NOTICE

All drawings located at the end of the document.

Rocky Flats Environmental Technology Site

TYPE 1
RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

AREA 3-GROUP 4 CLOSURE PROJECTS

(Buildings 302, 303, T303D, 308 and 375)

REVISION 0

August 28, 2003

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REVISION 0

August 28, 2003

Reviewed by: _____ Date: 8/27/03
Don Risoli, Quality Assurance

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
CERCLA	Comprehensive Emergency Response, Compensation and Liability Act
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to enable facility "Typing" per the DPP (10/8/98) and compliant disposition and waste management of the Area 3-Group 4 facilities (i.e., Buildings 302, 303, T303D, 308 and 375). Because these facilities were anticipated Type 1 facilities, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceilings, roofs and equipment]. Environmental media beneath and surrounding the facilities were 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. All bulk sample results of building materials suspected of containing asbestos were negative or "None Detected". All beryllium sample results were less than 0.1 $\mu g/100cm^2$. Building 303 (rifle range) has visual evidence of lead contamination on surfaces and within exposed wooden portions of the structure. Building 303 lead-contaminated materials will need to be managed either as RCRA regulated (D008) waste or decontaminated prior to demolition. Fluorescent light ballasts may contain PCBs. Any PCB ballasts and hazardous-waste items will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in 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. With the exception of Building 303, all concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Based upon this RLCR, the Area 3-Group 4 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 posted accordingly.

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1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of the Area 3-Group 4 facilities (i.e., Buildings 302, 303, T303D, 308 and 375). Because these facilities were 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., floors (slabs), walls, ceilings, roofs and equipment]. Environmental media beneath and surrounding the facilities were 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 4 facilities. The locations of these facilities are shown in Attachment A, *Facility Location Map*. These facilities no longer support the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

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

1.1 Purpose

The purpose of this report is to communicate and document the results of the RLC effort. A 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 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 4 facilities. Environmental media beneath and surrounding the facilities are not within the scope of this RLCR and will be addressed using the Soil Disturbance Permit process and in compliance with RFCA.

1.3 Data Quality Objectives

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

2 HISTORICAL SITE ASSESSMENT

Facility-specific Historical Site Assessments (HSAs) were conducted to understand facility histories and related hazards. The assessments consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSAs were documented in a facility-specific *Historical Site Assessment Report (HSAR) for Area 3-Group 4 facilities*, Dated May 2002, Revision 0 (refer to Attachment B, *Historical Site Assessment Report*). In summary, the HSAR identified no potential for radiological and chemical hazards, except the potential for asbestos containing materials.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Area 3-Group 4 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, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files).

Five radiological survey packages were developed for the interior surfaces of the Area 3-Group 4 facilities: 302-A-001 (Building 302), 303-A-002 (Building 303), T303D-A-003 (Trailer 303D), 308-A-004 (Building 308) and 375-A-007 (Building 375). The five 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), 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.

One hundred and sixty one (161) TSA measurements (100 random, 40 biased, 10 equipment and 11 QC) and one hundred and fifty (150) RSA measurements (100 random, 40 biased and 10 equipment), and a minimum of 5% of the interior surfaces of the five Area 3-Group 4 facilities were scanned at biased locations. The RLC data confirmed that these 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.

The exterior radiological surveys for the Area 3-Group 4 facilities were performed as part of the RISS West Side Exterior PDS strategy effort (authorized by Department of Energy letter, *02-DOE-01598*, dated December 13th, 2002 and approved by CDPHE letter, *RE: Proposed Deviations From The Pre-Demolition Survey Plan (PDSP)*, dated January 27, 2003; refer to the RISS Characterization Project Files for letter copies). The RISS West Side exterior building radiological surveys and locations can be found in survey unit package EXT-B-001, *RISS West Side Building Exteriors*. Ten (10) biased TSA measurements, ten (10) biased RSA measurements, and a one (1) square meter scan at each of the ten (10) TSA/RSA locations were performed at biased locations on the exterior surfaces of Buildings 302, 303, T303D, 308 and 375. Ten percent scan surveys were performed at biased locations on the exterior entrance and associated concrete surfaces, and one (1) additional TSA and RSA measurement was also collected. The RLC data collected in exterior survey unit package EXT-B-001 confirmed that the exterior surfaces of these facilities do not contain radiological contamination above the surface contamination guidelines provided in the PDSP. Radiological survey data, statistical analysis results, and survey map locations for the West-Side Exterior survey unit package EXT-B-001 are maintained in the RISS Characterization Project files.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

The Area 3-Group 4 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 the 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, metals and PCBs.

4.1 Asbestos

A visual survey of building materials suspected of containing asbestos was conducted in the Area 3-Group 4 facilities in accordance with the PDSP. 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.

No building materials suspected of containing asbestos were identified during the visual and tactile inspection of Buildings 302, 303, and 308, therefore, asbestos sampling and analysis was not performed as part of this RLC in these buildings. Building 375 is of the identical construction type and built at the same time as Buildings 550, 761 and 901. Buildings 550, 761 and 901were characterized for asbestos during the Security Cluster Closure Project RLCR, dated May 17, 2001, Revision 1, (refer to RISS Characterization Project files), and is representative of the materials in Building 375. All laboratory results of bulk samples taken in Buildings 550, 761 and 901 were "None Detected", therefore, asbestos samples for Building 375 were not taken as part of this RLC.

Only building materials suspected of containing asbestos in T303D were sampled, and all laboratory results of bulk samples taken were negative or "None Detected". Refer to Attachment D, *Chemical Data Summaries and Sample Maps*, for details on sample results and sample locations.

4.2 Beryllium (Be)

Based on the HSAR and personnel interviews, the Area 3-Group 4 facilities were 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, five (5) biased beryllium samples were collected per building 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 $\mu g/100cm^2$. 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 the HSAR, interviews and facility walk-downs of the Area 3-Group 4 facilities, only Building 303 is a RCRA/CERCLA concern. Surfaces of the shooting range are assumed to be lead contaminated, as is evidenced by bullet fragments on the floor and in the wooden portions of the ceiling. These materials will need to be managed either as RCRA regulated (D008) waste or decontaminated prior to demolition. If decontamination is chosen, surface swipe or wash water samples will be taken to confirm the effectiveness of decontamination procedures. There is no evidence of contamination in the remaining Area 3-Group 4 facilities (only non-lead bullets have been used in 302). Therefore, RCRA/CERCLA constituent sampling was not performed in these facilities as part of this RLC.

Sampling for lead in paint in the Area 3-Group 4 facilities were 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.

The buildings may contain some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries. These items will be removed prior to demolition and managed in accordance with the Colorado Hazardous Waste Act.

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4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR, interviews and facility walkdowns of the Area 3-Group 4 facilities, no PCB-containing equipment were ever present in any of the facilities, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed in these facilities as part of this RLC.

Based on the age of the Area 3-Group 4 facilities (constructed after 1980), paints used on the facility are not expected to contain PCBs, and painted surfaces can be disposed of as sanitary waste.

Although it is unlikely, some of the 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 do not indicate non PCB-containing are assumed to be PCB-containing and, if not leaking or more than 9 pounds, will remain with the building and be disposed of as PCB Bulk Product Waste. If non-leaking PCB ballasts are left in the building during demolition, the debris will be managed as PCB Bulk Product Waste.

5 PHYSICAL HAZARDS

Physical hazards associated with the Area 3-Group 4 facilities consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, and trips and falls. There are no unique hazards associated with the facilities. However, care should be taken during demolition activities as Buildings 302, 303, T303D and 308 are located near PAC NW-1505 "North Firing Range" (Active). The facilities have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of the Area 3-Group 4 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 4 facilities will generate a variety of wastes. Estimated waste types and waste volumes are presented below by facility. All waste can be disposed of as sanitary waste, PCB Bulk Product Waste, or hazardous-waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, leaded glass and lead-acid batteries). There is no radioactive or beryllium waste. Building 303 lead-contaminated materials will need to be managed either as RCRA regulated (D008) waste or decontaminated prior to demolition. Leaking PCB ballasts, and hazardous waste items will be removed prior to demolition and disposed of pursuant to Site waste management procedures. Except for Building 303, all concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete.

Waste Volume Estimates and Material Types - Area 3-Group 4

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
302	1,000	500	500	0	0	0	None
303	800	700	3,500	0	0	0	5,000 Lead waste (D008) Asphalt – 2,500
T330D	0	500	500	500	750	0	None
308	60	0	100	0	0	0	None
375	1,900	0	900	0	100	0	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Area 3-Group 4 facilities (i.e., Buildings 302, 303, T303D, 308 and 375) are classified as RFCA Type 1 facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999) and can be demolished or sold to offsite commerce. 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 4 facilities was performed in accordance with the DDCP and PDSP. All PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. These facilities do not contain radiological or beryllium wastes. Surfaces of the shooting range (Building 303) are assumed to be lead contaminated, as is evidenced by bullet fragments on the floor and in the wooden portions of the ceiling. Building 303 lead-contaminated materials will need to be managed either as RCRA regulated (D008) waste or decontaminated prior to demolition. Any PCB ballasts or hazardous-waste items will be managed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. All demolition debris will be managed in 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.

With the exception of Building 303, all 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 posted accordingly.

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9 REFERENCES

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

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

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

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

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

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

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol,* Rev. 3, July 15, 2002.

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

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual,* December 1997 (NUREG-1575, EPA 402-R-97-016).

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

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

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

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

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

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

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

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

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

RFCA Standard Operation Protocol for Recycling Concrete, September 28, 1999.

Historical Site Assessment Report for the Area 3-Group 4 facilities, Dated May 2002, Revision 0.

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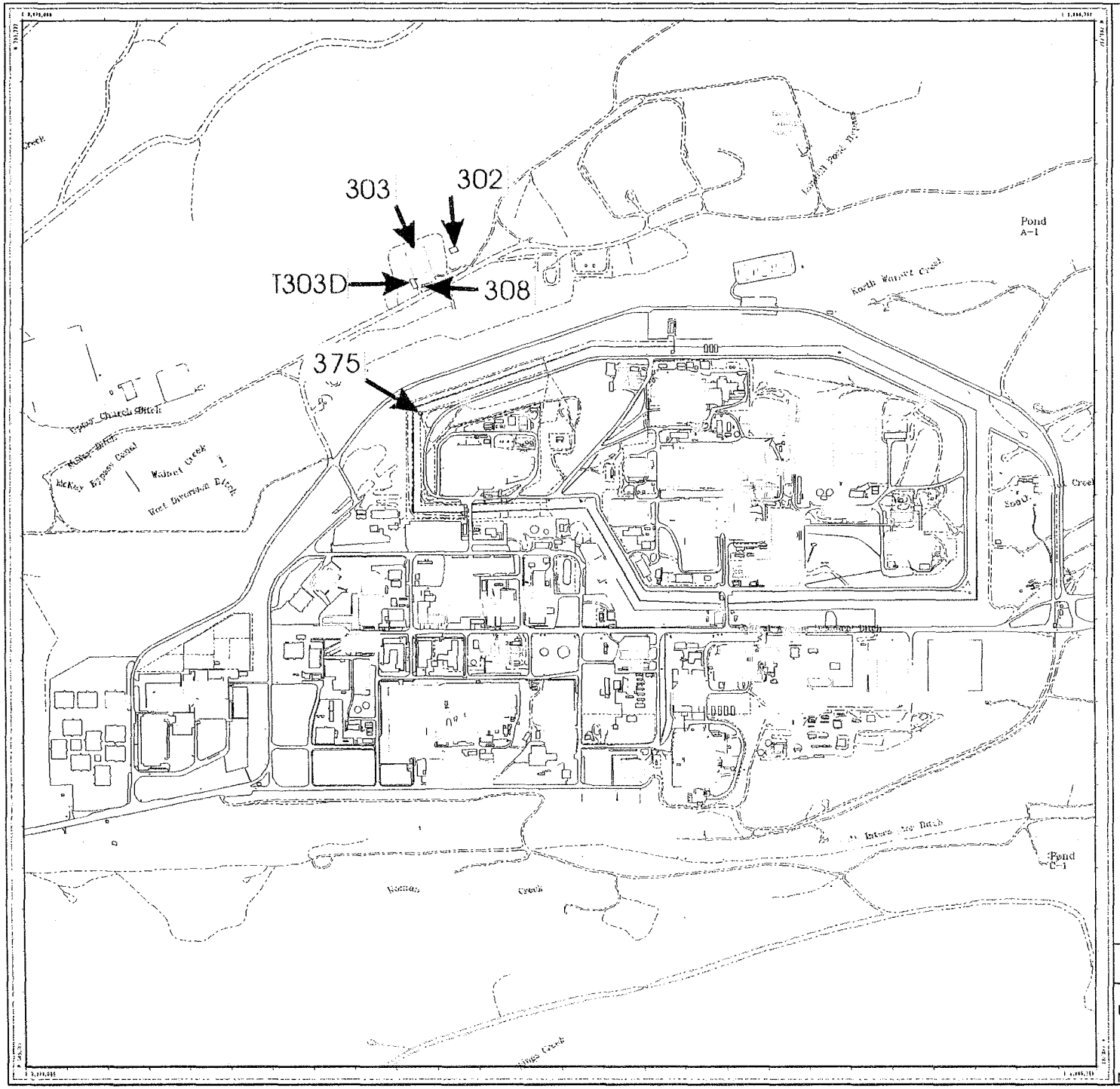
ATTACHMENT A

Facility Location Map



Building Cluster 302, 303, T303D, 308 & 375

Standard Map Features

- Buildings and other structures
- Demolished 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 RSL, Las Vegas.
Digitized from the orthophotographs. 1/95

Scale = 1 : 12450
1 inch represents approximately 1038 feet

2500 0 500 1000ft

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

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

GIS Dept. 303-966-7707

Prepared by:

Prepared for:

MAP ID: FY2002

Aug 25, 2003

H:_Svr w/projects\02-0589\302-over.cdr

ATTACHMENT B

Historical Site Assessment Report

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

Facility ID: Buildings 302, 303, T303D, 308, 372, 372A, and 375.
Anticipated Facility Type (1, 2, or 3): 302, 303, T303D, 308, 372, 372A, and 375 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 302

Building 302 is an 1872 sq. ft. Shoot House constructed in 1997 and is used by security for indoor firearms training. The structure was built with steel exterior walls and wood interior walls which divide the building into rooms. Building 302 has an open roof with an observation platform mount on the top of the structure. The platform is used by instructors to observe the students during training. The building is constructed on a concrete slab poured on grade.

Building 302 has the following utilities: fire protection provided by wall mounted fire extinguishers.

Building 303

Building 303 is an approximately 6,500 sq. ft. rife range constructed in 1983. The rifle range consisting of a 35 sq. ft. monitoring booth located on the south end of the range and the 6,500 sq. ft. covered rifle range. The monitoring booth has observation windows on the east, west, and north side of the structure. The monitoring station is constructed on an elevated concrete pad poured on grade. The rifle range is a 6,500 sq. ft covered structure with open sides and an asphalt pad. The covered range is constructed with steel I-beams and plywood covering the beam to prevent stray bullets from deflecting off the beams. The cover is also ballistic resistant which means there are steel plates in the roof to prevent bullets from penetrating. The range cover and asphalt pad were added to the range in approximately 1995. The current bullet containment system (equipped with a dust collection vacuum) located on the north end of the range was added in approximately 1998.

Building 303 has the following utilities: electric and fire protection provided by wall mounted fire extinguishers.

Building T303D

Building T303D is a 1960 sq. ft. trailer used to conduct classroom training for site security. The trailer was acquired in 1991 and was originally called T120A. This trailer was located at the west entrance to the RFETS site and was used as the badging trailer. Trailer T120A was moved to its current location and renamed T303D in 1999. The T303D walls and roof are constructed of sheet metal and the entry doors have wood stairs.

Building T303D has the following utilities: electric and fire protection is provided by wall mounted fire extinguishers.

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Building 308

Building 308 is a 100 sq. ft. building constructed in 1983. This building is a metal structure with insulated metal walls, insulated metal roof, and is constructed on a concrete pad. The building houses an air compressor used to turn the firing range targets.

Building 308 has the following utilities: electric and fire protection is provided by wall mounted fire extinguishers.

Building 372

Building 372 is a single story 520 sq. ft. Guard House constructed in 1983. Building 372 is a reinforced concrete structure with a concrete panel roof and is built on a concrete slab. In the mid 1980s this building was "Hardened". Hardening a structure means to add bulletproof glass and install heavy steel doors. This building housed a variety of site alarm systems and an observation window to view personnel and equipment entering through PACS 2.

Building 372 has the following utilities: electric, plant water, plant sanitary, and fire protection is provided by wall mounted fire extinguishers.

Building 372A

Building 372A is single story 1800 sq. ft. Personnel Access Control Facility for Building 371 (PACS 2) and was constructed in 1989. Building 372A is a reinforced concrete structure with a concrete roof and is built on a concrete slab. The building contains personnel scanners, entry turnstiles, and a large metal security room used to house security personnel and a variety of site alarm systems. Directly north of the building there is a back-up diesel generator.

Building 372A has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers.

Building 375

Building 375 is 338 sq. ft. Guard Tower (T-4) constructed in 1983. Building 375 is a 85 foot tall tower constructed of masonry blocks. This building has metal stairs that lead to an observation platform used by site security to observe the area around the Building 371 complex. The observation room has bulletproof glass to protect the occupants. The roof had an access port and guardrail installed in 1993 so security forces had access to the roof to aid in defending the area.

Building 375 has the following utilities: electric, and fire protection is provided by wall mounted fire extinguishers

Historical Operations

Building 302

Building 302 is the Shoot House used by site security to train personnel in an indoor shooting situation. The shooting house is divided into rooms and each room is staged in a different training scenario. The open top to the structure provides instructors an observation point to evaluate students. Only non-lead containing bullets are used in this facility.

Building 303

Building 303 is the rifle range and consists of a 35 sq. ft. monitoring booth and the 6,500 sq. ft. covered rifle range. The original rifle range consisted of the monitoring station, a gravel pad, and a dirt berm located on the north, west and east side of the range. The dirt berm located on the north side of the range was used to stop the bullets during practice. In 1995 the gavel pad was paved with asphalt and an open sided cover was constructed over the rifle range. In 1998 the current bullet containment system was installed and the bullets were no longer stopped by the dirt berm located at the north end of the rifle range. During the construction of the bullet containment system, several feet of the south side of the north berm was excavated and moved to the north side of the berm and on the ends of the berm. The cover to the shooting range is constructed of steel beams covered with plywood designed to stop stray bullets from deflecting off the steel beams. Historically the bullets were shot into the dirt berm at the end of the rifle range, since the installation of the bullet containment system the bullets are collected and sent off site for recycle.

Building T303D

Building T303D is an office trailer used to conduct classroom training for site security. The trailer was originally called T120A and was located at the west entrance to RFETS. This trailer was used as a badging trailer. There is no history of radiological or hazardous material operation in this trailer.

Building 308

Building 308 is the Rifle Range Compressor Building and houses an air compressed, which supplies compressed air used to turn the firing range targets during training exercises. This building has always been the compressor building.

Building 372

Building 372 is the building 371 guardhouse. This guardhouse is used by the site security forces to house security personnel as well as providing an observation point to view personnel and equipment entering PACS 2. During the mid 1980s this building housed a sealed cesium source for several years. There is not history of this source leaking and the facility is no longer used to store sealed sources.

Building 372A

Building 372A is the Personnel Access Control Facility for (PACS 2) and is operated by site security. This building contains personnel scanners, entry turnstiles, a large metal security room used to house security personnel and a variety of site alarm systems. On occasion, this facility had small quantities of sealed and packaged radiological material (usually sealed sources), transported though the personnel access area. There is no history of any building contamination resulting from this activity.

Building 375

Building 375 is a guard tower that has been inactive since 1999. The tower was used as an observation point for the area around the 371 complex. This facility housed a variety of site alarms and electronic monitoring equipment. This facility never housed radiological or chemical operations.

Current Operational Status

Building 302, 303, T303D, and 308 make up the firing Range and are all operational. Building 375 is the guard tower and has not been operational since 1999. Building 372 and 372A are the Building 371 PACs and the Building 371 Guard Post and are operational.

Contaminants of Concern

Asbestos

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

None of the buildings addressed in this HSA have an asbestos posting. None of the facilities in this HSA have had a comprehensive asbestos survey.

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 resent Beryllium samples have been collected on any of these facilities.

Lead

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

Lead in paint should not be a concern for the facilities in this HSA, given the resent age of construction. Lead from spent bullets is a waste stream generated on the Building 303 Rifle Range. Historically the lead bullets where stopped by the dirt berm located on the north side of the shooting range. Currently the bullets are stopped and collected by the bullet containment system and sent off site for recycle. The area around the bullet containment system has residue bullet fragments. Only non-lead containing bullets are used in the Building 302 Shoot House.

RCRA/CERCLA Constituents

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

The Building 303 firing range has a bullet containment system (equipped with a dust collection vacuum), that was installed in 1999 to collect bullet fragment generated during practice. The bullet containment system and the area around it have residue from the fragmented lead bullets. Prior to the installation of the bullet containment system the bullets were stopped by a dirt berm located at the north end of the firing range. During the installation of the bullet containment system the southern portion of the dirt berm was removed and placed on the north side of the dirt berm. Firearms were clean at Building 121 and not cleaned at the firing range.

The remainder of the facilities addressed in this HSA have no history of handling RCRA/CERCLA constituents.

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:

None

PCBs

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

PCBs where not known to have been handled in any of these facilities.

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

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

Describe methods in which spills were mitigated, if any:

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

Radiological Contaminants

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

None of the Facilities addressed in this HSA are radiologically posted. None of the facilities have housed any radiological operations. The Building 375 Guard Tower stored a cesium source for 2 to 3 years during the mid 1980s. The firing range never used armor piercing rounds (depleted uranium). Building 372A has had a limited amount of sealed and containerized radiological material (mostly sealed sources) transported through the building. This material was always transported in appropriate sealed containers and there is no history of any leaks associated with this activity.

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

None

Describe methods in which spills were mitigated, f any:

None

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

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.

Environmental Restoration Concerns

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

Building 302, 303, T303D, and 308 are associated with or located near the following active IHSSs, PACs, and UBCs;

1) PAC NW-1505 "North firing Range", Active.

Building 372A 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.

Buildings 372 and 375 are not associated with any IHSSs, PACs, and UBCs.

Additional Information

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

None

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References

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

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

Waste Volume Estimates and Material Types

Facility	Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Building 302	1000	500	500	0	0	TBD	N/A
Building 303	800	700	3500	0	0	TBD	Asphalt -2500
Trailer T303D	0	500	500	500	750	TBD	N/A
Building 308	60	0	100	0	0	TBD	N/A
Building 372	1400	0	700	0	200	TBD	N/A
Building 372A	3200	1000	0	0	500	TBD	N/A
Building 375	1900	0	900	0	100	TBD	N/A

Further Actions

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

Begin the RLC/PDS process.

Note:

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

Prepared By: Doug Bryant / [signature] / May 2002

Name Signature Date

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ATTACHMENT C

Radiological Data Summaries and Survey Maps

SURVEY UNIT 302-A-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B302 (Interior)

25

Total Surface Activity Measurements

	25 Number Required	25 Number Obtained	
MIN	4.7		dpm/100 cm^2
MAX	56.1		dpm/100 cm^2
MEAN	27.6		dpm/100 cm^2
STD DEV	14.7		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	25 Number Required	25 Number Obtained	
MIN	-1.5		dpm/100 cm^2
MAX	3.0		dpm/100 cm^2
MEAN	0.4		dpm/100 cm^2
STD DEV	1.5		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

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SURVEY UNIT 302-A-001
TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3
Serial #:	3114	1681	3115
Cal Due Date:	9/3/03	10/18/03	9/24/03
Analysis Date:	5/5/03	5/5/03	5/5/03
Alpha Eff. (c/d):	0.219	0.218	0.218
Alpha Bkgd (cpm)	6.7	4.0	0.7
Sample Time (min)	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5
MDC (dpm/100cm^2)	48.0	48.0	48.0

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)[1,2]
1	1	8.0	36.5	5.3	24.2	13.7
2	1	8.7	39.7	3.3	15.1	16.9
3	1	8.7	39.7	6.0	27.4	16.9
4	2	10.0	45.9	3.3	15.1	23.0
5	1	16.7	76.3	6.0	27.4	53.4
6	2	16.0	73.4	3.3	15.1	50.5
7	2	12.7	58.3	2.0	9.2	35.4
8	2	14.0	64.2	3.8	17.4	41.4
9	2	9.3	42.7	6.7	30.7	19.8
10	2	15.3	70.2	2.0	9.2	47.3
11	1	11.3	51.6	8.0	36.5	28.7
12	2	9.3	42.7	1.3	6.0	19.8
13	2	6.7	30.7	2.0	9.2	7.9
14	1	14.0	63.9	7.3	33.3	41.1
15	1	17.3	79.0	8.0	36.5	56.1
16	3	6.0	27.5	4.7	21.6	4.7
17	2	9.3	42.7	3.3	15.1	19.8
18	3	12.7	58.3	8.0	36.7	35.4
19	2	10.7	49.1	5.3	24.3	26.2
20	3	8.7	39.9	7.3	33.5	17.0
21	3	8.0	36.7	6.0	27.5	13.8
22	1	13.3	60.7	6.7	30.6	37.9
23	1	12.0	54.8	8.0	36.5	31.9
24	2	9.3	42.7	4.0	18.3	19.8
25	3	7.3	33.5	3.3	15.1	10.6

1 - Average LAB used to subtract from Gross Sample Activity

22.9	Sample LAB Average
MIN	4.7
MAX	56.1
MEAN	27.6
SD	14.7
Transuranic $DCGL_W$	100

QC Measurements

14 QC	2	10.7	49.1	2.7	12.4	38.3
15 QC	3	8.0	36.7	2.0	9.2	25.9

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

10.8	QC LAB Average
Transuranic $DCGL_W$	100

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SURVEY UNIT 302-A-001
RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	1164	952	971	**924**
Cal Due Date:	6/17/03	7/9/03	8/6/03	**10/23/03**
Analysis Date:	5/14/03	5/14/03	5/14/03	**5/14/03**
Alpha Eff. (c/d):	0.33	0.33	0.33	**0.33**
Alpha Bkgd (cpm)	0.4	0.5	0.0	**0.3**
Sample Time (min)	2	2	2	**2**
Bkgd Time (min)	10	10	10	**10**
MDC (dpm/100cm^2)	7.0	8.0	4.5	**4.5**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	4	1	0.3
2	5	2	1.5
3	6	2	3.0
4	7	2	2.1
5	4	0	-1.2
6	5	0	-1.5
7	6	0	0.0
8	7	1	0.6
9	4	1	0.3
10	5	0	-1.5
11	6	1	1.5
12	7	0	-0.9
13	4	1	0.3
14	5	0	-1.5
15	6	0	0.0
16	7	1	0.6
17	4	0	-1.2
18	5	2	1.5
19	6	1	1.5
20	7	2	2.1
21	4	2	1.8
22	5	0	-1.5
23	6	2	3.0
24	7	1	0.6
25	4	0	-1.2
		MIN	-1.5
		MAX	3.0
		MEAN	0.4
		SD	1.5
		Transuranic DCGL$_W$	**20**

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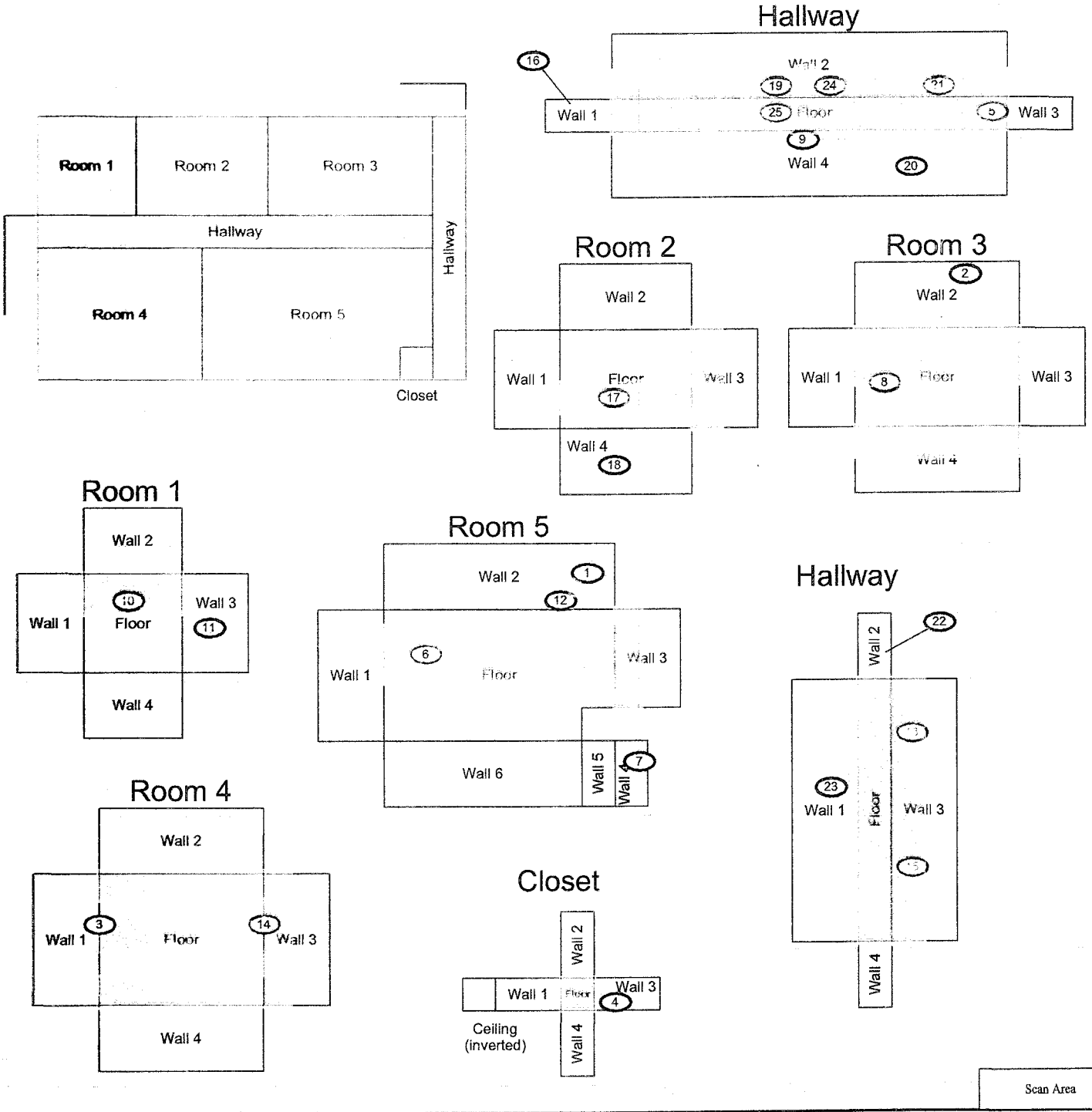
PRE-DEMOLITION SURVEY FOR B302

Survey Area: 3 **Survey Unit: 302-A-001** **Classification: 3**
Building: 302
Survey Unit Description: Building 302 Interior
Total Area: 541 sq. m. **Total Floor Area: 155 sq. m.**



Scan Area

SURVEY MAP LEGEND

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

N

0 FEET 25
0 METERS 8

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

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

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

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

CH2MHILL Communications Group

KAISER-HILL

MAP ID: 02-0589/B302-SC **June 05, 2003**

SURVEY UNIT 303-A-002
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B303 (Interior)

30

Total Surface Activity Measurements

	50 Number Required	50 Number Obtained	
MIN	-12.6		dpm/100 cm^2
MAX	40.8		dpm/100 cm^2
MEAN	7.0		dpm/100 cm^2
STD DEV	12.0		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	50 Number Required	50 Number Obtained	
MIN	-1.2		dpm/100 cm^2
MAX	5.2		dpm/100 cm^2
MEAN	-0.1		dpm/100 cm^2
STD DEV	1.3		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

SURVEY UNIT 303-A-002
TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	5	6	11	12
Serial #:	1417	1260	3115	1425	1417	1547	1273
Cal Due Date:	7/28/03	7/10/03	9/24/03	1/24/04	1/21/04	11/20/03	1/9/04
Analysis Date:	6/4/03	6/4/03	6/4/03	8/4/03	8/4/03	8/13/03	8/13/03
Alpha Eff. (c/d):	0.218	0.223	0.218	0.225	0.218	0.223	0.212
Alpha Bkgd (cpm)	0.7	2.7	1.3	0.0	5.0	5.0	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^2)	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/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2)[1,2]
1	2	1.3	5.8	4.0	17.9	-10.0
2	5	4.7	20.9	2.0	8.9	5.0
3	2	2.7	12.1	2.0	9.0	-3.7
4	6	6.0	27.5	3.3	15.1	11.7
5	12	6.0	28.3	2.0	9.4	12.5
6	2	2.7	12.1	1.3	5.8	-3.7
7	5	6.0	26.7	1.3	5.8	10.8
8	6	8.0	36.7	5.3	24.3	20.9
9	2	2.7	12.1	1.3	5.8	-3.7
10	1	2.0	9.2	0.7	3.2	-6.7
11	1	1.3	6.0	0.7	3.2	-9.9
12	5	3.3	14.7	3.3	14.7	-1.2
13	6	4.0	18.3	6.7	30.7	2.5
14	1	0.7	3.2	0.7	3.2	-12.6
15	6	9.3	42.7	3.3	15.1	26.8
16	1	3.3	15.1	4.0	18.3	-0.7
17	6	5.3	24.3	5.3	24.3	8.5
18	6	8.0	36.7	3.3	15.1	20.9
19	12	8.0	37.7	3.0	14.2	21.9
20	1	2.7	12.4	4.0	18.3	-3.5
21	6	4.0	18.3	8.0	36.7	2.5
22	2	2.0	9.0	2.0	9.0	-6.9
23	1	3.3	15.1	2.7	12.4	-0.7
24	5	4.0	17.8	4.0	17.8	1.9
25	5	6.0	26.7	4.7	20.9	10.8
26	5	7.3	32.4	4.7	20.9	16.6
27	6	3.3	15.1	1.3	6.0	-0.7
28	5	2.0	8.9	2.7	12.0	-7.0
29	1	2.7	12.4	3.3	15.1	-3.5
30	2	5.3	23.8	2.0	9.0	7.9
31	6	4.7	21.6	2.7	12.4	5.7
32	6	5.3	24.3	6.7	30.7	8.5
33	1	2.0	9.2	4.0	18.3	-6.7
34	5	8.0	35.6	2.0	8.9	19.7
35	5	6.7	29.8	2.0	8.9	13.9
36	6	7.3	33.5	2.0	9.2	17.6
37	12	8.0	37.7	4.0	18.9	21.9
38	6	8.7	39.9	6.7	30.7	24.1
39	5	3.3	14.7	0.7	3.1	-1.2
40	2	2.7	12.1	2.0	9.0	-3.7
41	11	7.3	32.7	7.3	32.7	16.9
42	11	10.0	44.8	7.3	32.7	29.0
43	11	6.0	26.9	7.3	32.7	11.1
44	11	2.7	12.1	3.3	14.9	-3.7

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SURVEY UNIT 303-A-002
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)[1,2]
45	11	6.7	30.0	3.3	14.8	14.2
46	11	6.7	30.0	3.3	14.8	14.2
47	12	2.0	9.4	2.0	9.4	-6.4
48	12	12.0	56.6	4.0	18.9	40.8
49	12	7.0	33.0	4.0	18.9	17.2
50	11	5.3	23.8	6.7	30.0	7.9
					15.8	Sample LAB Average
					MIN	-12.6
					MAX	40.8
					MEAN	7.0
					SD	12.0
					Transuranic $DCGL_W$	**100**

1 - Average LAB used to subtract from Gross Sample Activity

QC Measurements

5 QC	11	10.0	44.8	4.7	21.1	18.8
37 QC	11	6.0	26.9	6.0	26.9	0.9
19 QC	11	7.3	32.7	6.7	30.0	6.7
					26.0	QC LAB Average
					Transuranic $DCGL_W$	**100**

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

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SURVEY UNIT 303-A-002
RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	7	8	9	10
Serial #:	770	1164	924	**959**
Cal Due Date:	10/17/03	11/30/03	10/23/03	**1/14/04**
Analysis Date:	8/11/03	8/11/03	8/11/03	**8/11/03**
Alpha Eff. (c/d):	0.33	0.33	0.33	**0.33**
Alpha Bkgd (cpm)	0.3	0.2	0.4	**0.3**
Sample Time (min)	2	2	2	**2**
Bkgd Time (min)	10	10	10	**10**
MDC (dpm/100cm^2)	7.0	8.0	4.5	**4.5**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	7	2	2.1
2	8	0	-0.6
3	9	2	1.8
4	10	0	-0.9
5	7	4	5.2
6	8	0	-0.6
7	9	1	0.3
8	10	0	-0.9
9	7	0	-0.9
10	8	0	-0.6
11	9	1	0.3
12	10	0	-0.9
13	7	1	0.6
14	8	2	2.4
15	9	0	-1.2
16	10	0	-0.9
17	7	1	0.6
18	8	0	-0.6
19	9	1	0.3
20	10	0	-0.9
21	7	0	-0.9
22	8	1	0.9
23	9	1	0.3
24	10	0	-0.9
25	7	2	2.1
26	8	0	-0.6
27	9	0	-1.2
28	10	1	0.6
29	7	0	-0.9
30	8	1	0.9
31	9	1	0.3
32	10	1	0.6
33	7	0	-0.9
34	8	0	-0.6
35	9	0	-1.2
36	10	0	-0.9
37	7	0	-0.9
38	8	0	-0.6
39	9	0	-1.2

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SURVEY UNIT 303-A-002
RSC - DATA SUMMARY

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
40	10	0	-0.9
41	7	1	0.6
42	8	0	-0.6
43	9	0	-1.2
44	10	0	-0.9
45	7	0	-0.9
46	8	2	2.4
47	9	0	-1.2
48	10	0	-0.9
49	7	0	-0.9
50	8	0	-0.6
		MIN	-1.2
		MAX	5.2
		MEAN	-0.1
		SD	1.3
		Transuranic $DCGL_W$	**20**

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SURVEY UNIT T303D-A-003
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: T303D (Interior)

37

Total Surface Activity Measurements

	35 Number Required	35 Number Obtained	
MIN	-8.7		dpm/100 cm^2
MAX	24.8		dpm/100 cm^2
MEAN	1.3		dpm/100 cm^2
STD DEV	7.9		dpm/100 cm^2
TRANSURANIC $DCGL_W$	100		dpm/100 cm^2

Removable Activity Measurements

	35 Number Required	35 Number Obtained	
MIN	-0.6		dpm/100 cm^2
MAX	2.4		dpm/100 cm^2
MEAN	0.1		dpm/100 cm^2
STD DEV	1.0		dpm/100 cm^2
TRANSURANIC $DCGL_W$	20		dpm/100 cm^2

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SURVEY UNIT T303D-A-003
TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3
Serial #:	2391	3107	1417
Cal Due Date:	7/10/03	8/6/03	7/28/03
Analysis Date:	4/24/03	4/24/03	4/24/03
Alpha Eff. (c/d):	0.220	0.218	0.218
Alpha Bkgd (cpm)	3.3	2.0	2.0
Sample Time (min)	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5
MDC (dpm/100cm^2)	48.0	48.0	48.0

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)[1,2]
1	1	2.0	9.1	2.0	9.1	-2.8
2	2	2.7	12.4	3.3	15.1	0.5
3	1	6.7	30.5	6.0	27.3	18.6
4	3	4.7	21.6	4.7	21.6	9.7
5	2	2.0	9.2	1.3	6.0	-2.7
6	2	3.3	15.1	0.7	3.2	3.3
7	1	1.3	5.9	4.7	21.4	-6.0
8	2	5.3	24.3	1.3	6.0	12.4
9	2	2.7	12.4	4.0	18.3	0.5
10	2	3.3	15.1	4.7	21.6	3.3
11	2	1.3	6.0	1.3	6.0	-5.9
12	2	4.7	21.6	2.7	12.4	9.7
13	2	2.7	12.4	2.7	12.4	0.5
14	3	2.7	12.4	1.3	6.0	0.5
15	2	2.0	9.2	3.3	15.1	-2.7
16	2	4.0	18.3	0.9	4.1	6.5
17	1	1.3	5.9	3.3	15.0	-6.0
18	2	0.7	3.2	0.7	3.2	-8.7
19	1	5.3	24.1	5.3	24.1	12.2
20	1	0.7	3.2	2.7	12.3	-8.7
21	3	1.3	6.0	4.7	21.6	-5.9
22	2	2.0	9.2	0.0	0.0	-2.7
23	1	2.0	9.1	1.3	5.9	-2.8
24	1	2.0	9.1	2.7	12.3	-2.8
25	3	1.3	6.0	1.3	6.0	-5.9
26	2	1.6	7.3	0.0	0.0	-4.5
27	2	0.7	3.2	2.0	9.2	-8.7
28	2	2.7	12.4	2.7	12.4	0.5
29	2	2.7	12.4	2.0	9.2	0.5
30	1	2.7	12.3	1.3	5.9	0.4
31	3	8.0	36.7	4.7	21.6	24.8
32	2	2.0	9.2	2.0	9.2	-2.7
33	3	3.3	15.1	3.3	15.1	3.3
34	1	5.3	24.1	4.0	18.2	12.2
35	1	4.0	18.2	2.0	9.1	6.3

1 - Average LAB used to subtract from Gross Sample Activity

11.9	Sample LAB Average
MIN	-8.7
MAX	24.8
MEAN	1.3
SD	7.9
Transuranic DCGL$_W$	100

QC Measurements

12 QC	1	4.7	21.4	4.0	18.2	6.1
31 QC	2	4.7	21.6	2.7	12.4	6.3

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

15.3	QC LAB Average
Transuranic DCGL$_W$	100

39

SURVEY UNIT T303D-A-003
RSC - DATA SUMMARY

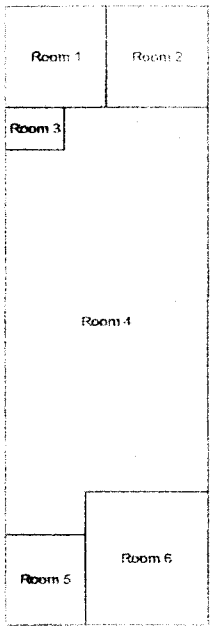
Manufacturer:	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6
Serial #:	1164	952	971
Cal Due Date:	6/17/03	7/9/03	8/6/03
Analysis Date:	4/24/03	4/24/03	4/24/03
Alpha Eff. (c/d):	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.0	0.2
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm^2)	7.0	8.0	4.5

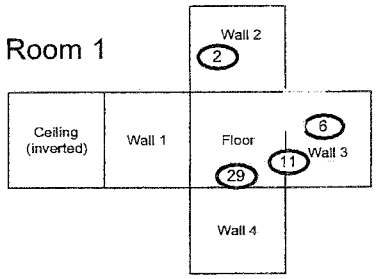
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	4	0	-0.6
2	5	0	0.0
3	6	0	-0.6
4	4	0	-0.6
5	5	1	1.5
6	6	0	-0.6
7	4	1	0.9
8	5	1	1.5
9	6	0	-0.6
10	4	2	2.4
11	5	1	1.5
12	6	0	-0.6
13	4	0	-0.6
14	5	0	0.0
15	6	0	-0.6
16	4	0	-0.6
17	5	0	0.0
18	6	1	0.9
19	4	0	-0.6
20	5	0	0.0
21	6	0	-0.6
22	4	0	-0.6
23	5	0	0.0
24	6	2	2.4
25	4	0	-0.6
26	5	0	0.0
27	6	0	-0.6
28	4	0	-0.6
29	5	0	0.0
30	6	0	-0.6
31	4	0	-0.6
32	5	0	0.0
33	6	0	-0.6
34	4	2	2.4
35	5	0	0.0
		MIN	-0.6
		MAX	2.4
		MEAN	0.1
		SD	1.0
		Transuranic DCGL$_W$	**20**

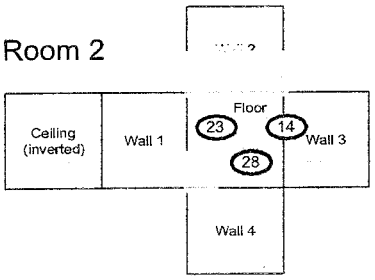
PRE-DEMOLITION SURVEY FOR T303D

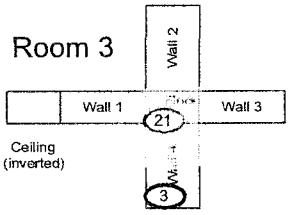
Survey Area: 3 **Survey Unit: T303D-A-003** **Classification: 3**
Building: T303D
Survey Unit Description: T303D Interiors
Total Area: 402 sq. m. **Total Floor Area: 124 sq. m.**

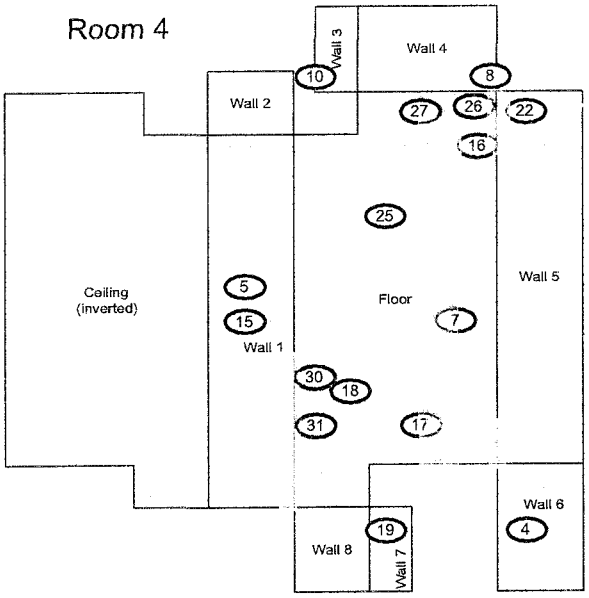
T303D Interior

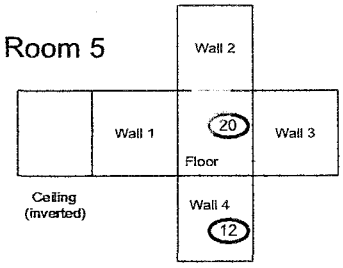


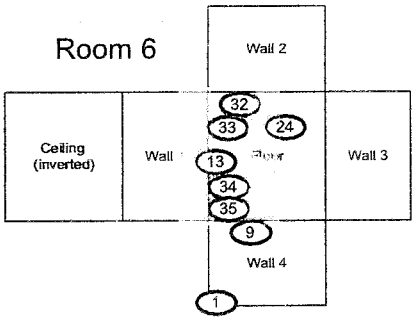












Scan Area

SURVEY MAP LEGEND

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

N

0 FEET 25
0 METERS 8

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

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

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

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

CH2MHILL Communications Group

KAISER HILL

MAP ID: 02-0589/T303D-SC **May 13, 2002**

SURVEY UNIT 308-A-004
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B308 (Interior)

42

Total Surface Activity Measurements

	20 Number Required	20 Number Obtained	
MIN	-7.1		dpm/100 cm^2
MAX	28.5		dpm/100 cm^2
MEAN	8.1		dpm/100 cm^2
STD DEV	8.9		dpm/100 cm^2
TRANSURANIC DCGL$_W$	100		dpm/100 cm^2

Removable Activity Measurements

	20 Number Required	20 Number Obtained	
MIN	-1.5		dpm/100 cm^2
MAX	2.7		dpm/100 cm^2
MEAN	0.3		dpm/100 cm^2
STD DEV	1.1		dpm/100 cm^2
TRANSURANIC DCGL$_W$	20		dpm/100 cm^2

43

SURVEY UNIT 308-A-004
TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3
Serial #:	1589	3115	1681
Cal Due Date:	7/8/03	9/24/03	10/18/03
Analysis Date:	6/3/03	6/3/03	6/3/03
Alpha Eff. (c/d):	0.224	0.218	0.218
Alpha Bkgd (cpm)	1.3	2.7	2.0
Sample Time (min)	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5
MDC (dpm/100cm^2)	48.0	48.0	48.0

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)[1,2]
1	1	4.0	17.9	1.3	5.8	4.8
2	2	2.7	12.4	1.3	6.0	-0.7
3	2	6.0	27.5	1.3	6.0	14.5
4	2	2.7	12.4	2.7	12.4	-0.7
5	2	4.7	21.6	1.3	6.0	8.5
6	2	1.3	6.0	6.0	27.5	-7.1
7	2	6.0	27.5	2.0	9.2	14.5
8	1	9.3	41.5	2.0	8.9	28.5
9	1	5.3	23.7	3.3	14.7	10.6
10	2	7.3	33.5	2.7	12.4	20.4
11	1	6.0	26.8	5.3	23.7	13.7
12	1	6.7	29.9	6.0	26.8	16.9
13	1	4.7	21.0	2.7	12.1	7.9
14	1	4.0	17.9	3.3	14.7	4.8
15	2	2.7	12.4	2.7	12.4	-0.7
16	2	5.3	24.3	3.3	15.1	11.3
17	2	2.7	12.4	0.7	3.2	-0.7
18	1	6.0	26.8	5.3	23.7	13.7
19	1	3.3	14.7	3.3	14.7	1.7
20	1	2.7	12.1	1.3	5.8	-1.0

1 - Average LAB used to subtract from Gross Sample Activity

13.0	Sample LAB Average
MIN	-7.1
MAX	28.5
MEAN	8.1
SD	8.9
Transuranic $DCGL_W$	100

QC Measurements

3 QC	3	4.0	18.3	2.7	12.4	6.0
2 QC	2	6.0	27.5	2.7	12.4	15.1

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

12.4	QC LAB Average
Transuranic $DCGL_W$	100

4/4

SURVEY UNIT 308-A-004
RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	959	952	971	**924**
Cal Due Date:	7/9/03	7/9/03	8/6/03	**10/23/03**
Analysis Date:	6/4/03	6/4/03	6/4/03	**6/4/03**
Alpha Eff. (c/d):	0.33	0.33	0.33	**0.33**
Alpha Bkgd (cpm)	0.0	0.5	0.3	**0.1**
Sample Time (min)	2	2	2	**2**
Bkgd Time (min)	10	10	10	**10**
MDC (dpm/100cm^2)	9.0	9.0	9.0	**9.0**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	4	0	0.0
2	5	1	0.0
3	6	1	0.6
4	7	1	1.2
5	4	1	1.5
6	5	0	-1.5
7	6	0	-0.9
8	7	0	-0.3
9	4	0	0.0
10	5	2	1.5
11	6	0	-0.9
12	7	2	2.7
13	4	0	0.0
14	5	1	0.0
15	6	2	2.1
16	7	0	-0.3
17	4	0	0.0
18	5	2	1.5
19	6	0	-0.9
20	7	0	-0.3
		MIN	-1.5
		MAX	2.7
		MEAN	0.3
		SD	1.1
		Transuranic DCGL$_W$	**20**

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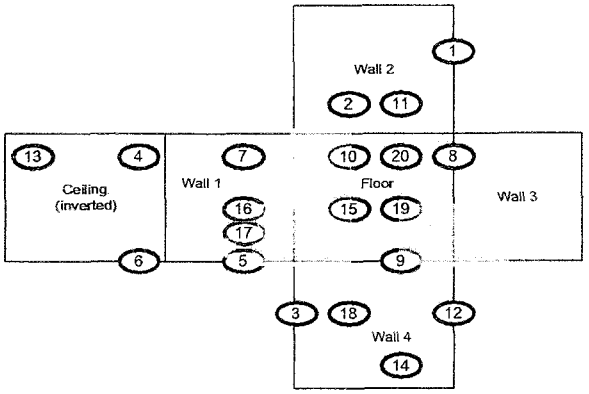
PRE-DEMOLITION SURVEY FOR B308

Survey Area: 3 **Survey Unit: 308-A-004** **Classification: 3**
Building: 308
Survey Unit Description: Building 308 Interior
Total Area: 42 sq. m. **Total Floor Area: 7 sq. m.**



Scan Area

SURVEY MAP LEGEND

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

N

0 FEET 15
0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

Scan Survey Information
Survey Instrument ID #(s) & RCT ID #(s):
1

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

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

CH2M HILL Communications Group

KAISER HILL

MAP ID: 02-0589/B308-SC **July 17, 2002**

SURVEY UNIT 375-A-007
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B375 (Interior)

47

Total Surface Activity Measurements

	20 Number Required	20 Number Obtained	
MIN	-5.9		dpm/100 cm^2
MAX	25.9		dpm/100 cm^2
MEAN	12.2		dpm/100 cm^2
STD DEV	11.6		dpm/100 cm^2
TRANSURANIC $DCGL_W$	100		dpm/100 cm^2

Removable Activity Measurements

	20 Number Required	20 Number Obtained	
MIN	-1.8		dpm/100 cm^2
MAX	1.2		dpm/100 cm^2
MEAN	-0.5		dpm/100 cm^2
STD DEV	0.7		dpm/100 cm^2
TRANSURANIC $DCGL_W$	20		dpm/100 cm^2

SURVEY UNIT 375-A-007
TSA - DATA SUMMARY

Manufacturer:	NE Tech	NE Tech
Model:	DP-6	DP-6
Instrument ID#:	1	3
Serial #:	2344	1273
Cal Due Date:	1/29/04	1/9/04
Analysis Date:	8/19/03	8/19/03
Alpha Eff. (c/d):	0.220	0.212
Alpha Bkgd (cpm)	2.0	4.0
Sample Time (min)	1.5	1.5
LAB Time (min)	1.5	1.5
MDC (dpm/100cm^2)	48.0	48.0

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)[1,2]
1	3	8.0	37.7	2.0	9.4	25.9
2	1	2.0	9.1	3.3	15.0	-2.7
3	1	7.3	33.2	2.0	9.1	21.4
4	3	6.7	31.6	1.3	6.1	19.8
5	3	4.7	22.2	1.3	6.1	10.4
6	3	7.3	34.4	2.7	12.7	22.6
7	1	2.0	9.1	4.0	18.2	-2.7
8	3	3.3	15.6	0.7	3.3	3.8
9	1	1.3	5.9	2.7	12.3	-5.9
10	3	6.7	31.6	6.7	31.6	19.8
11	1	2.7	12.3	1.3	5.9	0.5
12	3	6.0	28.3	2.0	9.4	16.5
13	3	8.0	37.7	5.3	25.0	25.9
14	3	2.7	12.7	3.3	15.6	0.9
15	3	7.3	34.4	3.3	15.6	22.6
16	3	2.0	9.4	2.7	12.7	-2.4
17	3	2.7	12.7	2.0	9.4	0.9
18	3	7.3	34.4	0.7	3.3	22.6
19	1	7.3	33.2	1.3	5.9	21.4
20	1	7.3	33.2	2.0	9.1	21.4

1 - Average LAB used to subtract from Gross Sample Activity

11.8	Sample LAB Average
MIN	-5.9
MAX	25.9
MEAN	12.2
SD	11.6
Transuranic $DCGL_W$	100

QC Measurements

18 QC	1	6.0	27.3	2.0	9.1	19.7
19 QC	3	10.7	50.5	1.3	6.1	42.9

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

7.6	QC LAB Average
Transuranic $DCGL_W$	100

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SURVEY UNIT 375-A-007
RSC - DATA SUMMARY

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	4	5	6	7
Serial #:	770	1164	924	**959**
Cal Due Date:	10/17/03	11/30/03	10/23/03	**1/14/04**
Analysis Date:	8/19/03	8/19/03	8/19/03	**8/19/03**
Alpha Eff. (c/d):	0.33	0.33	0.33	**0.33**
Alpha Bkgd (cpm)	0.6	0.1	0.2	**0.2**
Sample Time (min)	2	2	2	**2**
Bkgd Time (min)	10	10	10	**10**
MDC (dpm/100cm^2)	7.0	8.0	4.5	**4.5**

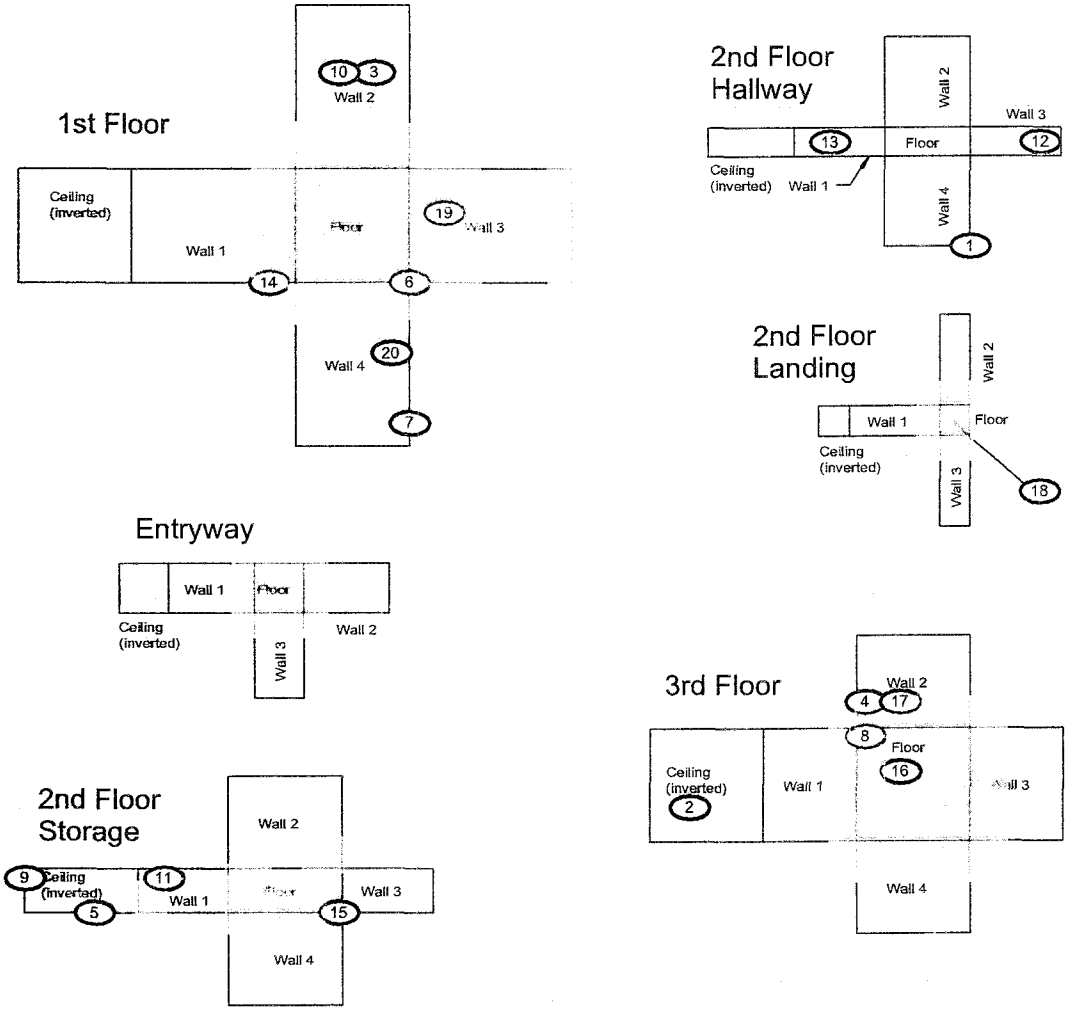
Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm^2)
1	4	1	-0.3
2	5	1	1.2
3	6	0	-0.6
4	7	0	-0.6
5	4	0	-1.8
6	5	0	-0.3
7	6	0	-0.6
8	7	0	-0.6
9	4	1	-0.3
10	5	0	-0.3
11	6	0	-0.6
12	7	0	-0.6
13	4	0	-1.8
14	5	0	-0.3
15	6	0	-0.6
16	7	0	-0.6
17	4	0	-1.8
18	5	0	-0.3
19	6	0	-0.6
20	7	1	0.9
		MIN	-1.8
		MAX	1.2
		MEAN	-0.5
		SD	0.7
		Transuranic DCGL$_W$	**20**

52

PRE-DEMOLITION SURVEY FOR B375

Survey Area: 3 **Survey Unit: 375-A-007** **Classification: 3**
Building: 375
Survey Unit Description: 375 Interior
Total Area: 212 sq. m. **Total Floor Area: 30 sq. m.**

Building 375 Interior



Scan Area

SURVEY MAP LEGEND

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

N

0 FEET 25
0 METERS 8

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

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

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

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

CH2.MHILL Communications Group

KAISER HILL

AP ID: 02-0589/B375-SC Aug 25, 2003

57

ATTACHMENT D

Chemical Data Summaries and Sample Maps

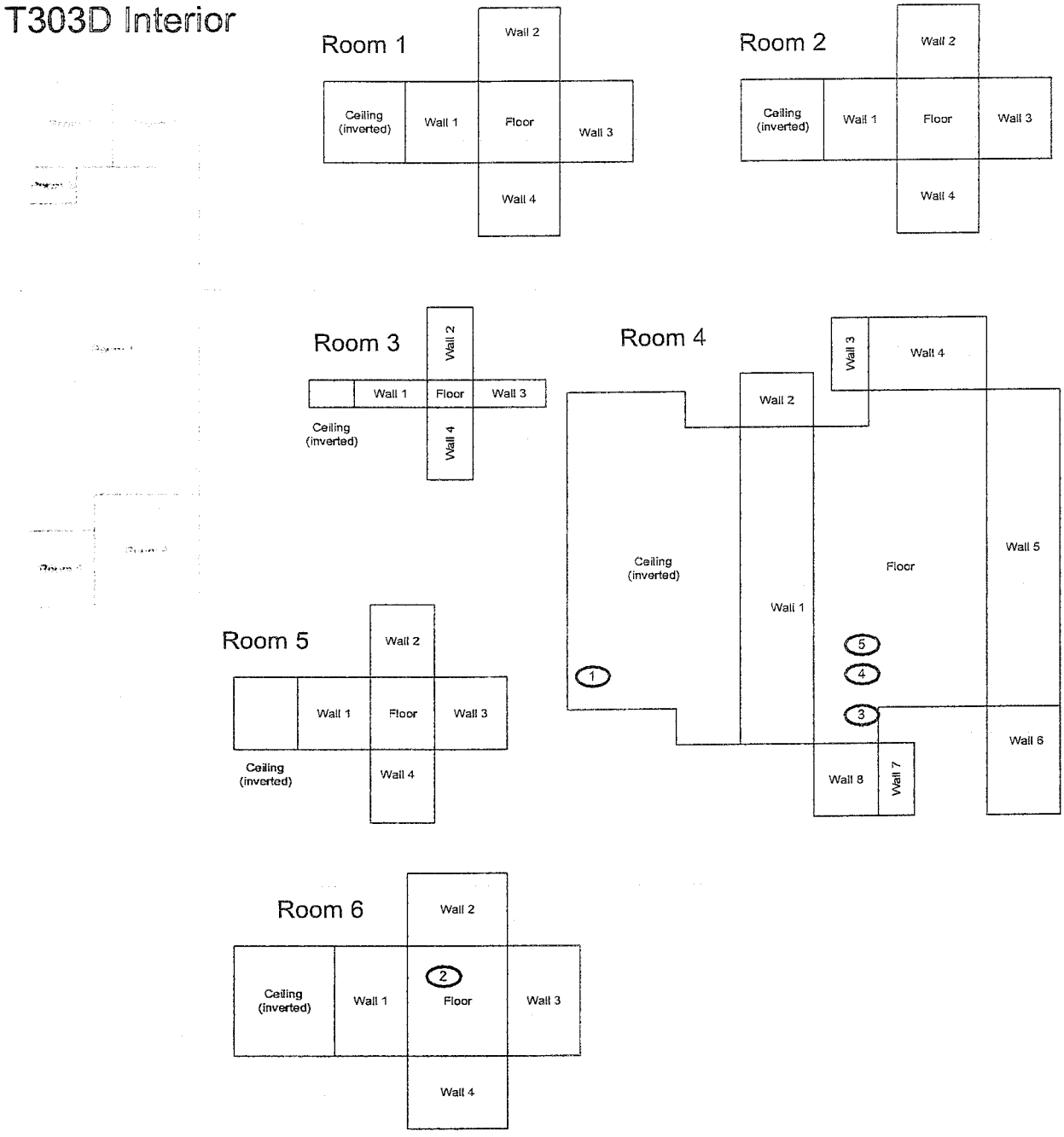
Asbestos Data Summary

Sample Number	Map Survey Location	Room	Material Sampled and Location	Analytical Results
Building T303D-RIN03Z1815				
T303D-06042003-315-201	1	4	2' x 4' white acoustical drop ceiling tile with flecks	None Detected
T303D-06042003-315-201	2	6	12" gray and white vinyl floor tile with yellow adhesive	None Detected
T303D-06042003-315-201	3	4	12" white and gray vinyl floor tile with adhesive	None Detected
T303D-06042003-315-201	4	4	12" gray and gray vinyl floor tile with adhesive	None Detected
T303D-06042003-315-201	5	4	12" tan and white linoleum square with adhesive	None Detected

CHEMICAL SAMPLE MAP

Building T303D
Asbestos

T303D Interior



SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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

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

Prepared by: GIS Dept. 303-966-7707

Prepared for:

CH2MHILL
Communications Group

KAISER HILL

MAP ID: 02-0589/T303D-ASB

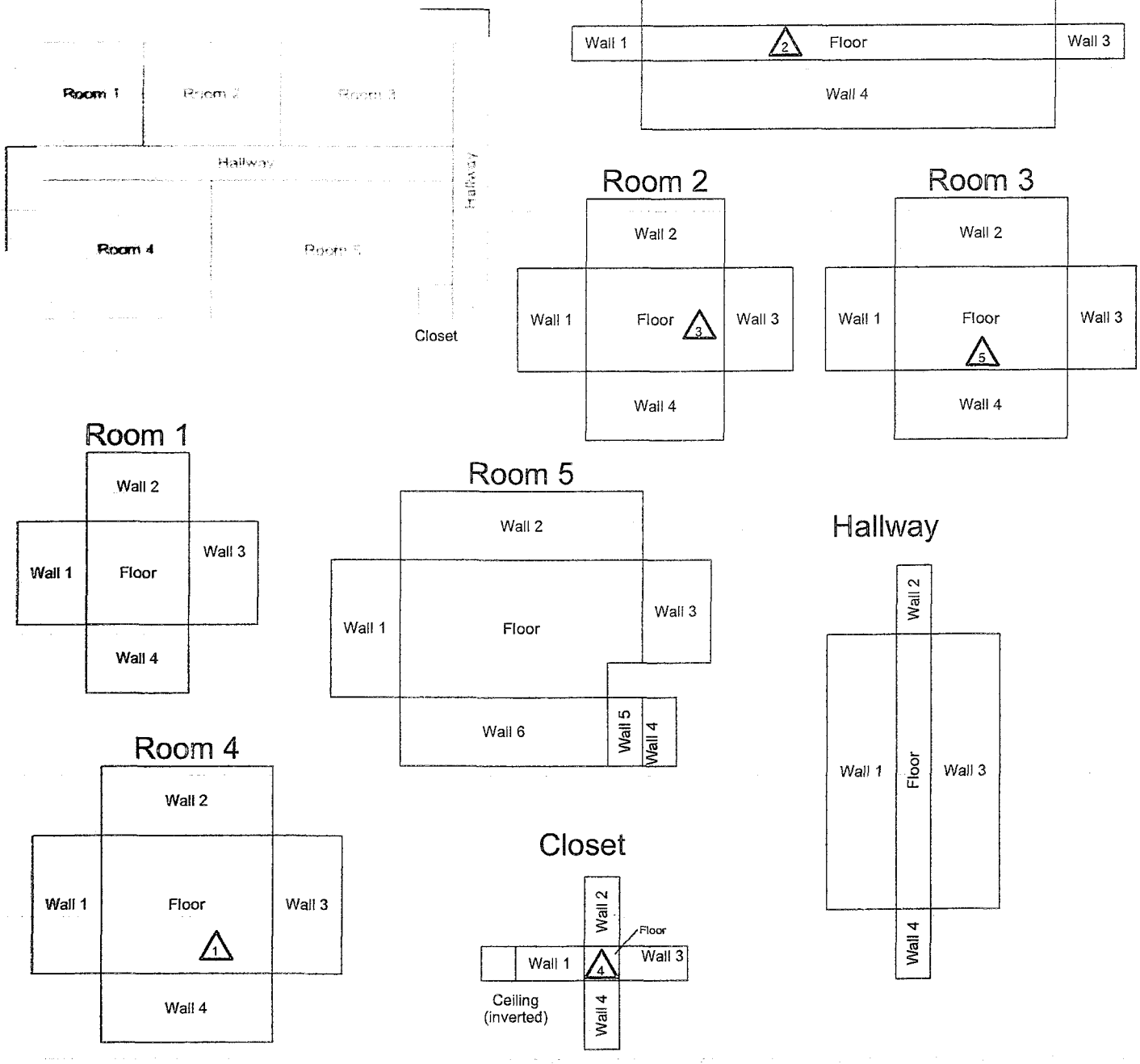
June 03, 2003

Beryllium Data Summary

Sample Number	Map Survey Point Location	Room	Sample Location	Result ($\mu g/100\ cm^2$)
Building T303D-RIN03Z1814				
T303D-06042003-315-101	1	4	On louvers of HVAC diffuser	< 0.1
T303D-06042003-315-102	2	4	On tile floor in front of lockers	< 0.1
T303D-06042003-315-103	3	6	On tile floor in front of water cooler	< 0.1
T303D-06042003-315-104	4	6	On louvers of HVAC diffuser	< 0.1
T303D-06042003-315-105	5	4	Inside cold air return on floor	< 0.1
Building 303-RIN03Z1814				
303-06042003-315-101	1	Main	On asphalt floor	< 0.1
303-06042003-315-102	2	Main	On asphalt floor	< 0.1
303-06042003-315-103	3	Main	On asphalt floor	< 0.1
303-06042003-315-104	4	Main	On asphalt floor	< 0.1
303-06042003-315-105	5	Main	On asphalt floor	< 0.1
Building 302-RIN03Z1814				
302-06042003-315-101	1	4	On concrete floor	< 0.1
302-06042003-315-102	2	Hall	On concrete floor	< 0.1
302-06042003-315-103	3	3	On concrete floor	< 0.1
302-06042003-315-104	4	1	On concrete floor	< 0.1
302-06042003-315-105	5	2	On concrete floor	< 0.1
Building 308-RIN03Z1814				
308-06042003-315-101	1	Main	On Quincy QT-10 compressor	< 0.1
308-06042003-315-102	2	Main	On electrical panel, west wall	< 0.1
308-06042003-315-103	3	Main	On compressor starter panel	< 0.1
308-06042003-315-104	4	Main	On concrete floor	< 0.1
308-06042003-315-105	5	Main	On electrical baseboard heater	< 0.1
Building 375-RIN03Z1814				
375-06042003-315-101	1	3	Top of air conditioner, west wall	< 0.1
375-06042003-315-102	2	3	Top of baseboard heater, east wall	< 0.1
375-06042003-315-103	3	2	Top of metal locker #7	< 0.1
375-06042003-315-104	4	1	Top of 480V light switch	< 0.1
375-06042003-315-105	5	1	Top of metal gun case	< 0.1

CHEMICAL SAMPLE MAP

Building 302 Interior
Beryllium



SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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

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Prepared for:

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MAP ID: 02-0589/B302-BE

July 14, 2003

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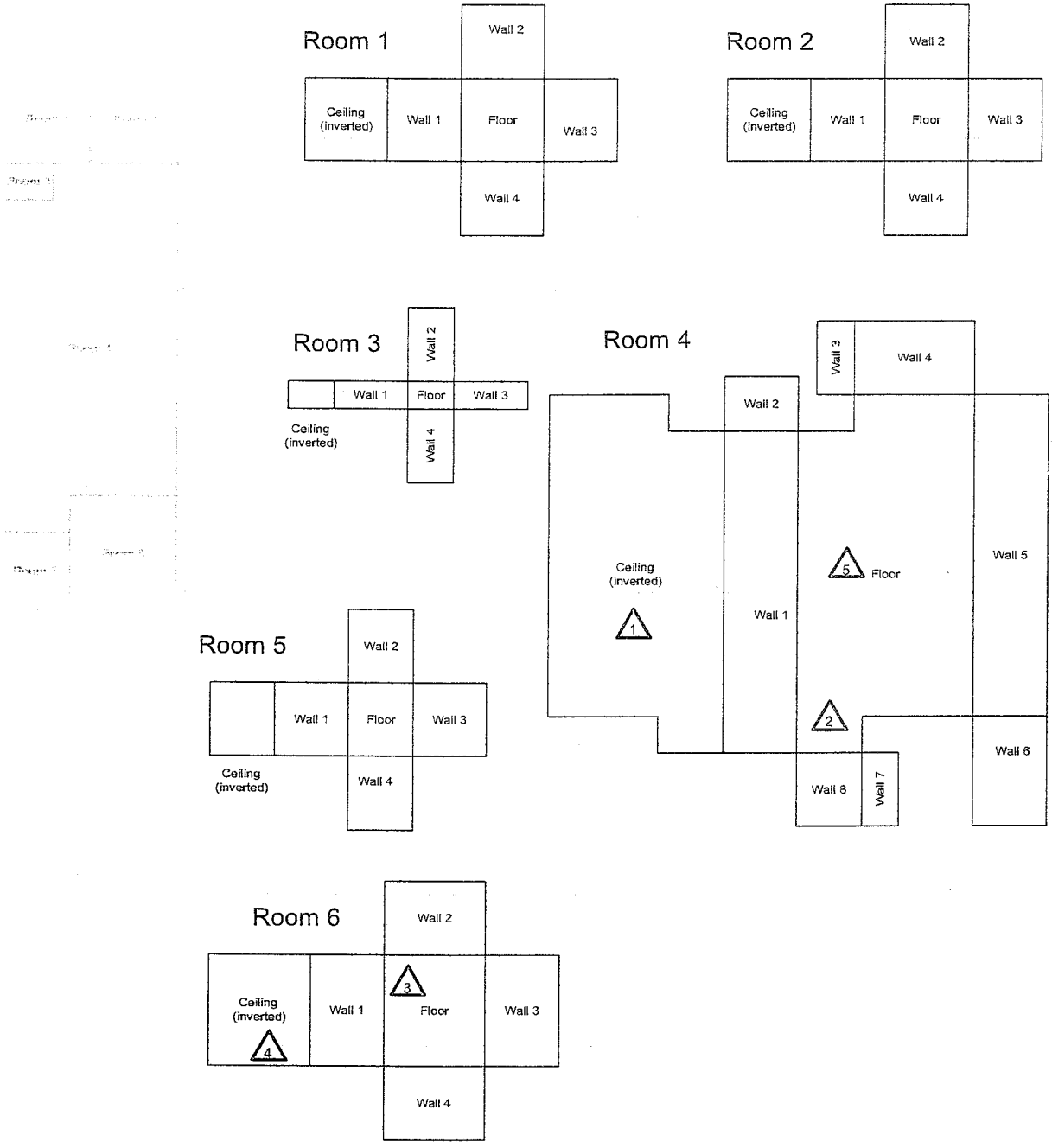
CHEMICAL SAMPLE MAP

Building T303D Interior
Beryllium



SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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

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Communications Group

Prepared for:

MAP ID: 02-0589/T303D-BE

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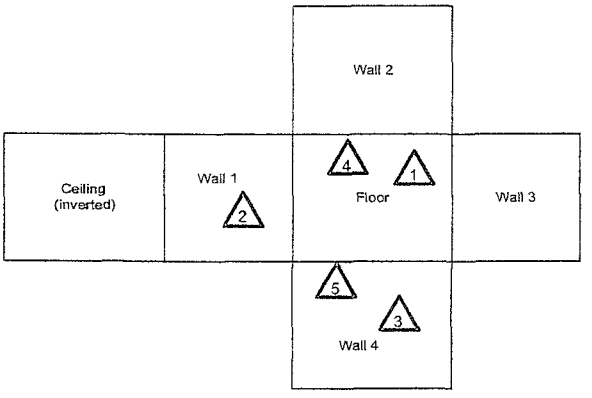
CHEMICAL SAMPLE MAP

Building 308 Interior
Beryllium



SURVEY MAP LEGEND

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

N

0 FEET 15

0 METERS 5

1 inch = 12 feet 1 grid sq. = 1 sq. m.

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Prepared by: GIS Dept. 303-966-7707

Prepared for:

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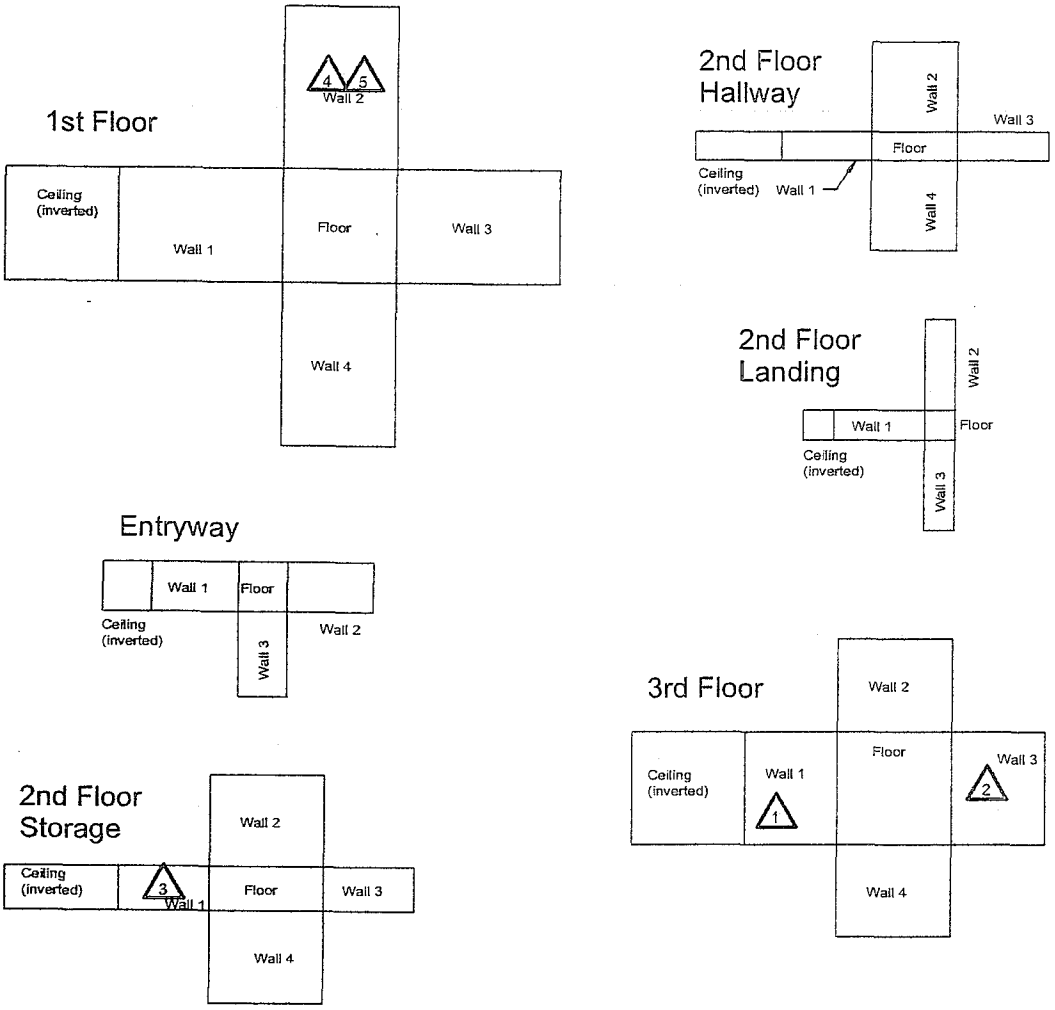
Communications Group

MAP ID: 02-0589/B308-BE

July 14, 2003

CHEMICAL SAMPLE MAP

Building 375 Interior
Beryllium



SURVEY MAP LEGEND

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

N

0 FEET 25

0 METERS 8

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

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Rocky Flats Environmental Technology Site

Prepared by: GIS Dept. 303-966-7707

Prepared for:

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Communications Group

MAP ID: 02-0589/B375-BE

July 14, 2003

LO

ATTACHMENT E

Data Quality Assessment (DQA) Detail

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

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

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

All relevant Quality records supporting this report are maintained in the RISS Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of Regulator approval. 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 4 facilities based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2) and the Uranium $DCGL_w$ (5,000 dpm/100cm^2) unrestricted release limits.

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

SUMMARY

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

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable unrestricted release levels confirming a Type 1 facility classification. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits ensuring data result accuracy. All results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facility. On this basis, the Area 3 - Group 4 facilities meet the unrestricted release criteria with the confidences stated herein.

Table E-1 V&V of Radiological Results, Area 3-Group 4 Facilities

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
	QUALITY REQUIREMENTS			
	Parameters	**Measure**	**frequency**	**COMMENTS**
ACCURACY	initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥ 1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	field duplicate measurements for TSA	≥ 5% of real survey points	≥ 10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 302-A-001, 303-A-002, T303D-A-003, 308-A-004, 375-A-007 (interior) and EXT-B-001 (exterior).	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	Qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	See Table E-4 for details.
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ 50% DCGL$_w$ per MARSSIM guidelines.

Table E-2 V&V of Asbestos Results, Area 3-Group 4 Facilities

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
ASBESTOS	METHOD: EPA 600/R-93/116	LAB ---->	Reservoirs Environmental, Inc.; Denver, Co.	
QUALITY REQUIREMENT		RIN ---->	RIN 03Z1815	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations: Initial/continuing	below detectable amounts	≥1	Semi-quantitative, per (microscopic) visual estimation.
PRECISION	Actual Number Sampled LCSD Lab duplicates	all below detectable amounts	≥ 5 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	Final number of samples at Certified Inspector's discretion, See Table E-4.
SENSITIVITY	Detection limits	<1% by volume	all measures	N/A

Table E-3 V&V of Beryllium Results, Area 3-Group 4 Facilities

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Reservoirs Environmental Inc.	
QUALITY REQUIREMENTS		RIN ---->	RIN 03Z1814	
		Measure	Frequency	COMMENTS
ACCURACY	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	
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	detection limits	MDL of 0.012 ug/100cm^2	all measures	

Table E-5 Data Completeness Summary, Area 3-Group 4 Facilities

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Asbestos	Building T303D (interior)	5 biased (interior)	5 biased (interior)	No ACM present, all results < 1% by volume	40 CFR763.86; CCR 1001-10; EPA 600/R-93/116 RIN 03Z1815 (sample numbers T303D-06042003-315-201 through T303D-06042003-315-205).
Beryllium	Building 302 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN 03Z1814 (sample locations 302-06042003-315-101 through 302-06042003-315-105) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Beryllium	Building 303 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN 03Z1814 (sample locations 303-06042003-315-101 through 303-06042003-315-105) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Beryllium	Building T303D (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN 03Z1814 (sample locations T303D-06042003-315-101 through T303D-06042003-315-105) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).

Table E-5 Data Completeness Summary, Area 3-Group 4 Facilities

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Building 308 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN 03Z1814 (sample locations 308-06042003-315-101 through 308-06042003-315-105) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Beryllium	Building 375 (interior)	5 biased (interior)	5 biased (interior)	No contamination found, all results are less than associated action levels	OSHA ID-125G RIN 03Z1814 (sample locations 375-06042003-315-101 through 375-06042003-315-105) No results above action level (0.2ug/100cm^2) or investigative level (0.1 ug/100cm^2).
Radiological	Survey Area 3 Survey Unit: 302-A-001 Building 302 (interior)	25 α TSA (15 random and 10 biased) and 25 α Smears (15 random and 10 biased) 2 QC TSA 5% scan of interior and exterior surfaces	25 α TSA (15 random and 10 biased) and 25 α Smears (15 random and 10 biased) 2 QC TSA 5% scan of interior and exterior surfaces	No contamination 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 4 Facilities

ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 3 Survey Unit: 303-A-002 Building 303 (interior)	50 α TSA (40 random and 10 biased) and 50 α Smears (40 random and 10 biased) 3 QC TSA 5% scan of interior surfaces	50 α TSA (40 random and 10 biased) and 50 α Smears (40 random and 10 biased) 3 QC TSA 5% scan of interior surfaces	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.
Radiological	Survey Area 3 Survey Unit: T303D-A-003 Building T303D (interior)	25 α TSA (15 random and 10 biased) and 25 α Smears (15 random and 10 biased) 10 α TSA and 10 α Smears (Equipment) 2 QC TSA 5% scan on interior surfaces	25 α TSA (15 random and 10 biased) and 25 α Smears (15 random and 10 biased) 10 α TSA and 10 α Smears (Equipment) 2 QC TSA 5% scan on interior surfaces	No contamination 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 4 Facilities

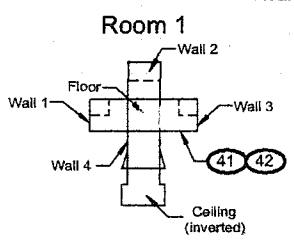
ANALYTE	Building/Area/ Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area 3 Survey Unit: 308-A-004 Building 308 (interior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 2 QC TSA 5% scan	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 2 QC TSA 5% scan	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.
Radiological	Survey Area 3 Survey Unit: 375-A-007 Building 375 (interior)	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 2 QC TSA 5% scan	20 α TSA (15 random and 5 biased) and 20 α Smears (15 random and 5 biased) 2 QC TSA 5% scan	No contamination at any location; all values below PDS unrestricted release levels	Transuranic and/or Uranium DCGLs as applicable.

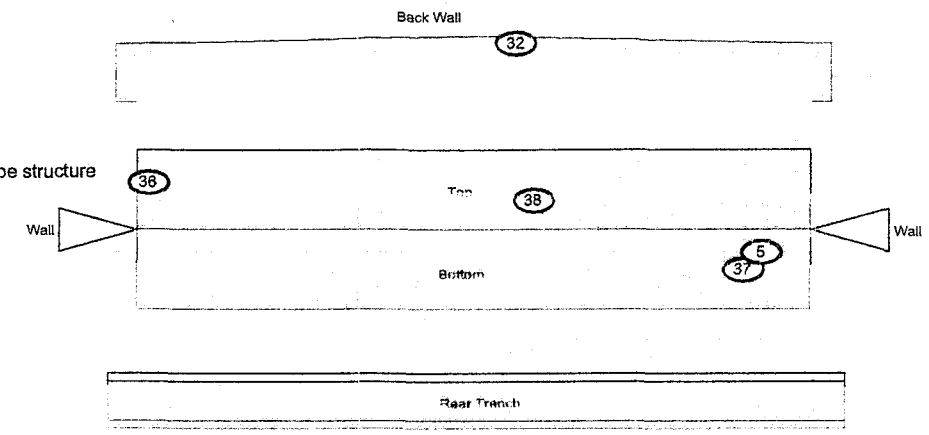
[A] Number of asbestos samples required is an estimate only, final number of samples is at the discretion of the IH.

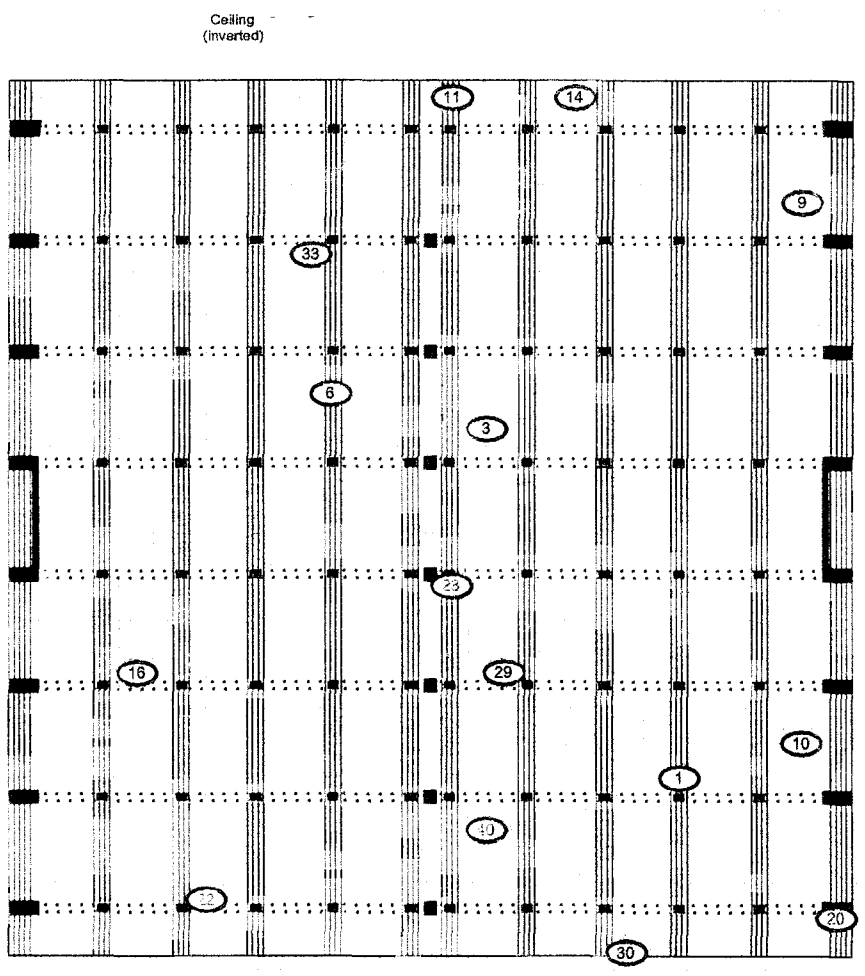
PRE-DEMOLITION SURVEY FOR B303

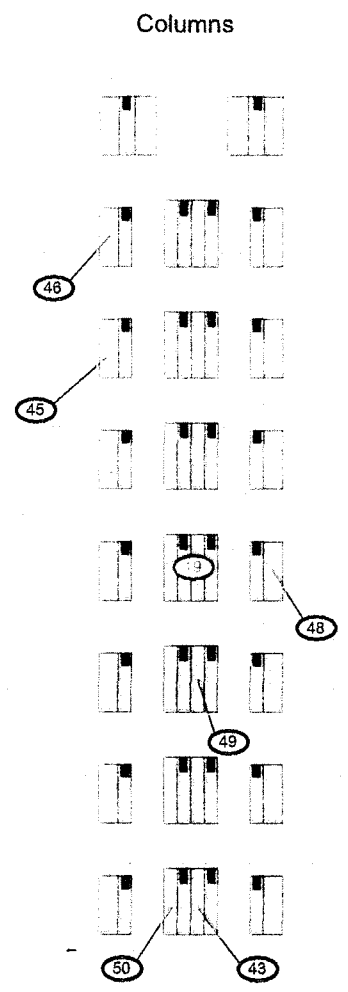
Survey Area: 3 **Survey Unit: 303-A-002** **Classification: 3**
Building: 303
Survey Unit Description: Firing Range Interior
Total Area: 5986 sq. m. **Total Floor Area: 2466 sq. m.**

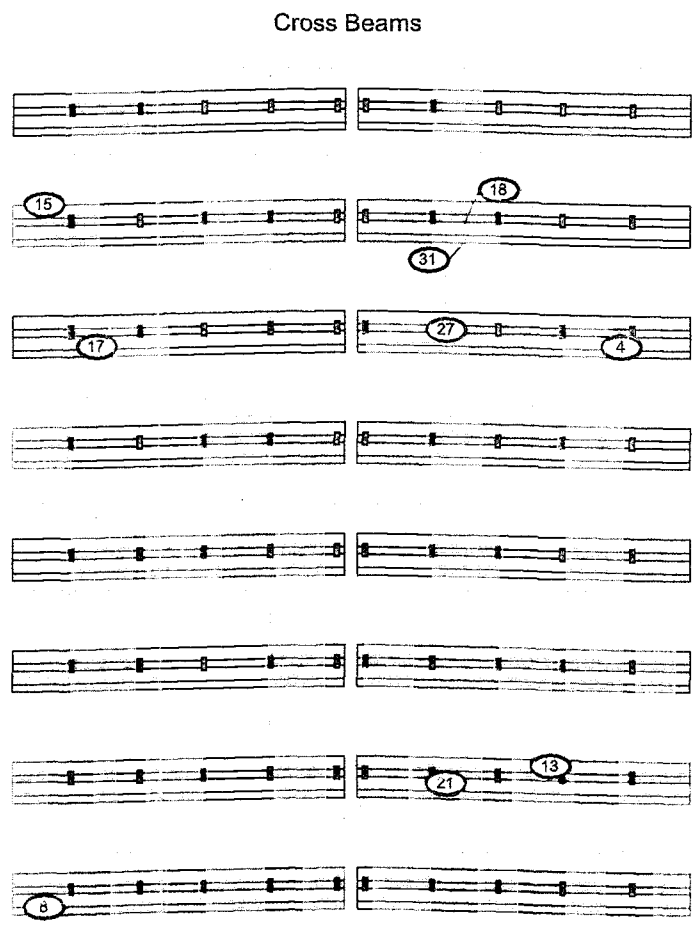
303 Interior

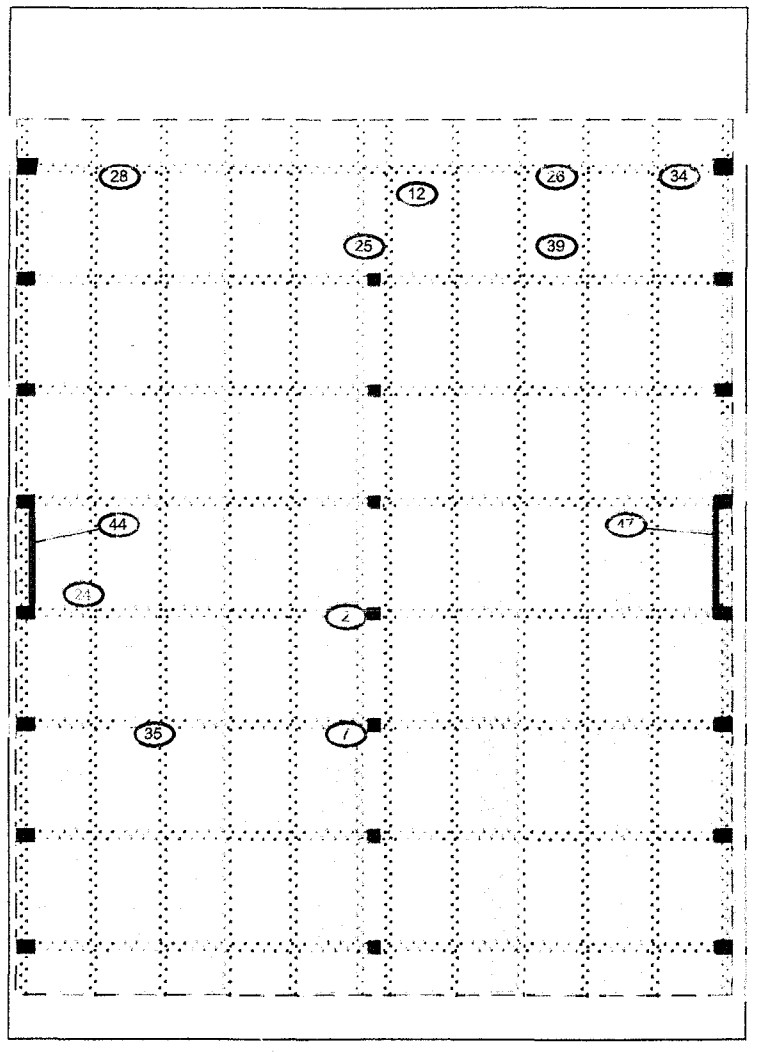












Floor

Scan Area

SURVEY MAP LEGEND

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

N

0 FEET 45
0 METERS 15

1 inch = 36 feet 1 grid sq. = 1 sq. m.

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

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Rocky Flats Environmental Technology Site

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

CH2MHILL Communications Group

KAISER HILL

MAP ID: 02-0589/B303-IN-SC Aug. 19, 2003

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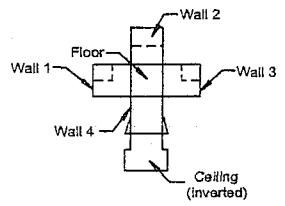
CHEMICAL SAMPLE MAP

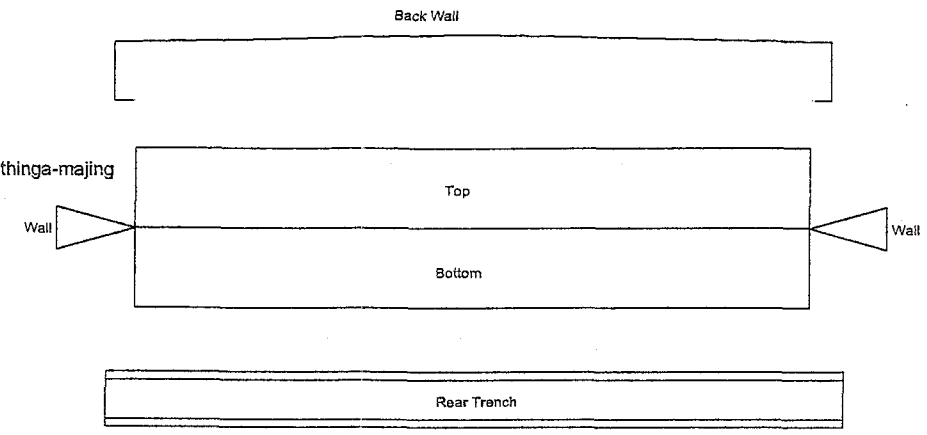
Building 303 Interior
Beryllium

303 Interior

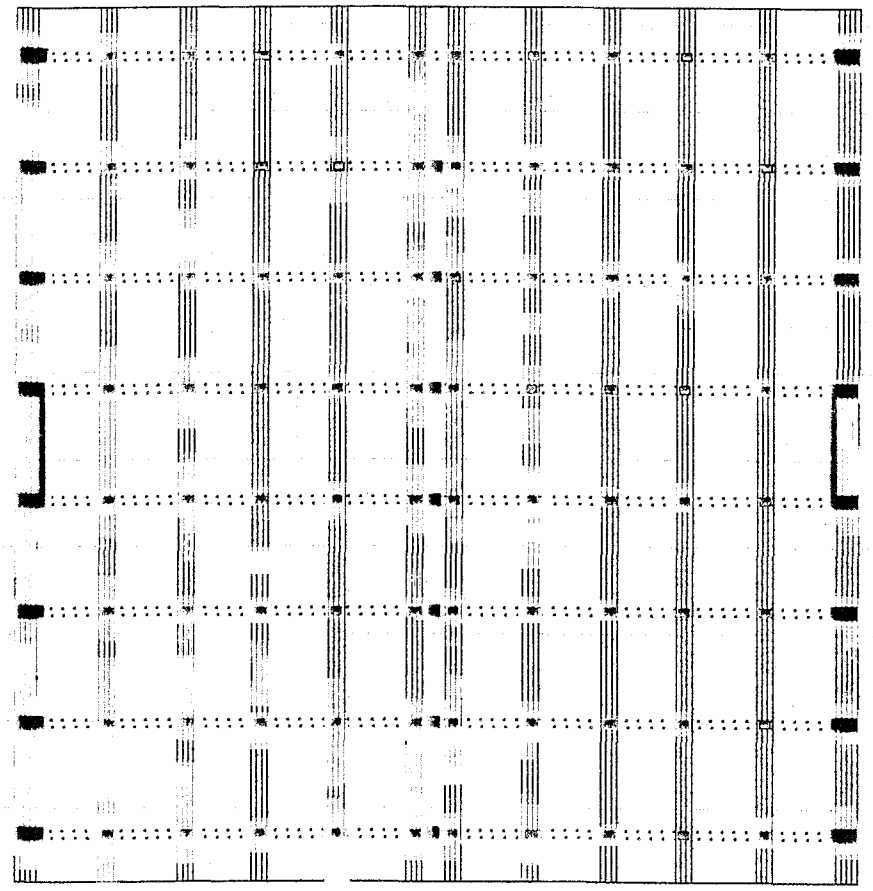
Room 1



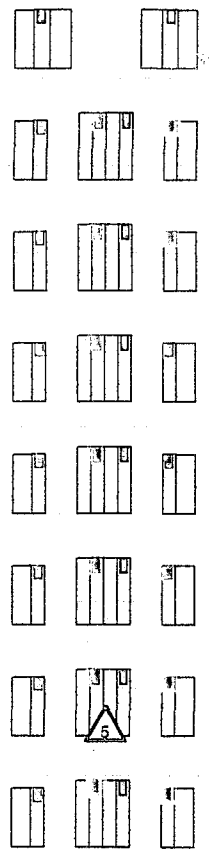
Rear triange shape thinga-majing



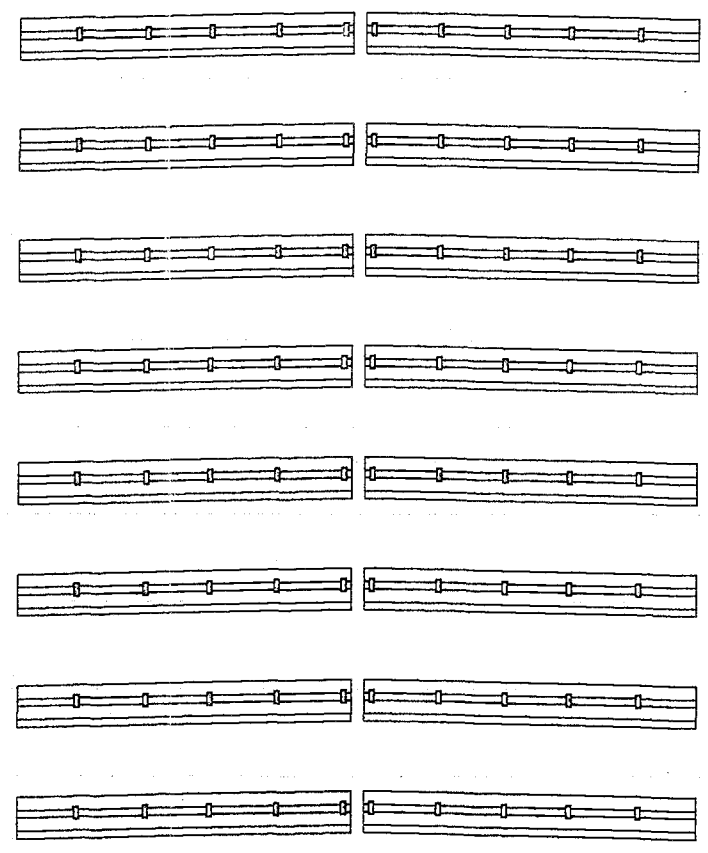
Ceiling
(inverted)

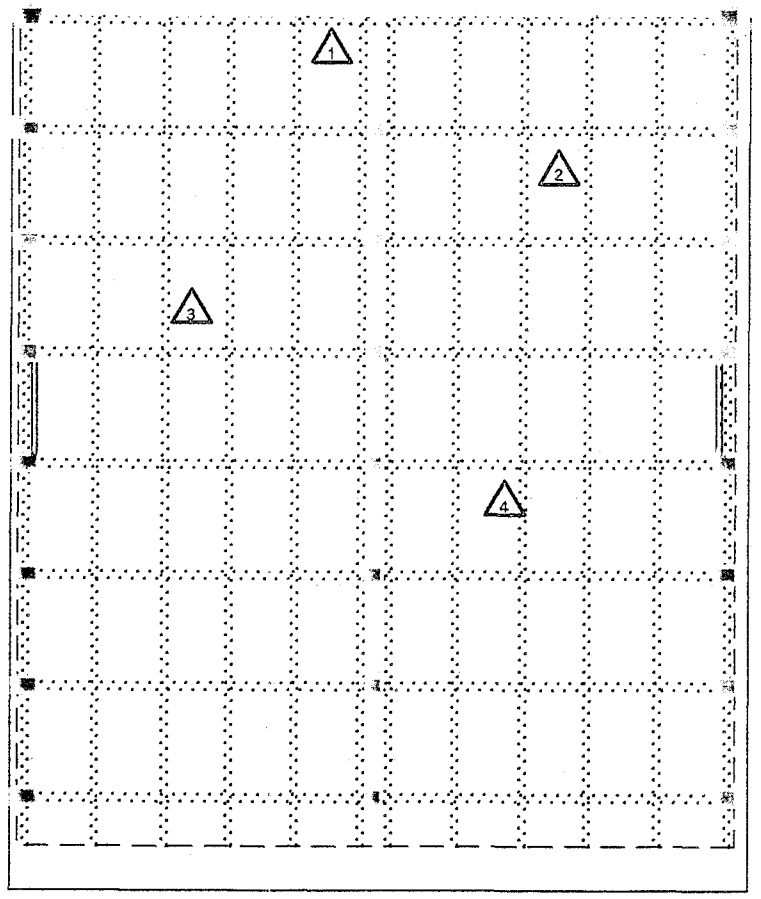


Columns



Cross Beams





Floor

SURVEY MAP LEGEND

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

N

0 FEET 45

0 METERS 15

1 inch = 36 feet 1 grid sq. = 1 sq. m.

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Prepared for:

CH2MHILL
Communications Group

MAP ID: 02-0909/B303-IN-BE

June [illegible], 2003

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