



# Rocky Flats Environmental Technology Site

## TYPE 1 RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

AREA 3 GROUP 1A CLOSURE PROJECT  
(Buildings 549, 554, 556 and 681)

REVISION 0

February 20, 2003



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

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REPORT (RLCR)**

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**REVISION 0**

**February 20, 2003**

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Don Risoli, Quality Assurance

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- C Radiological Data Summaries and Survey Maps
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## ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
DCGL <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 DPP (10/8/98) and compliant disposition and waste management of the Area 3, Group 1A facilities (i.e., Buildings 549, 554, 556 and 681). Because these facilities are anticipated Type 1 facilities, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., equipment, floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facility was not within the scope of this RLCR and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

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

Results indicate that no radiological contamination exists in excess of the PDSP unrestricted release limits of DOE Order 5400.5. Category 2 non-friable asbestos containing building materials were identified in Buildings 549, 554, and 556. Friable asbestos containing thermal systems insulation was identified in Buildings 554 and 549. All beryllium sample results were less than  $0.1 \mu\text{g}/100\text{cm}^2$ . Fluorescent light ballasts may contain PCBs. PCB ballasts and asbestos containing materials will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. Concrete associated with these facilities meets the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Based upon this RLCR, the Area 3, Group 1A facilities are considered Type 1 facilities. To ensure the facilities remain free of contamination and RLC data remain valid, Level 2 isolation controls have been established, and the facilities have been posted accordingly.

## 1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of the Area 3, Group 1A facilities (i.e., Buildings 549, 554, 556 and 681). Because these facilities are anticipated Type 1 facilities, a PDS characterization was performed. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facilities [i.e., equipment, floors (slabs), walls, ceilings and roofs]. Environmental media beneath and surrounding the facility was not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these are the Area, 3 Group 1A facilities. The locations of these facilities are shown in Attachment A, *Facility Location Map*. These facilities no longer support the RFETS mission and require removal in order to reduce Site infrastructure, risks and/or operating costs.

Before these facilities can be removed, a Pre-Demolition Survey (PDS) must be conducted; this document presents the PDS results. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report (HSAR).

### 1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. An RLC is performed before Type 1 building demolition to define the pre-demolition radiological and chemical conditions of a facility. Pre-demolition conditions are compared with the unrestricted release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

### 1.2 Scope

This report presents the pre-demolition radiological and chemical conditions of the Area 3, Group 1A facilities. Environmental media beneath and surrounding the facility are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

### 1.3 Data Quality Objectives

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

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## 2 HISTORICAL SITE ASSESSMENT

A Facility-specific Historical Site Assessment (HSA) was conducted to understand the facility histories and related hazards. The assessment consisted of facility walk downs, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization plans. Results of the facility-specific HSA were documented in a facility-specific *Historical Site Assessment Report (HSAR) for Area 1, Group 3 facilities*, dated May 2002, Revision 0. (Refer to Attachment B, *Historical Site Assessment Report*.) In summary, the HSAR identified a minimal potential for radiological and chemical hazards, specifically, asbestos containing materials and PCBs in paint and light ballasts.

## 3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Area 3, Group 1A facilities were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk downs, and MARSSIM guidance, Radiological Characterization Plans were developed during the planning phase that describe the minimum survey requirements (refer to the RISS Characterization Project files).

Five radiological survey packages were developed for the interior and exterior of the Area 3, Group 1A facilities, including fixed equipment. The survey packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files.

Two hundred forty-five (245) TSA measurements (60 random, 51 biased, 15 systematic, 105 equipment and 14 QC) and two hundred thirty-one (231) RSA measurements (60 random, 51 biased, 15 systematic and 105 equipment) were performed; and a minimum 5% of the facility interior surfaces were scanned except for B549. 100% of the floor, 50% of the walls below 2 meters and 10% of the walls greater than 2 meters and ceiling were scanned in B549. The RLC data confirmed that the facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey locations are presented in Attachment C, *Radiological Data Summary and Survey Maps*. The radiological survey unit packages are maintained in the RISS Characterization Project files. Level 2 isolation control postings are displayed on the buildings to ensure no radioactive materials are inadvertently introduced.

#### 4 CHEMICAL CHARACTERIZATION AND HAZARDS

The Area 3, Group 1A facilities were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in these facilities. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, lead and PCBs. Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

##### 4.1 Asbestos

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

A comprehensive, invasive asbestos inspection was conducted to determine the presence of friable and non-friable asbestos containing building materials. The following friable and non-friable asbestos containing materials were identified:

Building	Material	Friable or Non-Friable	Approximate Quantities
554	Exterior Transite Wall and Roofing Panels	Category 2 Non-friable	1,300 cubic feet
554	Thermal Systems Insulation	Friable	140 lineal feet
556	Interior 3/8" smooth, gray Transite Wall Panels	Category 2 Non-Friable	101 cubic feet
549	(1) Pipe Fitting	Friable	< 1 lineal foot
549	Interior gray window caulking	Category 2 Non-Friable	112 square feet
549	(1) round, white gasket patch on west wall	Friable	< 1 square foot

Asbestos laboratory analysis data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*. Asbestos containing material waste volume estimates and types are contained in Section 7 of this report.

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## 4.2 Beryllium (Be)

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

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

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

Based on a review of the HSAR and facility walk downs, B554 was the only facility of the Area 3, Group 1A facilities identified as containing potential RCRA/CERCLA contamination. Building 554 functioned as a 90-day storage area for various RCRA waste streams, as well as, a fluorescent bulb crushing process. A drum crusher was also located in B554 for several years, but not used. The only visual evidence of these past uses is broken glass from fluorescent lamps that have accumulated in floor cracks. As part of the building turnover process, a mercury vapor analyzer was used to check the floor cracks for evidence of residual mercury from the lamps. All results of the mercury surveys were negative (refer to Section 4.4 for a detailed discussion of the mercury surveys).

Sampling for lead in paint in these facilities was not performed. Environmental Waste Compliance Guidance #27, *Lead-based Paint (LBP) and Lead-based paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

These facilities may contain RCRA regulated materials such as mercury switches and fluorescent lamps. A thorough inspection of the facility will be made, and all regulated materials will be removed prior to demolition.

## 4.4 Mercury (Hg) SME Survey

Fluorescent lamps contain a small amount of elemental mercury (Hg) that is slowly depleted during the life of the lamp. It is possible to accumulate a measurable amount of Hg contamination on equipment used in lamp crushing operations, especially in operations where thousands of lamps are processed. Because Building 554 housed a fluorescent lamp crushing operation for several years, a survey was conducted to determine the presence of residual Hg contamination.

The floor of B554 contains several cracks that have accumulated broken glass from the lamp crushing operation. These cracks were also viewed as the most likely place for Hg accumulation. To check for Hg contamination, a Jerome Mercury Vapor Analyzer (MVA) was used to survey the cracks, refer to Attachment E, *DQA Details*, for a further discussion on the analyzer operations and sensitivity. Eleven locations were selected based on evidence of broken glass and process knowledge regarding previous lamp crushing operations. The mercury survey locations are identified on the *Chemical Sample Map-Mercury Detection Surveys* found in Attachment D, *Chemical Data Summaries and Sample Maps*. All results for the eleven (11) survey locations were 0.00 mg/m<sup>3</sup>, thus verifying previous lamp crushing operations did not result in mercury contamination to the B554 slab.

#### 4.5 Polychlorinated Biphenyls (PCBs)

Based on a review of the HSAR and a facility walk down, no PCBs were used in any of these facilities. Based on the age of buildings 549, 554, and 556 (constructed prior to 1980), paints used may contain PCBs, and painted surfaces will need to be disposed of PCB Bulk Product Waste. Painted concrete surfaces can be used as backfill on site in accordance with approval received from EPA in November 2001 (letter from K. Clough, US EPA Region 8, to J. Legare, DOE RFFO, 8EPR-F, Approval of the Risk-Based Approach for Polychlorinated Biphenyls (PCB)-Based Painted Concrete), provided the concrete meets the unrestricted-release criteria outlined in the Concrete Recycling RSOP. Building 681 was constructed in 1996, and paints are not suspected of containing PCBs.

Because these facilities may contain fluorescent light ballasts containing PCBs, 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 does not indicate non-PCB-containing are assumed to be PCB-containing.

### 5 PHYSICAL HAZARDS

Physical hazards associated with the Area 3, Group 1A facilities are those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. 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.

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## 6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of the Area 3, Group 1A facilities and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments C and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original DQOs of the project.

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

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

Details of the DQA are provided in Attachment E.

## 7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of the Area 3, Group 1A facilities will generate a variety of wastes. Estimated waste types and waste volumes are presented below. All wastes can be disposed of as 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.

Waste Volume Estimates and Material Types							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste
549	1400	0	650	1300	200	30	None
554	2300	0	450	0	100	1,500	None
556	550	0	300	800	1500	101	None
681	1600	0	800	1500	0	None	None

## 8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Area 3, Group 1A facilities 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.

The RLC of the Area 3, Group 1A facilities was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. The facilities do not contain radiological or hazardous wastes. PCB ballasts and asbestos containing materials will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. Demolition debris will be managed in compliance with regulations governing PCBs (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. Concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete. 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.

To ensure these Type 1 facilities remain free of contamination and RLC data remain valid, Level 2 isolation controls have been established, and the facilities are posted accordingly.

## 9 REFERENCES

- DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. Decommissioning Program Plan, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 3, July 15, 2002.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.
- MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual, December 1997 (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.
- PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.
- PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.
- PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.
- RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.
- RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.
- RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999.
- Historical Site Assessment Report for Area 1 Group 3 Facilities*, dated May 2002, Revision 0.

# ATTACHMENT A

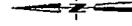
## Facility Location Map

**Building Cluster  
549, 554, 556, & 681**

**Standard Map Features**

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

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



Scale = 1 : 12450  
1 inch represents approximately 1038 feet  
0 250 500 1000  
feet  
State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

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

ORR Des. 90-068-707

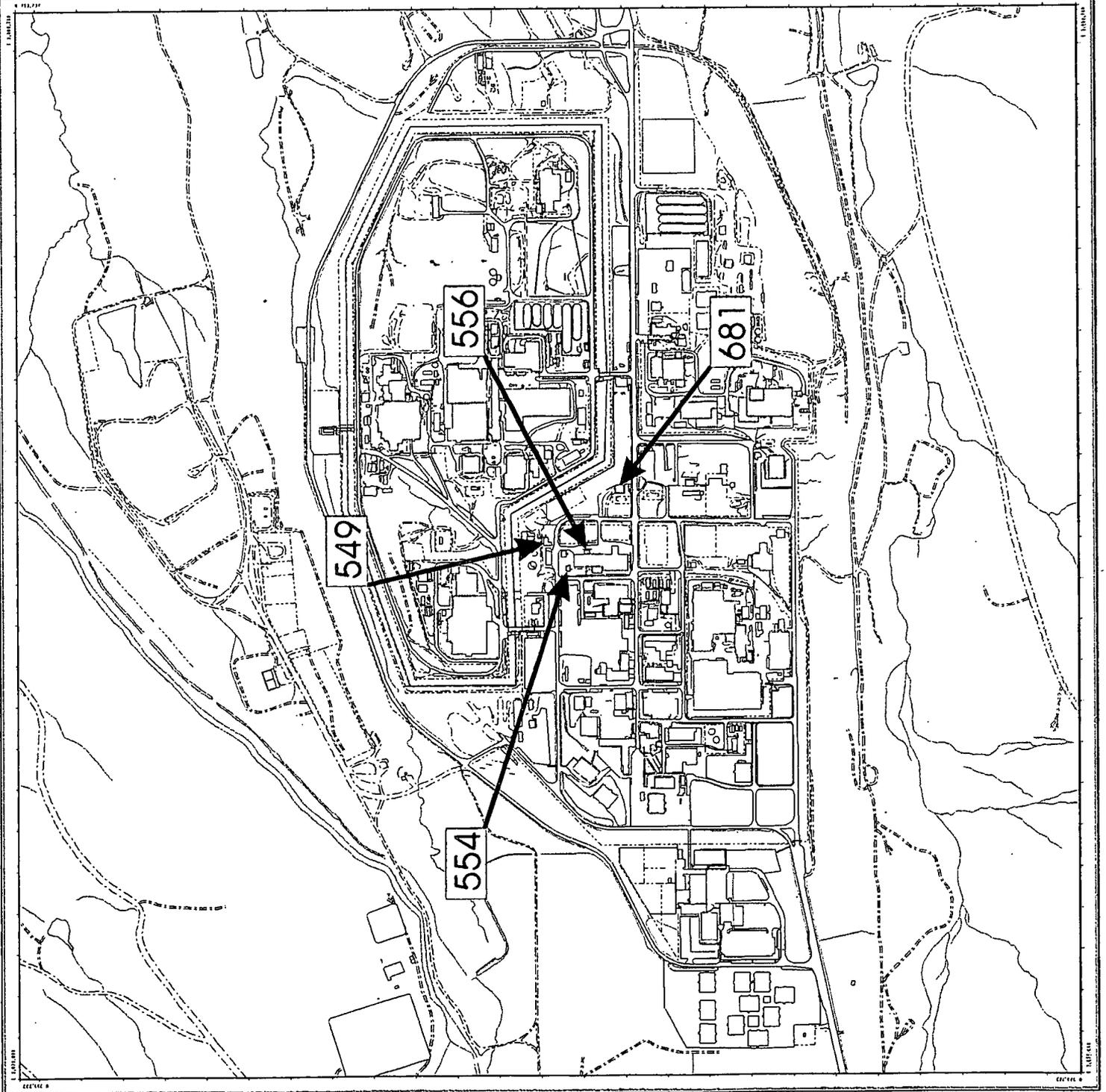
Prepared for:



**DynCorp**  
THE ART OF TECHNOLOGY

MAP ID: FY 2002

February 18, 2003



## ATTACHMENT B

# Historical Site Assessment Report

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

**Facility ID: Group- 3 Area 1 - Buildings 223, 223A, 549, 551 Pad, 552, 553, 554, 556, 679, 680, 681, and the 750 HAZ Pad.**

Anticipated Facility Type (1, 2, or 3): Buildings 223, 223A, 549, 551 Pad, 552, 553, 554, 556, 679, 680, 681, and the 750 HAZ Pad are anticipated Type 1 facilities.

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

**Physical Description**

**Building 223**

Building 223 is a 3500 sq. ft. Nitrogen Plant constructed in 1991. This facility is a steel frame building built on a concrete foundation. The walls and the roof are corrugated metal sheets mounted to a steel frame. The facility has two large purification tanks (Tanks 233 and 234) on the north side of the building used to remove moisture from the ambient airs prior to the separation process. The facility also has a cooling tower on the west side of the building.

Building 223 has the following utilities; water, sanitary, electric, gas, steam heat, and an overhead sprinkler system and wall-mounted fire extinguishers provide fire protection.

**Building 223A**

Building 223A is currently the Environmental Restoration Storage Building constructed in 1975. The building is a 1980 sq. ft. metal frame building constructed on a concrete pad poured on grade. The walls and ceiling are corrugated sheet metal mounted on a steel frame.

Building 223A has the following utilities; electric, and fire protection is provided by wall-mounted fire extinguishers.

**Building 549**

Building 549 is currently a 1920 sq. ft. Fitness Center and was constructed in 1957. This building is a metal frame building constructed on a concrete slab. The walls and ceiling are insulated metal sheets attached to a steel frame. The walls have a sprayed-on insulation. The building has restrooms inside.

Building 549 has the following utilities; water, sanitary, electric, and fire protection is provided by wall-mounted fire extinguishers.

**551 Pad**

The 551 Pad is an approximately 20, 000 sq. ft. fenced outdoor Permitted RCRA storage area (RCRA Unit 18.03) located east of Building 551. The 551 Pad is an asphalt pad that houses several cargo containers used to store RCRA/Low-level Mixed Waste. The storage yard is also used to store miscellaneous equipment, which are internally contaminated.

The 551 Pad has no utilities.

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Historical Site Assessment Report  
May, 2002 Rev. 0**

**Building 552**

Building 552 is a 4170 sq. ft single-story compressed gas storage building constructed in 1953. The building is a non-insulated metal frame structure with possible asbestos siding and roof. The building is constructed on an elevated concrete slab, which is approximately 3-4 ft. thick.

Building 552 has the following utilities; electric and fire protection is provided by wall mounted fire extinguishers.

**Building 553**

Building 553 is a 1280 sq. ft. single-story welding shop constructed in 1953. The building is a non-insulated metal frame structure with asbestos siding and roof. The building is constructed on an elevated concrete slab, which is approximately 3-4 ft. thick.

Building 553 has the following utilities; electric, water and fire protection is provided by wall mounted fire extinguishers.

**Building 554**

Building 554 is a 1190 sq. ft. single-story warehouse storage and receiving building constructed in 1953. The building is a non-insulated a metal frame structure with asbestos siding and roof. Building 554 had the floor raised about 4 feet in the east half of the original structure in 1956.

Building 554 has the following utilities; electric, plant steam, and fire protection is provided by wall mounted fire extinguishers.

**Building 556**

Building 556 is a 640 sq. ft. single-story site maintenance building constructed in 1963. This building is a steel frame building with metal walls and a metal roof. Building 556 is built on a concrete slab. The building has two large roll-up garage doors on the east side of the building and an out-of-service air compressor located on the north side of the building.

Building 556 has the following utilities; electric, steam heat, pressurized air system. Fire protection is provided by wall-mounted fire extinguishers.

**Building 679, and 680**

Buildings 679 and 680 are both high voltage electrical transformers mounted on a 500 sq. ft. concrete pad. The transformers where installed in 1996 and are located approximately 15 ft. west of Building 681 (The Switchgear Building).

Building 679 and 680 have the following utilities: electric.

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**Building 681**

Building 681 is a 2302 sq. ft. switchgear building, constructed in 1996. Building 681 is a metal frame building constructed on a concrete pad. The walls and ceiling are non-insulated corrugated metal panels mount to the steel frame.

The following utilities: electric and fire protection is provided by wall mounted fire extinguishers.

**750 HAZ Pad (a.k.a. RCRA Unit 1)**

The 750 Pad is an approximately 17,000-sq. ft. fenced outdoor RCRA storage area (RCRA Unit 1). The 750 HAZ Pad located on an asphalt pad and contains several heated cargo containers to store RCRA/Low-level Mixed Waste.

The 750 HAZ Pad has the following utilities; electric, and fire protection is provided by wall-mounted fire extinguishers.

**Historical Operations**

**Building 223**

Building 223 houses the equipment for separating nitrogen from ambient air. Filtered air is compressed and purified in a heat exchanger. It is then passed through a distillation chamber where nitrogen is separated from the oxygen based on the differences in their liquefaction temperatures. The nitrogen is then piped throughout the plant. Excess nitrogen is liquefied and stored for future use. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Building 223A**

Building 223A was originally built and owned by Air Products Corporation in 1975 to supply nitrogen to Buildings 776, 777, 707 and 371. In 1991 Air Products built a larger facility to the west of Building 223A and removed all of their equipment and tanks from this building. This building was not operated by RFETS personnel but by Air Products. From 1991 to 1995 the building sat empty at which time it became storage facility for CERCLA contaminated soils. See the "Environmental Concerns" section below for any IHSSs and PACs associated with this building.

**Building 549**

Building 549 was originally an electrical support building operated by J. E. Jones. From 1994 to 2001 the building was used as a Radcon support facility to house Southside Radcon support personnel. The building was used to count smears, store air samples, and support Southside Radcon operations. The building had a RMA in the northwest portion of the building, which was used to store radiological sources. None of these sources were known to have leaked. In 2001 the facility was closed and left vacant for about 6 months. In 2001 the building was converted to a fitness center. The building has no history of building contamination. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

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**551 Pad**

The 551 pad is a fenced in RCRA storage area (RCRA unit 18.03). The 551 Pad storage yard houses several storage containers used to store RCRA/Low-Level Mixed Waste. The 551 Pad also is used to store internally contaminated equipment prior to final disposal. Originally the area was used to storage scrap metal which on occasion was found to contain low levels of contamination. A detailed history of the area currently called the 551 Pad is documented in PAC 500-117.2 "Middle Site Chemical Site Storage". There have been no known release to the environment since RCRA Unit 18.03 was established. See the "Environmental Concerns" section below for IHSSs and PACs associated with the 551 Pad.

**Building 552**

Building 552 is a storage building for cylinders of pressurized gas. Cylinders are received, stored and transferred from Building 552 to various onsite users. Empty cylinders are received from the various on-site users and stored pending pick-up by vendors. On occasion, contaminated cylinders are received from on-site users and must be decontaminated or packaged as LLW. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Building 553**

Building 553 was originally the site chemical receiving and storage building. This activity ended in the late 1970's when the building became the metal fabrication building and was later used as a glovebox training building in the early 1990's. Chemicals stored here included, but were not limited to acids, bases, solvents and sulfates. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Building 554**

Building 554 was the original Radiological Shipping and Receiving Building until Building 440 was constructed in early 1970s. This building had a criticality alarm system and health physics air-sampling system installed in the building. In the 1980s and 1990s the building was used as a general warehouse. In 1990 a drum crusher was installed. The drum crusher was removed in 2000. The facility has been a RCRA 90-Day pad used primarily for the storage of used light bulb for the last 8 years. During this time the building also housed several Material Stewardship support personnel in the office/break room on the north side of the building. Building 554 had the floor raised about 4 feet in the east half of the original structure in 1956. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Building 556**

Building 556 was originally constructed as a welding shop and continued to operate as a welding shop until the late 1980s when the welding equipment was removed. Then the building was used as a general maintenance building. From approximately 1996 to 2000 the building was used as a Radcon support building. The Radcon support group did store sealed sources in a RMA in the building. None of the sources were known to have leaked and there was no building contamination associated with this activity. In 2002 the building began being used for welding training of D&D workers. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

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**Building 679, and 680**

Building 679 and 680 are electrical transformers installed in 1996. These are non-PCB transforms and have no history of leaking. The transformers are located on a 500 sq. ft. concrete pad, which also acts as a secondary containment pad. These transformers were installed to re-place transformers 555 and 558. Building 679 and 680 were constructed on the site of the old transformers 555 and 558. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Building 681**

Building 681 is a high voltage electrical switchgear building constructed in 1996. The equipment in this building has never contained PCBs or lead. The northeast corner of the building contains lead-acid batteries used for system back up. The batteries have no history of leaking. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**750 HAZ Pad (a.k.a. RCRA Unit 1)**

The 750 HAZ Pad is a fenced in RCRA storage area (RCRA Unit 1). The 750 HAZ Pad storage yard houses several heated storage containers used to store RCRA/Low-Level Mixed Waste. Originally the area was used to storage scrap metal which on occasion was found to contain low levels of contamination. A detailed history of the area currently called the 750 HAZ Pad is documented in PAS 500-903 and IHSS 500-197 "Scrap Metal Site 551". Although there have been release inside the storage containers in RCRA Unit 1, there have been no known release to the environment since RCRA Unit 1 was established. See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

See the "Environmental Concerns" section below for IHSSs and PACs associated with this building.

**Current Operational Status**

Building 223 is still operational. Building 223A is currently used to store CERCLA investigative derived waste. Building 549 is currently being used as a fitness center. The 551 Pad is currently being used as a permitted RCRA Storage Unit. Building 552 is currently being used as a gas cylinder storage and receiving building. Building 553 is currently empty. Building 554 is currently being used as a RCRA 90-Day storage area for collecting used light bulbs. Building 556 is currently being used for welding training. Building 679 is currently an operational transformer. Building 680 is currently an operational transformer. Building 681 is currently an operational switchgear building. The 750 HAZ Pad is currently an operational permitted RCRA Storage Unit.

**Contaminants of Concern**

**Asbestos**

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

Buildings 223A, 549, 552, 553, and 554 are posted as potentially containing asbestos. None of the facilities in this HSA have had a comprehensive asbestos survey.

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**Beryllium (Be)**

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

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

*Summarize any recent Be sampling results:*

No recent Be samples collected on any of these facilities.

**Lead**

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

Lead in paint and lead in electrical equipment may be a concern for some of the facilities in this HSA due to the age of construction. Lead shielding was temporarily used in Building 549 and 556 when these building were used to support southside Radcon operations. The lead shielding was removed when the Radcon operations ended.

See the section below for RCRA/CERCLA constituents for lead in waste stream references related to these buildings.

**RCRA/CERCLA Constituents**

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

Building 553 was originally constructed as the site Chemical Receiving and Storage Facility and operated as the chemical receiving building until the late 1970s. Building 554 was the original Radiological Shipping and Receiving Facility until Building 440 was built in the early 1970s.

The 551 Pad and the 750 HAZ Pad are permitted RCRA units and will be closed in accordance with the Site RCRA Closure Plan.

See the "Historical Operations" section above for a detailed description of the operation which occurred in each facility addressed in this HSA. See the Building specific WSRIC for more detailed listing of the waste streams associated with each building addressed in this HSA.

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

Additional RCRA/CERCLA release information is documented in the IHSS, PAC, and UBC section below.

*Describe methods in which spills were mitigated, if any:*

Spills were cleaned up to the standards of the day.

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**PCBs**

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

Due to the age of some of these facilities, there may be a concern with PCBs in paint, light ballasts, and electrical equipment. PCBs were not known to have been regularly handled in any of these facilities.

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

No known PCB spills occurred in any of the facilities addressed in this HSA. However, Building 549 is located approximately 20 feet south of PAC 500-904 "Transformer leak 223-1/223-2". In addition, Building 679 and 680 were constructed on the old 555 and 558 transformer site which are currently PAC 500-901 and 500-903.

*Describe methods in which spills were mitigated, if any:*

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

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**Radiological Contaminants**

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

None of the buildings in this HSA are radiologically posted. Building 554 was the original Radiological Shipping and Receiving Building. Interviews indicate, that on occasion, contamination from the exterior of the drums were detected on the floor of Building 554. Today there is no indication of contamination remaining in Building 554.

Building 552, on occasion, received contaminated cylinders from the process buildings. Interviews indicate that in the past there was occasionally contamination found on the floor of Building 552 (in storage bays 3 and 4) from the exterior of the contaminated cylinders. Today there is no indication of contamination remaining in the building.

See the "Historical Operations" section above for a detailed description of the operation which occurred in each facility addressed in this HSA. See the Building specific WSRIC for more detailed listing of the waste streams associated with each building addressed in this HSA.

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

Additional RCRA/CERCLA release information is documented in the IHSS, PAC, and UBC section below. The 551 Pad and the 750 HAZ Pad are located on IHSSs. See section below for information on IHSSs PACs, and UBCs.

*Describe methods in which spills were mitigated, If any:*

Spills were cleaned up to the standards of the day.

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

The primary Isotope of concern includes, but is not limited to uranium and plutonium. Other than sealed sources, there were no known mixed fission products or pure beta emitters used in any of the facilities addressed in this HSA.

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

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

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**Environmental Restoration Concerns**

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

Building 223 is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) PAC 300-156.1 "Building 371 Parking lot", NFA approved in 2001.

Building 223A is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) PAC 500-117.1 "North Chemical Site Storage", Active.

Building 549 is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) PAC 300-186 "Valve Vault 12", Active.
- 2) PAC 500-117.1 "North Chemical Site Storage", Active.
- 3) PAC 500-904 "Transformer Leak -223-1/223-2"; Active.

The 551 Pad is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) PAC 500-117.2 "Middle Site Chemical Site Storage", Active.
- 2) PAC 500-169 "Waste Drum Peroxide Burial", Proposed NFA in 1998 HRR Annual Update.

Building 552 is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) PAC 300-186 "Valve Vault 12", Active.

Building 553 associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) IHSS 300-158 "Radioactive site - Building 551", Active.

Building 554 associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) IHSS 300-158 "Radioactive site - Building 551", Active.

Building 556 associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) IHSS 300-158 "Radioactive site - Building 551", Active.

Building 679, 680 and 681 associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) IHSS 500-901 "Transformer Leak - 555", Proposed NFA 1996 Annual Update.

The 750 HAZ Pad is associated with or located near the following active IHSSs, PACs, and UBCs;

- 1) IHSS 500-197 "Scrap Metal Site", Active.
- 2) PAC 500- 903 "RCRA Storage Unit 1, NFA approved 1992"



# ATTACHMENT C

## Radiological Data Summaries and Survey Maps

**SURVEY UNIT 549-A-001  
RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: B549 (Interior)**

549-A-001  
PDS Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	55	61		55	61
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-13.1	dpm/100 cm <sup>2</sup>	MIN	-2.1	dpm/100 cm <sup>2</sup>
MAX	50.6	dpm/100 cm <sup>2</sup>	MAX	2.7	dpm/100 cm <sup>2</sup>
MEAN	7.4	dpm/100 cm <sup>2</sup>	MEAN	-0.7	dpm/100 cm <sup>2</sup>
STD DEV	13.5	dpm/100 cm <sup>2</sup>	STD DEV	1.3	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>

**SURVEY UNIT 549-A-001  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech						
Model:	DP-6						
Instrument ID#:	1	2	3	4	5	6	7
Serial #:	2391	3115	1379	1261	1241	1366	2344
Cal Due Date:	7/10/03	6/4/03	6/3/03	6/19/03	5/11/03	6/26/03	7/16/03
Analysis Date:	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03	2/3/03
Alpha Eff. (c/d):	0.222	0.228	0.214	0.207	0.217	0.219	0.224
Alpha Bkgd (cpm)	4.7	1.0	1.3	0.0	0.7	4.7	2.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	4	1.3	6.3	0.0	0.0	-10.2
2	4	2.0	9.7	0.7	3.4	-6.8
3	3	2.7	12.6	4.7	22.0	-3.9
4	4	2.0	9.7	1.3	6.3	-6.8
5	4	0.7	3.4	0.0	0.0	-13.1
6	3	3.3	15.4	2.7	12.6	-1.1
7	3	2.7	12.6	4.7	22.0	-3.9
8	3	2.7	12.6	2.7	12.6	-3.9
9	3	3.3	15.4	2.7	12.6	-1.1
10	3	7.3	34.1	8.0	37.4	17.6
11	4	6.0	29.0	4.0	19.3	12.5
12	3	4.7	22.0	2.7	12.6	5.5
13*	3	3.3	15.4	2.7	12.6	-1.1
14	3	4.7	22.0	6.7	31.3	5.5
15	3	4.0	18.7	0.7	3.3	2.2
16	6	2.7	12.3	4.7	21.5	-4.2
17	4	4.0	19.3	0.0	0.0	2.8
18	4	2.0	9.7	2.7	13.0	-6.8
19	6	10.7	48.9	5.3	24.2	32.3
20	4	2.0	9.7	2.7	13.0	-6.8
21	4	3.3	15.9	1.3	6.3	-0.6
22	6	8.0	36.5	4.7	21.5	20.0
23	6	6.7	30.6	8.0	36.5	14.1
24	4	8.7	42.0	2.0	9.7	25.5
25	6	10.7	48.9	6.7	30.6	32.3
26*	4	3.3	15.9	4.0	19.3	-0.6
27	1	6.7	30.2	6.7	30.2	13.7
28	7	4.0	17.9	4.7	21.0	1.3
29	2	9.3	40.8	2.0	8.8	24.3
30	2	9.3	40.8	5.3	23.2	24.3
31	4	3.3	15.9	3.3	15.9	-0.6
32	6	11.3	51.6	2.0	9.1	35.1
33	5	3.3	15.2	4.0	18.4	-1.3
34	6	8.0	36.5	4.7	21.5	20.0
35	5	5.3	24.4	2.7	12.4	7.9
36	7	6.7	29.9	5.3	23.7	13.4
37	5	4.0	18.4	3.3	15.2	1.9
38	5	5.3	24.4	1.3	6.0	7.9
39	5	3.3	15.2	2.7	12.4	-1.3
40	5	4.0	18.4	3.3	15.2	1.9

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**SURVEY UNIT 549-A-001  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) <sup>1,2</sup>
41	4	4.7	22.7	2.0	9.7	6.2
42	1	6.0	27.0	6.0	27.0	10.5
43	1	7.3	32.9	6.0	27.0	16.4
44	2	8.0	35.1	7.3	32.0	18.6
45	6	10.7	48.9	6.7	30.6	32.3
46	6	7.3	33.3	6.7	30.6	16.8
47	2	5.3	23.2	7.3	32.0	6.7
48	2	8.7	38.2	6.0	26.3	21.6
49	4	2.0	9.7	2.7	13.0	-6.8
50	4	1.3	6.3	3.3	15.9	-10.2
51	1	8.7	39.2	6.0	27.0	22.7
52	4	4.7	22.7	1.7	8.2	6.2
53	4	2.7	13.0	2.0	9.7	-3.5
54	7	9.3	41.5	3.3	14.7	25.0
55	6	14.7	67.1	4.0	18.3	50.6
1 under carpet	4	2.7	13.0	0.7	3.4	-3.5
2 under carpet	4	3.3	15.9	0.7	3.4	-0.6
3 under carpet	3	4.0	18.7	2.7	12.6	2.2
4 under carpet	4	3.7	17.9	1.3	6.3	1.4
5 under carpet	4	3.3	15.9	2.0	9.7	-0.6
20 under carpet	4	2.0	9.7	2.7	13.0	-6.8

1 - Average LAB used to subtract from Gross Sample Activity

16.5	Sample LAB Average
MIN	-13.1
MAX	50.6
MEAN	7.4
SD	13.5
Transuranic DCGL <sub>W</sub>	100

**QC Measurements**

1 QC	6	2.7	12.3	6.7	30.6	-7.5
32 QC	4	9.0	43.5	2.0	9.7	23.6
55 QC	4	10.7	51.7	4.0	19.3	31.8

1 - Average QC LAB used to subtract from Gross Sample Activity

19.9	QC LAB Average
MIN	-7.5
MAX	31.8
MEAN	16.0
Transuranic DCGL <sub>W</sub>	100

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**SURVEY UNIT 549-A-001  
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	8	9	10	11
Serial #:	767	1164	833	952
Cal Due Date:	5/13/03	6/17/03	2/28/03	7/9/03
Analysis Date:	2/3/03	2/3/03	2/3/03	2/3/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.6	0.3	0.7	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm <sup>2</sup> )	9.0	9.0	9.0	9.0

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	12	13	14	15
Serial #:	767	1164	833	952
Cal Due Date:	5/13/03	6/17/03	2/28/03	7/9/03
Analysis Date:	2/4/03	2/4/03	2/4/03	2/4/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.1	0.5	0.0
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm <sup>2</sup> )	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	8	1	-0.3
2	9	0	-0.9
3	10	0	-2.1
4	11	0	-2.1
5	8	2	1.2
6	9	0	-0.9
7	10	0	-2.1
8	11	0	-2.1
9	8	1	-0.3
10	9	0	-0.9
11	10	0	-2.1
12	11	0	-2.1
13	8	2	1.2
14	9	0	-0.9
15	10	1	-0.6
16	11	2	0.9
17	8	1	-0.3
18	9	0	-0.9
19	10	0	-2.1
20	11	0	-2.1
21	8	1	-0.3
22	9	0	-0.9
23	10	2	0.9
24	11	0	-2.1
25	8	1	-0.3
26	9	0	-0.9
27	10	0	-2.1
28	11	0	-2.1
29	8	3	2.7
30	9	0	-0.9
31	10	0	-2.1
32	11	0	-2.1
33	8	1	-0.3
34	9	0	-0.9
35	10	2	0.9
36	11	0	-2.1
37	12	2	2.7
38	13	0	-0.3
39	14	0	-1.5

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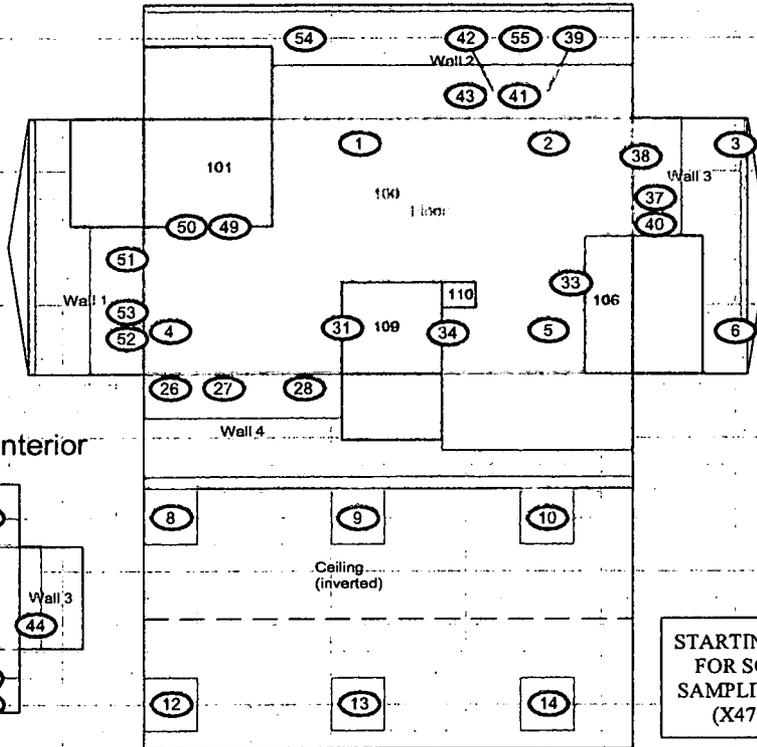
**SURVEY UNIT 549-A-001  
RSC - DATA SUMMARY**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
40	15	0	-1.5
41	12	0	-0.3
42	13	0	-0.3
43	14	0	-1.5
44	15	0	-1.5
45	12	1	1.2
46	13	0	-0.3
47	14	0	-1.5
48	15	1	0.0
49	12	2	2.7
50	13	0	-0.3
51	14	0	-1.5
52	15	0	-1.5
53	12	0	-0.3
54	13	0	-0.3
55	14	0	-1.5
1c	12	2	2.7
2c	13	0	-0.3
3c	13	0	-0.3
4c	14	0	-1.5
5c	15	0	-1.5
20c	12	0	-0.3
		MIN	-2.1
		MAX	2.7
		MEAN	-0.7
		SD	1.3
		Transuranic DCGL <sub>W</sub>	20

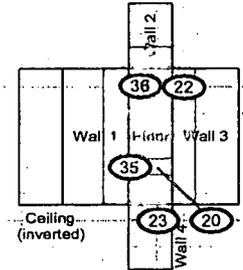
**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 549-A-001      Classification: 3  
 Building: 549  
 Survey Unit Description: Interior of Building  
 Total Area: 817 sq. m.      Total Floor Area: 168 sq. m.  
 Grid Spacing for Survey Points: 7 m. X 7 m.

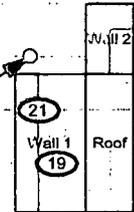
**549 Interior**



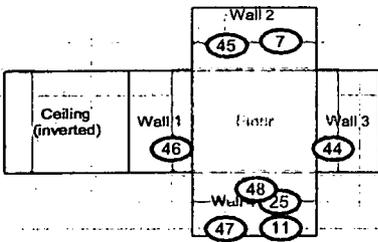
**Rm 106 Interior**



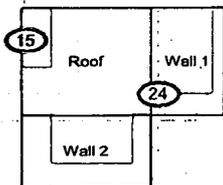
**Rm 106-Exterior**



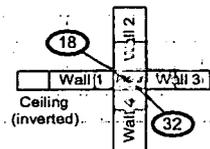
**Rm 101 Interior**



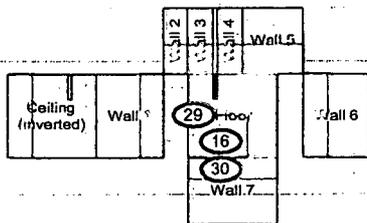
**Rm 101 Exterior**



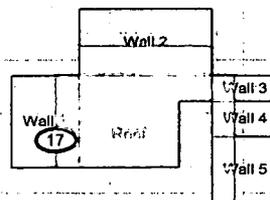
**Rm 110 Interior**



**Rm 109 Interior**



**Rm 109/110 Exterior**

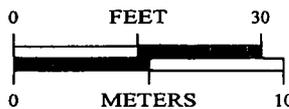


☐ Scan Area

**SURVEY MAP LEGEND**

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

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1 inch = 24 feet    1 grid sq. = 1 sq. m.

**Scan Survey Information**  
 Survey Instrument ID #(s): 1.2.5.7  
 RCT ID #(s): 1.2.5.7

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: 02-0589/549-IN2-Scn

Feb. 11, 2003

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**SURVEY UNIT 549-B-004  
RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: B549 (Exterior)**

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549-B-004  
PDS Data Summary

Total Surface Activity Measurements

19	19
Number Required	Number Obtained

MIN	1.5	dpm/100 cm <sup>2</sup>
MAX	98.0	dpm/100 cm <sup>2</sup>
MEAN	47.8	dpm/100 cm <sup>2</sup>
STD DEV	31.3	dpm/100 cm <sup>2</sup>

TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>
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Removable Activity Measurements

19	19
Number Required	Number Obtained

MIN	-1.2	dpm/100 cm <sup>2</sup>
MAX	2.4	dpm/100 cm <sup>2</sup>
MEAN	-0.2	dpm/100 cm <sup>2</sup>
STD DEV	1.0	dpm/100 cm <sup>2</sup>

TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>
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**SURVEY UNIT 549-B-004  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	5	6	7
Serial #:	1429	1366	1366	3126
Cal Due Date:	5/11/03	6/26/03	6/26/03	6/4/03
Analysis Date:	1/9/03	1/9/03	2/12/03	2/12/03
Alpha Eff. (c/d):	0.210	0.219	0.219	0.224
Alpha Bkgd (cpm)	1.3	2.0	2.0	2.7
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	7	22.0	98.2	4.7	21.0	80.7
2	1	4.0	19.0	4.0	19.0	1.5
3	6	18.7	85.4	4.0	18.3	67.9
4	6	23.7	108.2	4.7	21.5	90.7
5	6	18.7	85.4	6.0	27.4	67.9
6	1	9.3	44.3	3.3	15.7	26.8
7	6	18.0	82.2	2.0	9.1	64.7
8	5	17.3	79.0	5.3	24.2	61.5
9	7	20.3	90.6	1.3	5.8	73.1
10	7	11.3	50.4	2.7	12.1	32.9
11	6	25.3	115.5	6.0	27.4	98.0
12	7	17.3	77.2	8.0	35.7	59.7
13	6	20.7	94.5	5.3	24.2	77.0
14	1	10.0	47.6	0.7	3.3	30.1
15	5	12.7	58.0	8.0	36.5	40.5
16	1	4.7	22.4	2.7	12.9	4.9
17	1	6.7	31.9	1.3	6.2	14.4
18	1	6.0	28.6	1.3	6.2	11.1
19	1	4.7	22.4	1.3	6.2	4.9

1 - Average LAB used to subtract from Gross Sample Activity

17.5	Sample LAB Average
MIN	1.5
MAX	98.0
MEAN	47.8
SD	31.3
Transuranic DCGL <sub>W</sub>	100

**QC Measurements**

14 QC	5	12.7	58.0	4.0	18.3	35.2
17 QC	5	15.3	69.9	6.0	27.4	47.0

1 - Average QC LAB used to subtract from Gross Sample Activity

22.8	QC LAB Average
MIN	35.2
MAX	47.0
MEAN	41.1
Transuranic DCGL <sub>W</sub>	100

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**SURVEY UNIT 549-B-004  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	9	10	11	12
<b>Serial #:</b>	767	1164	833	952
<b>Cal Due Date:</b>	5/13/03	6/17/03	2/28/03	7/9/03
<b>Analysis Date:</b>	2/12/03	2/12/03	2/12/03	2/12/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.2	0.4	0.2	0.0
<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>	9.0	9.0	9.0	9.0

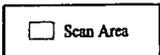
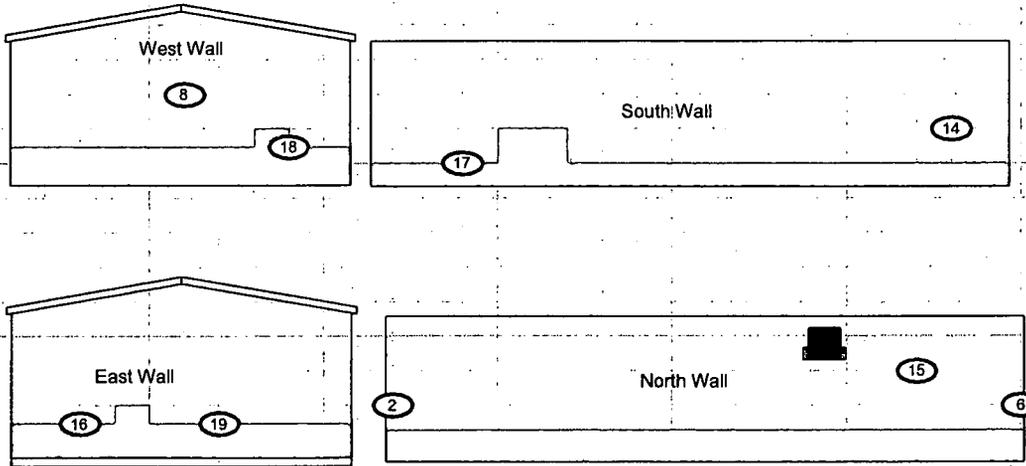
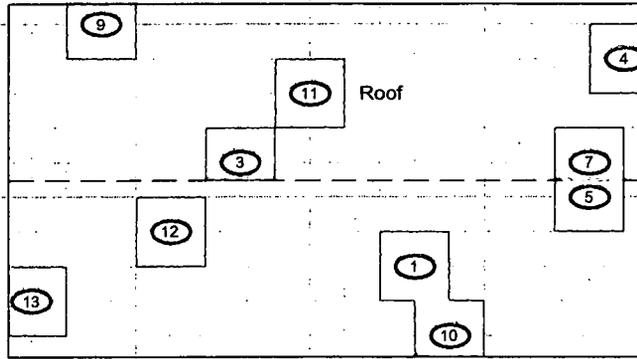
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	9	1	0.9
2	10	0	-1.2
3	11	1	0.9
4	12	0	-0.6
5	9	0	-0.6
6	10	0	-1.2
7	11	0	-0.6
8	12	2	2.4
9	9	0	-0.6
10	10	0	-1.2
11	11	0	-0.6
12	12	1	0.9
13	9	0	-0.6
14	10	0	-1.2
15	11	0	-0.6
16	12	0	-0.6
17	9	1	0.9
18	10	0	-1.2
19	11	1	0.9
		<b>MIN</b>	-1.2
		<b>MAX</b>	2.4
		<b>MEAN</b>	-0.2
		<b>SD</b>	1.0
		<b>Transuranic DCGL<sub>sv</sub></b>	20

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**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 549-B-004      Classification: 3  
 Building: 549  
 Survey Unit Description: Exterior of Building  
 Total Area: 436 sq. m.      Total Roof Area: 187 sq. m.

549 Exterior.



<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 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 style="text-align: center;">N ↑</p>	<p style="text-align: center;">0      FEET      25</p> <hr style="width: 100%;"/> <p style="text-align: center;">0      METERS      8</p>	<p style="text-align: center;">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-868-7707      Prepared for:</p> <p style="text-align: center;"><b>DynCorp</b> THE ART OF TECHNOLOGY</p> <p style="text-align: center;">MAP ID: 02-0589/549-EX</p>

**SURVEY UNIT 554-B-006**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: B554 (Interior & Exterior)**

554-B-006  
PDS Data Summary

**Total Surface Activity Measurements**

55	55
Number Required	Number Obtained

MIN	-12.3	dpm/100 cm <sup>2</sup>
MAX	63.7	dpm/100 cm <sup>2</sup>
MEAN	15.4	dpm/100 cm <sup>2</sup>
STD DEV	17.1	dpm/100 cm <sup>2</sup>

TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>
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**Removable Activity Measurements**

55	55
Number Required	Number Obtained

MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX	8.8	dpm/100 cm <sup>2</sup>
MEAN	0.8	dpm/100 cm <sup>2</sup>
STD DEV	2.5	dpm/100 cm <sup>2</sup>

TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>
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**SURVEY UNIT 554-B-006  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech				
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	3	4	5	6	7
Serial #:	1425	1366	1429	1366	1366
Cal Due Date:	6/13/03	6/26/03	5/11/03	6/26/03	6/26/03
Analysis Date:	1/9/03	1/9/03	1/9/03	1/10/03	1/10/03
Alpha Eff. (c/d):	0.210	0.219	0.210	0.219	0.219
Alpha Bkgd (cpm)	0.7	2.0	1.3	2.0	2.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	8	9	12	15
Serial #:	1425	3125	1379	3125
Cal Due Date:	6/13/03	4/21/03	6/3/03	4/21/03
Analysis Date:	1/10/03	1/10/03	1/13/03	1/15/03
Alpha Eff. (c/d):	0.210	0.216	0.229	0.216
Alpha Bkgd (cpm)	2.7	1.0	3.3	2.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	5	6.0	28.6	1.3	6.2	10.1
2	4	12.7	58.0	6.0	27.4	39.5
3	15	3.3	15.3	4.7	21.8	-3.2
4	12	5.3	23.1	2.0	8.7	4.7
5	5	6.7	31.9	2.7	12.9	13.4
6	12	4.7	20.5	4.7	20.5	2.1
7	15	4.0	18.5	2.7	12.5	0.0
8	8	11.3	53.8	4.7	22.4	35.3
9	5	1.3	6.2	2.0	9.5	-12.3
10	5	2.7	12.9	2.0	9.5	-5.6
11	4	18.0	82.2	8.0	36.5	63.7
12	4	12.7	58.0	7.3	33.3	39.5
13	7	6.7	30.6	8.0	36.5	12.1
14	7	15.3	69.9	3.3	15.1	51.4
15	12	4.7	20.5	1.3	5.7	2.1
16	5	14.0	66.7	2.0	9.5	48.2
17	5	6.0	28.6	0.7	3.3	10.1
18	5	4.0	19.0	2.0	9.5	0.6
19	6	17.3	79.0	6.7	30.6	60.5
20	12	2.7	11.8	3.3	14.4	-6.7
21	15	4.0	18.5	2.0	9.3	0.0
22	15	8.0	37.0	2.0	9.3	18.6
23	15	8.0	37.0	4.0	18.5	18.6
24	12	8.7	38.0	2.4	10.5	19.5
25	5	7.3	34.8	2.0	9.5	16.3
26	3	4.0	19.0	4.7	22.4	0.6
27	3	8.7	41.4	4.7	22.4	23.0
28	4	6.7	30.6	6.0	27.4	12.1
29	3	6.7	31.9	3.3	15.7	13.4
30	3	15.3	72.9	5.3	25.2	54.4
31	3	4.7	22.4	4.0	19.0	3.9
32	3	9.3	44.3	4.7	22.4	25.8

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**SURVEY UNIT 554-B-006  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech				
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	3	4	5	6	7
Serial #:	1425	1366	1429	1366	1366
Cal Due Date:	6/13/03	6/26/03	5/11/03	6/26/03	6/26/03
Analysis Date:	1/9/03	1/9/03	1/9/03	1/10/03	1/10/03
Alpha Eff. (c/d):	0.210	0.219	0.210	0.219	0.219
Alpha Bkgd (cpm)	0.7	2.0	1.3	2.0	2.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	8	9	12	15
Serial #:	1425	3125	1379	3125
Cal Due Date:	6/13/03	4/21/03	6/3/03	4/21/03
Analysis Date:	1/10/03	1/10/03	1/13/03	1/15/03
Alpha Eff. (c/d):	0.210	0.216	0.229	0.216
Alpha Bkgd (cpm)	2.7	1.0	3.3	2.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	5	6.0	28.6	1.3	6.2	10.1
2	4	12.7	58.0	6.0	27.4	39.5
3	15	3.3	15.3	4.7	21.8	-3.2
4	12	5.3	23.1	2.0	8.7	4.7
5	5	6.7	31.9	2.7	12.9	13.4
6	12	4.7	20.5	4.7	20.5	2.1
7	15	4.0	18.5	2.7	12.5	0.0
8	8	11.3	53.8	4.7	22.4	35.3
9	5	1.3	6.2	2.0	9.5	-12.3
10	5	2.7	12.9	2.0	9.5	-5.6
11	4	18.0	82.2	8.0	36.5	63.7
12	4	12.7	58.0	7.3	33.3	39.5
13	7	6.7	30.6	8.0	36.5	12.1
14	7	15.3	69.9	3.3	15.1	51.4
15	12	4.7	20.5	1.3	5.7	2.1
16	5	14.0	66.7	2.0	9.5	48.2
17	5	6.0	28.6	0.7	3.3	10.1
18	5	4.0	19.0	2.0	9.5	0.6
19	6	17.3	79.0	6.7	30.6	60.5
20	12	2.7	11.8	3.3	14.4	-6.7
21	15	4.0	18.5	2.0	9.3	0.0
22	15	8.0	37.0	2.0	9.3	18.6
23	15	8.0	37.0	4.0	18.5	18.6
24	12	8.7	38.0	2.4	10.5	19.5
25	5	7.3	34.8	2.0	9.5	16.3
26	3	4.0	19.0	4.7	22.4	0.6
27	3	8.7	41.4	4.7	22.4	23.0
28	4	6.7	30.6	6.0	27.4	12.1
29	3	6.7	31.9	3.3	15.7	13.4
30	3	15.3	72.9	5.3	25.2	54.4
31	3	4.7	22.4	4.0	19.0	3.9
32	3	9.3	44.3	4.7	22.4	25.8

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**SURVEY UNIT 554-B-006  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
33	4	11.3	51.6	5.3	24.2	33.1
34	3	7.3	34.8	3.3	15.7	16.3
35	3	6.7	31.9	4.7	22.4	13.4
36	4	8.7	39.7	8.0	36.5	21.3
37	3	5.3	25.2	4.7	22.4	6.8
38	3	6.7	31.9	8.0	38.1	13.4
39	3	6.7	31.9	4.7	22.4	13.4
40	3	6.0	28.6	5.3	25.2	10.1
41	4	5.3	24.2	6.0	27.4	5.7
42	3	6.0	28.6	0.0	0.0	10.1
43	3	6.0	28.6	4.7	22.4	10.1
44	3	4.0	19.0	6.0	28.6	0.6
45	4	11.3	51.6	4.0	18.3	33.1
46	4	8.7	39.7	4.3	19.6	21.3
47	7	7.3	33.3	4.0	18.3	14.9
48	8	4.7	22.4	4.0	19.0	3.9
49	8	8.0	38.1	4.7	22.4	19.6
50	8	6.0	28.6	2.7	12.9	10.1
51	8	4.0	19.0	2.7	12.9	0.6
52	8	5.3	25.2	3.3	15.7	6.8
53	8	5.3	25.2	2.7	12.9	6.8
54	9	5.3	24.5	3.3	15.3	6.1
55	9	3.3	15.3	1.3	6.0	-3.2

1 - Average LAB used to subtract from Gross Sample Activity

18.5	Sample LAB Average
MIN	-12.3
MAX	63.7
MEAN	15.4
SD	17.1
Transuranic DCGL <sub>AV</sub>	100

**QC Measurements**

1QC	9	3.3	15.3	2.0	9.3	-3.2
30QC	12	4.7	20.5	2.0	8.7	2.1
11QC	15	6.7	31.0	3.3	15.3	12.5

1 - Average QC LAB used to subtract from Gross Sample Activity

11.1	QC LAB Average
MIN	-3.2
MAX	12.5
MEAN	3.8
Transuranic DCGL <sub>AV</sub>	100

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**SURVEY UNIT 554-B-006  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	10	13	14
<b>Serial #:</b>	767	767	1164
<b>Cal Due Date:</b>	5/13/03	5/13/03	6/17/03
<b>Analysis Date:</b>	1/10/03	1/13/03	1/13/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.3	0.1
<b>Sample Time (min)</b>	2	2	2
<b>Bkgd Time (min)</b>	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	13	0	-0.9
2	10	0	-0.3
3	14	0	-0.3
4	14	0	-0.3
5	10	0	-0.3
6	13	0	-0.9
7	14	0	-0.3
8	13	0	-0.9
9	10	0	-0.3
10	13	0	-0.9
11	10	0	-0.3
12	10	6	8.8
13	13	0	-0.9
14	13	0	-0.9
15	13	1	0.6
16	10	2	2.7
17	10	0	-0.3
18	10	3	4.2
19	14	1	1.2
20	14	0	-0.3
21	13	0	-0.9
22	14	0	-0.3
23	13	0	-0.9
24	14	0	-0.3
25	10	0	-0.3
26	10	0	-0.3
27	10	0	-0.3
28	10	0	-0.3
29	10	0	-0.3
30	10	6	8.8
31	10	0	-0.3
32	10	0	-0.3
33	10	0	-0.3
34	10	0	-0.3
35	10	3	4.2
36	10	0	-0.3
37	10	0	-0.3
38	10	3	4.2
39	10	0	-0.3

45

**SURVEY UNIT 554-B-006  
RSC - DATA SUMMARY**

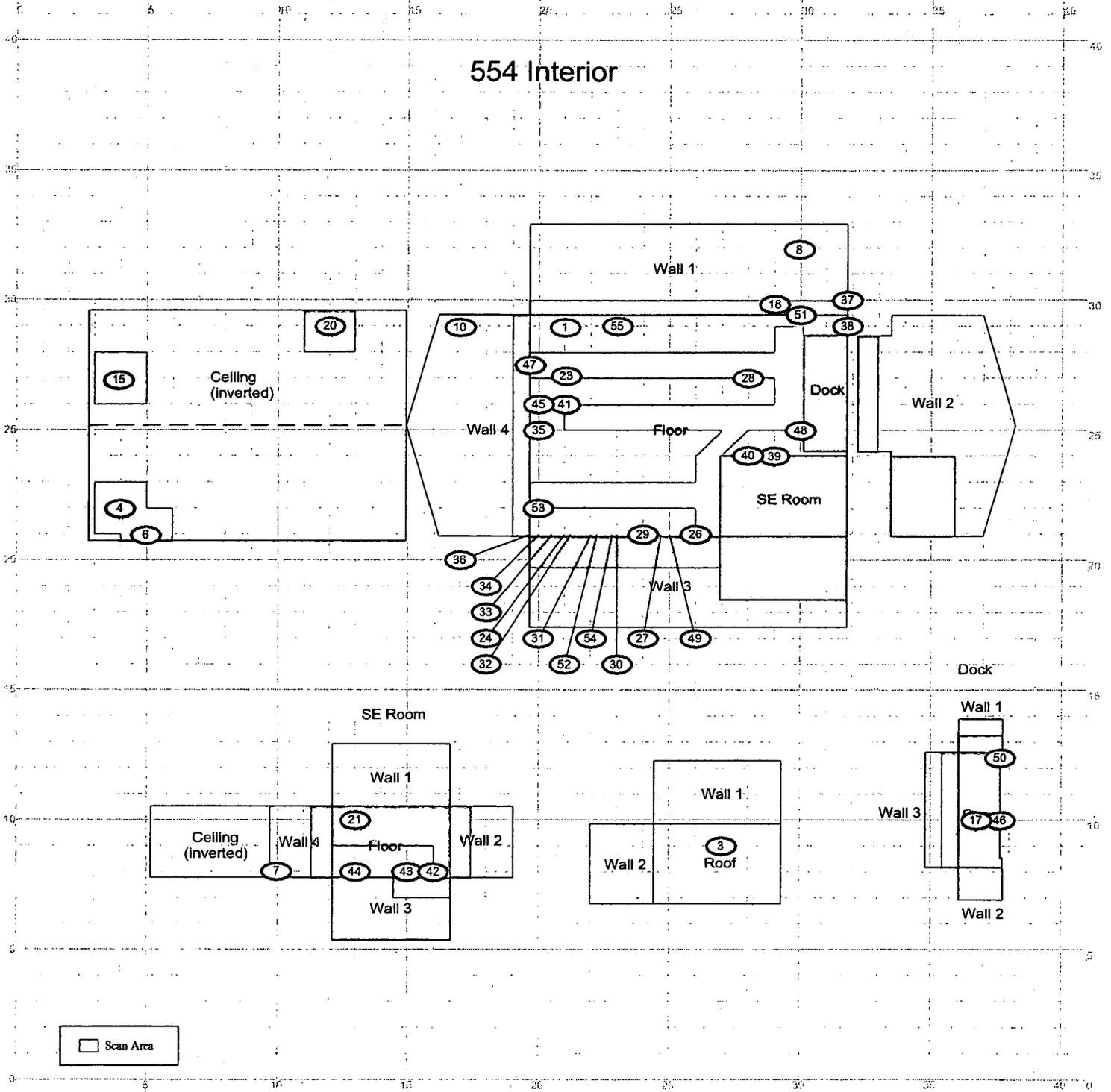
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
40	10	0	-0.3
41	10	0	-0.3
42	10	0	-0.3
43	10	0	-0.3
44	10	3	4.2
45	10	0	-0.3
46	10	0	-0.3
47	10	0	-0.3
48	10	0	-0.3
49	10	0	-0.3
50	10	3	4.2
51	10	0	-0.3
52	10	0	-0.3
53	10	3	4.2
54	10	3	4.2
55	10	6	8.8
		<b>MIN</b>	-0.9
		<b>MAX</b>	8.8
		<b>MEAN</b>	0.8
		<b>SD</b>	2.5
		<b>Transuranic DCGL<sub>w</sub></b>	20

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**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 554-B-006      Classification: 3  
 Building: 554  
 Survey Unit Description: Interior of Building  
 Total Area: 441 sq. m.      Total Floor Area: 100 sq. m.

554 Interior

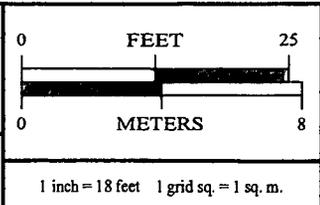


**SURVEY MAP LEGEND**

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

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**Scan Survey Information**  
 Survey Instrument ID #(s): 1,2,7,8  
 RCT ID #(s): 1,2,7,8



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

Prepared by: GIS Dept. 303-866-7707      Prepared for:

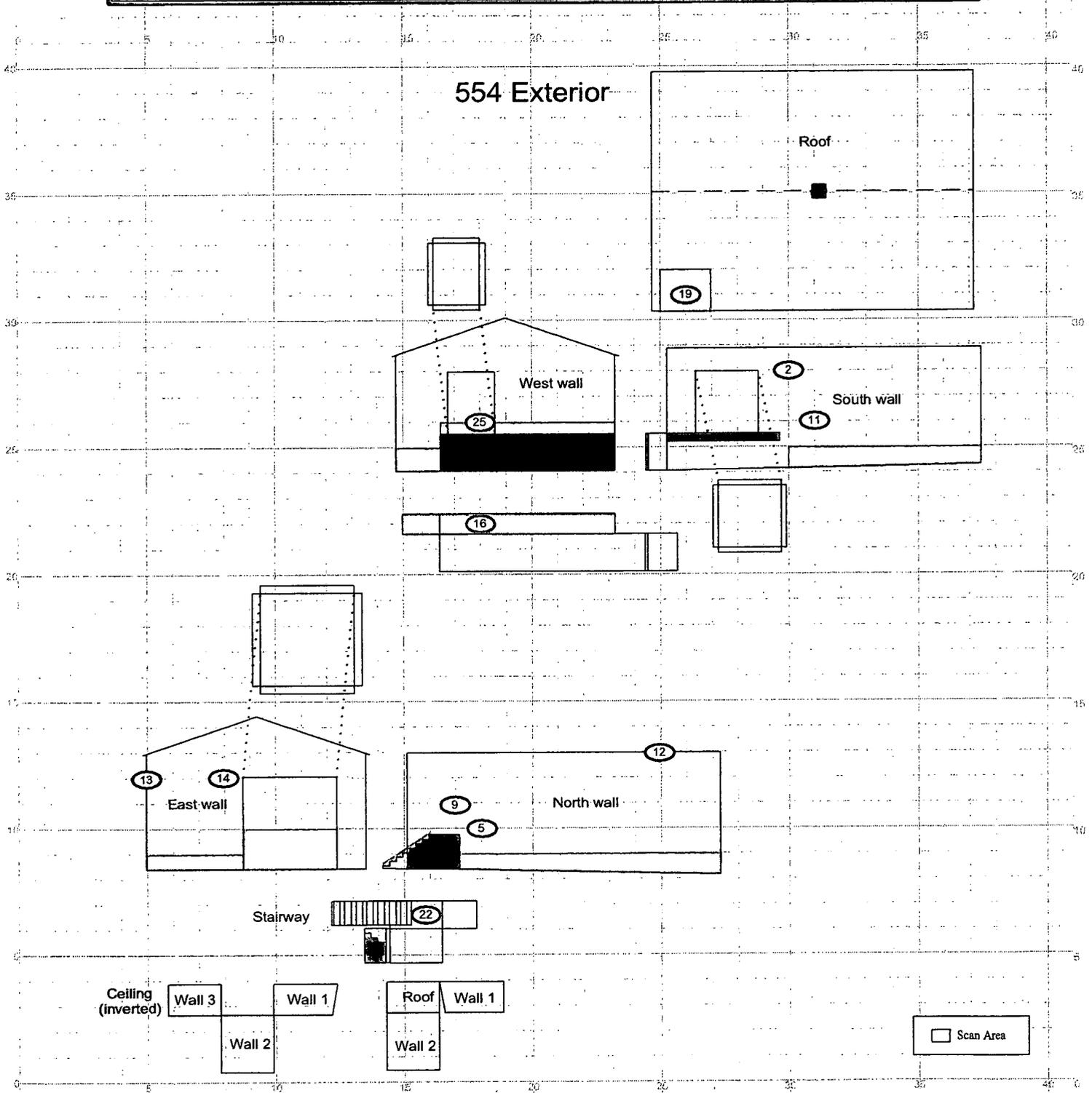
**DynCorp**  
 THE ART OF TECHNOLOGY

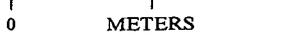
MAP ID: 02-0589/554-IN      January 27, 2003

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**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 554-B-006      Classification: 3  
 Building: 554  
 Survey Unit Description: Exterior of Building  
 Total Area: 248 sq. m.      Total Roof Area: 120 sq. m.



<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 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><b>Scan Survey Information</b>                  Survey Instrument ID #(s): 1,2,7,8                  RCT ID #(s): 1,2,7,8</p>	<p style="text-align: center;">N ↑</p> <p style="text-align: center;">0      FEET      25                    0      METERS      8  </p> <p style="text-align: center;">1 inch = 18 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. 303-966-7707      Prepared for:</p> <p style="text-align: center;"><b>DynCorp</b>                  THE ART OF TECHNOLOGY</p> <p style="text-align: center;">MAP ID: 02-0589/554-EX      January 27, 2003</p>
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**SURVEY UNIT 556-B-007**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: B556(Interior and Exterior)**

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556-B-007  
PDS Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	36	41		36	41
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-11.6	dpm/100 cm <sup>2</sup>	MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX	92.1	dpm/100 cm <sup>2</sup>	MAX	3.0	dpm/100 cm <sup>2</sup>
MEAN	9.5	dpm/100 cm <sup>2</sup>	MEAN	0.3	dpm/100 cm <sup>2</sup>
STD DEV	22.9	dpm/100 cm <sup>2</sup>	STD DEV	1.1	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 556-B-007  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	9
Serial #:	2344	1261	3115	1366
Cal Due Date:	7/16/03	6/19/03	6/4/03	6/26/03
Analysis Date:	2/5/03	2/5/03	2/5/03	2/13/03
Alpha Eff. (c/d):	0.224	0.207	0.228	0.219
Alpha Bkgd (cpm)	1.3	2.0	2.7	2.7
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	2	3.3	15.9	8.0	38.6	-1.5
2	2	4.0	19.3	4.0	19.3	1.9
3	1	3.3	14.7	8.0	35.7	-2.7
4	2	5.3	25.6	0.7	3.4	8.2
5	2	8.7	42.0	2.0	9.7	24.6
6	2	6.7	32.4	0.7	3.4	14.9
7	1	4.0	17.9	4.7	21.0	0.4
8	1	6.7	29.9	6.0	26.8	12.5
9	1	6.0	26.8	6.7	29.9	9.3
10	1	6.0	26.8	4.7	21.0	9.3
11	9	18.0	82.2	5.3	24.2	64.7
12	9	22.0	100.5	6.7	30.6	83.0
13	9	24.0	109.6	7.3	33.3	92.1
14	1	1.3	5.8	4.7	21.0	-11.6
15	2	2.7	13.0	2.0	9.7	-4.4
16	2	3.3	15.9	3.3	15.9	-1.5
17	2	5.3	25.6	4.7	22.7	8.2
18	3	10.0	43.9	4.7	20.6	26.4
19	2	6.0	29.0	2.0	9.7	11.5
20	2	4.7	22.7	5.3	25.6	5.3
21	1	6.7	29.9	2.0	8.9	12.5
22	2	1.3	6.3	2.0	9.7	-11.2
23	1	5.3	23.7	4.0	17.9	6.2
24	1	7.3	32.6	2.0	8.9	15.1
25	2	2.0	9.7	0.0	0.0	-7.8
26*	3	2.0	8.8	2.0	8.8	-8.7
27	3	10.7	46.9	8.0	35.1	29.5
28	1	8.0	35.7	4.0	17.9	18.3
29	2	4.0	19.3	5.3	25.6	1.9
30	1	2.0	8.9	2.0	8.9	-8.5
31	2	4.0	19.3	1.3	6.3	1.9
32	2	5.3	25.6	2.0	9.7	8.2
33	1	4.0	17.9	4.7	21.0	0.4
34	2	1.3	6.3	2.0	9.7	-11.2
35	1	2.7	12.1	2.7	12.1	-5.4

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**SURVEY UNIT 556-B-007  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) <sup>1,2</sup>
36	2	1.3	6.3	5.3	25.6	-11.2
37	2	4.7	22.7	2.0	9.7	5.3
38	1	5.3	23.7	4.7	21.0	6.2
39	2	2.7	13.0	3.3	15.9	-4.4
40	3	7.3	32.0	2.0	8.8	14.6
41	1	1.3	5.8	2.7	12.1	-11.6

1 - Average LAB used to subtract from Gross Sample Activity

17.4	Sample LAB Average
MIN	-11.6
MAX	92.1
MEAN	9.5
SD	22.9
Transuranic DCGL <sub>w</sub>	100

**QC Measurements**

5 QC	3	8.7	38.2	6.0	26.3	5.7
17 QC	2	12.7	61.4	8.0	38.6	28.9

1 - Average QC LAB used to subtract from Gross Sample Activity

32.5	QC LAB Average
MIN	5.7
MAX	28.9
MEAN	17.3
Transuranic DCGL <sub>w</sub>	100

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**SURVEY UNIT 556-B-007  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	4	5	6	7	9
<b>Serial #:</b>	767	1164	833	952	767
<b>Cal Due Date:</b>	5/13/03	6/17/03	2/28/03	7/9/03	5/13/03
<b>Analysis Date:</b>	2/5/03	2/5/03	2/5/03	2/5/03	2/13/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.0	0.1	0.3	0.0
<b>Sample Time (min)</b>	2	2	2	2	2
<b>Bkgd Time (min)</b>	10	10	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0	9.0	9.0

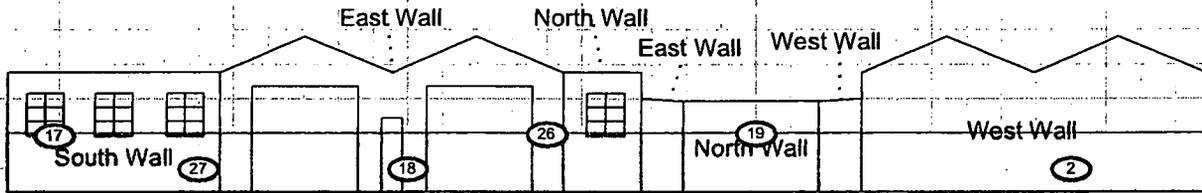
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	4	0	-0.3
2	5	1	1.5
3	6	0	-0.3
4	7	0	-0.9
5	4	0	-0.3
6	5	0	0.0
7	6	1	1.2
8	7	0	-0.9
9	4	0	-0.3
10	5	0	0.0
11	8	0	0.0
12	8	2	3.0
13	8	0	0.0
14	5	0	0.0
15	6	1	1.2
16	7	0	-0.9
17	4	0	-0.3
18	5	1	1.5
19	6	1	1.2
20	7	0	-0.9
21	4	0	-0.3
22	5	0	0.0
23	6	2	2.7
24	7	0	-0.9
25	4	1	1.2
26	5	2	3.0
27	6	0	-0.3
28	7	1	0.6
29	4	1	1.2
30	5	0	0.0
31	6	0	-0.3
32	7	0	-0.9
33	4	0	-0.3
34	5	0	0.0
35	6	0	-0.3
36	7	0	-0.9
37	4	0	-0.3
38	5	1	1.5
39	6	2	2.7
40	7	0	-0.9
41	4	0	-0.3
		<b>MIN</b>	-0.9
		<b>MAX</b>	3.0
		<b>MEAN</b>	0.3
		<b>SD</b>	1.1
		<b>Transuranic DCGL<sub>W</sub></b>	20

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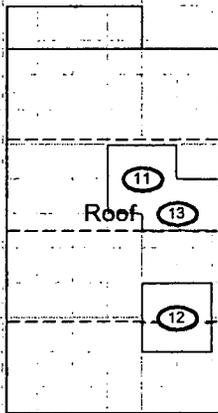
**PRE-DEMOLITION SURVEY FOR B556**

Survey Area: 3      Survey Unit: 556-B-007      Classification: 3  
 Building: B556  
 Survey Unit Description: Interior - Exterior  
 Total Area: 278 sq. m.      Total Floor Area: 65 sq. m.

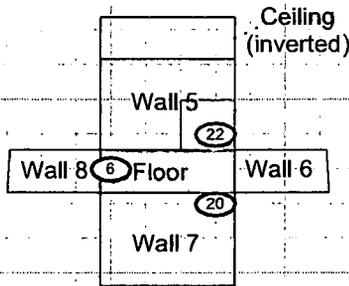
**B556 Exterior**



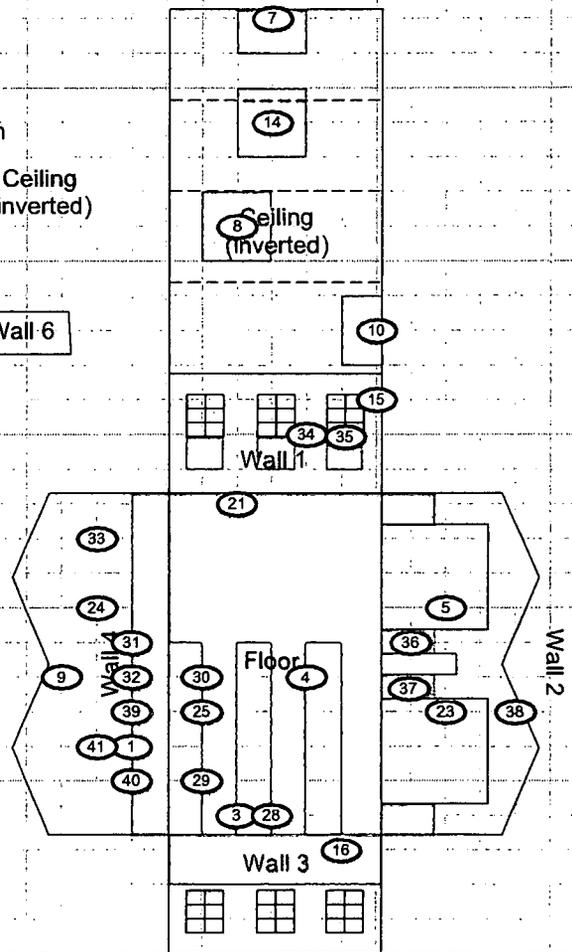
**Compressor Room**



**Compressor Room**



**B556 Interior**



Scan Area

<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 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 style="text-align: center;"><b>N</b> ↑</p> <p><b>Scan Survey Information</b>                  Survey Instrument ID #(s) &amp; RCT ID #(s):                  1, 2, &amp; 3</p>	<p style="text-align: center;">0      FEET      25</p>  <p style="text-align: center;">0      METERS      8</p> <p style="text-align: center;">1 inch = 18 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. 303-866-7707      Prepared for:</p> <p style="text-align: center;"><b>DynCorp</b>                  THE ART OF TECHNOLOGY</p>  <p style="text-align: center;">MAP ID: 02-0589B556-EX-SC      February 20, 2003</p>
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**SURVEY UNIT 681-B-008**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: B681 (Interior and Exterior)**

681-B-008  
PDS Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	55	55		55	55
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-15.9	dpm/100 cm <sup>2</sup>	MIN	-1.5	dpm/100 cm <sup>2</sup>
MAX	93.6	dpm/100 cm <sup>2</sup>	MAX	4.2	dpm/100 cm <sup>2</sup>
MEAN	10.4	dpm/100 cm <sup>2</sup>	MEAN	-0.3	dpm/100 cm <sup>2</sup>
STD DEV	21.6	dpm/100 cm <sup>2</sup>	STD DEV	1.1	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 681-B-008  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech						
Model:	DP-6						
Instrument ID#:	1	2	3	4	5	6	11
Serial #:	3102	1379	3104	3104	3250	3125	1366
Cal Due Date:	7/27/03	6/3/03	5/11/03	5/11/03	7/13/03	4/21/03	6/26/03
Analysis Date:	2/5/03	2/5/03	2/5/03	2/5/03	2/5/03	2/5/03	2/18/03
Alpha Eff. (c/d):	0.227	0.214	0.222	0.222	0.219	0.211	0.219
Alpha Bkgd (cpm)	4.7	0.0	0.0	0.0	1.3	0.7	4.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	1	6.0	26.4	3.3	14.5	7.2
2	2	3.3	15.4	1.3	6.1	-3.8
3	5	8.7	39.7	7.3	33.3	20.5
4	1	9.3	41.0	4.7	20.7	21.8
5	11	18.0	82.2	5.3	24.2	63.0
6	1	10.7	47.1	6.7	29.5	27.9
7	11	24.7	112.8	6.0	27.4	93.6
8	5	8.0	36.5	5.3	24.2	17.3
9	11	19.3	88.1	4.0	18.3	68.9
10	1	12.0	52.9	6.0	26.4	33.6
11	1	9.3	41.0	7.3	32.2	21.8
12	2	0.7	3.3	2.0	9.3	-15.9
13	5	14.7	67.1	4.0	18.3	47.9
14	4	4.0	18.0	2.0	9.0	-1.2
15	4	4.7	21.2	6.0	27.0	2.0
16	1	2.7	11.9	4.0	17.6	-7.3
17	1	4.7	20.7	6.0	26.4	1.5
18	3	2.7	12.2	1.3	5.9	-7.1
19	3	1.3	5.9	2.0	9.0	-13.4
20	6	2.0	9.5	4.0	19.0	-9.7
21	1	3.3	14.5	2.0	8.8	-4.7
22	1	1.3	5.7	4.7	20.7	-13.5
23	3	2.7	12.2	4.7	21.2	-7.1
24	1	3.3	14.5	4.0	17.6	-4.7
25	6	0.7	3.3	1.3	6.2	-15.9
26*	1	6.7	29.5	5.3	23.3	10.3
27	3	5.3	23.9	2.0	9.0	4.7
28	3	5.3	23.9	2.7	12.2	4.7
29	3	6.7	30.2	1.3	5.9	11.0
30	4	10.3	46.4	1.3	5.9	27.2
31	5	5.3	24.2	7.3	33.3	5.0
32	5	4.7	21.5	8.0	36.5	2.2
33	4	2.0	9.0	2.7	12.2	-10.2
34	6	12.0	56.9	3.3	15.6	37.7
35	5	6.7	30.6	3.3	15.1	11.4
36	4	4.0	18.0	3.9	17.6	-1.2
37	4	9.3	41.9	6.0	27.0	22.7
38	4	7.3	32.9	6.0	27.0	13.7
39	6	2.7	12.8	1.3	6.2	-6.4
40	5	5.3	24.2	6.7	30.6	5.0

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**SURVEY UNIT 681-B-008  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) <sup>1,2</sup>
41	4	8.7	39.2	7.3	32.9	20.0
42	1	4.0	17.6	2.7	11.9	-1.6
43	4	4.6	20.7	3.3	14.9	1.5
44	5	12.7	58.0	4.7	21.5	38.8
45	6	3.3	15.6	4.0	19.0	-3.6
46	3	3.3	14.9	4.0	18.0	-4.4
47	1	4.0	17.6	4.7	20.7	-1.6
48	1	6.7	29.5	5.3	23.3	10.3
49	1	6.0	26.4	4.0	17.6	7.2
50	1	7.3	32.2	2.7	11.9	12.9
51	1	4.7	20.7	4.7	20.7	1.5
52	1	5.3	23.3	6.7	29.5	4.1
53	1	10.0	44.1	3.3	14.5	24.8
54	3	2.0	9.0	5.3	23.9	-10.2
55	1	7.3	32.2	6.0	26.4	12.9

1 - Average LAB used to subtract from Gross Sample Activity

19.2	Sample LAB Average
MIN	-15.9
MAX	93.6
MEAN	10.4
SD	21.6
Transuranic DCGL <sub>W</sub>	100

**QC Measurements**

10 QC	4	8.0	36.0	5.3	23.9	15.5
8 QC	5	11.3	51.6	5.3	24.2	31.1
4 QC	6	4.7	22.3	3.3	15.6	1.8
18 QC	5	6.0	27.4	4.0	18.3	6.9

1 - Average QC LAB used to subtract from Gross Sample Activity

20.5	QC LAB Average
MIN	1.8
MAX	31.1
MEAN	13.8
Transuranic DCGL <sub>W</sub>	100

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**SURVEY UNIT 681-B-008  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	7	8	9	10	12
<b>Serial #:</b>	767	1164	833	952	767
<b>Cal Due Date:</b>	5/13/03	6/17/03	2/28/03	7/9/03	5/13/03
<b>Analysis Date:</b>	2/7/03	2/7/03	2/7/03	2/7/03	2/18/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.5	0.4	0.3	0.1	0.2
<b>Sample Time (min)</b>	2	2	2	2	2
<b>Bkgd Time (min)</b>	10	10	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	7	0	-1.5
2	8	0	-1.2
3	9	2	2.1
4	10	0	-0.3
5	12	3	4.2
6	8	0	-1.2
7	12	0	-0.3
8	10	0	-0.3
9	12	0	-0.3
10	8	1	0.3
11	9	1	0.6
12	10	0	-0.3
13	7	0	-1.5
14	8	1	0.3
15	9	0	-0.9
16	10	0	-0.3
17	7	0	-1.5
18	8	0	-1.2
19	9	1	0.6
20	10	0	-0.3
21	7	1	0.0
22	8	0	-1.2
23	9	0	-0.9
24	10	1	1.2
25	7	0	-1.5
26	8	0	-1.2
27	9	1	0.6
28	10	1	1.2
29	7	0	-1.5
30	8	0	-1.2
31	9	1	0.6
32	10	0	-0.3
33	7	1	0.0
34	8	0	-1.2
35	9	0	-0.9
36	10	0	-0.3
37	7	1	0.0
38	8	0	-1.2
39	9	1	0.6
40	10	1	1.2
41	7	0	-1.5
42	8	0	-1.2
43	9	0	-0.9

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**SURVEY UNIT 681-B-008  
RSC - DATA SUMMARY**

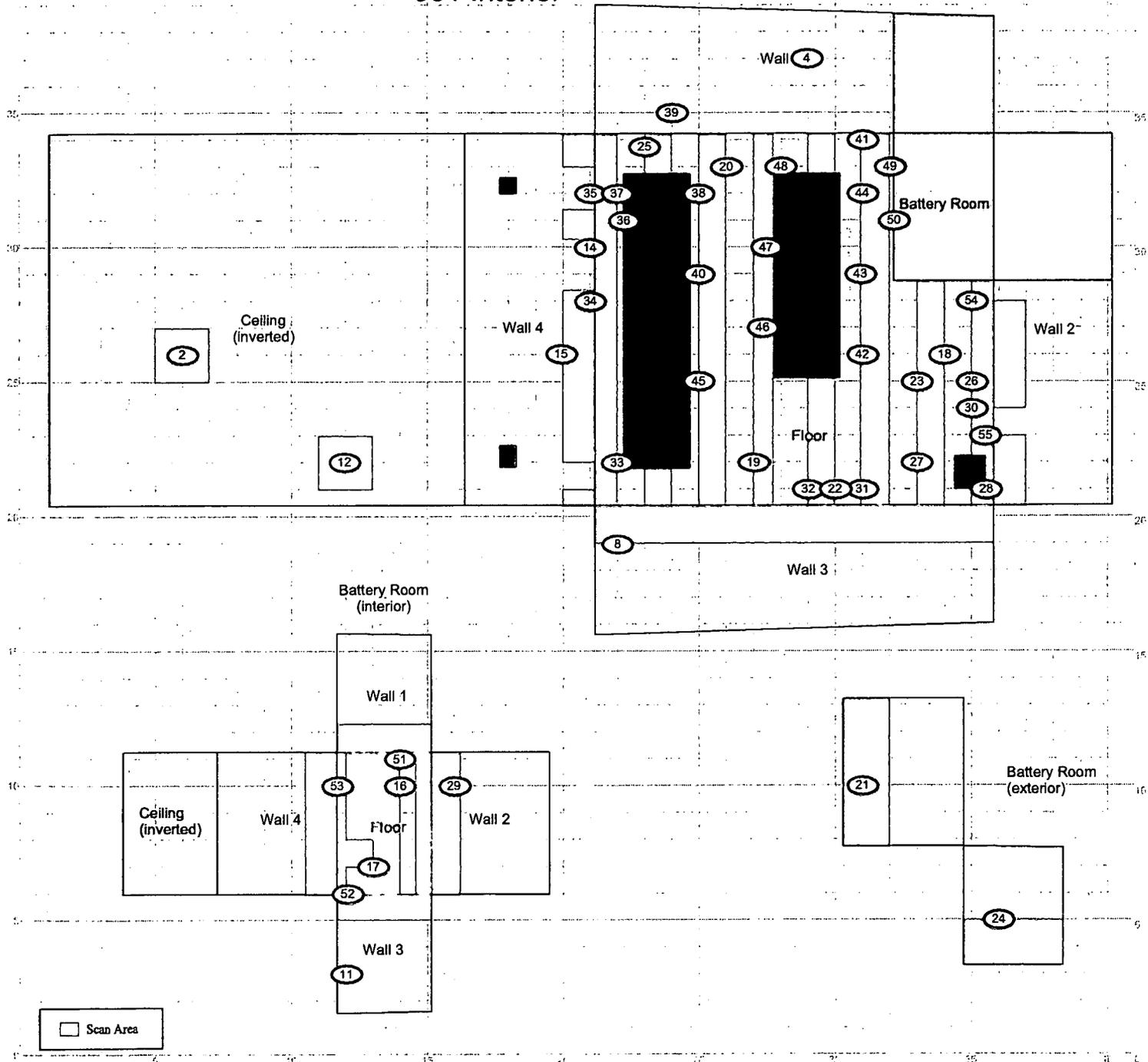
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
44	10	1	1.2
45	7	0	-1.5
46	8	0	-1.2
47	9	0	-0.9
48	10	0	-0.3
49	7	0	-1.5
50	8	0	-1.2
51	9	1	0.6
52	10	1	1.2
53	7	1	0.0
54	8	0	-1.2
55	9	0	-0.9
		<b>MIN</b>	-1.5
		<b>MAX</b>	4.2
		<b>MEAN</b>	-0.3
		<b>SD</b>	1.1
		<b>Transuranic DCGL<sub>w</sub></b>	<b>20</b>

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**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 681-B-008      Classification: 3  
 Building: 681  
 Survey Unit Description: Interior of Building  
 Total Area: 1266 sq. m.      Total Floor Area: 154 sq. m.  
 Total Roof Area: 202 sq. m.

**681 Interior**



**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): 1,2  
 RCT ID #(s): 1,2

N  
↑

0      FEET      25

0      METERS      8

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

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

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

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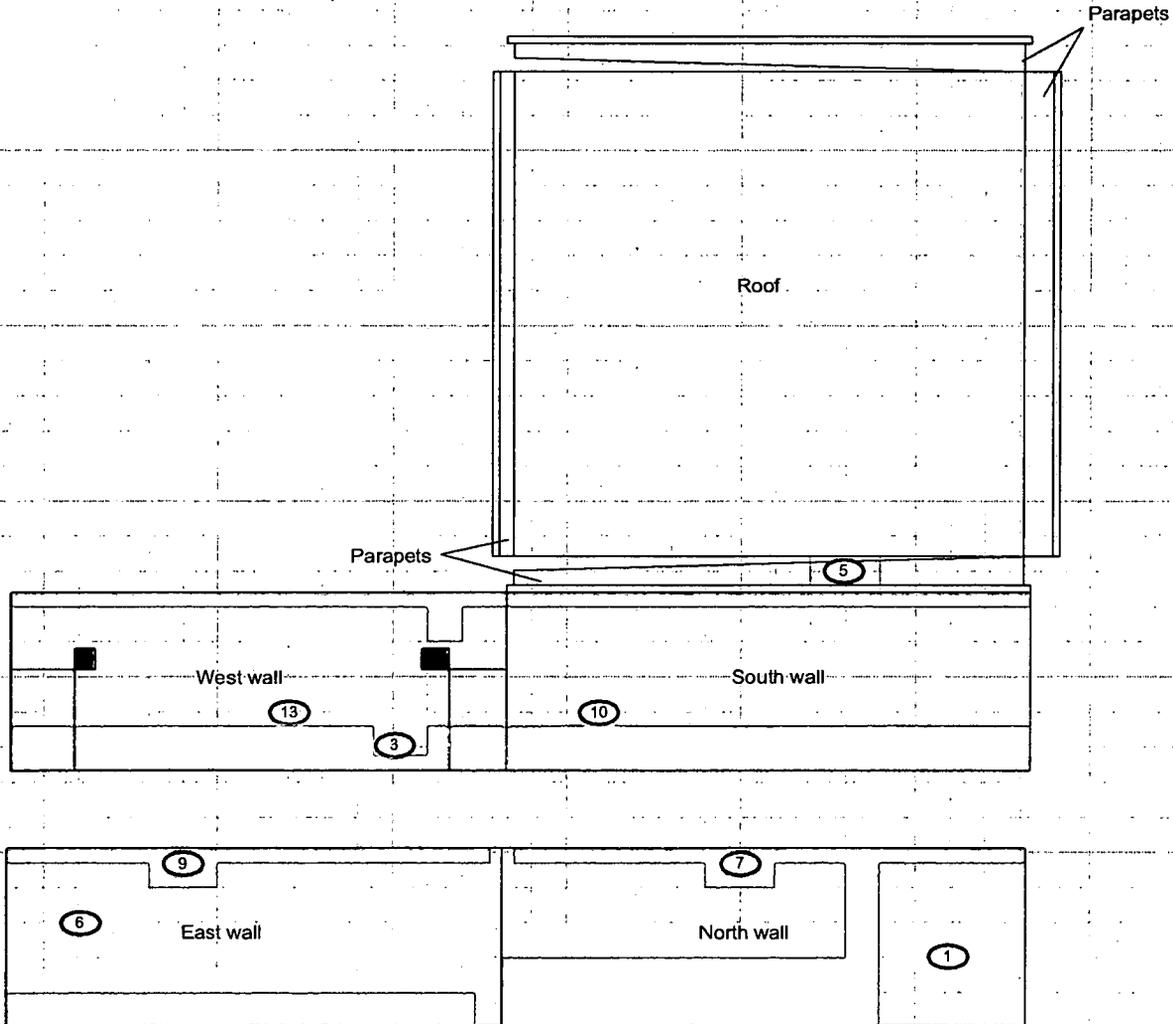
MAP ID: 02-0589/681-IN      Feb 20, 2003

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**PRE-DEMOLITION SURVEY FOR AREA 3/GROUP 1**

Survey Area: 3      Survey Unit: 681-B-008      Classification: 3  
 Building: 681  
 Survey Unit Description: Exterior of Building      Total Floor Area: 154 sq. m.  
 Total Area: 1266 sq. m.      Total Roof Area: 202 sq. m.

681 Exterior



☐ Scan Area

<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 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>N</p> <p>↑</p>	<p>0      FEET      25</p> <p>0      METERS      8</p> <p>1 inch = 18 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>KAISER HILL</p> <p>MAP ID: 02-0589/681-EX      Feb. 20, 2003</p>

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# ATTACHMENT D

## Chemical Data Summaries and Sample Maps

**Asbestos Data Summary**

Sample Number	Map Survey Location	Room	Material Sampled and Location	Analytical Results
<b>Building 554 – RIN03Z0904</b>				
The exterior roof and walls are constructed of asbestos containing corrugated Transite panels. The corrugated Transite panels were not sampled for asbestos content, but are assumed asbestos containing material based upon known product composition.				
Steam lines and fittings are labeled "Asbestos Containing."				
554-02032003-315-201	1	Southeast	12" x 12" brown and white vinyl floor tiles and tan mastic adhesive	None Detected
554-02032003-315-202	2	Southeast	12" x 12" brown and white vinyl floor tiles and tan mastic adhesive	None Detected
554-02032003-315-203	3	Southeast	Brown base cove with tan mastic adhesive	None Detected
554-02032003-315-204	4	Southeast	2' x 4' white acoustical drop ceiling tiles with large "worm" pattern	None Detected
554-02032003-315-205	5	Southeast	2' x 4' white acoustical drop ceiling tiles with small "worm" pattern	None Detected
554-02032003-315-206	6	Southeast	2' x 4' white acoustical drop ceiling tiles with flecked pattern	None Detected
554-02032003-315-207	7	Southeast	Drywall only, north wall	None Detected
554-02032003-315-208	8	Southeast	Drywall only, east wall	None Detected
<b>Building 556 – RIN03Z0904</b>				
556-02032003-315-201	1	Main	2' x 4' white acoustical drop ceiling tiles with small "worm" pattern, south ceiling	None Detected
556-02032003-315-202	2	Main	2' x 4' white acoustical drop ceiling tiles with small "worm" pattern, south ceiling	None Detected
556-02032003-315-203	3	Main	Interior window caulking, south wall	2 % Chrysotile; 0.75 % Point Count
556-02032003-315-204	4	Main	Interior window caulking, south wall	2 % Chrysotile; 0.25 % Point Count
556-02032003-315-205	5	Main	Interior 3/8" smooth, gray Transite wall panel, north wall	15 % Chrysotile
556-02032003-315-206	6	Main	Interior 3/8" smooth, gray Transite wall panel, south wall	15 % Chrysotile
<b>Building 549 – RIN03Z0904 (1) asbestos containing pipe fitting in Room 101, north wall</b>				
549-02032003-315-201	1	101	Interior gray window caulking, north wall	2 % Chrysotile; 1.25 % Point Count
549-02032003-315-202	2	101	Beige drywall, only, east wall	None Detected
549-02032003-315-203	3	101	2' x 4' white acoustical drop ceiling tiles with medium "worm" pattern	None Detected
549-02032003-315-204	4	101	Brown and gray sprayed-on wall insulation above drop ceiling, north wall	None Detected
549-02032003-315-205	5	106	Beige drywall and joint compound, exterior of west wall	None Detected
549-02032003-315-206	6	109	Beige and gray vertical striped fabric on drywall	None Detected
549-02032003-315-207	7	101	Black base cove with beige adhesive	None Detected
549-02032003-315-208	8	101	Interior gray window caulking, west wall	None Detected
549-02032003-315-209	9	109	12" x 12" brown and tan vinyl floor tile with black mastic adhesive	None Detected
549-02032003-315-210	10	109	12" x 12" brown and tan vinyl floor tile with black mastic adhesive	None Detected
549-02032003-315-211	11	100	Brown and gray sprayed-on wall insulation, south wall	None Detected
549-02032003-315-212	12	100	Brown and gray sprayed-on wall insulation, east wall	None Detected
549-02032003-315-213	13	100	Brown and gray sprayed-on wall insulation, west wall	None Detected
549-02032003-315-214	14	100	Brown and gray sprayed-on wall insulation, south wall	None Detected
549-02032003-315-215	15	100	Round, white fabric over a wall patch, west wall	65 % Chrysotile
549-02032003-315-216	16	101	Joint compound only, exterior corner of Room 101	None Detected

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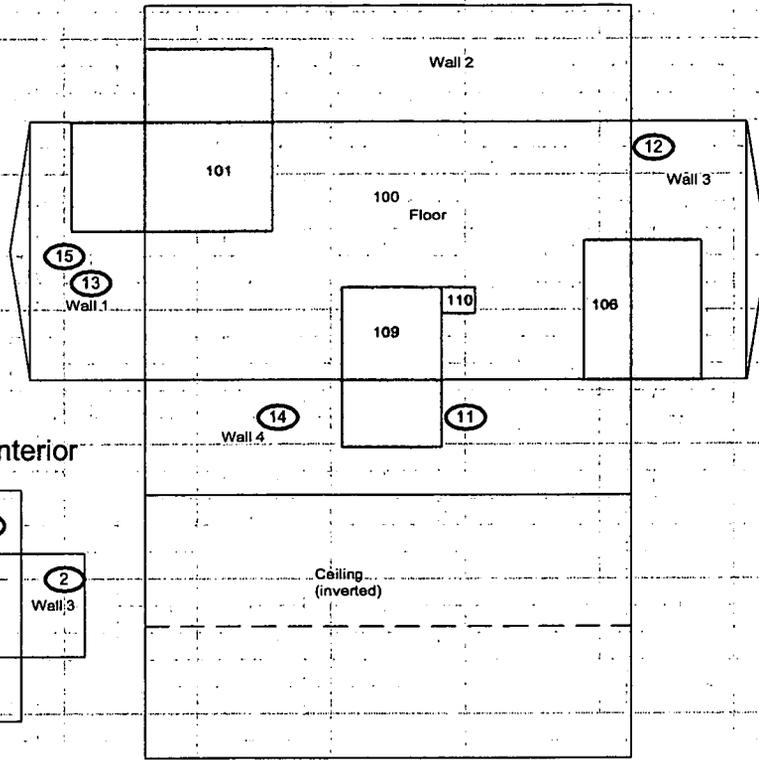
Sample Number	Map Survey Location	Room	Material Sampled and Location	Analytical Results
<b>Building 681 - RIN03Z0921</b>				
681-02072003-315-201	1	Main	White paint on CMU, north wall	None Detected
681-02072003-315-202	2	Main	White paint on CMU, west wall	None Detected
681-02072003-315-203	3	Main	White paint on CMU, south wall	None Detected

# CHEMICAL SAMPLE MAP

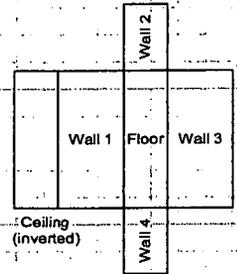
## Building 549 (Room 100,101,106,109,110)

### Asbestos

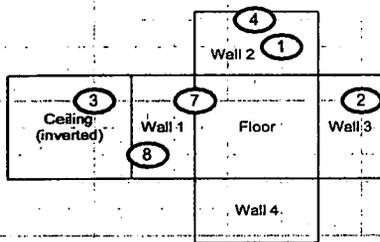
## 549 Interior



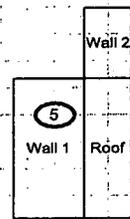
### Rm 106 Interior



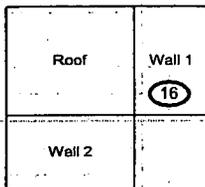
### Rm 101 Interior



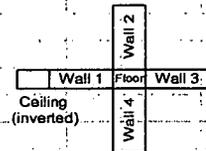
### Rm 106 Exterior



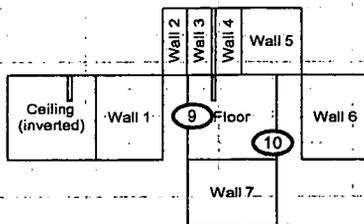
### Rm 101 Exterior



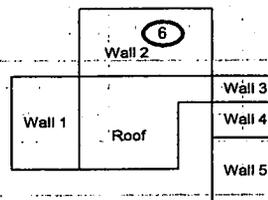
### Rm 110 Interior



### Rm 109 Interior



### Rm 109/110 Exterior

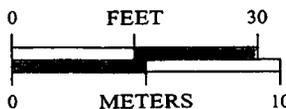


#### SURVEY MAP LEGEND

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

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- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 24 feet 1 grid sq. = 1 sq. m.

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Rocky Flats Environmental Technology Site

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Prepared for:

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MAP ID: 02-0589/549-IN-Asb

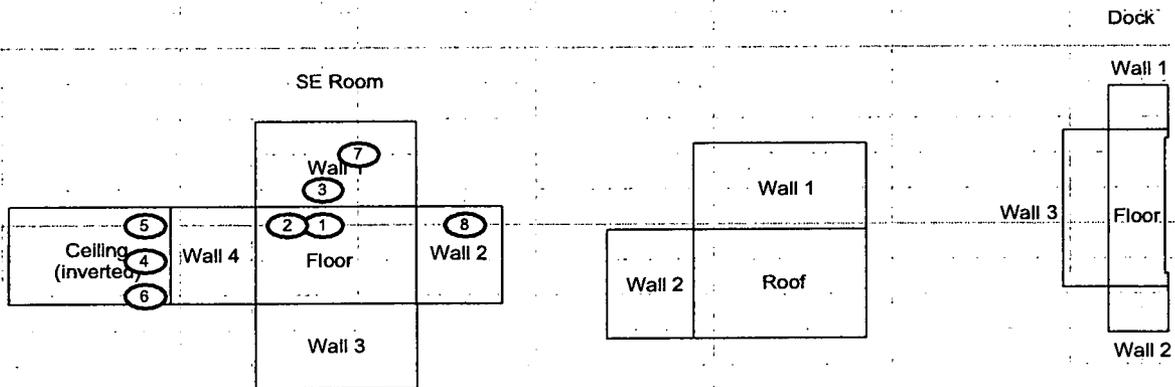
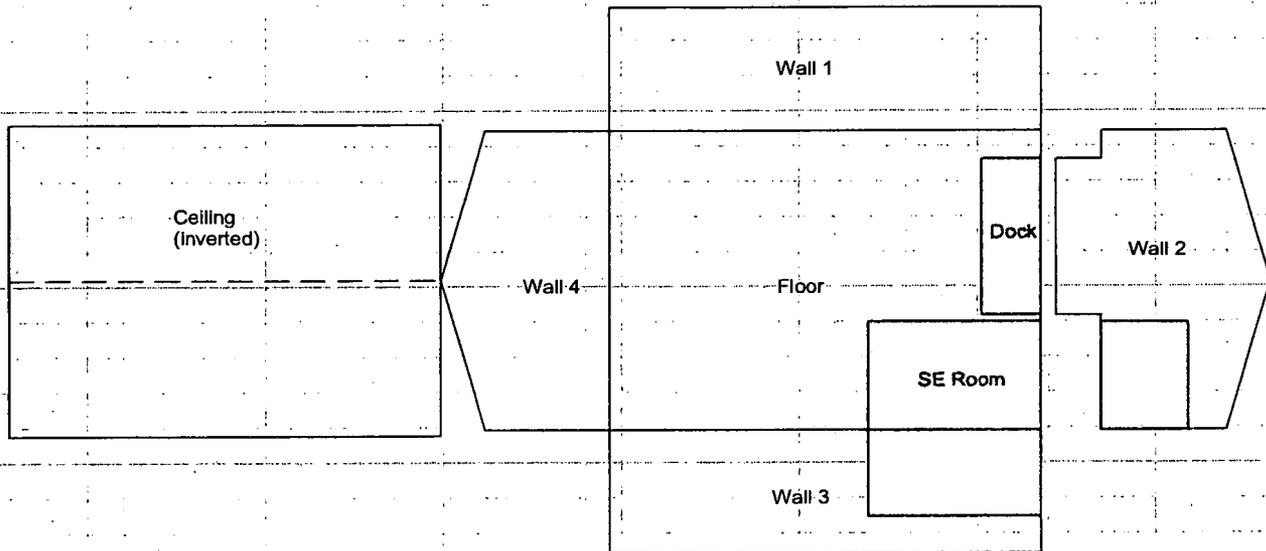
Feb. 6, 2003

666

# CHEMICAL SAMPLE MAP

**Building 554  
Asbestos**

## 554 Interior



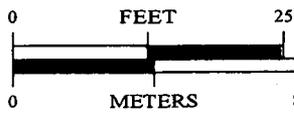
### SURVEY MAP LEGEND

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

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-  Open/Inaccessible Area
-  Area in Another Survey Unit



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

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Prepared by: GIS Dept. 303-866-7707

Prepared for:

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MAP ID: 02-0589/554-IN-Asb

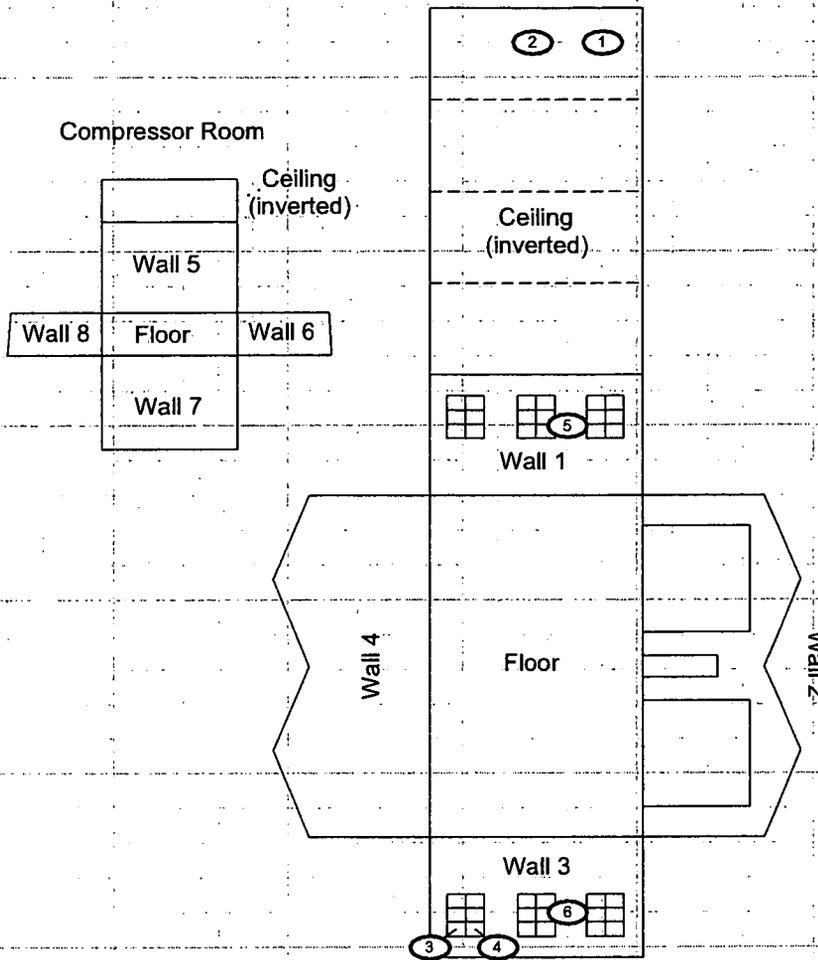
Feb. 6, 2003

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# CHEMICAL SAMPLE MAP

**Building 556  
Asbestos**

## 556 Interior

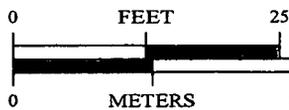


### SURVEY MAP LEGEND

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

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- Open/Inaccessible Area
- Area in Another Survey Unit



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

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Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-866-7707

Prepared for:

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THE ART OF TECHNOLOGY



MAP ID: 03-0077\B556-Asb

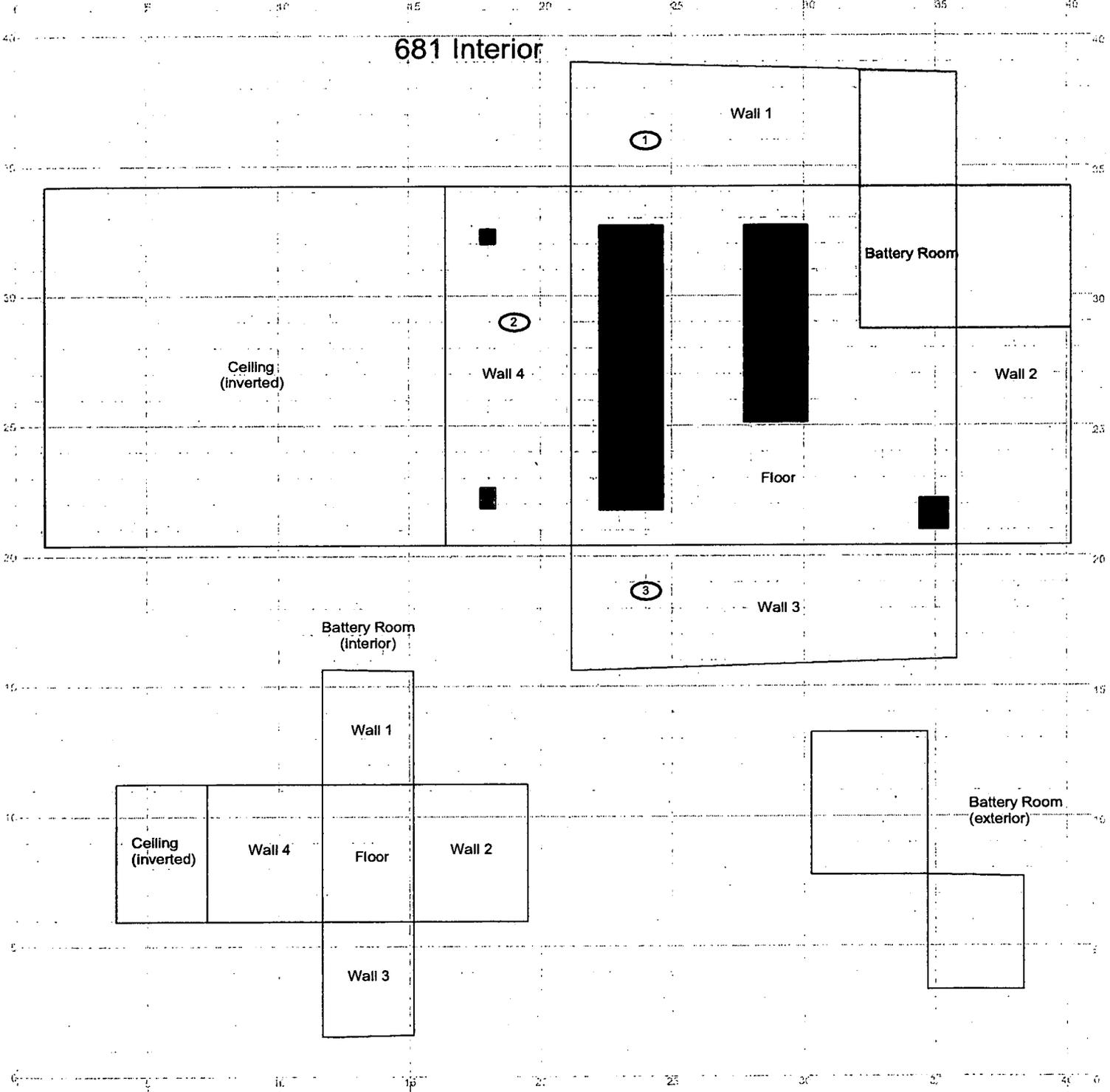
Feb. 6, 2003

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# CHEMICAL SAMPLE MAP

**Building: 681  
Asbestos**

## 681 Interior



<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>0      FEET      25</p> <p>0      METERS      8</p> <p>1 inch = 18 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. 303-866-7707</p> <p><b>DynCorp</b> THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-0589/681-IN-Asb</p>	<p>Prepared for:</p> <p>KAISER HILL</p> <p>Feb. 11, 2003</p>
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### Beryllium Data Summary

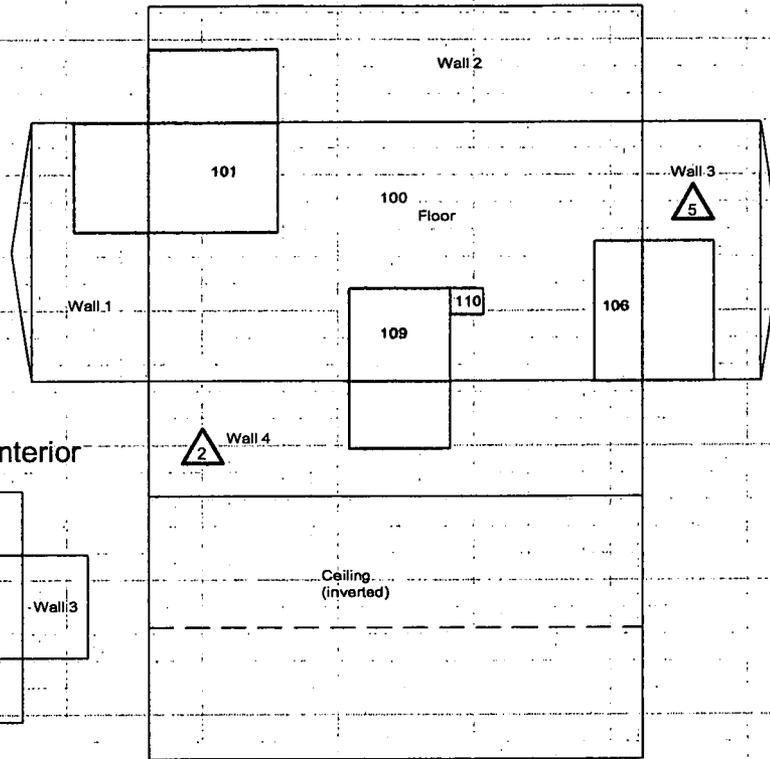
Sample Number	Map Survey Point Location	Room	Sample Location	Result (ug/100 cm <sup>2</sup> )
<b>Building 554</b>				
554-02032003-315-101	1	Southeast	Top of fluorescent light fixture	< 0.1
554-02032003-315-102	2	Southeast	Top of metal cabinet for flammables, , south wall	< 0.1
554-02032003-315-103	3	Main	On concrete floor	< 0.1
554-02032003-315-104	4	Main	On metal horizontal I-beam, north wall	< 0.1
554-02032003-315-105	5	Main	On top of LP1A electrical box, south wall	< 0.1
554-02032003-315-106	6	Main	On top of JB554-I LSDW box	< 0.1
554-02032003-315-107	7	Main	On metal horizontal I-beam, west wall	< 0.1
554-02032003-315-108	8	Main	On top of roll-top door, west wall	< 0.1
554-02032003-315-109	9	Main	On top of emergency light, west wall	< 0.1
554-02032003-315-110	10	Main	On top of upper metal horizontal I-beam, north wall	< 0.1
554-02032003-315-111	11	Main	On floor at wall and floor interface, north wall	< 0.1
554-02032003-315-112	12	Main	On vertical surface of roll-top door, south wall	< 0.1
554-02032003-315-113	13	Main	On top of electrical breaker box, south wall	< 0.1
554-02032003-315-114	14	Main	On concrete floor	< 0.1
554-02032003-315-115	15	Main	On concrete floor	< 0.1
<b>Building 556</b>				
556-02032003-315-101	1	Main	Top of 2' x 4' white acoustical drop ceiling tile with "worm" pattern, south ceiling	< 0.1
556-02032003-315-102	2	Main	Top of plasma arc cabinet, south wall	< 0.1
556-02032003-315-103	3	Main	Top of electrical box, west wall	< 0.1
556-02032003-315-104	4	Main	On metal floor flange, west wall	< 0.1
556-02032003-315-105	5	Main	On concrete floor	< 0.1
556-02032003-315-106	6	Main	Top of Par Master Equipment	< 0.1
556-02032003-315-107	7	Main	Top of electrical box, west wall	< 0.1
556-02032003-315-108	8	Main	Top of metal brace, north wall	< 0.1
556-02032003-315-109	9	Main	Top of compressed gas cylinder, north wall	< 0.1
556-02032003-315-110	10	Main	On roll-top door, east wall, north door	< 0.1
556-02032003-315-111	11	Main	Top of radiant heater outlet, east wall	< 0.1
556-02032003-315-112	12	Main	On roll-top door, east wall, south door	< 0.1
556-02032003-315-113	13	Main	On top of light switch, east wall	< 0.1
556-02032003-315-114	14	Main	Metal shavings on glove box frame	< 0.1
556-02032003-315-115	15	Main	On concrete floor	< 0.1
<b>Building 549</b>				
549-02032003-315-101	1	101	Top of fluorescent light fixture	< 0.1
549-02032003-315-102	2	100	Top of sheet metal cover, south wall	< 0.1
549-02032003-315-103	3	109	On 12" x 12" brown and white vinyl floor tile	< 0.1
549-02032003-315-104	4	106	Top of metal locker	< 0.1
549-02032003-315-105	5	100	Top of electrical box, east wall	< 0.1

Sample Number	Map Survey Point Location	Room	Sample Location	Result (ug/100 cm <sup>2</sup> )
<b>Building 681</b>				
681-02072003-315-101	1	Main	Top of T681-2 XFMR 13.8KV, east wall	< 0.1
681-02072003-315-102	2	Main	Top of Holophane Inverter System, east wall	< 0.1
681-02072003-315-103	3	Main	Top of metal locker # 3, north wall	< 0.1
681-02072003-315-104	4	Main	On concrete floor by west wall	< 0.1
681-02072003-315-105	5	Main	On concrete floor by west wall	< 0.1

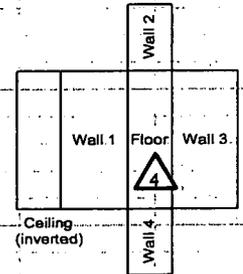
# CHEMICAL SAMPLE MAP

**Building 549 (Room 100,101,106,109,110)  
Beryllium**

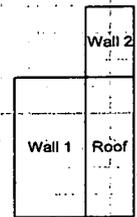
## 549 Interior



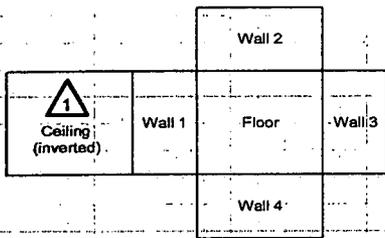
### Rm 106 Interior



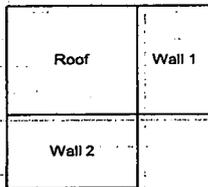
### Rm 106 Exterior



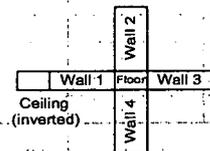
### Rm 101 Interior



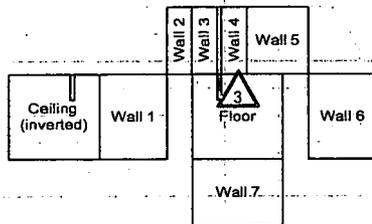
### Rm 101 Exterior



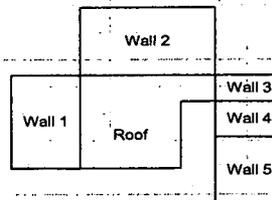
### Rm 110 Interior



### Rm 109 Interior



### Rm 109/110 Exterior

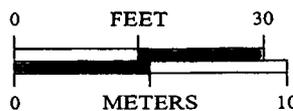


#### SURVEY MAP LEGEND

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

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- Area in Another Survey Unit



1 inch = 24 feet 1 grid sq. = 1 sq. m.

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Prepared by: GIS Dept. 303-966-7707

Prepared for:

**DynCorp**  
THE ART OF TECHNOLOGY



MAP ID: 02-0589/549-IN-Be

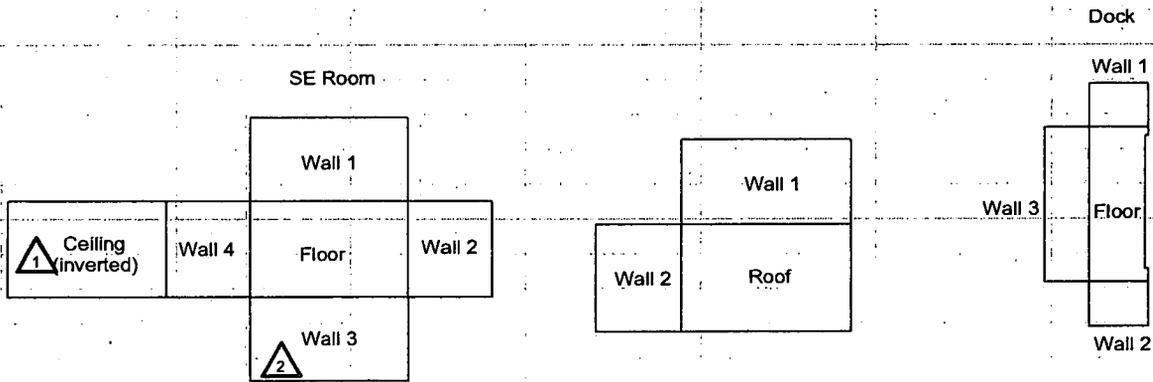
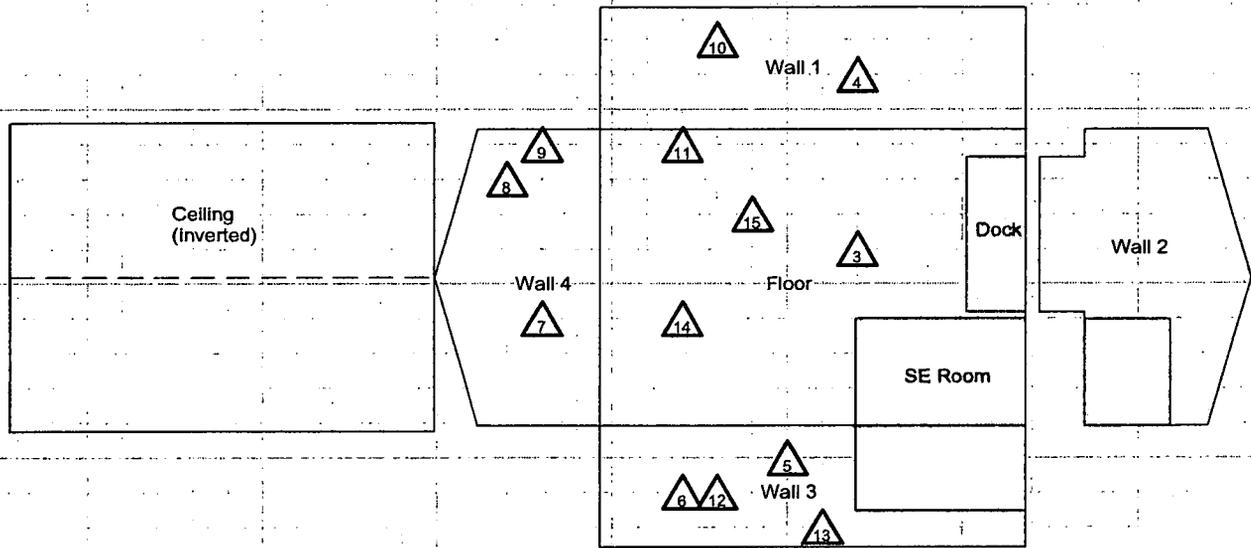
Feb. 6, 2003

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# CHEMICAL SAMPLE MAP

**Building 554  
Beryllium**

## 554 Interior



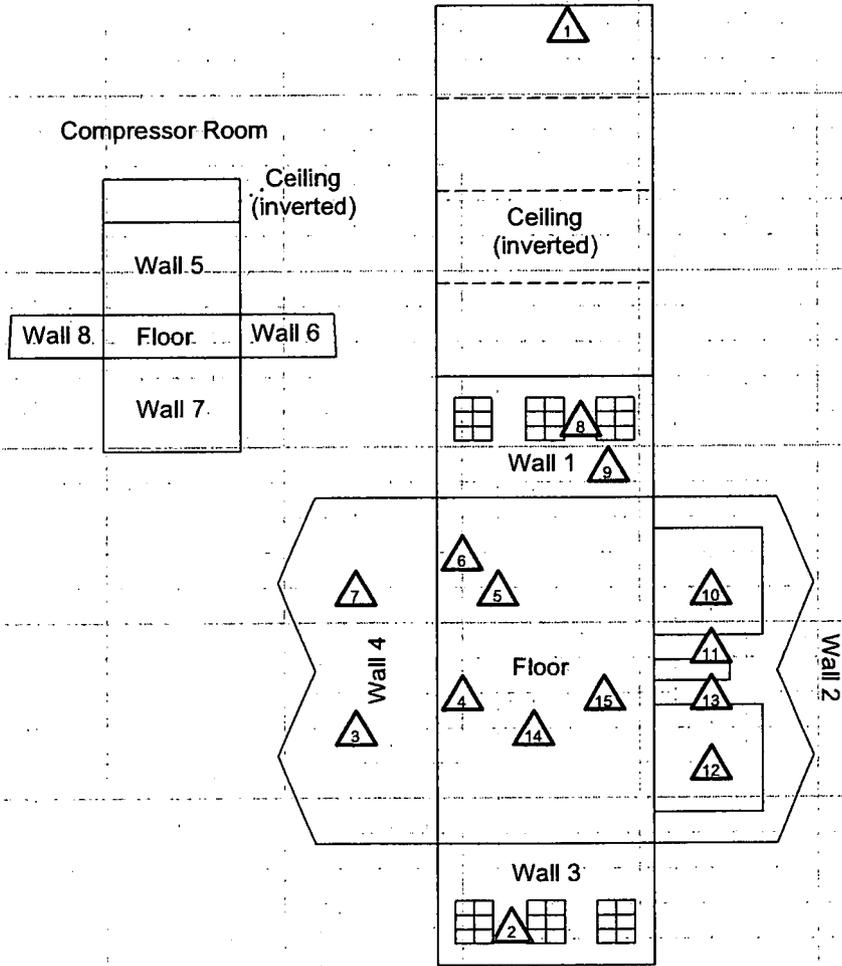
<p><b>SURVEY MAP LEGEND</b></p> <ul style="list-style-type: none"> <li> Asbestos Sample Location</li> <li> Beryllium Sample Location</li> <li> Lead Sample Location</li> <li> RCRA/CERCLA Sample Location</li> <li> PCB Sample Location</li> </ul>	<p>Neither the United States Government nor Kaiser Hill Co., 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>0      FEET      25</p> <p>0      METERS      8</p> <p>1 inch = 18 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. 303-866-7707      Prepared for:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">   <small>THE ART OF TECHNOLOGY</small> </div> <div style="text-align: center;">   <small>KAISER HILL</small> </div> </div> <p>MAP ID: 02-0589/554-IN-Be      Feb. 6, 2003</p>
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# CHEMICAL SAMPLE MAP

Building 556  
Beryllium

## 556 Interior

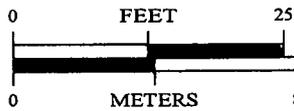


### SURVEY MAP LEGEND

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

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MAP ID: 03-0077/B556-Be

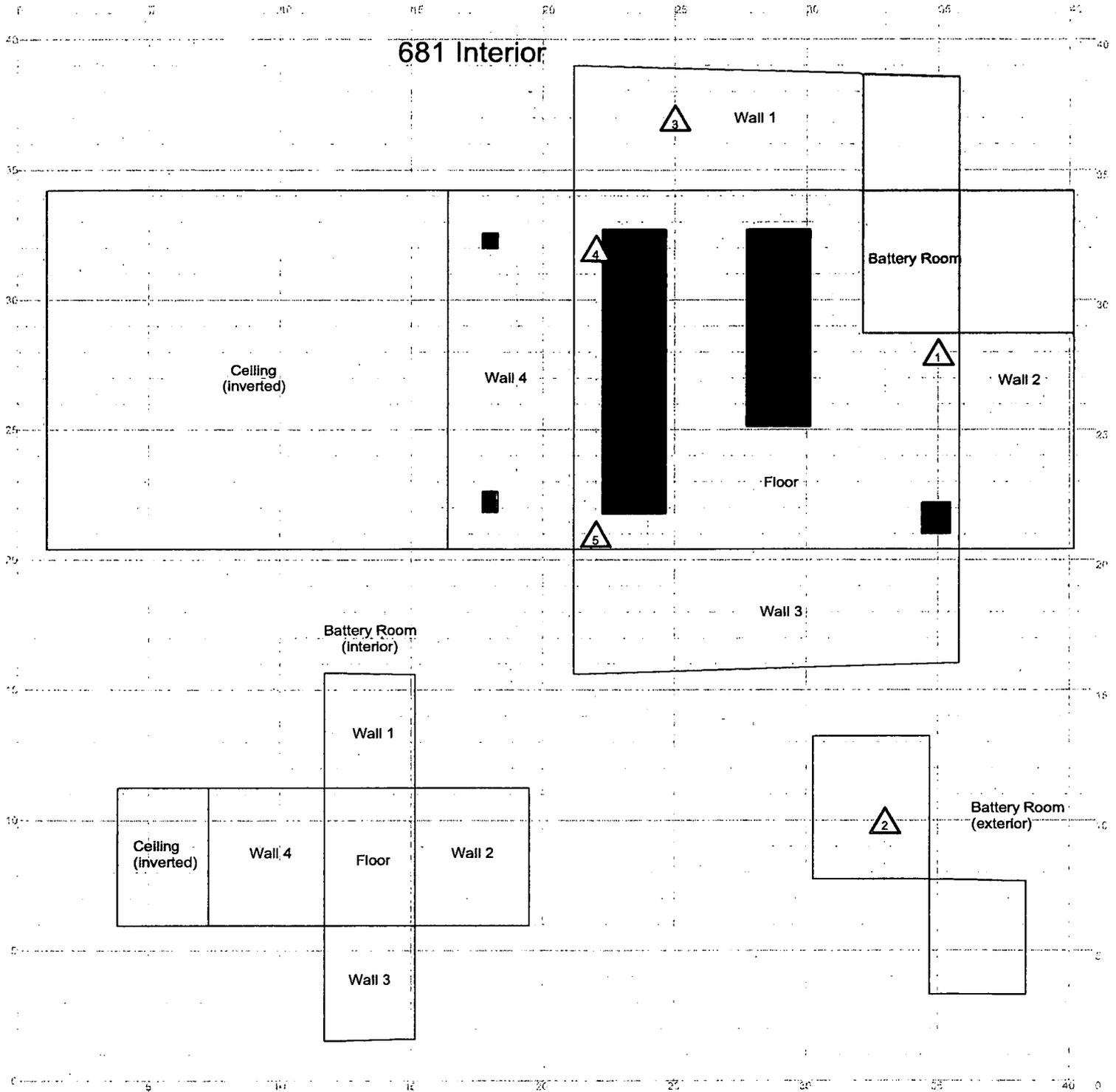
Feb. 6, 2003

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# CHEMICAL SAMPLE MAP

Building: 681  
Beryllium

## 681 Interior



<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>N ↑</p>	<p>0      FEET      25</p> <p>0      METERS      8</p> <p>1 inch = 18 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 style="font-size: small;">Prepared by: GIS Dept. 303-866-7707      Prepared for:</p> <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">   <small>THE ART OF TECHNOLOGY</small> </div> <div style="text-align: center;">   <small>KAISER HILL</small> </div> </div> <p style="font-size: small;">MAP ID: 02-0589/681-IN-Be      Feb. 11, 2003</p>
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**Metals (Mercury) Data Summary**

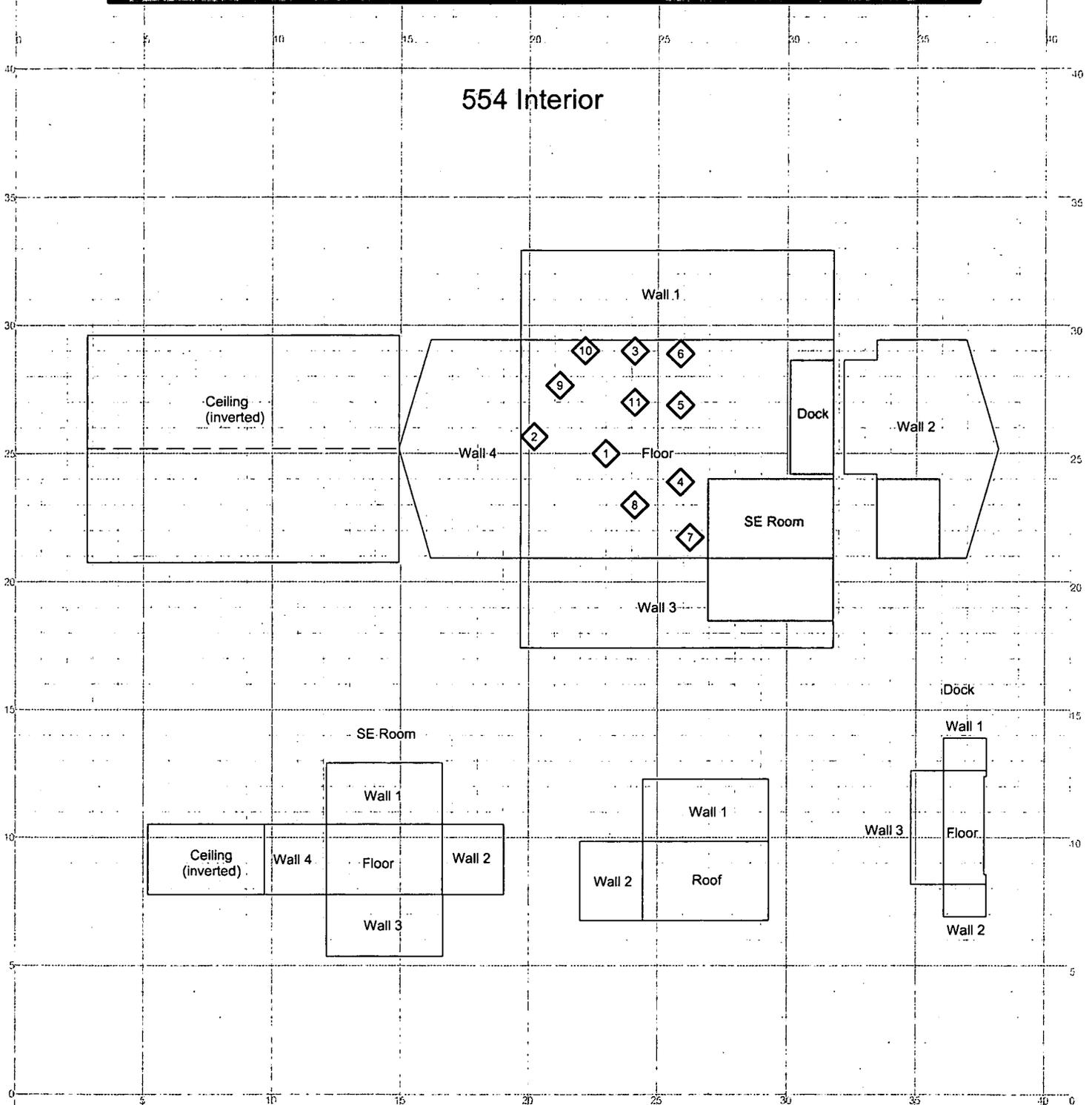
Map Survey Point Location	Sample Location	Result (mg/m <sup>3</sup> )
1	B554, Main Room, Cracks in Floor Slab	0.00
2	B554, Main Room, Cracks in Floor Slab	0.00
3	B554, Main Room, Cracks in Floor Slab	0.00
4	B554, Main Room, Cracks in Floor Slab	0.00
5	B554, Main Room, Cracks in Floor Slab	0.00
6	B554, Main Room, Cracks in Floor Slab	0.00
7	B554, Main Room, Cracks in Floor Slab	0.00
8	B554, Main Room, Cracks in Floor Slab	0.00
9	B554, Main Room, Cracks in Floor Slab	0.00
10	B554, Main Room, Cracks in Floor Slab	0.00
11	B554, Main Room, Cracks in Floor Slab	0.00

# CHEMICAL SAMPLE MAP

## Mercury Detection Surveys

PAGE 1 OF 1

554 Interior



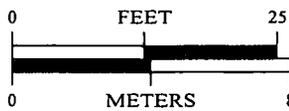
### SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- Mercury (Hg) Detection Surveys
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



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

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MAP ID: 02-0589/554-IN-MRC      February 10, 2003

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# ATTACHMENT E

## Data Quality Assessment (DQA) Detail

## DATA QUALITY ASSESSMENT (DQA)

### VERIFICATION & VALIDATION OF RESULTS

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

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, asbestos in E-2, beryllium in E-3, and metals (mercury) in E-4 (B554 only). A data completeness summary for all results is given in Table E-5.

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

Beta/gamma survey designs were not implemented for the Area 3, Group 1A facilities based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented for the Area 3, Group 1A facilities based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGL<sub>w</sub> (100 dpm/100cm<sup>2</sup>) and the Uranium DCGL<sub>w</sub> (5,000 dpm/100cm<sup>2</sup>) unrestricted release limits.

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

### SUMMARY

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

- Asbestos containing materials (friable and non-friable) identified in buildings 549, 554 and 556 will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations and therefore, do not impact project decisions (i.e., classification as Type 1 facilities).
- Based on a review of the HSAR and facility walk downs, B554 was identified as containing potential RCRA/CERCLA contamination, specifically, mercury. Building 554 functioned as a 90-day storage area for various RCRA waste streams, as well as, a fluorescent bulb crushing process. Consequently, the area of concern involved the potential for mercury accumulation in the cracks of the floor. As a result, it was determined that a mercury investigation was warranted in order to characterize the areas with the greatest potential for residual mercury contamination.

The Jerome 431-X is the standard instrument used in the spill response industry to identify the presence of Hg in various media's such as carpet, concrete, and soil. One of the manufacturer's intended uses of the 431-X is soil screening. In this application, soil is placed in a bag and the headspace is checked with the 431-X. Neither soil, nor dust will inhibit the vapors ability to concentrate throughout the bag. Additionally, the 431-X draws the sample through a scrubber that eliminates interference from airborne dust particles. Because soil and dust would act as similar substrates, the Jerome 431-X would be the most appropriate instrument for determining the presence of mercury in B554.

The Jerome 431-X measures Hg vapor by drawing a precise volume sample of the atmosphere into a chamber that contains a gold film used as a sensor. Another chamber within the machine contains a second gold film that is isolated from the sample, and is used as a reference. The electrical resistance of the gold film is extremely sensitive to the presence of Hg, and the measured difference in resistance between the sensor and the reference is used to calculate the concentration of Hg in  $\text{mg}/\text{m}^3$ . The gold film sensor is inherently stable and selective to mercury, thus eliminating interference's common to ultraviolet analyzers, such as water vapor and hydrocarbons. The sensitivity of the Jerome 431-X is such that it is capable of detecting the small amount of Hg vapor continuously released from dental amalgams. The effective temperature range for the machine is between 0 and 40C. Although the exact room temperature was not recorded, the interior of B554 was within the specified operating range during testing. Hg vapor is released continuously from both elemental Hg and Hg containing compounds. The rate of vaporization increases with heat, and because the vapor is 7X heavier than air, it concentrates and remains in low areas - especially those that receive minimal air mixing such as cracks in a concrete slab.

Biased survey locations in B554 corresponded with the most probable areas of mercury accumulation i.e., cracks in the floor near the lamp crushing operation. A Jerome 431-X Mercury Vapor Analyzer, serial number 18887 was used to perform the mercury vapor surveys. The current factory calibration is good through July, 2003. The instrument was field "zeroed" and regenerated on February 5, 2003 - the same day mercury surveys were performed in B554. The field "zero-ing" and regeneration were done in accordance with the procedures described in the owner's manual. Instrument sensitivity is 0.003-0.999 mg/m<sup>3</sup>, which is adequate to detect the presence of mercury vapors. Eleven surveys were taken and all results were 0.00 mg/m<sup>3</sup>. A Mercury investigation was performed to determine the presence of mercury, not measure the level of Mercury per regulatory limits. Because all results were 0.00 mg/m<sup>3</sup>, further investigation by laboratory analysis of core samples per regulatory limits was not pursued.

All beryllium results were less than associated action levels (0.2 µg/100cm<sup>2</sup>) also confirming a Type 1 facility classification.

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

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facilities. On this basis, the Area 3, Group 1A facilities meet the unrestricted release criteria with the confidences stated herein.

**Table E-1 V&V of Radiological Surveys – Area 3 Group 1A Facilities**

V&V CRITERIA, RADIOLOGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	Measure	frequency	COMMENTS
ACCURACY	initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 549-A-001, 549-B-004, 554-B-006, 556-B-007 and 681-B-008.	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm <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% >95%	NA	See Table E-4 for details.
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm <sup>2</sup> RA: ≤10 dpm/100cm <sup>2</sup>	all measures	MDAs ≤ 50% DCGL <sub>w</sub> per MARSSIM guidelines.

**Table E-2 V&V of Asbestos Results – Area 3 Group 1A Facilities**

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc	
QUALITY REQUIREMENT		RIN ---->	RIN03Z0921 (B681) RIN03Z0904 (B549, B554 and B556)	
		Measure	Frequency	
ACCURACY	Calibrations: Initial/continuing	below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 33 samples	Semi-quantitative, per (microscopic) visual estimation.
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact: completed paperwork, containers w/ custody seals.
	Hold times/preservation	Qualitative	NA	N/A
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	See original Chemical Characterization Package (planning document); for field/sampling procedures (located in project file;) thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Measurement Units	% by bulk volume	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual samples Usable results vs. unusable	Qualitative	NA	See Table E-4; final number of samples at Certified Inspector's discretion.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

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**Table E-3 V&V of Beryllium Results – Area 3 Group 1A Facilities**

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
<b>BERYLLIUM</b>	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville, Littleton, Co.	
<b>QUALITY REQUIREMENTS</b>		RIN ---->	03Z0922 (B681) 03Z0903 (B549, B554 and B556)	
		<b>Measure</b>	<b>Frequency</b>	<b>COMMENTS</b>
<b>ACCURACY</b>	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 1 facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks - lab & field	<MDL	≥1	
	interference check std (ICP)	NA	NA	
<b>PRECISION</b>	LCSD	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
<b>REPRESENTATIVENESS</b>	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
<b>COMPARABILITY</b>	measurement units	ug/100cm <sup>2</sup>	NA	
<b>COMPLETENESS</b>	Plan vs. Actual samples	>95%	NA	
	usable results vs. unusable	>95%		
<b>SENSITIVITY</b>	detection limits	MDL of 0.012 ug/100cm <sup>2</sup>	all measures	

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**Table E-4 V&V of Metal (Mercury) Results - Building 554 (Only)**

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
Metals (total)	METHOD: SW6010/6020	LAB ---->	Not Applicable	
		RIN ---->	Not Applicable	
QUALITY REQUIREMENTS		Measure	Frequency	<p>No qualifications significant enough to change project decision. i.e., classification of a Type I facility confirmed. LAB and RIN are not applicable because core samples were not taken and sent for laboratory analysis. Mercury investigation performed to determine the presence of mercury, not measure the level of Mercury per regulatory limits.</p>
ACCURACY	Calibrations: Initial	linear calibration	≥1/batch	
	Continuing	80%<%R<120%	≥1/batch	
	LCS	80%<%R<120%	≥1/batch	
	MS	75%<%R<125%	≥1/batch	
	Blanks - lab	mg/kg	NA	
	Serial dilutions	%D<10%	NA	
	Interference check std (ICP)	80%<%R<120%	NA	
PRECISION	MSD	RPD<30%	NA	
	Field duplicate	all results < RL	NA	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	≤180 days	NA	
	Controlling Documents (Plans, Procedures, Maps, etc.)	Qualitative	NA	
COMPARABILITY	Measurement units	mg/m <sup>3</sup>	NA	
COMPLETENESS	Plan vs. Actual samples	>95%	NA	
	Usable results vs. unusable	>95%	NA	
SENSITIVITY	Detection limits	0.003-0.999 mg/m <sup>3</sup>	mercury	

**Table E-5 Data Completeness Summary – Area 3 Group 1A Facilities**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC) <sup>A</sup>	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	B549 (interior and exterior)	11 biased	16 biased	ACM present > 1% by volume (2 locations)	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116  RIN03Z0904: 549-02032003-315-201 through 549-02032003-315-216.  Identified two locations with ACM > 1% by volume: 2% Chrysotile/1.25 point count and 65% Chrysotile. The ACM will be managed in accordance with CDPHE Regulation 8 requirements during demolition activities.
Asbestos	B554 (interior)	3 biased	8 biased	No ACM present, all results < 1% by volume	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116  Although no ACM identified during sampling as part of this RLCR, B554 contains ACM based on known product composition (refer to Asbestos tables in attachment D).  RIN03Z0904: sample numbers 554-02032003-315-201 through 554-02032003-315-208.
Asbestos	B556 (interior)	3 biased	6 biased	ACM present > 1% by volume (2 locations)	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116  RIN03Z0904: sample numbers 556-02032003-315-201 through 556-02032003-315-206.  Identified two locations with ACM > 1% by volume: both locations are 15% Chrysotile. The ACM will be managed in accordance with CDPHE Regulation 8 requirements during demolition activities.
Asbestos	B681 (interior)	0 biased	3 biased	No ACM present, all results < 1% by volume	40 CFR763.86; 5 CCR 1001-10; EPA 600/R-93/116  RIN03Z0921

**Table E-5 Data Completeness Summary – Area 3 Group 1A Facilities**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC) <sup>A</sup>	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	B549 (interior)	5 biased	5 biased	No beryllium contamination found, all results less than associated action levels	OSHA ID-125G – RIN03Z0903 No results above action level (0.2ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> ).
Beryllium	B554 (interior)	5 biased	15 biased	No beryllium contamination found, all results less than associated action levels	OSHA ID-125G – RIN03Z0903 No results above action level (0.2ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> ).
Beryllium	B556 (interior)	5 biased	15 biased	No beryllium contamination found, all results less than associated action levels	OSHA ID-125G – RIN03Z0903 No results above action level (0.2ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> ).
Beryllium	B681 (interior)	5 biased	5 biased	No beryllium contamination found, all results less than associated action levels	OSHA ID-125G – RIN03Z0922 No results above action level (0.2ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> ).
Metals (Mercury)	B554 (interior)	0 biased	11 biased	No mercury vapor detected, all survey results are less than 0.00 mg/m <sup>3</sup>	Detection range for instrument used to detect mercury vapor was 0.003 - 0.999 mg/m <sup>3</sup> . All results were 0.00 mg/m <sup>3</sup> , therefore, verified no mercury contamination is present. On this basis, core samples were not taken and analyzed to determine mercury level per regulatory limits.

**Table E-5 Data Completeness Summary – Area 3 Group 1A Facilities**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC) <sup>A</sup>	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 3 Survey Unit: 549-B-004 B549 (exterior)	19 $\alpha$ TSA (15 random/4 biased) and 19 $\alpha$ Smears (15 random/4 biased)  2 QC TSA 5% scan	19 $\alpha$ TSA (15 random/4 biased) and 19 $\alpha$ Smears (15 random/4 biased)  2 QC TSA 5% scan	No elevated contamination found at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.  Standard deviation was > 30 (31.3). However, per MARSSIM criteria, since all results were below the applicable DCGLs, standard deviation is not relevant.
Radiological	Survey Area 3 Survey Unit: 549-A-001 B549 (interior)	25 $\alpha$ TSA (15 systematic/10 biased) and 25 $\alpha$ Smears (15 systematic/10 biased)  30 $\alpha$ TSA and 30 $\alpha$ Smears (equipment) 3 QC TSA  100% scan floor, 50% scan lower walls < 2 m., 10% scan walls > 2 m. and ceiling	31 $\alpha$ TSA (15 systematic/16 biased) and 31 $\alpha$ Smears (15 systematic/16 biased)  30 $\alpha$ TSA and 30 $\alpha$ Smears (equipment) 3 QC TSA  100% scan floor, 50% scan lower walls < 2 m., 10% scan walls > 2 m. and ceiling	No elevated contamination found at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.

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**Table E-5 Data Completeness Summary – Area 3 Group 1A Facilities**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC) <sup>A</sup>	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 3 Survey Unit: 554-B-006 (interior and exterior)	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased)  30 α TSA and 30 α Smears (equipment)  3 QC TSA  5% scan	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased)  30 α TSA and 30 α Smears (equipment)  3 QC TSA  5% scan	No elevated contamination found at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.
Radiological	Survey Area 3 Survey Unit: 556-B-007 B556 (interior and exterior)	21 α TSA (15 random/6 biased) and 21 α Smears (15 random/6 biased)  15 α TSA and 15 α Smears (equipment)  2 QC TSA  5% scan	26 α TSA (15 random/11 biased) and 26 α Smears (15 random/11 biased)  15 α TSA and 15 α Smears (equipment)  2 QC TSA  5% scan	No elevated contamination found at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.

**Table E-5 Data Completeness Summary – Area 3 Group 1A Facilities**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC) <sup>A</sup>	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 3 Survey Unit: 681-B-008 B681 (interior and exterior)	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased)  30 α TSA and 30 α Smears (equipment)  4 QC TSA  5% scan	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased)  30 α TSA and 30 α Smears (equipment)  4 QC TSA  5% scan	No elevated contamination found at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.

A - Asbestos Sample Number Planned was only an estimate, actual sample numbers are determined during the inspection.