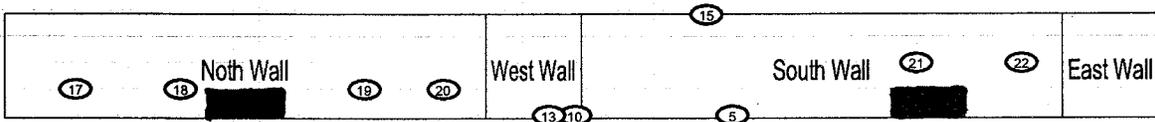
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	1	3.0	7.8
2	1	1.0	2.4
3	1	0.0	-0.3
4	1	1.0	2.4
5	1	0.0	-0.3
6	1	0.0	-0.3
7	2	1.0	1.8
8	1	0.0	-0.3
9	1	0.0	-0.3
10	1	0.0	-0.3
11	1	0.0	-0.3
12	1	0.0	-0.3
13	1	0.0	-0.3
14	2	2.0	4.8
15	1	1.0	2.4
16	2	1.0	1.8
17	1	0.0	-0.3
18	1	0.0	-0.3
19	1	0.0	-0.3
20	1	1.0	2.4
21	1	1.0	2.4
22	1	0.0	-0.3
23	1	0.0	-0.3
24	2	0.0	-1.2
25	2	1.0	1.8
26	2	0.0	-1.2
27	1	0.0	-0.3
28	1	0.0	-0.3
29	1	1.0	2.4
30	1	1.0	2.4
		MIN	-1.2
		MAX	7.8
		MEAN	0.9
		SD	2.0
		Transuranic	20

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-001      Classification: 3  
 Building: T891G  
 Survey Unit Description: Interior & Exterior of T891G  
 Total Area: 509.1 sq. m.      Total Floor Area: 68.9 sq. m.

**T891G**



■ = Scan Areas

<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li>⊙ Smear &amp; TSA Location</li> <li>⊠ Smear, TSA &amp; Sample Location</li> <li>■ Open/Inaccessible Area</li> <li>□ Area in Another Survey Unit</li> </ul>	<p><small>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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, any advice, product, or process disclosed, or represents that its use would not infringe privately owned rights.</small></p> <p>Scan Survey Information                  Survey Instrument ID #(s): 7, 8                  RCT ID #(s): 3, 7</p>	<p>0      FEET      30</p> <p>0      METERS      10</p> <p>1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p>U.S. Department of Energy                  Rocky Flats Environmental Technology Site</p> <p>Prepared by: G18 Dept. 303-966-770 Prepared for:  <b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p>MAP ID: fy2001/01-0728      August 7, 2001</p>
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**SURVEY UNIT DATA SUMMARY: GR9-A-002**

**Survey Unit Description:**

**Interior and Exterior of T8910**

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## Survey Unit GR9-A-002 Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	30	30		30	30
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-10.0	dpm/100 cm <sup>2</sup>	MIN	-0.3	dpm/100 cm <sup>2</sup>
MAX*	87.6	dpm/100 cm <sup>2</sup>	MAX	6.1	dpm/100 cm <sup>2</sup>
MEAN	15.7	dpm/100 cm <sup>2</sup>	MEAN	1.5	dpm/100 cm <sup>2</sup>
STD DEV	25.2	dpm/100 cm <sup>2</sup>	STD DEV	2.5	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>	TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

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**Survey Unit GR9-A-002 Total Surface Activity Results**

<b>Manufacturer:</b>	NE Electra	NE Electra	NE Electra	NE Electra
<b>Model:</b>	DP-6	DP-6	DP-6	DP-6
<b>Instrument ID#:</b>	7	8	9	10
<b>Serial #:</b>	1425	1136	1425	394
<b>Cal Due Date:</b>	1/17/02	1/17/02	1/17/02	11/23/01
<b>Analysis Date:</b>	9/7/01	9/10/01	9/10/01	9/10/01
<b>Alpha Eff. (c/d):</b>	0.215	0.211	0.215	0.218
<b>Alpha Bkgd (cpm)</b>	2.0	3.1	2.0	0.7
<b>Sample Time (min)</b>	1.5	1.5	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	34.3	41.2	34.3	23.8

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm <sup>2</sup> )
1	9	4.0	3.3	5.5
2	8	6.7	2.7	18.4
3	8	2.0	2.7	-3.9
4	8	4.0	3.3	5.6
5	9	14.7	3.3	55.3
6	9	6.7	2.7	18.1
7	7	4.0	0.0	5.5
8	8	5.3	4.7	11.8
9	9	12.7	2.7	46.0
10	8	1.3	3.3	-7.2
11	8	21.3	6.0	87.6
12	7	6.7	2.7	18.1
13	9	19.3	2.7	76.7
14	8	7.3	3.3	21.2
15	9	13.3	2.7	48.8
16	7	2.7	2.7	-0.5
17	7	0.7	4.0	-9.8
18	7	1.3	0.7	-7.1
19	7	2.0	2.0	-3.8
20	9	2.7	2.7	-0.5
21	8	2.0	3.3	-3.9
22	9	2.7	2.7	-0.5
23	8	0.7	4.7	-10.0
24	8	6.0	1.3	15.1
25	9	3.3	3.3	2.2
26	7	3.3	0.7	2.2
27	8	10.0	3.3	34.0
28	8	2.0	3.3	-3.9
29	8	7.3	0.7	21.2
30	8	8.7	3.0	27.9
Average LAB				2.8
MIN				-10.0
MAX				87.6
MEAN				15.7
SD				25.2
Transuranic DCGL <sub>w</sub>				100

6 QC	10	2.7	0.7	7.8
12 QC	10	4.0	1.3	13.8
Average LAB				1.0
MIN				7.8
MAX				13.8
MEAN				10.8
SD				4.2
Transuranic DCGL <sub>w</sub>				100

51

### Survey Unit GR9-A-002 Smear Results

<b>Manufacturer:</b>	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4
<b>Instrument ID#:</b>	1	2
<b>Serial #:</b>	851	767
<b>Cal Due Date:</b>	11/8/01	11/9/01
<b>Analysis Date:</b>	9/10/01	9/10/01
<b>Alpha Eff. (c/d):</b>	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0
<b>Sample Time (min)</b>	2	2
<b>Bkgd Time (min)</b>	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	7.0	4.5

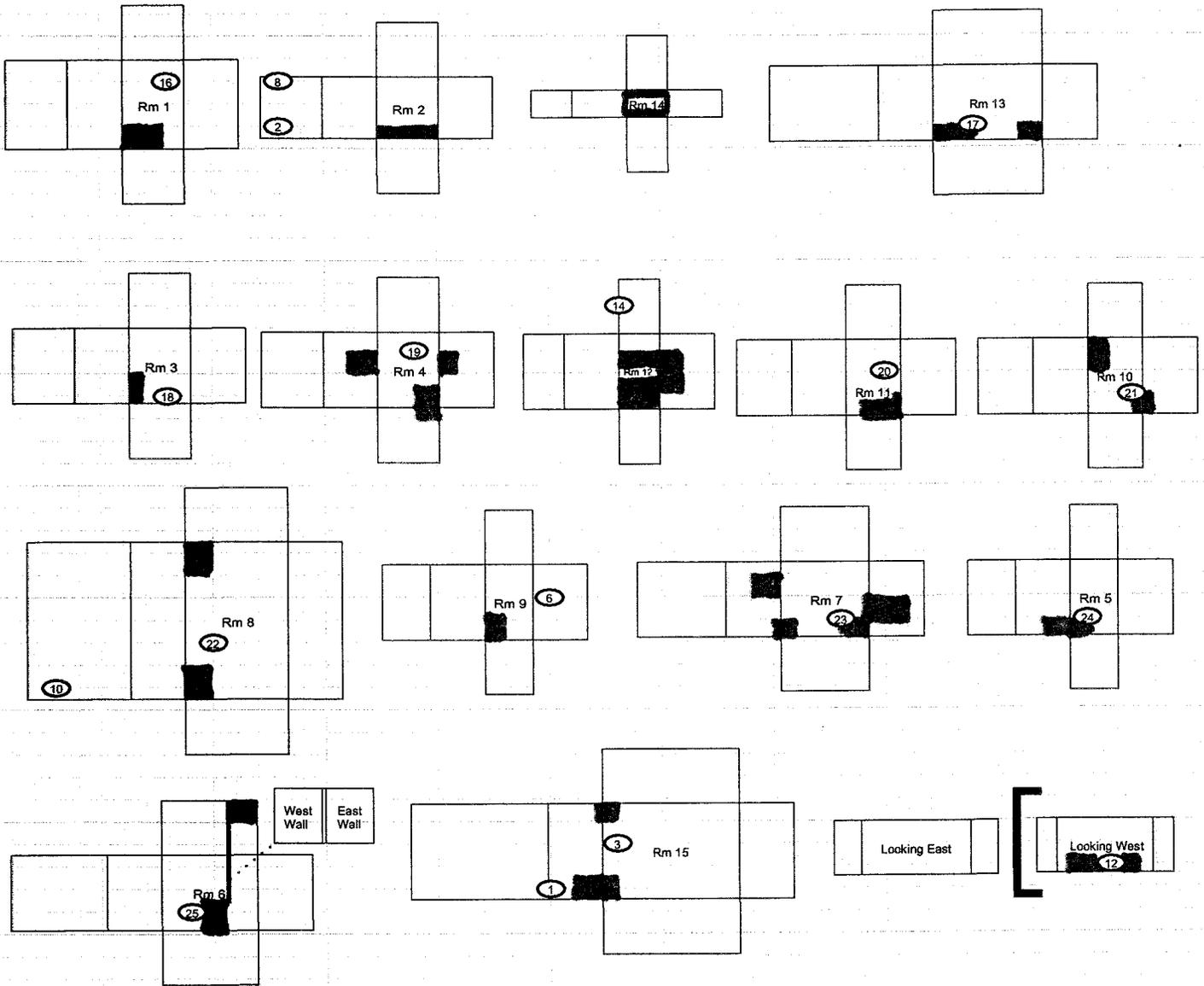
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	1	1.0	2.7
2	2	0.0	0.0
3	1	0.0	-0.3
4	2	0.0	0.0
5	1	1.0	2.7
6	2	0.0	0.0
7	1	0.0	-0.3
8	2	0.0	0.0
9	1	0.0	-0.3
10	2	0.0	0.0
11	1	2.0	5.8
12	2	0.0	0.0
13	1	2.0	5.8
14	2	0.0	0.0
15	1	2.0	5.8
16	2	0.0	0.0
17	1	0.0	-0.3
18	2	0.0	0.0
19	1	0.0	-0.3
20	2	1.0	3.0
21	1	0.0	-0.3
22	2	0.0	0.0
23	1	0.0	-0.3
24	2	0.0	0.0
25	1	2.0	5.8
26	2	1.0	3.0
27	1	0.0	-0.3
28	2	2.0	6.1
29	1	0.0	-0.3
30	2	2.0	6.1
		MIN	-0.3
		MAX	6.1
		MEAN	1.5
		SD	2.5
		Transuranic	20

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-002      Classification: 3  
 Building: T8910  
 Survey Unit Description: Interior & Exterior of T8910  
 Total Area: 963 sq. m.      Total Floor Area: 259 sq. m.

T8910



■ = Scan Areas

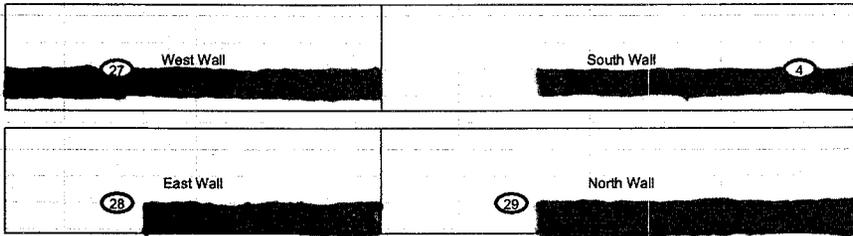
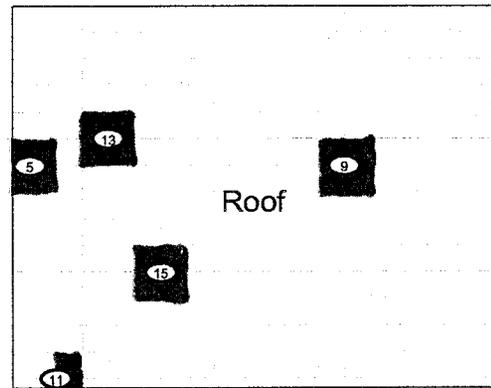
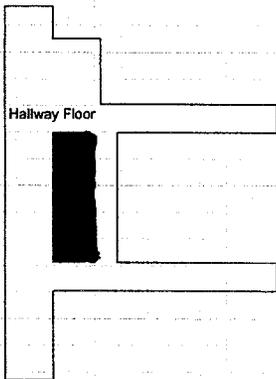
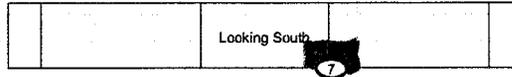
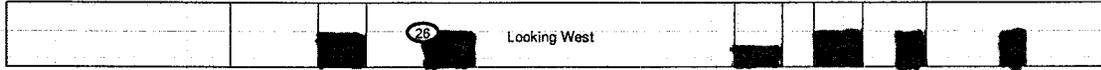
<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li>⊙ Smear &amp; TSA Location</li> <li>◇ Smear, TSA &amp; Sample Location</li> <li>■ Open/Inaccessible Area</li> <li>□ Area in Another Survey Unit</li> </ul>	<p><small>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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.</small></p> <p>Scan Survey Information                  Survey Instrument ID #(s): <u>89</u>                  RCT ID #(s): <u>2,3</u></p>	<p style="text-align: center;">N ↑</p> <p style="text-align: center;">0      FEET      30</p> <p style="text-align: center;">0      METERS      10</p> <p style="text-align: center;">1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p style="text-align: center;">U.S. Department of Energy                  Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-968-7707 Prepared for:</p> <p style="text-align: center;"><b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p style="text-align: center;">MAP ID: fv2001/01-0728      August 7, 2001</p>
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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-002      Classification: 3  
 Building: T8910  
 Survey Unit Description: Interior & Exterior of T8910  
 Total Area: 963 sq. m.      Total Floor Area: 259 sq. m.

T8910



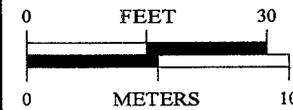
**■ = Scan Areas**

**SURVEY MAP LEGEND**

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

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Scan Survey Information  
 Survey Instrument ID #(s): **83**  
 RCT ID #(s): **2,3**



1 inch = 24 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:

**DynCorp**  
 THE ART OF TECHNOLOGY

MAP ID: FY2001/01-0728      August 7, 2001

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**SURVEY UNIT DATA SUMMARY: GR9-A-003**

**Survey Unit Description:**

**Interior and Exterior of T891R**

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## Survey Unit GR9-A-003 Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	30	30		30	30
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-12.6	dpm/100 cm <sup>2</sup>	MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX*	95.8	dpm/100 cm <sup>2</sup>	MAX	3.0	dpm/100 cm <sup>2</sup>
MEAN	11.3	dpm/100 cm <sup>2</sup>	MEAN	0.5	dpm/100 cm <sup>2</sup>
STD DEV	23.2	dpm/100 cm <sup>2</sup>	STD DEV	1.4	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>	TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

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**Survey Unit GR9-A-003 Total Surface Activity Results**

<b>Manufacturer:</b>	NE Electra	NE Electra	NE Electra	NE Electra
<b>Model:</b>	DP-6	DP-6	DP-6	DP-6
<b>Instrument ID#:</b>	7	8	9	10
<b>Serial #:</b>	1136	1425	1425	394
<b>Cal Due Date:</b>	1/17/02	1/17/02	1/17/02	11/25/01
<b>Analysis Date:</b>	9/5/01	9/5/01	9/6/01	9/6/01
<b>Alpha Eff. (c/d):</b>	0.211	0.215	0.215	0.2
<b>Alpha Bkgd (cpm)</b>	1.3	0.7	0.7	0.0
<b>Sample Time (min)</b>	1.5	1.5	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	30.0	24.1	24.1	9.2

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm <sup>2</sup> )
1	9	4.0	0.0	2.8
2	8	20.0	4.0	77.2
3	8	6.7	4.0	15.3
4	8	8.7	4.0	24.6
5	9	2.0	3.3	-6.5
6	8	2.7	4.7	-3.3
7	8	3.8	0.7	1.8
8	7	2.7	4.0	-3.3
9*	9	2.0	1.3	-6.5
10	8	24.0	2.0	95.8
11	8	6.0	3.3	12.1
12	8	6.7	5.3	15.3
13	8	6.7	4.7	15.3
14	8	6.7	4.7	15.3
15	9	6.0	2.7	12.1
16	8	0.7	5.3	-12.6
17	8	6.0	6.7	12.1
18	8	5.3	1.3	8.8
19	8	4.0	2.0	2.8
20	9	2.0	4.0	-6.5
21	8	2.7	4.7	-3.3
22	8	2.7	2.7	-3.3
23	8	3.3	0.0	-0.5
24	8	3.3	2.7	-0.5
25	8	3.3	2.7	-0.5
26	7	6.0	4.0	12.3
27	7	11.3	4.7	37.4
28	7	6.0	6.7	12.3
29	7	6.0	1.3	12.3
30	7	3.3	4.7	-0.5
Average LAB				3.4
MIN				-12.6
MAX				95.8
MEAN				11.3
SD				23.2
Transuranic DCGL <sub>w</sub>				100

24 QC	10	0.7	2.0	-8.9
15 QC	10	2.7	3.3	0.2
Average LAB				2.7
MIN				-8.9
MAX				0.2
MEAN				-4.4
SD				6.5
Transuranic DCGL <sub>w</sub>				100

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### Survey Unit GR9-A-003 Smear Results

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	1	2	3	4
<b>Serial #:</b>	767	851	767	851
<b>Cal Due Date:</b>	11/9/01	11/8/01	11/9/01	11/8/01
<b>Analysis Date:</b>	9/5/01	9/5/01	9/6/01	9/6/01
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.0	0.2	0.3
<b>Sample Time (min)</b>	2	2	2	2
<b>Bkgd Time (min)</b>	10	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	7.0	4.5	8.0	8.8

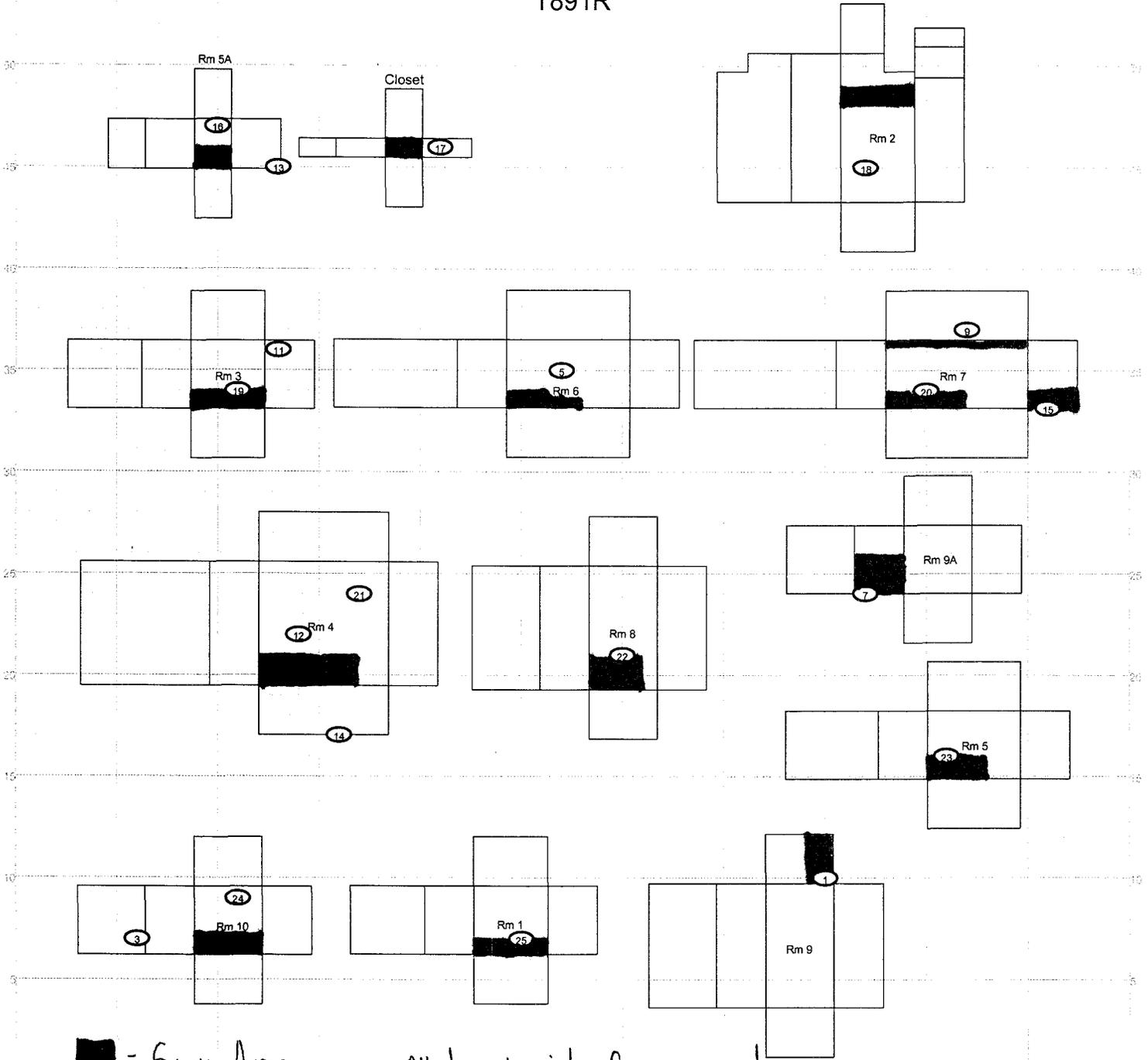
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	2	0.0	0.0
2	1	1.0	2.7
3	2	0.0	0.0
4	1	0.0	-0.3
5	3	1.0	2.4
6	4	0.0	-0.9
7	1	0.0	-0.3
8	2	0.0	0.0
9	2	0.0	0.0
10	2	0.0	0.0
11	2	0.0	0.0
12	2	0.0	0.0
13	2	0.0	0.0
14	2	0.0	0.0
15	1	0.0	-0.3
16	3	1.0	2.4
17	1	0.0	-0.3
18	2	1.0	3.0
19	1	0.0	-0.3
20	2	0.0	0.0
21	1	0.0	-0.3
22	4	0.0	-0.9
23	2	1.0	3.0
24	2	1.0	3.0
25	1	0.0	-0.3
26	4	0.0	-0.9
27	2	1.0	3.0
28	1	0.0	-0.3
29	3	0.0	-0.6
30	2	0.0	0.0
		MIN	-0.9
		MAX	3.0
		MEAN	0.5
		SD	1.4
		Transuranic	20

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-003      Classification: 3  
 Building: T891R  
 Survey Unit Description: Interior & Exterior of T891R  
 Total Area: 1396 sq. m.      Total Floor Area: 256 sq. m.

T891R



**■ = Scan Areas**

*All doors & window frames scanned.*

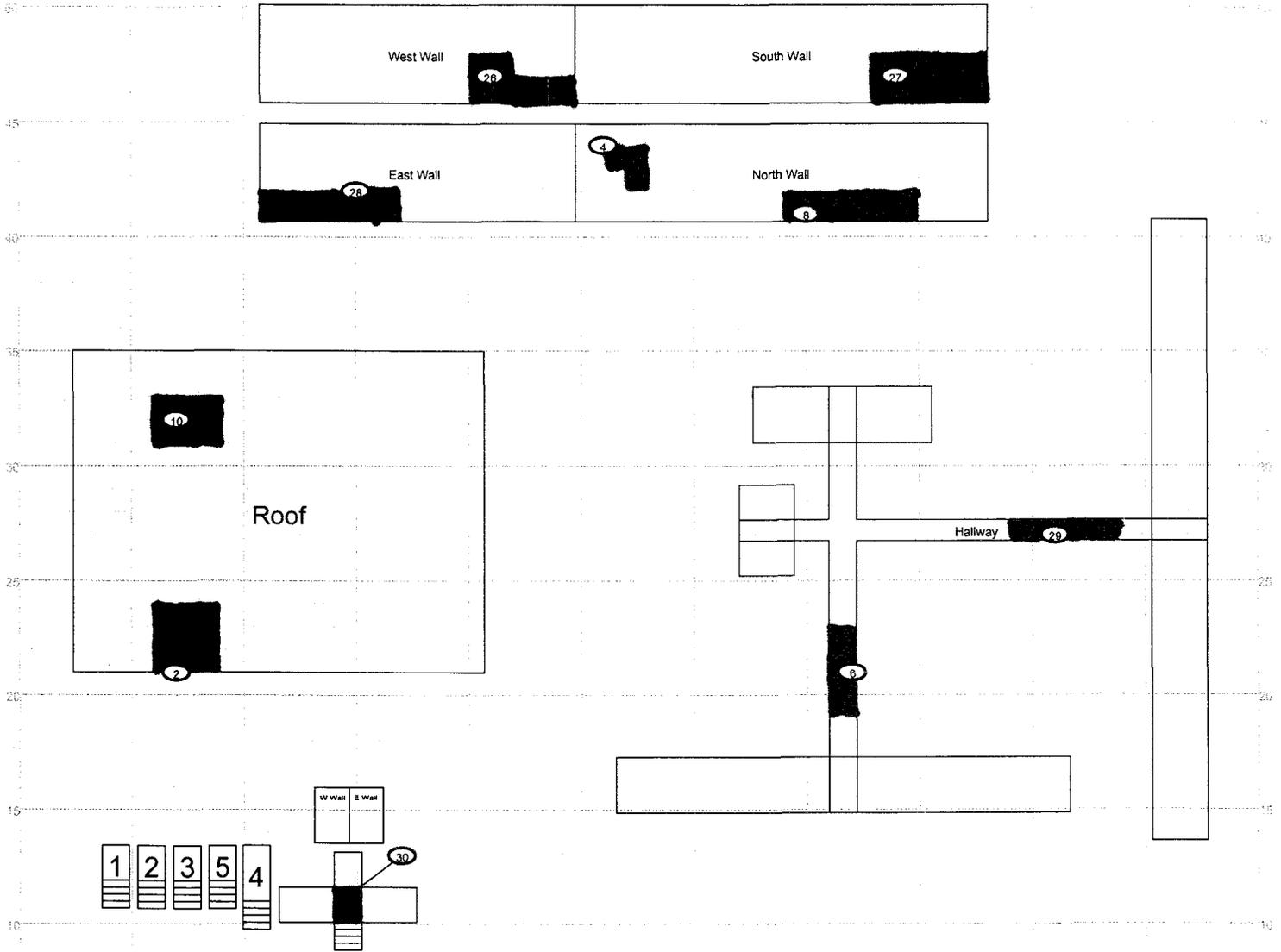
<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li>⊛ Smear &amp; TSA Location</li> <li>⊠ Smear, TSA &amp; Sample Location</li> <li>■ Open/Inaccessible Area</li> <li>□ Area in Another Survey Unit</li> </ul>	<p><small>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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.</small></p> <p><b>Scan Survey Information</b>                  Survey Instrument ID #(s): <u>8,9,10</u>                  RCT ID #(s): <u>1,2,3</u></p>	<p align="center">0      FEET      30</p> <p align="center">0      METERS      10</p> <p align="center">1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p align="center">U.S. Department of Energy                  Rocky Flats Environmental Technology Site</p> <p align="center">Prepared by: GIS Dept. 303-966-7707    Prepared for:</p> <p align="center"><b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p align="center">MAP ID: tv2001/01-9728      August 7, 2001</p>
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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-003      Classification: 3  
 Building: T891R  
 Survey Unit Description: Interior & Exterior of T891R  
 Total Area: 1396 sq. m.      Total Floor Area: 256 sq. m.

**T891R**



**■ = Scan Areas**

<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li>⊛ Smear &amp; TSA Location</li> <li>⊙ Smear, TSA &amp; Sample Location</li> <li>■ Open/Inaccessible Area</li> <li>□ Area in Another Survey Unit</li> </ul>	<p><small>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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.</small></p> <p><b>Scan Survey Information</b>                  Survey Instrument ID #(s): <b>891D</b>                  RCT ID #(s): <b>1,2,3</b></p>	<p>0      FEET      30</p> <p>0      METERS      10</p> <p>1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p>U.S. Department of Energy                  Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-966-7707    Prepared for:</p> <p><b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p>MAP ID: NV2001/01-0728      AUGUST 7, 2001</p>
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**SURVEY UNIT DATA SUMMARY: GR9-A-004**

**Survey Unit Description:**

**Interior and Exterior of T891V**

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## Survey Unit GR9-A-004 Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	35	35		35	35
	<b>Number Required</b>	<b>Number Obtained</b>		<b>Number Required</b>	<b>Number Obtained</b>
<b>MIN</b>	-9.7	dpm/100 cm <sup>2</sup>	<b>MIN</b>	-0.9	dpm/100 cm <sup>2</sup>
<b>MAX*</b>	99.2	dpm/100 cm <sup>2</sup>	<b>MAX</b>	14.8	dpm/100 cm <sup>2</sup>
<b>MEAN</b>	12.8	dpm/100 cm <sup>2</sup>	<b>MEAN</b>	1.4	dpm/100 cm <sup>2</sup>
<b>STD DEV</b>	22.7	dpm/100 cm <sup>2</sup>	<b>STD DEV</b>	3.4	dpm/100 cm <sup>2</sup>
<b>TRANSURANIC DCGL<sub>w</sub></b>	100	dpm/100 cm <sup>2</sup>	<b>TRANSURANIC DCGL<sub>w</sub></b>	20	dpm/100 cm <sup>2</sup>

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**Survey Unit GR9-A-004 Total Surface Activity Results**

<b>Manufacturer:</b>	NE Electra	NE Electra	NE Electra	NE Electra
<b>Model:</b>	DP-6	DP-6	DP-6	DP-6
<b>Instrument ID#:</b>	7	8	9	10
<b>Serial #:</b>	1425	3114	1425	3114
<b>Cal Due Date:</b>	1/17/02	11/1/01	1/17/02	11/1/01
<b>Analysis Date:</b>	9/13/01	9/17/01	9/17/01	9/18/01
<b>Alpha Eff. (c/d):</b>	0.215	0.220	0.215	0.220
<b>Alpha Bkgd (cpm)</b>	2.0	3.3	4.7	4.7
<b>Sample Time (min)</b>	1.5	1.5	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	34.3	40.5	47.6	46.5

Sample Location Number	Instrument ID#	Sample Gross Counts (cpm)	LAB Gross Counts (cpm)	Sample Net Activity (dpm/100cm <sup>2</sup> )
1	7	1.3	4.0	-6.9
2	10	5.3	4.7	11.4
3	9	6.7	5.3	18.2
4	10	4.7	1.3	8.7
5	10	6.0	3.3	14.6
6	10	2.7	5.3	-0.4
7	10	2.0	2.0	-3.6
8	10	2.0	0.7	-3.6
9	7	2.7	3.3	-0.4
10	9	0.7	3.3	-9.7
11	7	4.7	3.3	8.9
12	10	24.6	4.0	99.2
13	7	4.7	3.3	8.9
14	9	5.3	2.0	11.7
15	7	0.7	2.0	-9.7
16	9	4.7	3.3	8.9
17	7	4.0	4.0	5.6
18	7	2.7	3.3	-0.4
19	7	4.0	3.3	5.6
20	7	2.7	4.7	-0.4
21	10	22.3	0.7	88.7
22	10	8.7	2.0	26.9
23	10	8.7	3.3	26.9
24	10	4.7	1.3	8.7
25	10	4.7	2.7	8.7
26	10	9.3	4.0	29.6
27	7	5.3	2.7	11.7
28	9	8.0	2.0	24.3
29	7	2.7	2.7	-0.4
30	9	5.3	0.7	11.7
31	11	5.3	2.3	11.4
32	11	5.3	2.7	11.4
33	11	7.3	1.3	20.5
34	11	2.0	0.7	-3.6
35	11	4.0	2.0	5.5

Average LAB	2.8
MIN	-9.7
MAX	99.2
MEAN	12.8
SD	22.7
Transuranic DCGL <sub>w</sub>	100

11 QC	8	2.7	0.0	4.8
12 QC	8	4.0	3.3	10.7

Average LAB	1.7
MIN	4.8
MAX	10.7
MEAN	7.7
SD	4.2
Transuranic DCGL <sub>w</sub>	100

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### Survey Unit GR9-A-004 Smear Results

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	1	2	3	4
<b>Serial #:</b>	851	767	851	767
<b>Cal Due Date:</b>	11/8/01	11/9/01	11/8/01	11/9/01
<b>Analysis Date:</b>	9/13/01	9/13/01	9/17/01	9/17/01
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.0	0.3	0.3
<b>Sample Time (min)</b>	2	2	2	2
<b>Bkgd Time (min)</b>	10	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	7.0	4.5	8.8	8.8

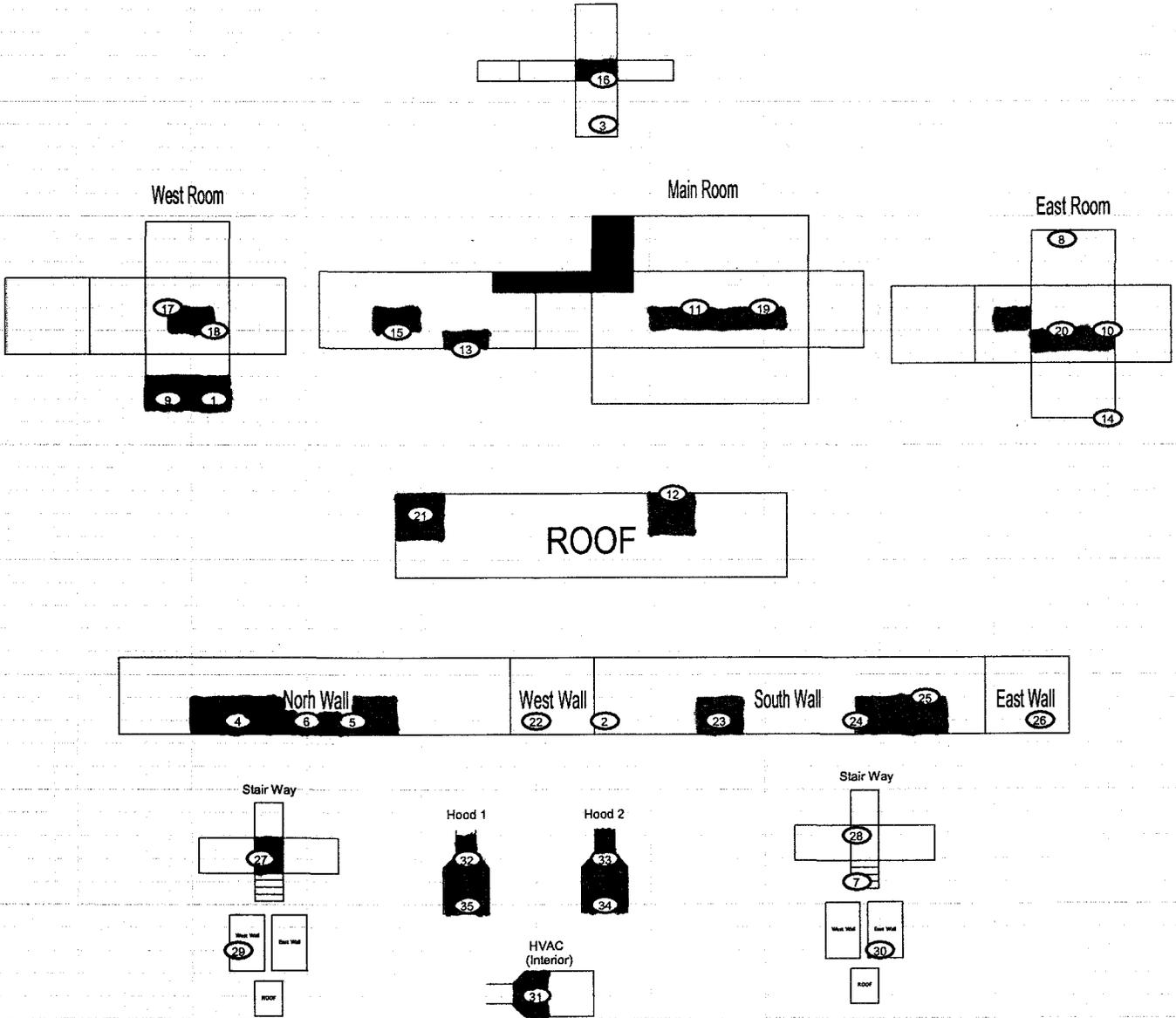
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	1	1.0	2.7
2	6	0.0	-0.9
3	3	1.0	2.1
4	5	0.0	0.0
5	6	0.0	-0.9
6	6	0.0	-0.9
7	5	0.0	0.0
8	5	0.0	0.0
9	1	3.0	8.8
10	3	0.0	-0.9
11	2	1.0	3.0
12	5	3.0	9.1
13	1	1.0	2.7
14	4	0.0	-0.9
15	2	0.0	0.0
16	4	0.0	-0.9
17	2	0.0	0.0
18	2	1.0	3.0
19	1	0.0	-0.3
20	2	0.0	0.0
21	6	2.0	5.2
22	6	1.0	2.1
23	5	0.0	0.0
24	6	0.0	-0.9
25	6	1.0	2.1
26	5	0.0	0.0
27	2	0.0	0.0
28	3	0.0	-0.9
29	1	1.0	2.7
30	4	0.0	-0.9
31	13	0.0	0.0
32	13	0.0	0.0
33	14	0.0	-0.3
34	13	0.0	0.0
35	14	5.0	14.8
		MIN	-0.9
		MAX	14.8
		MEAN	1.4
		SD	3.4
		Transuranic	20

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-004      Classification: 3  
 Building: T891V  
 Survey Unit Description: Interior & Exterior of T891V  
 Total Area: 493.6 sq. m.      Total Floor Area: 63.3 sq. m.

**T891V**



■ = Scan Areas

<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li>⊙ Smear &amp; TSA Location</li> <li>⊠ Smear, TSA &amp; Sample Location</li> <li>■ Open/Inaccessible Area</li> <li>□ Area in Another Survey Unit</li> </ul>	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp (AET), 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>Scan Survey Information                  Survey Instrument ID #(s): 7, 9, 10, 11                  RCT ID #(s): 1, 2, 7</p>	<p>0      FEET      30</p> <p>0      METERS      10</p> <p>1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p>U.S. Department of Energy                  Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-968-770 Prepared for:  <b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p>MAP ID: FY2001/01-0728      August 7, 2001</p>
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# ATTACHMENT F

## Chemical Data Summaries and Sample Maps

**Asbestos Data Summary**

Sample Number	Material Sampled & Location	Analytical Results
T891V-10012001-315-101	Main Room -- 6" x 6" tan & white patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-102	Main Room -- 6" x 6" tan & white patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-103	Main Room -- 6" x 6" tan & white patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-104	Bathroom -- 6" x 6" tan patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-105	Bathroom -- 6" x 6" tan patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-106	Bathroom -- 6" x 6" tan patterned linoleum with yellow mastic	None Detected
T891V-10012001-315-107	East Room -- 12" x 12" tan & white patterned linoleum with	None Detected
T891V-10012001-315-108	East Room -- 12" x 12" tan & white patterned linoleum with	None Detected
T891V-10012001-315-109	East Room -- 12" x 12" tan & white patterned linoleum with	None Detected
T891V-10012001-315-110	Main Room -- west fume hood, broken gray transit panel	None Detected
T891V-10012001-315-111	Main Room -- west fume hood, broken gray transit panel	None Detected
T891V-10012001-315-112	Main Room -- east fume hood, broken gray transit panel	None Detected
T891V-10012001-315-113	East Room -- white plaster ceiling & white & tan drywall	None Detected
T891V-10012001-315-114	Main Room -- white plaster ceiling & white & tan drywall	None Detected
T891V-10012001-315-115	West Room -- white plaster ceiling & white & tan drywall	None Detected
T891V-10012001-315-116	Main Room -- Fascia of black lab counter	None Detected
T891V-10012001-315-117	East Room -- Fascia of black lab counter	None Detected
T891V-10012001-315-118	East Room -- Fascia of black lab counter	None Detected
T891G-10012001-315-101	West Room -- 3" x 3" tan & white patterned linoleum with tan mastic	None Detected
T891G-10012001-315-102	Main Room -- 3" x 3" tan & white patterned linoleum with tan mastic	None Detected
T891G-10012001-315-103	East Room -- 3" x 3" tan & white patterned linoleum with tan mastic	None Detected
T891G-10012001-315-104	West Room -- Wall sheet rock with tan cloth veneer	None Detected
T891G-10012001-315-105	Main Room -- Wall sheet rock with tan cloth veneer	None Detected
T891G-10012001-315-106	East Room -- Wall sheet rock with tan cloth veneer	None Detected
T891G-10012001-315-107	West Room -- White 2' x 4' drop ceiling tiles	None Detected
T891G-10012001-315-108	Main Room -- White 2' x 4' drop ceiling tiles	None Detected
T891G-10012001-315-109	East Room -- White, speckled 2' x 4' drop ceiling tiles	None Detected
T891G-10012001-315-110	Closet -- Tan & white linoleum	None Detected
T891O-10012001-315-101	Looking East Wall -- Wall, White & tan drywall	None Detected

Sample Number	Material Sampled & Location	Analytical Results
T891O-10012001-315-102	Room 13 – North wall, White & tan drywall	None Detected
T891O-10012001-315-103	Room 6 – North wall, White & tan drywall	None Detected
T891O-10012001-315-104	Room 6 – Ceiling, white & tan drywall	None Detected
T891O-10012001-315-105	Room 5 – Ceiling, white & tan drywall	None Detected
T891O-10012001-315-106	Room 10 – Ceiling, white & tan drywall	None Detected
T891R-10012001-315-101	Room 2 – White & tan drywall	None Detected
T891R-10012001-315-102	Room 2 – White & tan drywall	None Detected
T891R-10012001-315-103	Room 7 – White & tan drywall	None Detected
T891R-10012001-315-104	Room 9A – White & tan drywall	None Detected
T891R-10012001-315-105	Room 5 – White & tan drywall	None Detected
T891R-10012001-315-106	Room 2 – White, 2' x 4' drop ceiling tiles	None Detected
T891R-10012001-315-107	Room 4 – White, 2' x 4' drop ceiling tiles	None Detected
T891R-10012001-315-108	Room 3 – White, 2' x 4' drop ceiling tiles	None Detected
T891R-10012001-315-109	Room 8 – White, 2' x 4' drop ceiling tiles	None Detected
T891R-10012001-315-110	Room 9 – White, 2' x 4' drop ceiling tiles	None Detected

**Beryllium Data Summary**

Sample Number	Sample Location	Result ( $\mu\text{g}/100\text{ cm}^2$ )
T891V-8222001-315-101	Main Room - Interior of west fume hood, top of angle brace	< 0.1
T891V-8222001-315-102	Main Room - Interior of west fume hood, edge of back slot	< 0.1
T891V-8222001-315-103	Main Room - Interior of east fume hood, back of flue section	< 0.1
T891V-8222001-315-104	Main Room - Interior of east fume hood, inside of flue	< 0.1
T891V-8222001-315-105	Main Room - Top of west fume hood	< 0.1
T891V-8222001-315-106	West Room - Top of "plug-in" strip on west wall	< 0.1
T891V-8222001-315-107	East Room - Top of Lab table	< 0.1
T891V-8222001-315-108	East Room - Louvers on AC unit, east wall	< 0.1
T891V-8222001-315-109	Main Room - Top of Lab table	< 0.1
T891V-8222001-315-110	Main Room - Top of east fume hood	< 0.1
T891V-8222001-315-111	Exterior Air Handler, north of building, inside between dual HEPA filters	< 0.1
T891V-8222001-315-112	Exterior Air Handler, north of building, inside between furnace filter & first HEPA, dirty side	< 0.1
T891G-8282001-315-101	West Room - Inside louvers of HVAC duct, west wall	< 0.1
T891G-8282001-315-102	Main Room - Top of fire extinguisher, north wall	< 0.1
T891G-8282001-315-103	Main Room - Top of loud speaker, south wall	< 0.1
T891G-8282001-315-104	Closet - Floor of closet	< 0.1
T891G-8282001-315-105	East Room - Floor of bathroom	< 0.1
T891R-8282001-315-101	Room 2 - Top of fluorescent light fixture, NW corner	< 0.1
T891R-8282001-315-102	Room 4 - Inside of HVAC diffuser rings, SW corner	< 0.1
T891R-8282001-315-103	Room 4 - Top of fluorescent light fixture, SW corner	< 0.1
T891R-8282001-315-104	Room 5 - Top of fluorescent light fixture, south wall	< 0.1
T891R-8282001-315-105	Room 7 - Top of window shade, north wall	< 0.1
T891R-8282001-315-106	Room 8 - Floor in corner behind the door	< 0.1
T891R-8282001-315-107	Room 9 - Top of electrical receptacle, north wall	< 0.1
T891R-8282001-315-108	Room 9 - Top of fire extinguisher, east wall	< 0.1
T891R-8222001-315-109	Room 7 - Floor by north wall	< 0.1
T891R-8222001-315-110	Room 6 - HVAC diffuser rings, ceiling, east wall	< 0.1
T891R-9052001-315-111	Room 10 - Inside fume hood vent	< 0.1
T891R-9052001-315-112	Room 10 - NE corner on floor	< 0.1

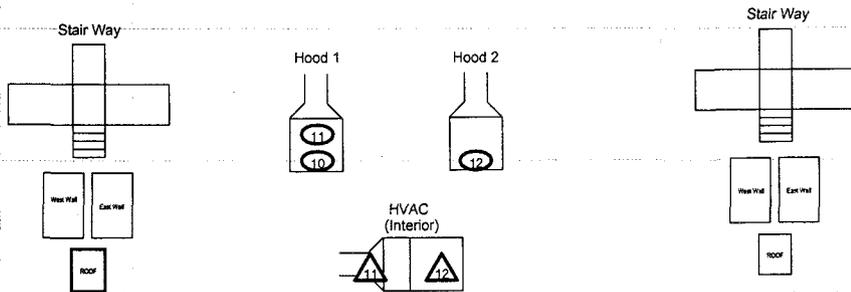
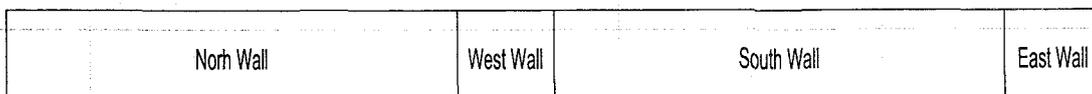
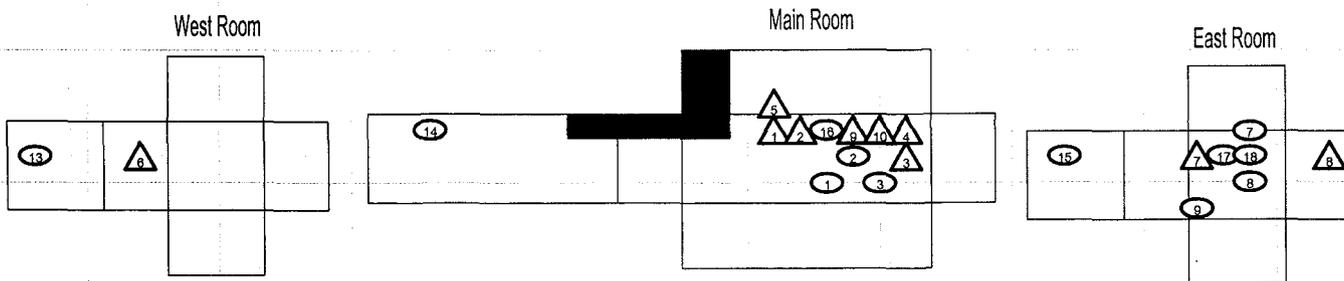
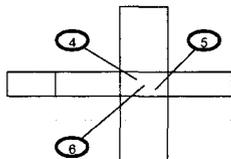
69

Sample Number	Sample Location	Result ( $\mu\text{g}/100 \text{ cm}^2$ )
T891R-9052001-315-113	Room 10 – Top of electrical conduit and receptacle.	< 0.1
T891O-8282001-315-101	Room 1 – Inside ceiling HVAC diffuser	< 0.1
T891O-8282001-315-102	Room 5 – Side of ceiling fluorescent light fixture	< 0.1
T891O-8282001-315-103	Room 7 – Top, horizontal edge of shelving brace, west wall	< 0.1
T891O-8282001-315-104	Room 14 – Floor surface in SE corner of room	< 0.1
T891O-8282001-315-105	Room 8 – Top of shelf, east wall	< 0.1
T891O-8282001-315-106	Room 4 – Side of ceiling fluorescent light fixture	< 0.1
T891O-8282001-315-107	Room 13 – Top, interior of window shade track, north wall	< 0.1
T891O-8282001-315-108	Room 10 – Top of desk	< 0.1

**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-004      Classification: 3  
 Building: T891V  
 Survey Unit Description: Interior & Exterior of T891V  
 Total Area: 493.6 sq. m.      Total Floor Area: 63.3 sq. m.

T891V

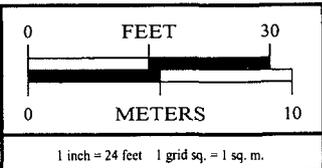


**SURVEY MAP LEGEND**

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

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Open/Inaccessible Area  
 Area in Another Survey Unit



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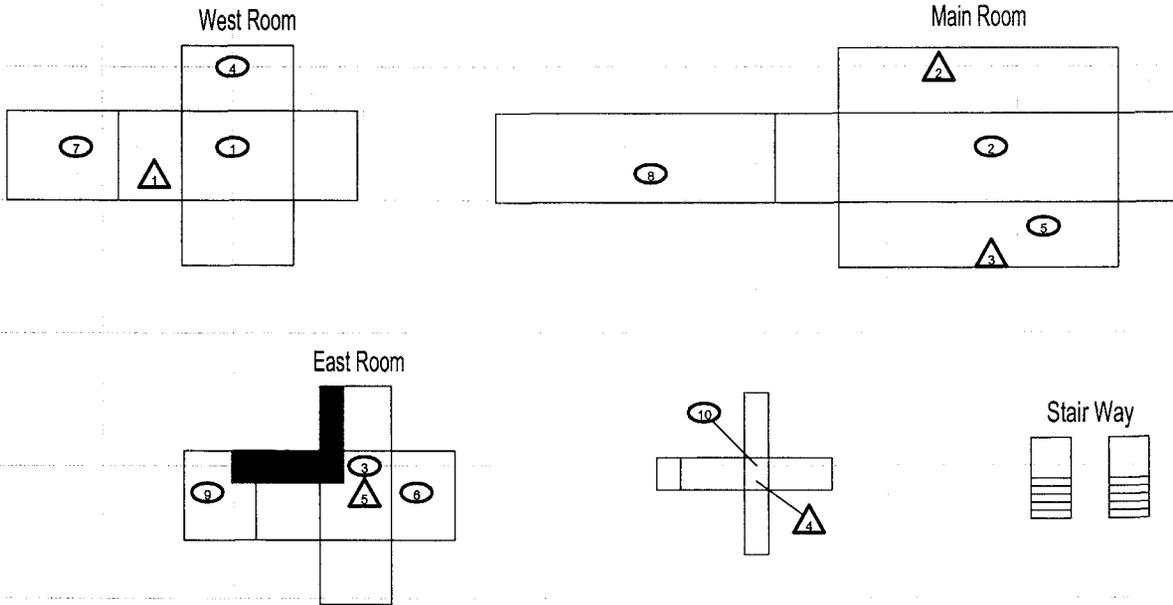
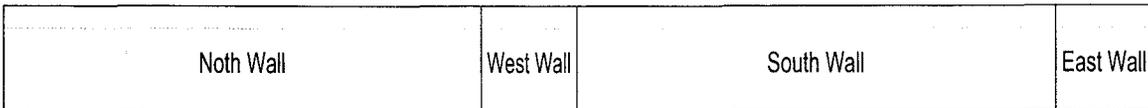
MAP ID: LV2002/02-0021/T891V-BaAb      October 9, 2001

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-001      Classification: 3  
 Building: T891G  
 Survey Unit Description: Interior & Exterior of T891G  
 Total Area: 509.1 sq. m.      Total Floor Area: 68.9 sq. m.

T891G



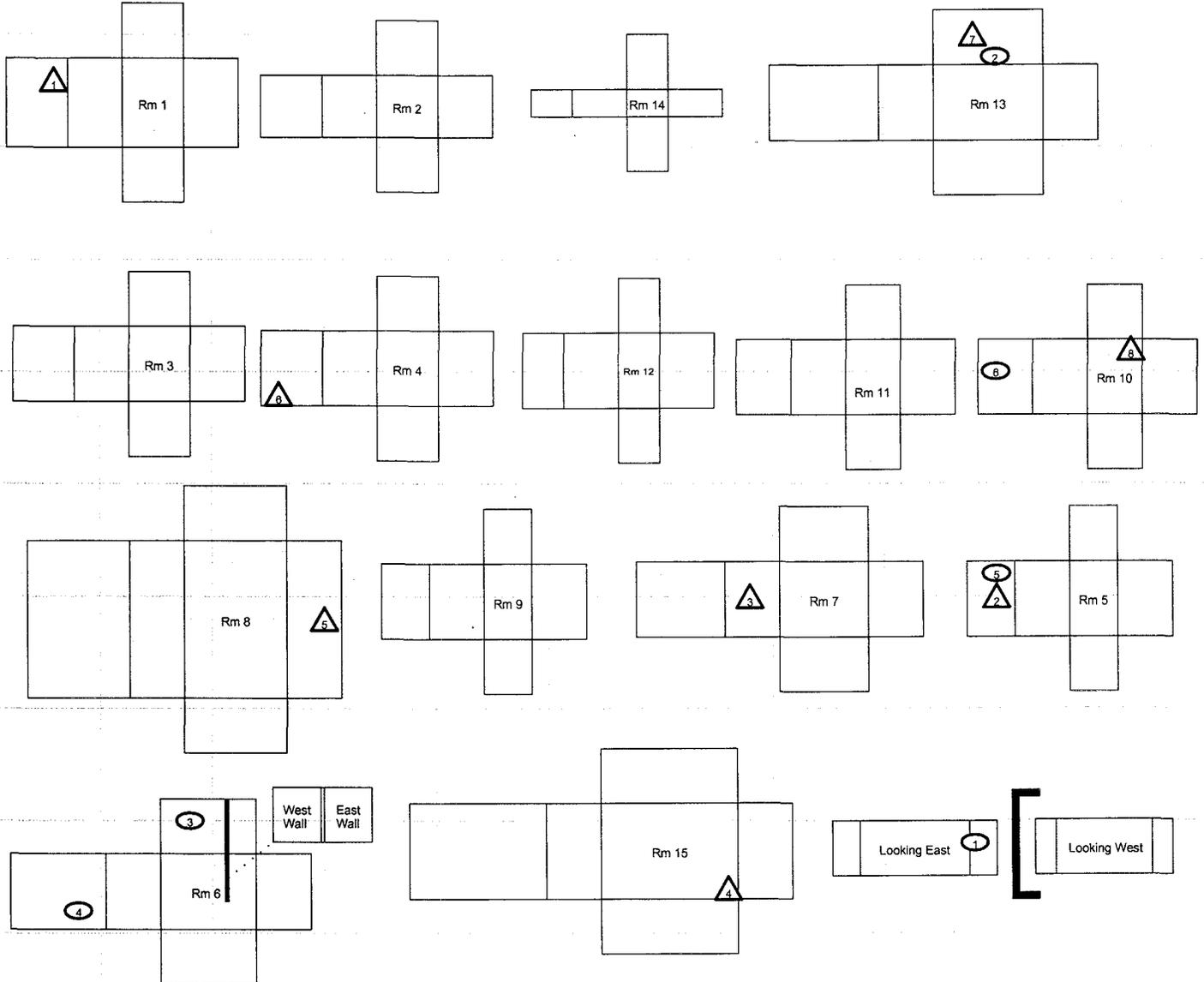
<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li> Asbestos Sample Location</li> <li> Beryllium Sample Location</li> <li> Lead Sample Location</li> <li> RCRA/CERCLA Sample Location</li> <li> PCB Sample Location</li> </ul>	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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> Open/Inaccessible Area</p> <p> Area in Another Survey Unit</p>	<p align="center">N ↑</p>	<p align="center">0      FEET      30</p>	<p align="center">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-966-7707    Prepared for:</p> <p><b>DynCorp</b> THE ART OF TECHNOLOGY</p> <p align="right"></p> <p>MAP ID: fv2002/02-0021/T891G-BaAb    October 8, 2001</p>
			<p align="center">0      METERS      10</p> <p>1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	

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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-002      Classification: 3  
 Building: T8910  
 Survey Unit Description: Interior & Exterior of T8910  
 Total Area: 963 sq. m.      Total Floor Area: 259 sq. m.

T8910



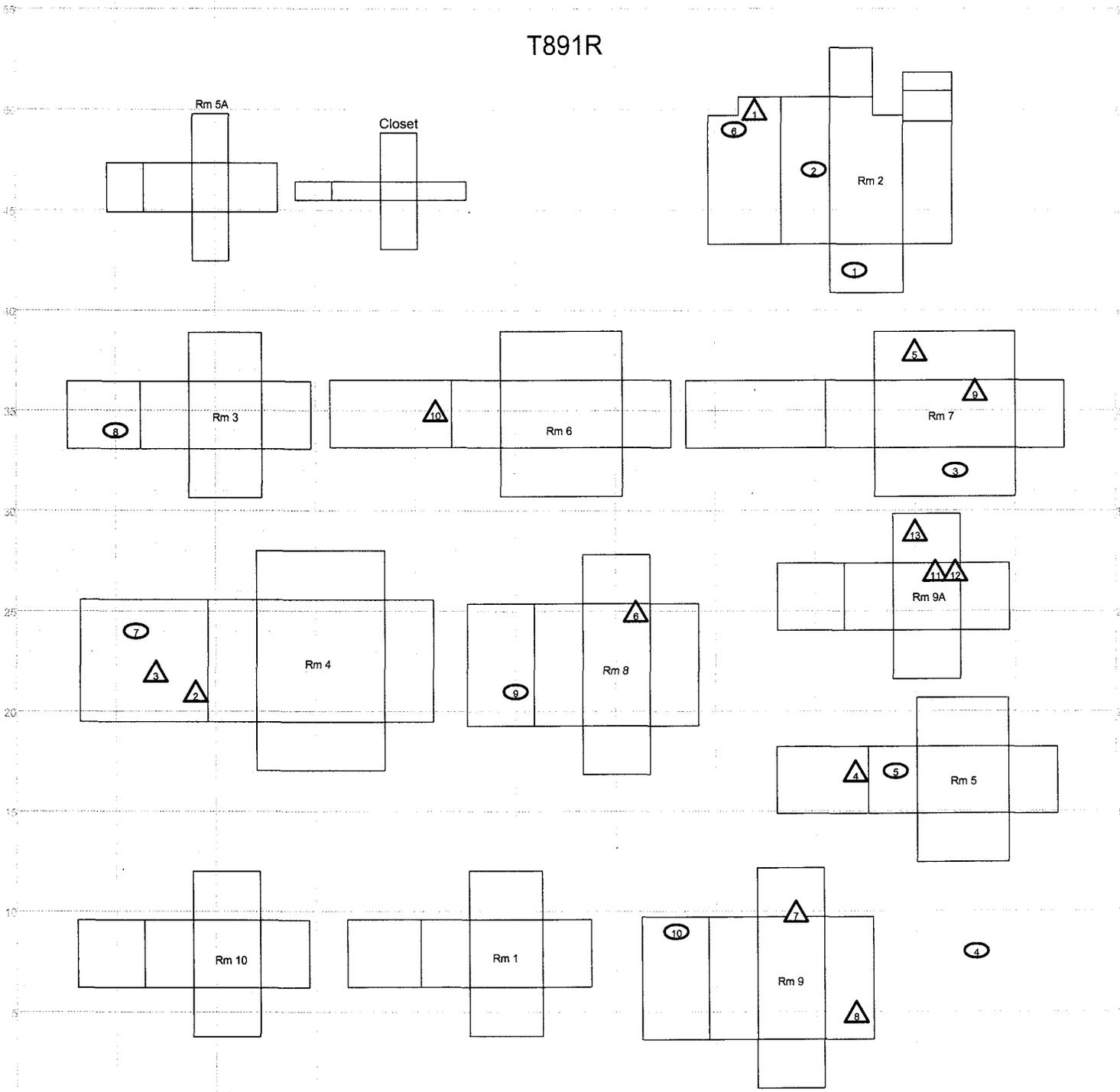
<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li> Asbestos Sample Location</li> <li> Beryllium Sample Location</li> <li> Lead Sample Location</li> <li> RCRA/CERCLA Sample Location</li> <li> PCB Sample Location</li> <li> Open/Inaccessible Area</li> <li> Area in Another Survey Unit</li> </ul>	<p><small>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&amp;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.</small></p>	<p align="center">N ↑</p>	<p align="center">0      FEET      30</p> <p align="center">0      METERS      10</p> <p align="center">1 inch = 24 feet    1 grid sq. = 1 sq. m.</p>	<p align="center">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p align="center">Prepared by: GIS Dept. 303-966-7707    Prepared for:</p> <p align="center"><b>DynCorp</b> THE ART OF TECHNOLOGY</p> <p align="center">MAP ID: N2002/02-0021/T8910-BeAb    October 9, 2001</p>
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**PRE-DEMOLITION SURVEY**

Survey Area: A      Survey Unit: GR9-A-003      Classification: 3  
 Building: T891R  
 Survey Unit Description: Interior & Exterior of T891R  
 Total Area: 1396 sq. m.      Total Floor Area: 256 sq. m.

T891R

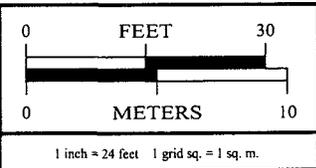


**SURVEY MAP LEGEND**

- # Asbestos Sample Location
- △ # Beryllium Sample Location
- # Lead Sample Location
- ◆ # RCRA/CERCLA Sample Location
- ⊙ # PCB Sample Location

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■ Open/Inaccessible Area  
 □ Area in Another Survey Unit



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MAP ID: fv2002/02-0021/T891R-BaAb    October 9, 2001

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## ATTACHMENT G

# Decommissioning Waste Types and Volume Estimates

**Attachment G – Decommissioning Waste Types and Volumes 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)
T891G	None	800	250	0	450	0	75
T891O	None	1,800	800	0	1,800	0	200
T891R	None	600	800	1,100	1,400	0	200
T891V	None	275	250	350	450	0	50

# ATTACHMENT H

## Data Quality Assessment (DQA) Detail

## DATA QUALITY ASSESSMENT (DQA) – GROUP 9 CLUSTER RLCR

### INTRODUCTION

Data used in making management decisions for decommissioning and waste management must be of adequate quality to support the decisions. Adequate data quality for decision-making is required by the Kaiser-Hill Team Quality Assurance Program (K-H, 1997, §7.1.4 and 7.2.2,) as well as by the customer (DOE, RFFO; O414.1A, Quality Assurance, §4.b.(2)(b).) Regulators and the public also expect decisions and data that are technically and legally defensible. Verification and validation of the data ensure that data used in decisions resulting from the Pre-demolition Survey (PDS) are usable and defensible.

Verification and Validation (V&V) of this RLCR are the primary components of the DQA. V&V constitutes the cornerstone of the DQA, because statistical tests and material background determinations relative to decision-making for radiological survey units were not implemented nor required. Instead, measurement results were compared, on a one-to-one basis, with release criteria given in DOE Order 5400.5. The RLC results could, theoretically, be used to conduct Sign Tests for decisions, but because all individual measurements were less than the DCGL<sub>w</sub>, the survey units meet release criteria without further data reduction. This DQA supports conclusions in the report through implementation of the guidelines taken from the following MARSSIM sections:

- §4.9, Quality Control
- §8.2, Data Quality Assessment
- §9.0, Quality assurance & Quality Control
- Appendix E, Assessment Phase of the Data Life Cycle
- Appendix N, Data Validation using Data Descriptors

DQA was performed on measurement and sample results obtained from the Survey Units listed in Table H-1. These survey units are traceable to specific building locations.

### VERIFICATION OF RESULTS

Verification ensures that data produced and used by the project are documented and traceable per quality requirements. Verification consisted of reviewing the project's data relative to the following subsets for each unique Survey Unit:

- Radiological
  - scans (total surface contamination)
  - surveys (TSA and removable)
- Chemical
  - asbestos
  - beryllium

## -PCBs

Consistent with similar RLC reports at the RFETS, verification confirms the following:

- Chain-of-Custody was intact from initial sampling through transport and final analysis;
- Preservation and hold-times were within tolerances; and
- Format and content of the data are clearly presented relative to goals of the project (i.e., to determine, with at least 95% confidence, that the survey units of interest are adequate for unrestricted radiological release, and no chemical hazards, or contamination exist.)

Verification of the RLC data also addresses quality records representing implementation of the following quality controls:

- Instrument calibrations, for accuracy
- Laboratory control samples, for accuracy
- Blanks, for accuracy
- Duplicate measurements (surveys), for precision
- Minimum Detectable Activity (MDA,) Minimum Detection Limits (MDLs)
- Sample Analysis and Preparation methods
- Count times, for sensitivity
- Sample preparations, for accuracy and representativeness

All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Each Survey Package is systematically reviewed by the responsible Radiological Engineer, a peer reviewer and finally, Radiological Engineering Management. Chemical data are organized by sample number and corresponding sample location.

All relevant Quality records are managed in the Project File, and will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of the approval of this RLC by the Regulators.

## VALIDATION OF RESULTS

Validation consists of a technical review of all data that directly support the RLC decisions, so that any limitations of the data relative to project goals are delineated, and the associated data are qualified accordingly. Data were validated relative to the following:

- The DQOs as defined in the *Pre-Demolition survey Plan for D&D Facilities* (K-H, 3/22/2001; i.e., did the final data achieve the initial DQOs of the project, particularly with respect to decisions,) and

- Quality Assurance criteria (consistent with the various applicable sections in the MARSSIM, expressed in terms of the PARCC parameters given in the subsections below.)

MARSSIM criteria for the broad topic of “data quality assessment” used in final status surveys generally falls within the generic categories of quality assurance, quality control, data validation and data assessment (including verification and validation.)

All of the significant MARSSIM criteria listed in Tables H-2 through H-4 are summarily addressed within the “PARCC Parameters” discussion presented in the tables. PARCC parameters are congruent with “data descriptors” in the MARSSIM parlance and address characteristics of the data that must be defined for scientific integrity and defensibility. The discussion of the PARCC parameters—Precision, Accuracy, Representativeness, Comparability and Completeness, also include discussion of bias and sensitivity, two more data descriptors emphasized in MARSSIM.

## **DQO DECISIONS**

DQO decisions are summarized in Table H-1.

## **PARCC PARAMETERS**

### **Precision**

#### **Radiological Surveys**

Duplicate measurements were acquired at the required frequency ( $\geq 5\%$  frequency of real surveys) on the MARSSIM survey grid. All duplicate measurements were within tolerance based on repeatability of results below the  $DCGL_w$ .

#### **Chemical Results**

Repeatability of beryllium results was not evaluated through field duplicate, based on the removable nature of the sampling process; this is consistent with radiological survey methodology, where repeatability is only evaluated relative to TSA measurements (fixed activity,) and not removable activity. Overall repeatability within the sample set was evident, as all 38-sample results were less than the detection limit ( $0.1\mu\text{g}/100\text{cm}^2$ .)

Repeatability of asbestos results was not evaluated through field duplicates. Overall, repeatability within the sample set was evident based on negative test results for all 44 samples.

### **Accuracy (and Bias)**

#### **Radiological Results (Surveys)**

Accuracy of radiological surveys is satisfactory based on RFETS-programmatic annual calibrations that establish instrument efficiencies and sensitivities for all instrumentation used on this project. Daily source checks also provided periodic checks to ensure that all sensors are within tolerance during daily operations. Calibration and calibration check results were within the RFETS and industry-standard requirement of  $\pm 20\%$  of the applicable reference standard values. Full-scale multi-point calibrations provide

accuracies of  $\pm 10\%$  prior to implementation of survey instruments in the field, consistent with guidelines put forth in ANSI-N323.d.

No biases were noted in the instrumentation, based on daily performance checks.

Distance measurements recorded on maps are within  $\pm 3$  feet of actual distances based on the laser technology and/or tape measures used for distance measurements associated with the surveys.

### **Chemical Results**

Accuracy for asbestos volumetric concentrations is based on the semi-quantitative technique of petrography via polarized light microscopy. Analysts can typically quantify components to within several percent at high concentrations ranging to  $\sim 1\%$  at low concentrations (i.e. presence or absence of the mineral of interest.) Accuracy for the analysis is adequate, as the contrast between 0% and 1% is a clear distinction for the decision of "ACM" versus "No ACM."

Accuracy of all analytical results was adequate based on acceptable percent recoveries of LCS performed on a laboratory-batching basis. Initial and continuing calibrations were also satisfactory relative to performance within specifications and the frequencies at which they were performed.

### **Representativeness**

Samples and surveys are representative based on the following criteria:

- Familiarity with facilities – multiple walk-downs and collaborations by management and technical staff.
- Implementation of industry-standard Chain-of-Custody protocols.
- Compliance with sample preservation and hold times.
- Documented and (site) approved methods, particularly RSPs for scans/surveys, and SOPs for asbestos sampling and beryllium swiping.
- Chemical Characterization Package, Group 9 Closure Project, Revision 0, August 9, 2001
- Radiological Survey Packages:
  - T891G, Survey Unit GR9-A-001
  - T891O, Survey Unit GR9-A-002
  - T891R, Survey Unit GR9-A-003
  - T891V, Survey Unit GR9-A-004

Surveys were also representative of the facilities based on a combination of random and biased measurement locations. Random survey measurements; 30 per Survey Units G, O and R, and 35 per Survey Unit V; provided statistical confidence in radiological decisions, while biased locations provided additional confidence, as the locations were

biased toward those areas with the greatest potential for radiological contamination (dust accumulation areas relative to airborne particulates, and high foot-traffic areas.) All chemical sample locations are biased toward materials or locations with the highest potential for contamination.

Beta/gamma survey designs were not implemented for the T891 Type 1 Cluster based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Stated differently, based on the well-established suite of actinides historically used at RFETS, all of these actinides would emit alpha radiation in exceedance of the applicable transuranic DCGLs before other DCGLs would be exceeded for their respective Uranium species – Technical Basis document 00162, Rev. 0, *Technical Justification for Types of Surveys Performed During Reconnaissance Level Characterization Surveys and Pre-Demolition Surveys in RISS Facilities*, corroborates the use of this conservative approach.

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

### Completeness

#### **Radiological Results**

The four Survey Packages were peer reviewed and approved by radiological engineering management. All radiological results are complete, valid without qualification, and form data sets with adequate quantities and quality of data for release decisions. Completeness of data for the project is summarized in Table H-1.

**Table H-1 Data Completeness Summary for T891 Group 9 Cluster**

ANALYTE	# Samples Planned (incl. Media; Real & QC Samples) (biased/reals)	# Taken (Real & QC Samples) <sup>B</sup> (no QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos <sup>A</sup>			No ACM present-see section 4.2.1	40 CFR 763.86; 5 CCR 1001-10; EPA 600/R-93/116  RIN 02D0082
• T891G	10			
• T891O	6			
• T891R	10			
• T891V	18			
Beryllium (swipes)	(total, biased, reals)	20 Total QC	No contamination at any location, all results less than 0.1 ug/100cm <sup>2</sup>	(NOTE: "No ACM" is <1% by volume) OSHA ID-125G
• T891G	5 biased	10 QC (T891 G, O, R)		RIN 01D1450 (T891 G, O, R) RIN 01D1374 (T891V)
• T891O	8 biased			
• T891R	13 biased			
• T891V	12 biased	10 QC (T891V)		(No results above action level (0.2µg/100cm <sup>2</sup> ) or investigative level (0.1 µg/100cm <sup>2</sup> ))

**Table H-1 Data Completeness Summary For T891 Group 9 Cluster**

ANALYTE	# Samples Required (incl. Media, Real & QC Samples)	# Taken (Real & QC Samples) <sup>B</sup>	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
<ul style="list-style-type: none"> <li>Radiological</li> <li>Survey Unit: GR9-A-001</li> </ul>	15 random + 15 biased ≥5% QC TSA 5% interior, 3% exterior scan	2 QC	No contamination at any location; all values below unrestricted release levels	No results above DCGL <sub>W</sub> or DCGL <sub>EMC</sub> action level (20 dpm/100cm <sup>2</sup> removable, 100 dpm/100cm <sup>2</sup> average, and 300 dpm/100cm <sup>2</sup> maximum).
<ul style="list-style-type: none"> <li>Survey Unit: GR9-A-002</li> </ul>	15 random + 15 biased ≥5% QC TSA 5% interior, 3% exterior scan	2 QC		
<ul style="list-style-type: none"> <li>Survey Unit: GR9-A-003</li> </ul>	15 random + 15 biased ≥5% QC TSA 5% interior, 3% exterior scan	2 QC		
<ul style="list-style-type: none"> <li>Survey Unit: GR9-A-004</li> </ul>	15 random + 20 biased ≥5% QC TSA 5% interior, 3% exterior scan	2 QC		

<sup>A</sup> # of samples required is estimate only, based on miscellaneous material types; final # of samples at discretion of IH

<sup>B</sup> int – building interior, ext – building exterior

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## Comparability

All results presented are comparable with radiological survey and analytical data on a site and DOE-complex wide basis. This comparability is based on:

- Use of standardized engineering units in the reporting of measurement results;
- Consistent sensitivities of measurements at  $\leq 50\%$  DCGL<sub>w</sub> ( $\leq 75\%$  DCGL<sub>EMC</sub> for scans);
- Use of site-approved procedures (RSPs, TBDs and SOPs);
- Systematic quality controls; and
- Thorough documentation of the planning, sampling/analysis process, and data reduction into formats designed for making decisions posed from the project's original data quality objectives.

## Sensitivity

Adequate sensitivities, in units of dpm/100<sup>2</sup> cm., were attained for all surveys implemented based on MDAs at 50% of the transuranic DCGL<sub>w</sub> ( $\leq 75\%$  DCGL<sub>EMC</sub> for scans). Derivations of MDAs, for all instruments used, are given in each respective Radiological Survey Package. Nominal MDAs for each survey method are summarized as follows:

- Surveys (Eberline SAC-4) – removable contamination: 10 dpm/100cm<sup>2</sup>
- Surveys (NE Electra) – total surface contamination (TSA): 50 dpm/100cm<sup>2</sup>
- Surveys (NE Electra) – scans:  $<225$  dpm/100cm<sup>2</sup>

Sensitivities were adequate for all chemical analyses. Detection limits for beryllium were less than 0.1 ug/100cm<sup>2</sup>; asbestos was not detected at sensitivities to  $<1\%$  volume.

## Summary

In summary, the data presented in this report have been verified and validated relative to the project decisions as stated in the original DQOs. Media surveyed and sampled yielded results less than their associated action levels for friable ACM and radiological. ACM is not present in friable. No sample was conducted for non-friable. No radiological contamination was found above the PDSP transuranic or uranium DCGLs. All beryllium samples were negative and below the 0.1 ug/100cm<sup>2</sup> level.

Asbestos and Beryllium sample data and sample location maps are contained in Attachment F, Chemical Summary Data and Sample Maps. Isotopic analysis investigation is presented in Attachment E, Radiological Data Summaries and Survey Maps.

Isolation control postings are displayed at all entrances to T891 G, O, R and V to ensure no radioactive materials are introduced.

**Table H-2 V&V of Radiological Surveys for T891 Group 9 Cluster**

V&V CRITERIA, RADIOLOGICAL SURVEYS	K-H RSP 16.00 Series MARSSIM (NUREG-1575)			COMMENTS
	QUALITY REQUIREMENTS			
	Parameters	Measure	frequency	
ACCURACY	initial calibrations	90% < x < 110%	≥ 1	multi-point calibration through the measurement range encountered in the field
	daily source checks	80% < x < 120%	≥ 1	
	local area background	< MDL	≥ 1	
PRECISION	field duplicate measurements for TSA	all results ≤ MDA	≥ 10% of reads	
REPRESENTATIVENESS	MARSSIM gridding methodology	statistical and biased	NA	random w/ statistical confidence; biased to improve confidence.
	Survey Maps		NA	random and biased measurement locations documented to ± 3ft
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	see original Characterization Package (planning document) for field/sampling procedures; thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY	units of measure	dpm/100cm <sup>2</sup>	NA	Use of standardized engineering units in the reporting of measurement results
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	> 95%	NA	see attachment E for details
SENSITIVITY	detection limits	> 95%	all measures	
		TSA: ≤ 50 dpm/100cm <sup>2</sup> RA: ≤ 10 dpm/100cm <sup>2</sup>		MDAs ≤ ½ DCGLW per MARSSIM guidelines

**Table H-3 V&V of Chemical Results-Asbestos For T891 Group 9 Cluster**

V&V CRITERIA, CHEMICAL ANALYSES ASBESTOS	METHOD: EPA 600/R-93/116	DATA PACKAGE		COMMENTS
		LAB ---->	Reservoirs Environmental, Inc various (Table H-4)	
QUALITY REQUIREMENT				
ACCURACY		Measure	Frequency	Semi-quantitative, per (microscopic) visual estimation
		below detectable amounts	≥1	
PRECISION		all below detectable amounts	≥40 samples	Semi-quantitative, per (microscopic) visual estimation
		Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals
REPRESENTATIVENESS	Hold times/preservation	Qualitative	NA	Not applicable
	Sample Maps	Quantitative	per area	
	Controlling Documents (Plans, Procedures, etc.)	Qualitative	NA	See Table H-1 for analytical methods; original Characterization Package (planning document) for field/sampling procedures; thorough documentation of the planning, sampling/analysis process, and data reduction into formats
COMPARABILITY		% 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 H-1; final number of samples at Certified Inspector's discretion
SENSITIVITY	Detection limits	<1% by volume	all measures	

Table H-4 V&V of Chemical Results-Beryllium For T891 Group 9 Cluster

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	METHOD: OSHA ID-125G	LAB ---->	Johns Manville, Denver	
<b>QUALITY REQUIREMENTS</b>				
<b>ACCURACY</b>	calibrations		RIN ----> measure frequency	
		initial	≥1	
	LCS	continuing	80%<%R<120% 80%<%R<120% ≥1	as above
	blanks	lab & field	<MDL	Accuracy of beryllium results was adequate based on acceptable percent recoveries of LCS performed on a laboratory batching basis (spike @ 10 ug). Because no chemical results exceeded detection limits, evaluation of blank data was not required.
<b>PRECISION</b>	interference check std (ICP)		NA	not necessary, in absence of analysis for other metals
	LCS		80%<%R<120% (RPD<20%)	Intralaboratory precision was adequate based on acceptable percent recoveries of LCS performed on a laboratory batching basis (%R ± 20% @ 10 ug).
	field duplicate		all results < RL	Repeatability of beryllium results was not evaluated through field duplicates, based on the removable nature of the sampling process; this is consistent with radiological survey methodology, where repeatability is only evaluated relative to TSA measurements (fixed activity), and not removable activity. Overall repeatability within the sample set was evident based on all sample results less than the detection limit (0.1 µg/100cm <sup>2</sup> ).
<b>REPRESENTATIVENESS</b>	COC		qualitative	Chain-of-Custody intact:: completed paperwork, containers w/ custody seals
	hold times/preservation		qualitative	not applicable
	maps			several smears taken on ceiling, which are not particularly representative of a dust-settling deposition mechanism; future random samples should be limited to horizontal surfaces facing upward.

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	METHOD: OSHA ID-125G	LAB ---->	Johns Manville, Denver various (Table H-4)	
<b>QUALITY REQUIREMENTS</b>				
	Controlling Documents (Plans, Procedures, etc.)	measure	frequency	standardized analytical method; original Characterization Package (planning document) refers to field/sampling procedures; thorough documentation of the planning, sampling/analysis process; data reduction into clear and usable formats
		qualitative	NA	
<b>COMPARABILITY</b>	measurement units	ug/100cm <sup>2</sup>	NA	Use of standardized engineering units in the reporting of measurement results;
<b>COMPLETENESS</b>	Plan vs. Actual samples usable results vs. unusable detection limits	>95% >95%	NA	none
<b>SENSITIVITY</b>		0.012 ug/100cm <sup>2</sup>	all measures	Method detection limits (MDL) for beryllium is cited.

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