



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

Building 705

REVISION 0

April 23, 2003

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



ADMIN RECORD

B705-A-000003

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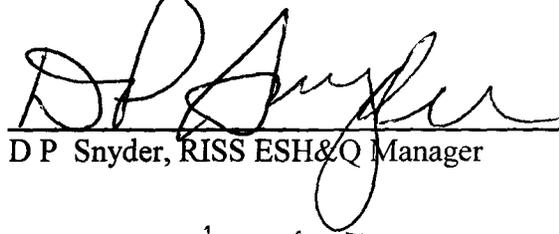
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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
DCGL _{EMC}	Derived Concentration Guideline Level – elevated measurement comparison
DCGL _w	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U S Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U S Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
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 RFETS Decommissioning Program Plan (DPP, K-H, 1999) and compliant disposition and waste management of Building 705. This facility was an anticipated Type 2 facility, therefore, the characterization was performed in accordance with the Reconnaissance Level Characterization Plan (RLCP), MAN-077-DDCP, Appendix D. All facility surfaces were characterized in this RLC, including the interior and exterior surfaces [i.e., floors (slabs), walls, ceiling and roof]. 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 (HSAR) for the Area 2 Group 1 facilities, dated April 2003.

Results indicate that no radiological contamination exists in excess of the RLCP unrestricted release limits of DOE Order 5400.5. Beryllium contamination is present in Building 705 ranging from 0.1 $\mu\text{g}/100\text{cm}^2$ to 779.0 $\mu\text{g}/100\text{cm}^2$. Beryllium contamination is present throughout Building 705 on equipment, fume hoods, ductwork, and building surfaces such as concrete floors, drains, piping, columns, and electrical units. Friable asbestos-containing materials were identified in thermal systems insulation (TSI), and non-friable asbestos-containing materials were identified in cinderblock sealant, black tar roofing, and floor tile and adhesive.

The Building 705 exterior was radiologically surveyed in accordance with PDSP requirements and met the PDSP radiological release limits. Therefore, the exterior radiological PDS surveys of this facility are considered complete. If any future potentially contaminating event were to take place during D&D activities that could contaminate the exterior surfaces of Building 705, then these surfaces shall be resurveyed prior to demolition. Additionally, a confirmation smear survey shall be performed of the exterior surfaces prior to demolition.

Based upon this RLCR, Building 705 is considered a Type 2 facility and is ready for in-process stripout and decontamination activities.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) of Building 705 was performed to enable facility "Typing" per the RFETS Decommissioning Program Plan (DPP, K-H, 1999) and compliant disposition and waste management. Because this facility was an anticipated Type 2 facility, the characterization was performed in accordance with the Reconnaissance Level Characterization Plan (MAN-077-DDCP). All facility surfaces were characterized in this RLC, including the interior and exterior surfaces of the facility (i.e., floors (slabs), walls, ceiling and roof). Environmental media beneath and surrounding the facility was not within the scope of this RLC Report (RLCR) and will be addressed at a future date using the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these is Building 705. The location of this facility is shown in Attachment A, *Facility Location Map*. The facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before Building 705 can be decommissioned, a Reconnaissance Level Characterization (RLC) must be conducted, this document presents the RLC results. The RLC was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Reconnaissance Level Characterization Plan (RLCP) (MAN-077-DDCP, Appendix D). 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 anticipated Type 2 RLC effort. A Type 2 RLC is performed before building decommissioning to define the radiological and chemical conditions of a facility prior to stripout and decontamination. RLC conditions are compared with the release limits for radiological and non-radiological contaminants. RLC results will enable project personnel to make decommissioning decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 Scope

This report presents the pre-decommissioning radiological and chemical conditions Building 705. 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. Both facility and environmental media will be dispositioned pursuant to RFCA.

1.3 Data Quality Objectives

The Data Quality Objectives (DQOs) used in designing this RLC were the same DQOs identified in the Reconnaissance Level Characterization Plan (RLCP) (MAN-077-DDCP). Refer to Appendix D, Section 2.0 of MAN-077-DDCP 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 walk-downs, interviews, and document review, including review of the Historical Release Report (refer to the D&D Characterization Protocol, MAN-077-DDCP). Results were used to identify data gaps and needs, and to develop radiological and chemical characterization packages. Results of the facility-specific HSAs were documented in the Historical Site Assessment Report (HSAR) for Area 2, Group 1 facilities, Dated April 2003, Revision 0 (refer to Attachment B, *Historical Site Assessment Report*). In summary, the HSAR identified the potential for radiological and chemical hazards, including the potential for asbestos containing materials, beryllium, and PCBs in paint and light ballasts.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Building 705 was characterized for radiological hazards per the RLCP. 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).

Two radiological survey packages were developed for Building 705, one for the interior facility surfaces (705-2-002) and one for the exterior facility surfaces (705-2-001). The two 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.

27 TSA measurements (15 random, 10 biased, and 2 QC) and 25 RSA measurements (15 random, 10 biased) were collected as part of exterior survey package 705-2-001. A minimum of a 10% scan survey was performed as indicated on the blue shaded area of the exterior survey map. Refer to the applicable data summaries in Attachment C, *Radiological Data Summary and Survey Maps*, for details.

70 TSA measurements (30 uniformly distributed < 2 meters, 10 biased > 2 meters, and 30 equipment) and 70 RSA measurements (30 uniformly distributed < 2 meters, 10 biased > 2 meters, and 30 equipment) were collected as part of interior survey package 705-2-002. A one (1) square meter scan survey was performed at each location < 2 meters and on surveyed equipment. Refer to the applicable data summaries in Attachment C, *Radiological Data Summary and Survey Maps*, for details.

The Building 705 exterior was radiologically surveyed in accordance with PDSP requirements and met the PDSP radiological release limits. Therefore, the exterior radiological PDS surveys of this facility are considered complete. If any future potentially contaminating event were to take place during D&D activities that could contaminate the exterior surfaces of Building 705, then these surfaces shall be resurveyed prior to demolition. Additionally, a confirmation smear survey shall be performed of the exterior surfaces prior to demolition.

The RLC indicated that Building 705 does not contain radiological contamination above the surface contamination guidelines provided in the RLCP.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Building 705 was characterized for chemical hazards per the RLCP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in the facility. Based upon a review of historical and process knowledge, visual inspections, and RLCP DQOs, additional sampling needs were determined. A Chemical Characterization Plan (refer to RISS Characterization Project files for the Area 2, Group 1 Chemical Characterization Plan) was developed during the planning phase that describes sampling requirements, the justification for the sample locations and estimated number of samples. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs. Refer to Attachment D, Chemical Summary Data 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 Building 705 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.

The following friable and non-friable asbestos-containing materials in Building 705 were identified:

MATERIAL	FRIABILITY	QUANTITY
Thermal Systems Insulation	Friable	240 Linear Feet
Cinderblock Sealant	Category 1, Non-friable	3,078 Square Feet
Black Tar Roofing	Category 1, Non-friable	3,700 Square Feet
Floor Tile and Adhesive	Category 1, Non-friable	420 Square Feet

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Asbestos laboratory analysis data and location maps are contained in Attachment D, *Chemical Data Summaries and Sample Maps*

4.2 Beryllium (Be)

Based on the HSARs, interviews of personnel, and beryllium smear data obtained from the Industrial Hygiene Information System (IHIS), Building 705 was an anticipated Type 2 facility and is on the "List of Known Beryllium Areas". There was more than sufficient historical and process knowledge to conclude that beryllium was used and/or stored in Building 705. From January 2001 through March 2003, approximately 650 beryllium smears were collected with results ranging from 0.1 $\mu\text{g}/100\text{cm}^2$ to 779.0 $\mu\text{g}/100\text{cm}^2$. The beryllium smears were collected throughout Building 705 on equipment, fume hoods, ductwork, and building surfaces such as concrete floors, drains, piping, columns, and electrical units. Consequently, additional beryllium smears were not taken within the building as part of this RLC.

Current and previously collected beryllium data shows there is widespread beryllium contamination inside Building 705. The current and previously collected beryllium laboratory results are summarized in Table 4-1, which lists rooms and the respective levels of beryllium contamination.

Table 4-1 - Summary of IHIS Beryllium Data for Building 705

Results	Room
Rooms with concentrations $\geq 0.2 \mu\text{g}/100 \text{ cm}^2$	100, 100A, 101, 102, 105, 106, 206
Rooms with concentrations $\geq 0.1 \mu\text{g}/100 \text{ cm}^2$ but $< 0.2 \mu\text{g}/100 \text{ cm}^2$	103, 104
Rooms with concentrations $< 0.1 \mu\text{g}/100 \text{ cm}^2$	101A
Rooms with no data	None

Much of the data are from lower building surfaces (i.e., ≤ 8 ft) and equipment. Limited smear results are from overhead surfaces. However, rooms with contamination on lower surfaces most likely also have contamination on overhead surfaces. Overhead areas are not routinely cleaned, and dust has accumulated on these surfaces. In addition, light fixtures have a static charge that attracts and holds particulates.

During in-process stripout and decontamination activities, the beryllium hazard in the building will be reduced as equipment is removed and surfaces are cleaned. Therefore, additional beryllium characterization will be conducted during in process activities and as part of the PDS. Beryllium laboratory smear results entered into the Industrial Hygiene Information System (IHIS) for Building 705 may be found 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, Building 705 was used as a Research and Development laboratory. The laboratory primarily performed beryllium research, but also used a variety of other metals in a more limited extent (i.e. chromium, cadmium, hafnium, lead, lutetium, nickel, magnesium, and molybdenum, silver). Miscellaneous laboratory chemicals, such as acids, bases and solvents were also used in small quantities. There is no evidence, such as stains, that the use of these chemicals led to RCRA/CERCLA contamination of the walls and elevated areas. However, the use of RCRA metals, and the fact that the laboratory was originally plumbed to the sanitary system, has left some questions related to the slab and drain lines (grouted in 1991). After all remaining equipment has been removed and the beryllium work restrictions have been resolved, core samples will be taken from the slab and drains in the Highbay area as part of PDS activities. The PDS sampling will be used to characterize the slab prior to demolition. Additionally, the lines have not been grouted outside of, or beneath the building, and will be further investigated as part of Environmental Restoration activities. RCRA/CERCLA sampling was not performed as part of this RLC.

Sampling for lead in paint in Building 705 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.

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

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR, interviews and walk-downs of Building 705, no PCB-containing equipment or processes were ever present in any of the buildings, making the potential for PCB contamination highly unlikely. Therefore, PCB sampling was not performed in these facilities as part of the RLC.

Based on the age of Building 705 (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.

5 PHYSICAL HAZARDS

Physical hazards associated with Building 705 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 this facility. The facility has been relatively well maintained and is in good physical condition, and therefore, does not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 705, 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 disposition of Building 705 will generate a variety of wastes, including beryllium, PCB and asbestos wastes. Estimated waste types and waste volumes are presented below. Asbestos containing material, hazardous-waste items, and PCB Bulk Product Waste, including PCB ballasts, will be managed pursuant to Site asbestos 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 (cu ft)
705	5,500	0	400	0	1,100	40 (friable) 1,559 (non-friable)	None

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Building 705 is classified as a RFCA Type 2 facility pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1999). The Type 2 classification is based on a review of historical and process knowledge, and RLC data (specifically, the previously collected beryllium data above the unrestricted release criteria).

The RLC for Building 705 was performed in accordance with the DDCP and RLCP, all RLCP DQOs were met, and all data satisfied the RLCP DQA criteria. This facility contains beryllium, asbestos, and PCB contaminants. Asbestos, PCB ballasts, and 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. 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.

The Building 705 exterior was radiologically surveyed in accordance with PDSP requirements and met the PDSP radiological release limits. Therefore, the exterior radiological PDS surveys of this facility are considered complete. If any future potentially contaminating event were to take place during D&D activities that could contaminate the exterior surfaces of Building 705, then these surfaces shall be resurveyed prior to demolition. Additionally, a confirmation smear survey shall be performed of the exterior surfaces prior to demolition.

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9 REFERENCES

- DOE/RFEO, CDPHE, EPA, 1996 *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996
- DOE Order 5400 5, *"Radiation Protection of the Public and the Environment"*
- DOE Order 414 1A, *"Quality Assurance"*
- EPA, 1994 *"The Data Quality Objective Process"* EPA QA/G-4
- K-H, 1999 *Decommissioning Program Plan*, June 21, 1999
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev 1, November 1, 2001
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev 3, April 23, 2001
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev 0, April 23, 2001
- MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (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 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*
- Historical Site Assessment Report for the Area 2, Group 1 facilities*, April 2003, Revision 0

ATTACHMENT A

Facility Location Map

Best Available Copy

Building Location Bldg 705

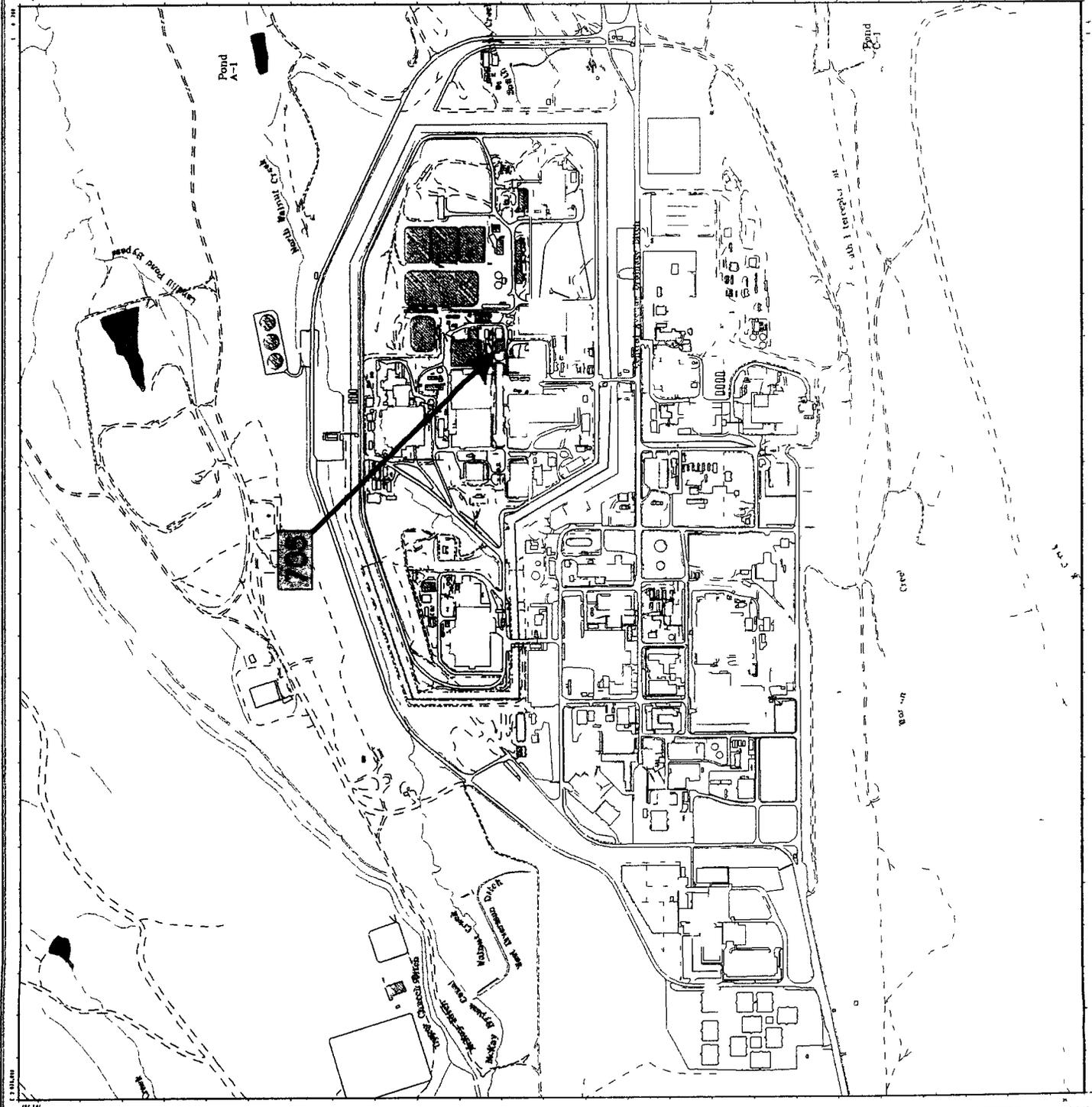
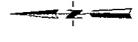
Standard Map Features

-  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 : 12460
1 inch represents approximately 1038 feet

State Plane Coordinate Projection
Colorado Central Zone
Datum NAD27



US Department of Energy
Rocky Flats Environmental Technology Site

GE Dept 303 966 7707

Prepared by
e: H21W1 HLL



MAP ID: FY 2002

April 23, 2003

ATTACHMENT B

Historical Site Assessment Report

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

Facility ID Area 2 Group 1 - Buildings 705, 964, 308B, and 308D

Anticipated Facility Type (1, 2, or 3) Buildings 705, 308B, and 308D are anticipated Type 2 facilities, and 964 is an anticipated Type 1 facility

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

Physical Description

Building 964

Building 964 is a 5000 sq ft building and is currently identified as RCRA Unit 24. Building 964 was originally constructed in the mid 1960s and was used for general storage by a variety of site construction contractors. In 1986 the structure was modified for use as RCRA permitted Unit 24. These modifications include the installation of a spill containment system and the application of an epoxy concrete sealant. Ramps were installed to allow movement of containers in and out of the secondary containment system. Building 964 is a non-insulated corrugated metal structure mounted to a wooden frame. The structure has an asphalt shingle roof and is built on a concrete slab poured on grade.

Building 964 is serviced by the following utilities. Wall-mounted fire extinguishers provide fire protection.

Building 705

Building 705 is the old R&D ceramics laboratory and coatings laboratory constructed in 1966. Building 705 is a 3700 sq ft, single-story structure with a high bay laboratory area. Building 705 has had two additions since its original construction. The first addition, in 1969, was the addition of the measurement room (Room 103) south of the original structure. The second addition, in 1975, was the addition of the two story mechanical room east of the original structure. In 1991 the sanitary floor drains in the laboratory areas were grouted. Building 705 is not connected to the waste process system.

Building 705 is constructed with concrete block walls, a poured in place concrete slab floor and a metal roof with built-up roofing.

Building 705 is serviced by the following utilities: electric, plant sanitary, plant water, and plant steam. Fire protection is provided by overhead sprinkler system and wall mounted fire extinguishers. The building originally had hydrogen, helium, and nitrogen and oxygen gas supplied by tanks located on the exterior of the south side of the building. These tanks have been removed.

Building 308B

Building 308 is the Modular Storage Tank Pump House and was installed in 1992. Building 308B is a self contained prefabricated 65 sq ft metal structure, which houses two pumps used to move waste water from the Modular Storage Tanks to Building 371. Building 308B has a metal roof, floor, and walls and is a portable unit bolted to a concrete slab.

Building 308B is serviced by the following utilities, electric, and fire protection is provided by wall-mounted fire extinguishers.

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Building 308D

Building 308D is the Central Sump Pump House and was installed in 1975. Building 308D is a 65 sq ft, self-contained fiberglass enclosure, which contains two pumps used to pump interceptor trench water from the concrete collection sump located under Building 308D to the 308B modular tanks. The pump house is a portable fiberglass unit bolted to the top of a concrete sump. The concrete sump is approximately 8 feet wide by 8 feet long by 10 feet deep and constructed with a concrete floor, roof and walls.

Building 308D is serviced by the following utilities, electric

Historical Operations

Building 964

Building 964 was originally constructed as a general construction storage building and was used by a variety of construction contractors on site. In 1986 the building was covered to RCRA Storage Unit 24. The building currently stores solid wastes, but on occasions liquid waste has been stored in the building and was placed in metal secondary containment pans. Building 964 primarily stores solidified bypass sludge from Building 371. There are no documented spills in Building 964.

Building 964 is located within the boundary of IHSS 000-101 and 900-176. See the Environment Restoration concerns section below for more detail.

Building 705

Building 705 was originally used as a ceramics R&D laboratory and was later used as a coating laboratory to test a variety of coating methodologies. The ceramics R & D laboratory shaped, formed and heated experimental ceramic parts. The coating R & D laboratory experimented with vapor metal deposition coatings. Building 705 was also used to train site personnel to use the waste stabilization treatment process. This was a training activity, which utilized clean glove boxes, and did not involve any radiological or hazardous material. Operation in Building 705 stopped in 1998.

As an R&D facility, several equipment changes and ventilation modification were performed on the building during its lifetime. Some of the equipment that has been used in Building 705 include vapor hoods, furnaces, ovens, and an X-ray unit.

Building 705 was originally plumbed into the sanitary waste system, in 1991 the drains in the floor of the laboratory areas were grouted to prevent any releases to the sanitary waste system. Drains outside of the laboratory area were not grouted.

In 2001 the building went through an equipment strip-out under the hazard reduction process. All equipment has been removed from the building. No evidence of building radiological contamination was found during this activity.

No internal walkdown was performed due to medical monitoring and training requirements associated with Building 705 being posted as a Beryllium controlled area.

**D&D RISS Facility Characterization
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Building 308B

Building 308B is the pump house for the three temporary modular storage tanks associated with the OU-4 interceptor trench. Ground water contamination resulting from releases from the solar ponds are collected by the OU-4 interceptor trench and pumped to the modular storage tanks 308B-A, 308B-B, and 308B-C. The contaminated ground water is pumped to Building 371 for flash evaporation treatment. In the Site SAR, Building 308B is classified as an industrial facility because the groundwater managed by the system has only trace amounts of chemical and radiological contamination. In 1996, the hillside shifted and the pipe between the tanks and the pump house broke. This incident caused the containment system in the pump house to fill with water and several hundred gallons of water was released to the ground. The release did not constitute a reportable quantity.

Building 308D

Building 308D is the Central Sump Pump House for the OU-4 interceptor trench. Ground water contamination resulting from releases from the solar ponds are collected by the OU-4 interceptor trench in the concrete sump under Building 308D. The contaminated ground water is pumped to the modular storage tanks 308B-A, 308B-B, and 308B-C. In the Site SAR, Building 308D is classified as an industrial facility because the groundwater managed by the system has only trace amounts of chemical and radiological contamination. In the past, the pumps and associated piping frequently leaked both inside building 308D and the area around the Building 308D. These leaks did not constitute a reportable quantity. The 308D pump house and sump are currently inactive and the sump contains approximately 3 feet of water.

Current Operational Status

Buildings 705 is inactive and currently being prepared for D&D. Building 964 and 308B are currently operational. Building 308D is not currently operational.

Contaminants of Concern

Asbestos

Describe any potential, likely, or known sources of Asbestos

Building 705 is posted as potentially containing asbestos. Building 308B, 308D and 964 have no asbestos postings. None of the buildings in this HSA have had a comprehensive asbestos survey.

Beryllium (Be)

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

Building 705 is posted as a beryllium control area and has several rooms listed on the List of known Beryllium areas (Rooms 100, 100A, 102, and 206). Building 964, 308B and 308D are not on the list of known Beryllium areas.

Summarize any recent Be sampling results

No recent Be samples collected on any of these facilities.

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Lead

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

Due to the age of construction of some of the facilities in this HSA, lead in paint and lead in electrical equipment may be a concern. Lead shielding was used in Building 705, but was removed during hazard reduction activities in 2001. Building 308B, 308D and 964 were not known to have used lead shielding.

See the section below for RCRA/CERCLA constituents for any 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 964 is RCRA Unit 24 and will be closed in accordance with the RCRA Part B Permit. This unit primarily stores solidified bypass sludge from building 371. There are no documented releases from this storage unit. Building 308B, 308D and 705 are not associated with any RCRA Unit. Building 308B and 308D pumped OU-4 groundwater. This groundwater had very low levels of contamination, primarily nitrates, metals and some uranium.

The Building 705 coatings laboratory primarily performed research with beryllium, but also used a variety of other metals in a more limited extent (i.e., chromium, cadmium, hafnium, lead, lutetium, nickel, magnesium, and molybdenum, silver). Miscellaneous laboratory chemicals were also used (i.e., acids, bases, solvents).

Building 308B and 308D pump houses were used to pump ground water from the trenches to the 308B modular storage tanks and eventually to Building 371 for flash evaporation treatment. The water handled by these buildings contained trace amounts of chemical contamination (mostly nitrates and some metals).

See the Building specific WSRIC for a 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)

Building 964 has no documented spills, but is located within the boundary of two IHSS. (See the Environmental Restoration Concerns section below). Building 705 has no documented spills. Building 308B has had one release in 1996 (see process history section). Building 308D frequently had small volume leaks from its piping and pumps (see process history section). Due to the low concentration of contamination in the water, these leaks did not constitute a reportable release. These incidents were reported to the state as a best management practice.

Describe methods in which spills were mitigated, if any

Building 964 and 705 had no documented releases. The 1996 release from Building 308B was pumped to a portable tank and disposed of at Building 371.

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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.

Describe methods in which spills were mitigated, if any

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

**D&D RISS Facility Characterization
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Radiological Contaminants

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

Building 964 is the only building in this HSA that is currently radiologically posted. Building 964 is used primarily to store solidified bypass sludge (low-level mixed waste) from building 371.

Building 705 primarily performed non-radiological R&D activities. However, depleted uranium was used in a few special projects. No known building contamination resulted from these special projects. No equipment contamination or building contamination was found during the hazard reduction activities performed on Building 705 during 2001.

Building 308B and 308D were used to pump ground water from the OU-4 interceptor trench to the 308B modular storage tanks and eventually to Building 371 for flash evaporation treatment. The water contained trace amounts of radioactive contamination (mostly uranium). The water is not regulated as a radioactive material.

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

Building 964 has had no documented spills, but is located within the boundary of two IHSS. (See the Environmental Restoration Concerns section below.)

Building 705 had no known spills.

Building 308B has had one release in 1996 (see process history section). Building 308D frequently had small volume leaks from its piping and pumps (see process history section). Due to the low concentration of contamination in the water, these leaks did not constitute a reportable release. These incidents were reported to the state as a best management practice.

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

Describe methods in which spills were mitigated, if any.

None.

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

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

**D&D RISS Facility Characterization
Historical Site Assessment Report
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Environmental Restoration Concerns

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

Building 308B is located near, the following active PACs,

- 1) PAC NE- 1407 "771 Hillside Sludge Release", NFA Recommendation Approved 1999

Building 308D is located near the following PAC

- 1) PAC NE 1409 "Modular Tanks and 910 Treatment System Spill", NFA Recommendation Approved 2001

Building 964 is associated with or located near the following IHSSs

- 1) IHSS 900-176 "S&W Contractor Yard", Active
- 2) IHSS 000-101 "Solar Evaporation Ponds", Active

Building 705 and are not associated with any IHSSs, PACs, and UBCs None of the facilities in this HSA have UBCs

Sanitary drains are covered, site wide, in PAC 000-500 and storm drains are covered, site wide, in PAC 000-505

Additional Information

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

None

References

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

Sources reviewed to complete this HSA were the RFETS Facility List, the Historical Release Report, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases Building 705 WSRIC, (Building 308B, 308D and 964 do not 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 705	5500	0	400	0	1100	TBD	None
Building 964	2500	600	300	2400	0	TBD	None
Building 308B	100	0	100	0	0	TBD	None
Building 308D	950	0	25	0	0	TBD	Fiberglass - 100

Further Actions

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

Begin the RLC/PDS process

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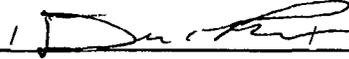
**D&D RISS Facility Characterization
Historical Site Assessment Report
April, 2003 Rev. 1**

Note

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

Prepared By.

Duane Parsons



April 2003

Name

Signature

Date

ATTACHMENT C

Radiological Data Summaries and Survey Maps

Best Available Copy

SURVEY UNIT 705-2-001
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description B705 (Exterior)

705-2-001
PDS Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	25	25		25	
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	10.5	dpm/100 cm ²	MIN	0.9	dpm/100 cm ²
MAX	73.5	dpm/100 cm ²	MAX	6.7	dpm/100 cm ²
MEAN	30.0	dpm/100 cm ²	MEAN	1.1	dpm/100 cm ²
STD DEV	21.2	dpm/100 cm ²	STD DEV	1.9	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 705-2-001
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	4
Serial #	1366	3125	662	3107
Cal Due Date	6/26/03	4/21/03	8/19/03	8/6/03
Analysis Date	4/9/03	4/9/03	4/10/03	4/10/03
Alpha Eff (c/d)	0.209	0.215	0.223	0.218
Alpha Bkgd (cpm)	4.7	1.3	3.3	2.7
Sample Time (min)	1.5	0.218	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ^{1,2}
1	4	12.0	55.0	2.0	9.2	40.1
2	4	16.0	73.4	4.0	18.3	58.4
3	1	14.0	67.0	3.3	15.8	52.0
4	4	3.3	15.1	3.3	15.1	0.1
5	1	13.3	63.6	4.0	19.1	48.6
6	1	11.3	54.1	3.3	15.8	39.1
7	3	1.0	4.5	5.0	22.4	10.5
8	1	9.3	44.5	4.7	22.5	29.5
9	4	19.3	88.5	3.3	15.1	73.5
10	4	7.0	32.1	3.0	13.8	17.1
11*	1	17.3	82.8	1.3	6.2	67.8
12	4	4.0	18.3	1.3	6.0	3.4
13	3	8.0	35.9	8.0	35.9	20.9
14	3	10.0	44.8	3.0	13.5	29.9
15	3	7.0	31.4	1.0	4.5	16.4
16	2	10.7	49.8	0.7	3.3	34.8
17	1	15.3	73.2	2.0	9.6	58.2
18	3	6.7	30.0	4.0	17.9	15.1
19	3	8.0	35.9	6.0	26.9	20.9
20	3	6.0	26.9	2.0	9.0	11.9
21	3	9.0	40.4	4.0	17.9	25.4
22	1	5.3	25.4	2.0	9.6	10.4
23	4	9.3	42.7	2.0	9.2	27.7
24	1	8.0	38.3	3.3	15.8	23.3
25	1	10.7	51.2	4.7	22.5	36.2

¹ Average LAB used to subtract from Gross Sample Activity

15.0	Sample LAB Average
MIN	10.5
MAX	73.5
MEAN	30.0
SD	21.2
Transuranic DCGL _{LW}	100

QC Measurements

24 QC	1	14.7	65.9	4	17.9	54.0
25 QC	1	8	35.9	13	5.8	24.0

¹ Average QC LAB used to subtract from Gross Sample Activity

11.9	QC LAB Average
MIN	24.0
MAX	54.0
MEAN	39.0
Transuranic DCGL _{LW}	100

**SURVEY UNIT 705-2-001
RSC - DATA SUMMARY**

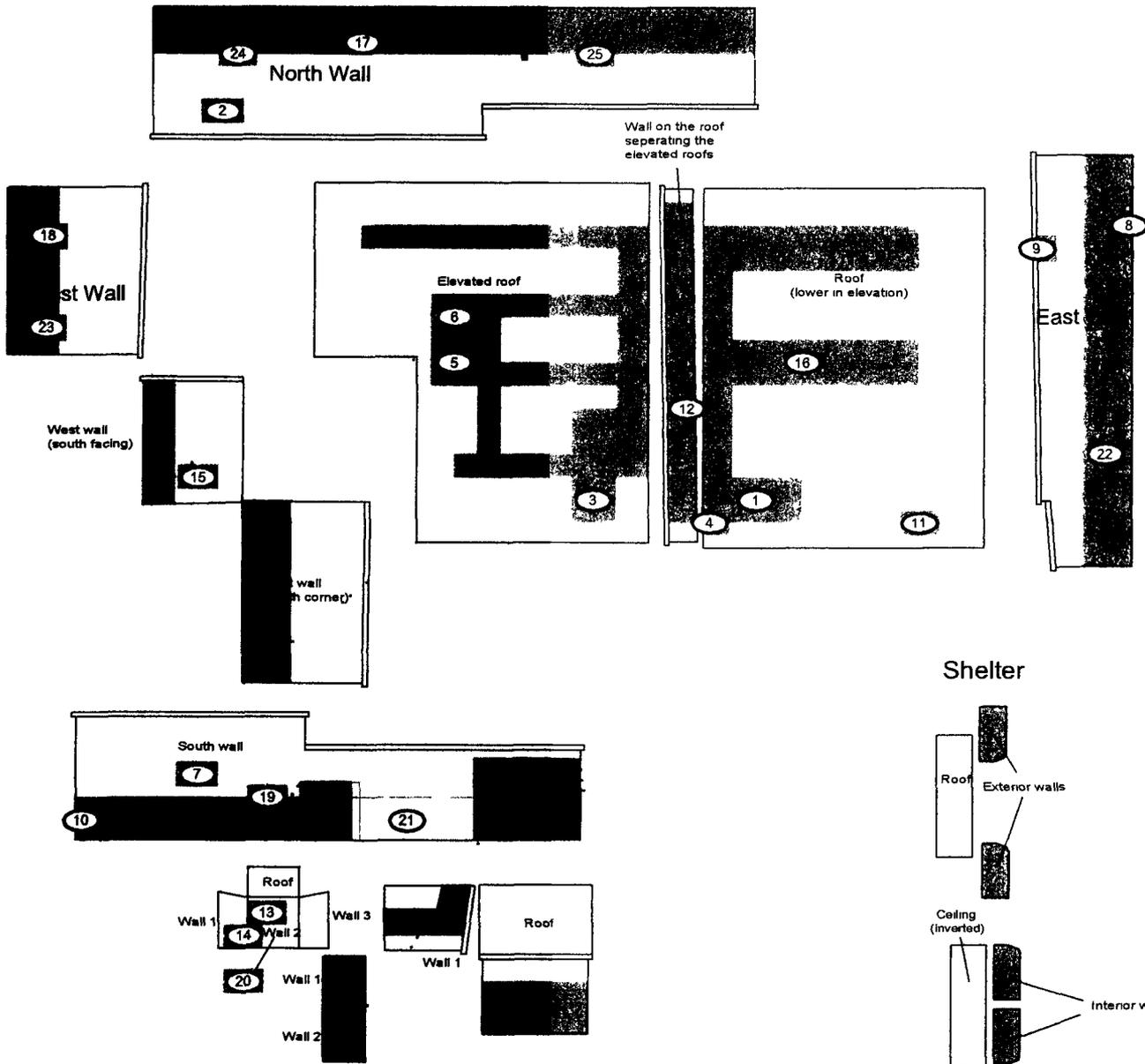
Manufacturer	Eberline	Eberline	Eberline
Model	SAC-4	SAC-4	SAC 4
Instrument ID#	5	6	7
Serial #	1164	852	971
Cal Due Date	6/17/03	7/9/03	8/6/03
Analysis Date	4/15/03	4/15/03	4/15/03
Alpha Eff (c/d)	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.3	0.3	0.3
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	5	1	0.6
2	6	4	5.2
3	7	0	0.9
4	5	1	0.6
5	6	2	2.1
6	7	2	2.1
7	5	0	-0.9
8	6	1	0.6
9	7	1	0.6
10	5	1	0.6
11	6	2	2.1
12	7	1	0.6
13	5	1	0.6
14	6	2	2.1
15	7	2	2.1
16	5	5	6.7
17	6	2	2.1
18	7	0	0.9
19	5	1	0.6
20	6	1	0.6
21	7	0	-0.9
22	5	0	-0.9
23	6	0	-0.9
24	7	0	-0.9
25	5	3	3.6
		MIN	-0.9
		MAX	6.7
		MEAN	1.1
		SD	1.9
		Transuranic DCGL_w	20

PRE-DEMOLITION SURVEY

Survey Area 2 Survey Unit 705-2-001 Classification 3
 Building 705
 Survey Unit Description Exterior of 705
 Total Area 3281 sq m Total Floor Area 380 sq m

705 Exterior



☼ Scan Area

<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> ☼ Smear & TSA Location ◆ Smear, TSA & Sample Location ■ Open/Inaccessible Area □ Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET nor any agency thereof, nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p align="center">N</p> <p align="center">↑</p>	<p align="center">0 FEET 30</p> <p align="center">0 METERS 10</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p>	
				<p>Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s) 1, 2, 4</p>	<p>1 inch = 24 feet 1 grid sq = 1 sq m</p>

ENVIRONMENTAL TECHNOLOGY SYSTEMS

INSTRUMENT DATA

Mfg	Eberline	Mfg	Eberline	Mfg	NE Electra
Model	SAC-4	Model	SAC-4	Model	DP-6
Serial #	1164	Serial #	952	Serial #	3107
Cal Due	6/17/03	Cal Due	7/9/03	Cal Due	8/6/03
Bkg	0.1 cpm α	Bkg	0.3 cpm α	Bkg	2.7 cpm α
Efficiency	33.00 %	Efficiency	33.00 %	Efficiency	21.80 %
MDA	20 dpm α	MDA	20 dpm α	MDA	47 dpm α
Mfg	Eberline	Mfg	Eberline	Mfg	NE Electra
Model	BC-4	Model	BC-4	Model	DP-6
Serial #	835	Serial #	911	Serial #	3107
Cal Due	9/17/03	Cal Due	10/30/03	Cal Due	8/6/03
Bkg	35.8 cpm β	Bkg	31.5 cpm β	Bkg	36.1 cpm β
Efficiency	25.00 %	Efficiency	25.00 %	Efficiency	30.30 %
MDA	200 dpm β	MDA	200 dpm β	MDA	301 dpm β

Survey Type	Contamination
Building	705
Location	Equipment
Purpose	Reconnaissance Level Characterization
RWP #	N/A
Date	4/10/03
Time	0800
RCT	na / na / na
Print name	Signature
Emp #	

PRN/REN #: N/A
 Comments: all points scanned 1 meter around PAT

SURVEY RESULTS

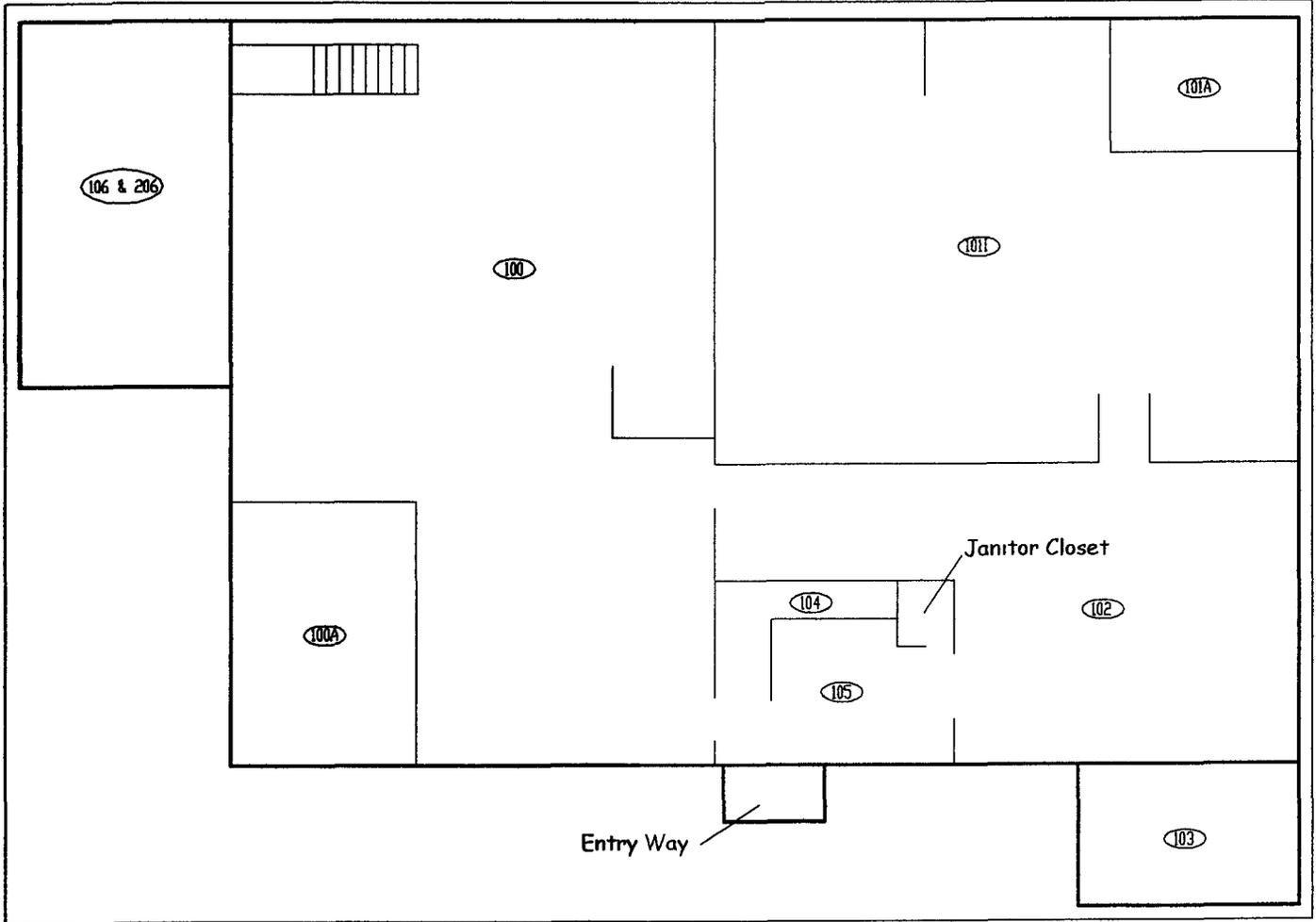
Swipe #	Location / Description Results in DPM/100sq cm	Removable		Total	
		Alpha	Beta	Alpha	Beta
51	Breaker Box	3	0	18	-69
52	N W Return Air Duct	0	0	14	-234
53	S W Return Air Duct	3	0	46	-284
54	Hood Exhaust Pipe	6	28	14	-10
55	Heater	0	4	28	-96
56	Upper Part of Hood	0	20	0	-241
57	Lower Part of Hood	3	0	28	508
58	Breaker Box	0	0	9	-59
59	Heater	3	0	14	92
60	Fire Valve	0	0	5	-46
61	Electric Box	0	0	5	-139
62	Heater	0	0	-18	-125
63	Breaker Box	0	0	9	-238
64	Emergency Lighting	0	16	46	-69
65	Fire Valve	3	12	37	-109
66	Exit Sign	0	20	9	419
67	Valve	0	0	9	172
68	Electric Meter	3	16	0	-462
69	Breaker Box	0	4	28	-112
70	Exit Sign	3	0	14	188

Date Reviewed 4-15-03 RS Supervision

PRE-DEMOLITION SURVEY

Survey Area 2 **Survey Unit 705-2-002** **Classification 3**
Building 705
Survey Unit Description Interior of Building
Total Area 3281 sq m **Total Floor Area 380 sq m**

B705 Interior Key Plan

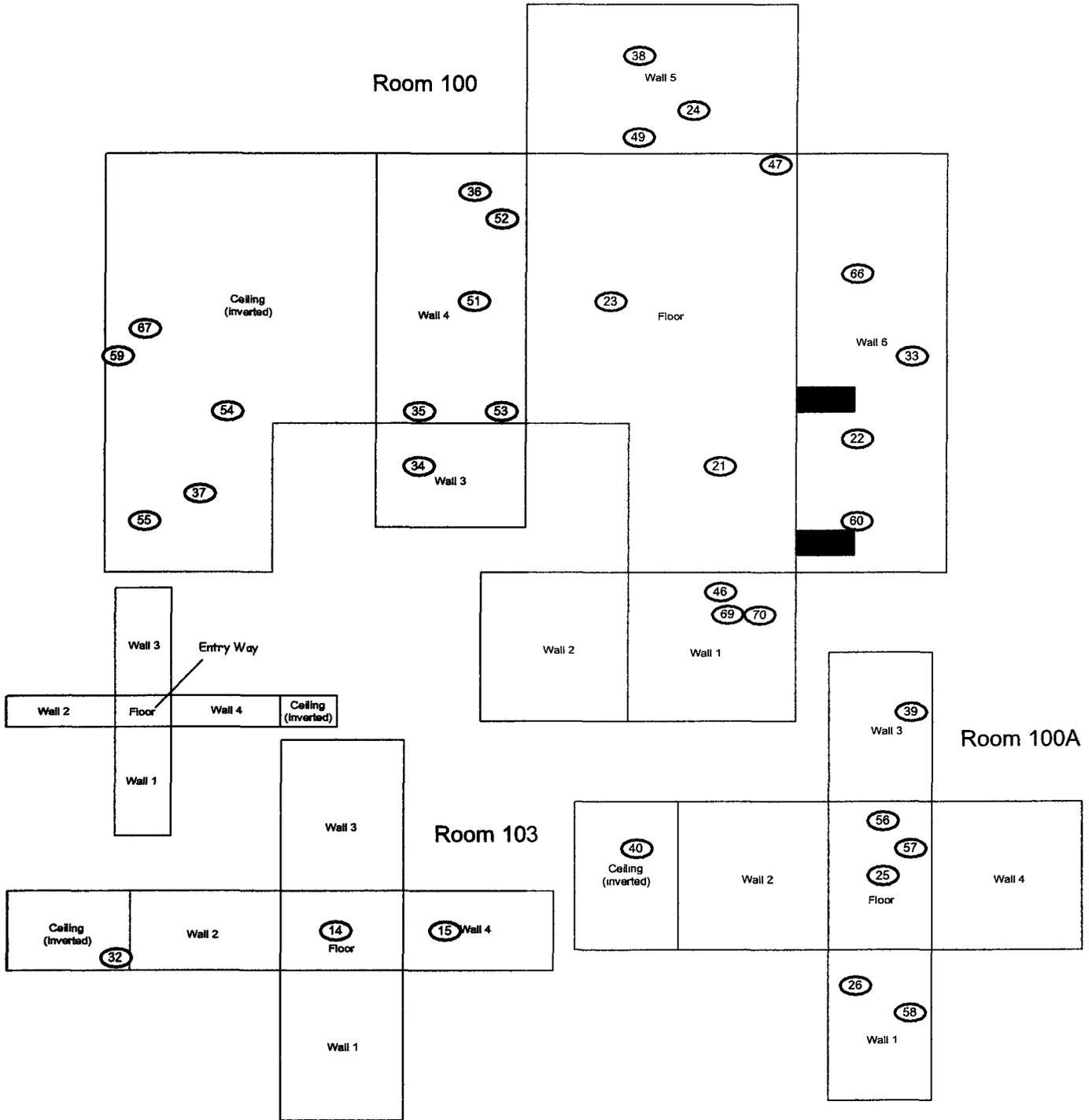


<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Smear & TSA Location Smear, TSA & Sample Location Open/Inaccessible Area Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET nor any agency thereof nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p align="center">N</p>	<p align="center">0 FEET 15</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p>
			<p align="center">0 METERS 5</p>	<p>Prepared by GIS Dept 303-966 7707 Prepared for:</p> <p align="center"> CH2MHILL <small>CONSTRUCTION</small> </p>
<p>Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s)</p>			<p>1 inch = 12 feet 1 grid sq = 1 sq m</p>	<p>MAP ID 02-0355/705 FP April 22 2003</p>

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PRE-DEMOLITION SURVEY

Survey Area 2 **Survey Unit 705-2-002** **Classification 3**
Building 705
Survey Unit Description Interior of 705 **Total Floor Area 431 sq m**
Total Area 2327 sq m

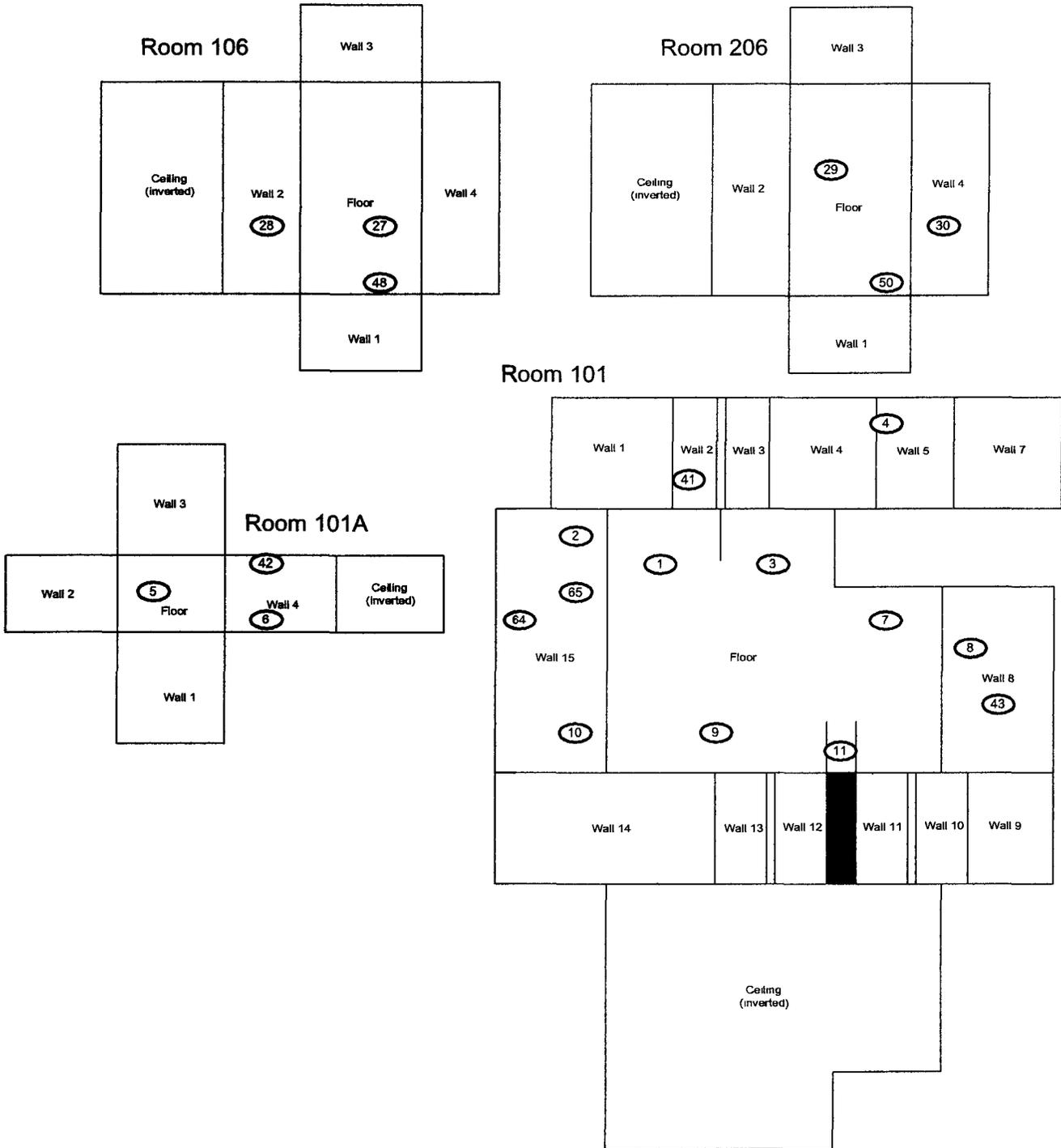


<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Smear & TSA Location Smear, TSA & Sample Location Open/Inaccessible Area Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&BT nor any agency thereof, nor any of their employees, makes any 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 align="center">N ↑</p> <p>Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s)</p>	<p align="center">0 FEET 25</p> <p align="center">0 METERS 8</p> <p align="center">1 inch = 18 feet 1 grid sq = 1 sq m</p>	<p align="center">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by GIS Dept 303-966 7707 Prepared for</p> <p align="center"> </p> <p align="center">MAP ID 02-0355705 IN1 March 3 2003</p>
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PRE-DEMOLITION SURVEY

Survey Area 2 Survey Unit 705-2-002 Classification 3
 Building 705
 Survey Unit Description Interior of 705
 Total Area 2327 sq m Total Floor Area 431 sq m

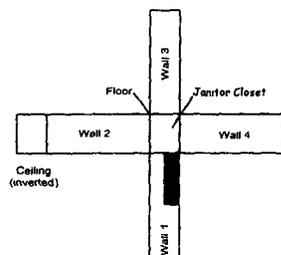
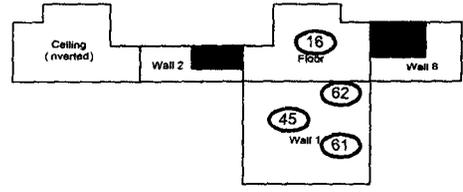
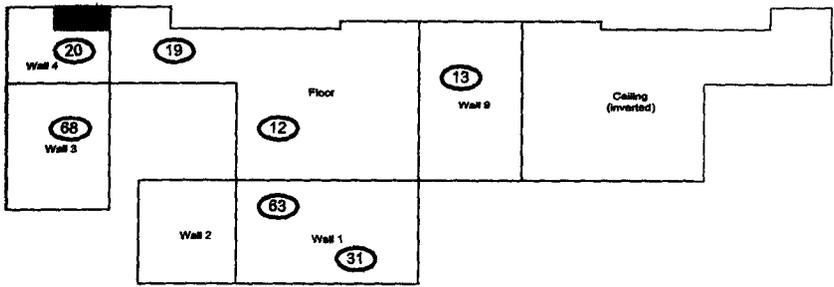
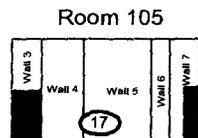
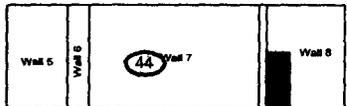
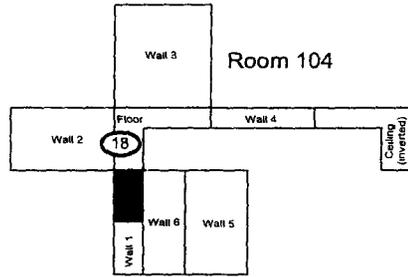
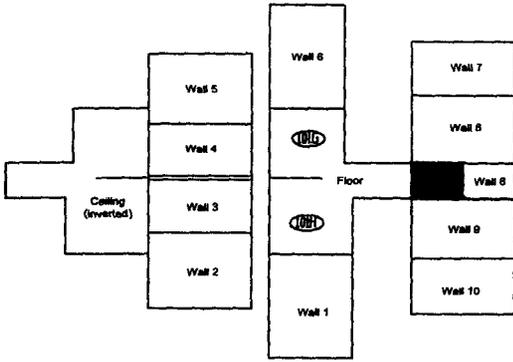


<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Smear & TSA Location Smear, TSA & Sample Location Open/inaccessible Area Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser Hill Co nor DynCorp I&BT nor any agency thereof, nor any of their employees, makes any warranty 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 align="center">N</p>	<p align="center">0 FEET 25</p> <p align="center">0 METERS 8</p>	<p>U S Department of Energy Rocky Flats Environmental Technology Site</p>
				<p>Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s)</p>
			<p>1 inch = 18 feet 1 grid sq = 1 sq m</p>	<p>MAP ID 02-0355/705 IN2 March 3, 2003</p>

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PRE-DEMOLITION SURVEY

Survey Area 2 **Survey Unit 705-2-002** **Classification 3**
Building 705
Survey Unit Description Interior of 705
Total Area 2327 sq m **Total Floor Area 431 sq m**



<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Smear & TSA Location Smear TSA & Sample Location Open/Inaccessible Area Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET nor any agency thereof, nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p align="center">N</p>	<p align="center">0 FEET 30</p> <p align="center">0 METERS 10</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p>	
				<p>Scan Survey Information Survey Instrument ID #(s) & RCT ID #(s)</p>	<p>Prepared by GIS Dept 303-966 7707 Prepared for:</p>
<p>1 inch = 24 feet 1 grnd sq = 1 sq m</p>			<p> CH2MHILL COMMUNICATIONS CORP.</p>		<p>MAP ID 02-0355/705 IN3 March 3 2003</p>

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ATTACHMENT D

Chemical Data Summaries and Sample Maps

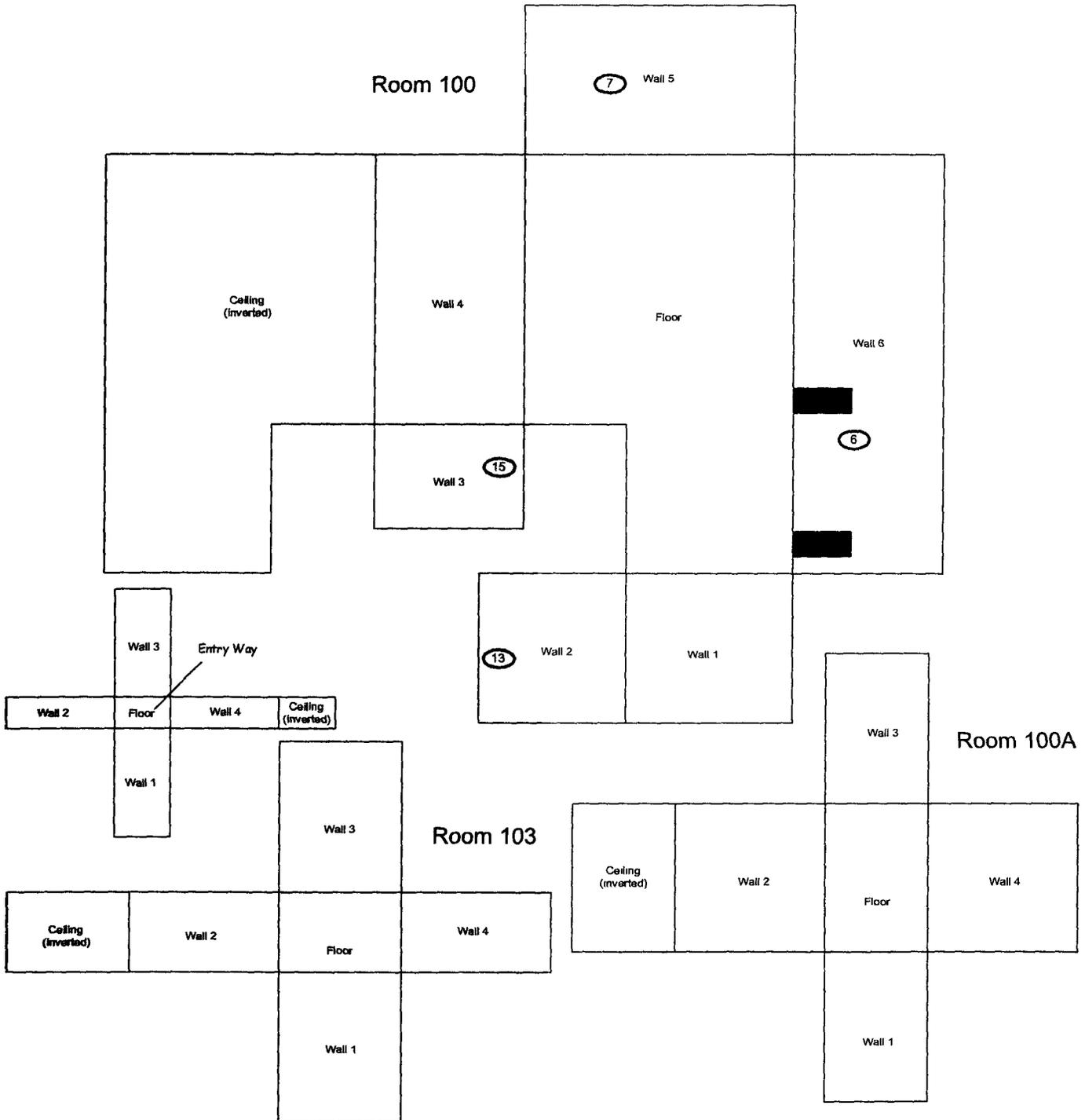
Asbestos Data Summary

Sample Number	Survey Map Location Point	Room	Material Sampled & Location	Analytical Results
705-040803-315-101	1	101 I	White paint on Concrete Mortar Unit (CMU) wall, east	None Detected
705-040803-315-102	2	101 A	White paint on CMU, east wall	None Detected
705-040803-315-103	3	102	Yellow paint on CMU, south wall	None Detected
705-040803-315-104	4	104	White paint on CMU, north wall	None Detected
705-040803-315-105	5	105	White paint on CMU, north wall	None Detected
705-040803-315-106	6	100	Orange paint on CMU, east wall	None Detected
705-040803-315-107	7	100	Orange paint on CMU, north wall	3 % Chrysotile, 1 25 % Point Count
705-040803-315-108	8	101 D	Hard elbow on > 6" OD Condensate line, white friable TSI	8 % Chrysotile, 2 % Amosite, 3 % Crocidolite
705-040803-315-109	9	101 D	Hard elbow on > 6" OD Heating Water Supply line, white friable TSI	8 % Chrysotile, 2 % Amosite, 3 % Crocidolite
705-040803-315-110	10	101 D	Hard elbow on < 6" OD Domestic Cold Water line, white friable TSI	8 % Chrysotile, 2 % Amosite, 3 % Crocidolite
705-040803-315-111	11	101 F	Drywall, only	None Detected
705-040803-315-112	12	101 F	Joint compound, only	None Detected
705-040803-315-113	13	100	Joint compound, only	None Detected
705-040803-315-114	14	106	Hard elbow on < 6" OD Process Cold Water line, white friable TSI	None Detected
705-040803-315-115	15	100	Base cove with brown adhesive	None Detected

CHEMICAL SAMPLE MAP

**Building 705
Asbestos**

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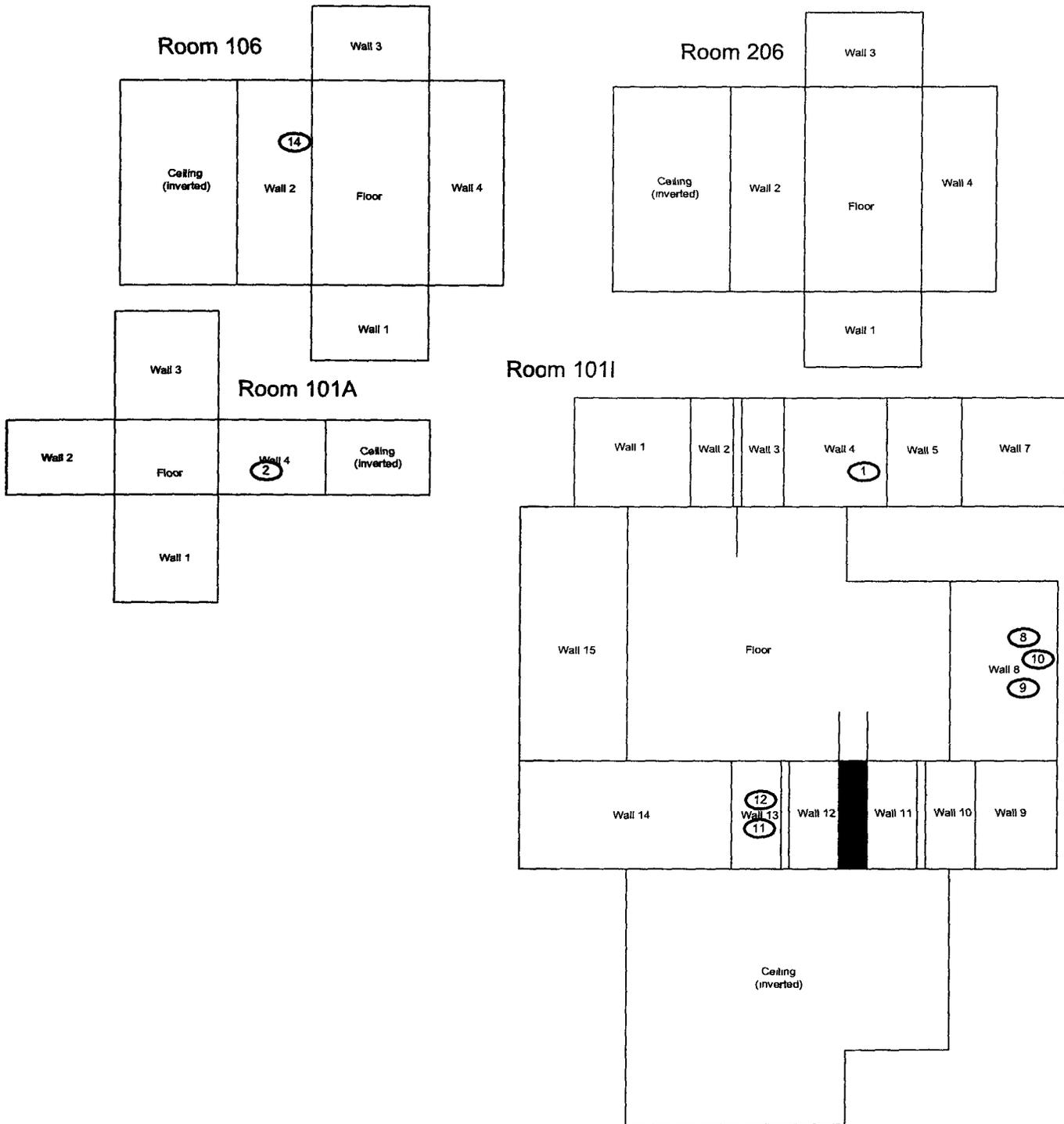
<p><u>SURVEY MAP LEGEND</u></p> <ul style="list-style-type: none"> Asbestos Sample Location Beryllium Sample Location Lead Sample Location RCRA/CERCLA Sample Location PCB Sample Location 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET nor any agency thereof, nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p>N</p>	<p>0 FEET 25</p> <p>0 METERS 8</p> <p>1 inch = 18 feet 1 sq m = 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> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p>MAP ID 02-0355705 IN1-ASB April 15 2003</p>
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CHEMICAL SAMPLE MAP

**Building 705
Asbestos**

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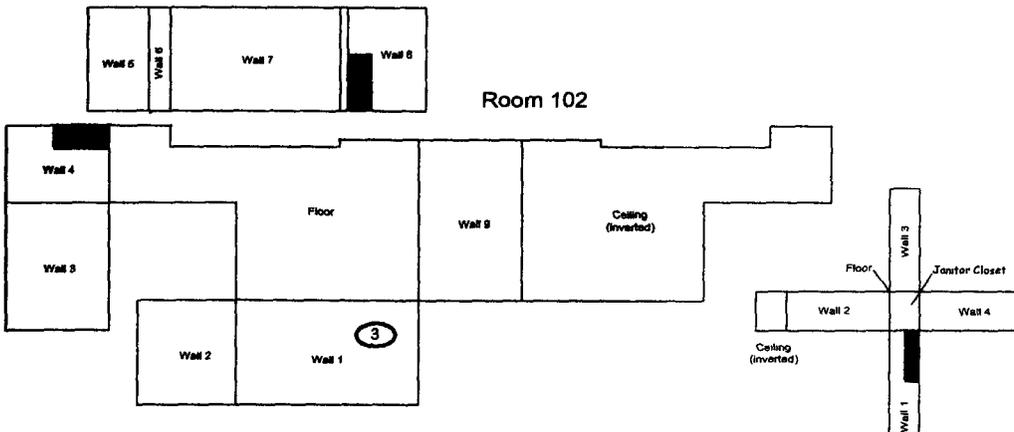
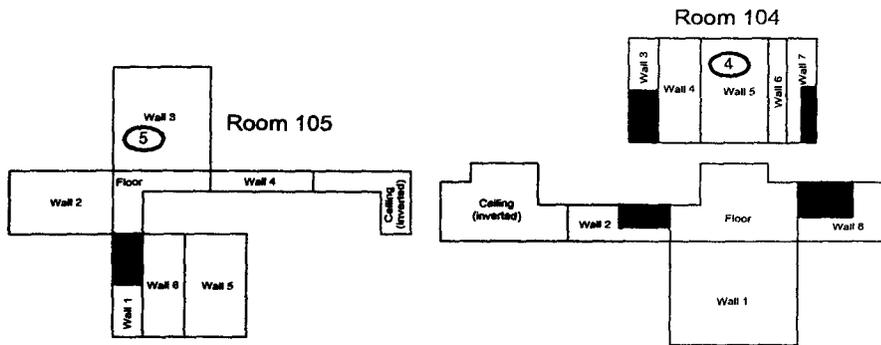
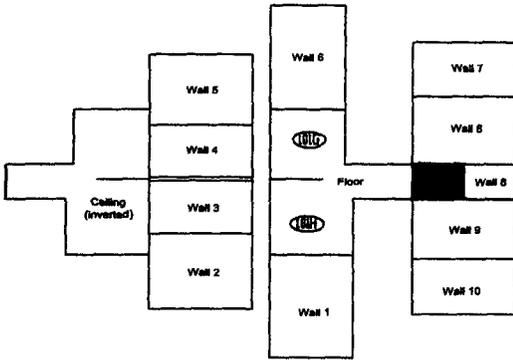
<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Asbestos Sample Location Beryllium Sample Location Lead Sample Location RCRA/CERCLA Sample Location PCB Sample Location 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynoCorp I&BT nor any agency thereof, nor any of their 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 style="text-align: center;">0 FEET 25</p> <p style="text-align: center;">0 METERS 8</p> <p style="text-align: center; font-size: 8px;">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: 8px;">Prepared by GIS Dept 303-866 7707 Prepared for</p> <div style="display: flex; justify-content: space-between; align-items: center;"> </div> <p style="font-size: 8px; text-align: center;">MAP ID 02-0355705-IN2-ASB April 15 2003</p>
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CHEMICAL SAMPLE MAP

Building 705
Asbestos

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<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Asbestos Sample Location Beryllium Sample Location Lead Sample Location RCRA/CERCLA Sample Location PCB Sample Location 	<p>Neither the United States Government nor Kaiser Hill Co., nor DynCorp I&ET nor any agency thereof, nor any of their employees, makes any warranty express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p>N</p>	<p>0 FEET 30</p> <p>0 METERS 10</p> <p>1 inch = 24 feet 1 grid sq = 1 sq m</p>	<p>U S Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by GIS Dept 303-966 7707 Prepared for</p> <div style="display: flex; justify-content: space-between; align-items: center;"> </div> <p>MAP ID 02-0355705 IN3 ASB April 15 2003</p>
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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.

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 and asbestos in E-2. A data completeness summary for all results is given in Table E-3.

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

Survey designs were implemented for Building 705 based on the transuranic limits used as DCGLs in the unrestricted release decision process. Consistent with EPA's G-4 DQO process, the radiological survey design (for the survey unit performed per PDS requirements (i.e., building exterior), was optimized by checking actual measurement results (acquired during PDS) 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. The following areas of contamination were identified during this RLC as containing contaminants above unrestricted release levels:

- Beryllium contamination is present in Building 705 ranging from 0.1 $\mu\text{g}/100\text{cm}^2$ to 779.0 $\mu\text{g}/100\text{cm}^2$. Beryllium contamination is present throughout Building 705 on equipment, fume hoods, ductwork, and building surfaces such as concrete floors, drains, piping, columns, and electrical units.
- Friable asbestos-containing materials were identified in thermal systems insulation (TSI), and non-friable asbestos-containing materials were identified in cinderblock sealant, black tar roofing, and floor tile and adhesive.
- PCBs were identified in some of the fluorescent light ballasts. Leaking PCB ballasts, and those that weigh more than 9 pounds, will be removed during building strip-out. All other PCB ballasts will remain in the building and managed as PCB Bulk Product Waste.

The Building 705 exterior was radiologically surveyed in accordance with PDSP requirements and met the PDSP radiological release. Therefore, the exterior radiological PDS surveys of this facility are considered complete. If any future potentially contaminating event were to take place during D&D activities that could contaminate the exterior surfaces of Building 705, then these surfaces shall be resurveyed prior to demolition. Additionally, a confirmation smear survey shall be performed of the exterior surfaces prior to demolition.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable Radiological Safety Practice procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits.

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. Because some of the media surveyed and sampled, except radiological, yielded results exceeding unrestricted release limits (specifically, asbestos, beryllium and PCBs), classification of Building 705 as a Type 2 facility is justified.

Table E-1 V&V of Radiological Surveys For Building 705

V&V CRITERIA, RADIOLOGICAL SURVEYS	K-H RSP 16 00 Series MARSSIM (NUREG-1575)			COMMENTS
	Parameters	Measure	frequency	
ACCURACY	initial calibrations	90% < x < 110%	≥ 1	Multi-point calibration through the measurement range encountered in the field, programmatic records Performed daily/within range
	daily source checks	80% < x < 120%	≥ 1/day	
	local area background Field	typically < 10 dpm	≥ 1/day	
PRECISION	field duplicate measurements for TSA	≥ 5% of real survey points	≥ 10% of reals	All local area backgrounds were within expected ranges (i e , no elevated anomalies) N/A
REPRESENTATIVENESS	MARSSIM methodology Survey Units 705-2-001 (exterior) and 705-2-002 (interior)	statistical and biased	NA	Random w/ statistical confidence
	Survey Maps	NA	NA	
	Controlling Documents (Characterization Pkg, RSPs)	qualitative	NA	
COMPARABILITY	units of measure	dpm/100cm ²	NA	Random and biased measurement locations controlled/mapped to ± 1m 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 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-3 for details
SENSITIVITY	detection limits	TSA ≤ 100 dpm/100cm ² RA ≤ 20 dpm/100cm ²	all measures	Interior MDAs ≤ 100% DCGL _w per MARSSIM guidelines, exterior MDAs ≤ 50% DCGL _w per MARSSIM guidelines

Table E-2 V&V of Asbestos Results For Building 705

V&V CRITERIA, CHEMICAL ANALYSES ASBESTOS	METHOD EPA 600/R-93/116	DATA PACKAGE		COMMENTS
		LAB ---->	Reservoirs Environmental, Inc RIN03Z1374	
QUALITY REQUIREMENT				
ACCURACY	Calibrations Initial/continuing	Measure	Frequency	Semi-quantitative, per (microscopic) visual estimation
		below detectable amounts	≥1	
PRECISION	Actual Number Sampled	all below detectable amounts	≥ 15 samples	Semi-quantitative, per (microscopic) visual estimation
	LCSD Lab duplicates	Qualitative	NA	
REPRESENTATIVENESS	COC	Qualitative	NA	Chain-of-Custody intact completed paperwork, containers w/ custody seals
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc)	Qualitative	NA	
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-3, final number of samples at Certified Inspector's discretion
SENSITIVITY	Detection Limits	<1% by volume	all measures	N/A

Table E-3 Data Completeness Summary For Building 705

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc)
Asbestos	Building 705 (interior)	18 biased	15 biased	ACM present, > 1% by volume (4 locations)	40 CFR763 86, 5 CCR 1001-10, EPA 600/R-93/116 RIN03Z1374 Asbestos containing materials identified at four locations greater than 1% by volume range of 3% to 8% Chrysotile, 3% Amosite and 1 25 to 2 point count
Radiological	Survey Area 2 Survey Unit 705-2-001 Building 705 (exterior)	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 2 QC TSA	25 α TSA (15 random/10 biased) and 25 α Smears (15 random/10 biased) 2 QC TSA	No elevated contamination found at any location, all results were less than PDS unrestricted release limits	Transuranic and/or Uranium DCGLs as applicable
Radiological	Survey Area 2 Survey Unit 705-2-002 Building 705 (interior)	40 α β TSA (30 uniform < 2m / 10 biased > 2 m) and 40 α β Smears (30 uniform < 2m / 10 biased > 2 m) 30 α β TSA & 30 α β Smears (equipment)	40 α β TSA (30 uniform < 2m / 10 biased > 2 m) and 40 α β Smears (30 uniform < 2m / 10 biased > 2 m) 30 α β TSA & 30 α β Smears (equipment)	No elevated contamination found at any location, all results were less than PDS unrestricted release limits	Transuranic and/or Uranium DCGLs as applicable

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