



Final Project Closeout Report

For the

Building 993 Closure Project

Revision 0

April, 2003

Remediation, Industrial D&D, and Site Services
Kaiser-Hill company



Review for Classification/

Name: C J Frazier - y/m -

Date: 04/10/03

1/65

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Final Project Closeout Report 993 Closure Project

I. Introduction

The Building 993 Closure Project was completed in accordance with the RSOP for Facility component Removal, Size Reduction, and Decontamination Activities (DOE 2002c); and the RSOP for Facility Disposition (DOE 2000b). This document summarizes the actions taken and final condition of Building 993.

The Building 993 (Munitions Storage) facility was constructed to be part of the security force. The facility was used for bonding tests on stainless steel and uranium alloy. Explosive bonding experiments were conducted at the explosive forming area near B993. Many of the experiments were designed to bond together flat plates of stainless steel and uranium alloy. Experiments conducted in March of 1968 with 192 grams of 40 percent dynamite drove a stainless steel plate into radioactive material, forming a bonded laminate. Other experiments of unknown nature took place near Building 993 for at least two and one half years. Until March 1968, experiments took place inside buried, sand-filled, 55-gallon drums. The explosive events took place below grade. Air shocks from the explosions were objectionable to Building 991 occupants, so a pit was dug into a hillside near Building 993 to house the apparatus and mitigate air shocks. The 10' X 19' pit was approximately 4' deep.

During Reconnaissance Level Characterization all accessible portions of the B993 slab were less than Pre Demolition Survey Plan (PDSP) unrestricted release limits of DOE Order 5400.5. However there was historical knowledge that the 12-foot diameter, 8 foot deep, under-grade pit in the slab floor of B993 may potentially contain depleted uranium contamination. The pit was used for explosive bonding testing during the 1960's and 1970's and was later filled in with concrete in the 1970's. Depleted uranium alloys were sometimes used during explosive bonding testing.

Since the under-grade pit was filled in with concrete making the pit inaccessible for surveys and sampling, the B993 under-grade pit was assumed to be radiologically contaminated and was managed as such during building demolition and environmental restoration (the slab was protected and not disturbed during building demolition). B993 facility was considered to be a Type 2 facility based on the historical knowledge of contamination in the pit.

II. Action Description

Building 993 was completed in two parts. First, loose property removal, and some equipment dismantlement was accomplished by Rocky Flats Closure Site Services (RFCSS). RFCSS is the Facility Management Subcontractor for that area reporting to the Remediation, Industrial D&D, and Site Services (RISS) Department of Kaiser-Hill Company, L.L.C. (KH). The second part, D&D was performed by Kaiser-Hill Construction (KHC) Group with project management and oversight performed by RISS.

In general the D&D work included removal of all equipment systems, building structures, utilities and all other associated structures such as stanchions, concrete driveways, and sidewalks within the Building 993 boundary. All piping and drains fields were removed to a minimum of 4' below grade. Those underground sewer lines, drain fields, electrical lines, phone lines/fiber-optic cables, below four feet and not contaminated were left in place. Contaminated process drain lines were removed entirely. In summary, the project consisted of decontamination, dismantling of systems and equipment, pre-demolition surveys, facility demolition, hazardous waste segregation, waste packaging and disposal, backfill, site grading and site restoration.

III. Verification That Action Goals Were Met

Five action objectives were established for the Building 993 Removal Project prior to beginning the demolition:

- *Decontamination of the facilities (as necessary) to support release for decommissioning per site approved procedures.*

The facilities were decontaminated to free-release standards and placed in the off-site landfill or on-site rubble pile.

- *Decommissioning Building 993 in accordance with RFCA and applicable or relevant and appropriate requirements.*

RFCA and other relevant requirements were complied with throughout the project.

- *Complete decontamination and decommissioning activities in a manner that is protective of site workers, the public and the environment.*

Decontamination and decommissioning activities were completed within regulatory requirements. Some examples include utilizing wet methods, via fire hydrant and hoses, to control dust during demolition.

- *Demolish Building 993 Facility structure, utilities and process lines to 4' below grade.*

All utilities were removed to a minimum of 4' below surrounding grade.

- *Backfill subsurface structures with clean fill and coordinate with Environmental Restoration for characterization of building slabs and concrete sampling and analysis of native soils under the former building slabs and reclamation of the site by re-contouring and revegetation.*

With approval of Environmental Restoration, DOE and CDPHE all dirt was left on site. Dirt on the site was below the Tier II action level and allowed to be put back in the excavations. The ER group did the backfilling under their RSOP.

IV. Verification of Treatment Process

Not applicable to this project.

V. Radiological Analysis

See Appendix 3 of this document containing the following Type 1 Reconnaissance Level Characterization Report (RLCR), which was done in accordance with the Pre-Demolition Survey Plan. CDPHE typed B993 as a Type 2 facility with a free releasable structure based on the suspected contaminated floor and floor pit identified in the historical assessment:

- RLCR, Building 989, 992 & 993 Closure Project, Revision 0, dated August 20, 2002.

VI. Demolition Survey Results

N/A (There were no air monitoring requirements during demolition of this facility)

VII. Waste Stream Disposition

<u>Sanitary Disposal</u>	
Disposal Site:	Construction Debris
Waste Volume (m ³):	BFI
Waste Weight (tons):	100 m ³
Additional Information:	67.54 Tons
	Above Grade Building Debris
<u>Hazardous Disposal</u>	
Disposal Site:	Kettleman Hills Facility, Kettleman City, CA or Bethlehem Apparatus Co. Hellertown, PA
Waste Volume (m ³):	Minor amounts
Additional Information:	Electronic Circuit Boards, Thermostats, exit signs, batteries, fluorescent light bulbs and any other RCRA hazardous components were removed and taken to the RFCA temporary unit for combination with like waste streams for disposal.
<u>TSCA Waste Disposal</u>	
Disposal Site:	Superior Special Services, Phoenix, AZ
Waste Volume (m ³):	Minor amounts
Additional Information:	PCB ballast's were removed and taken to the RFCA temporary unit for combination with like waste streams for disposal.
<u>Asbestos Waste Disposal</u>	
Disposal Site:	N/A
Waste Volume (m ³):	
Additional Information:	
<u>Low-Level Waste Disposal</u>	
Disposal Site:	N/A
Waste Volume (m ³):	
Additional Information:	
<u>Low-Level Mixed Waste Disposal</u>	
Disposal Site:	N/A
Waste Volume (m ³):	
Additional Information:	
<u>Recycled Material</u>	
Recycle Facility:	N/A
Waste Volume (m ³):	
Additional Information:	
<u>Property Disposition</u>	
Receiver Locations (<i>major items only</i>):	N/A
Volume (m ³):	
Weight (tons):	
Additional Information:	

VIII. Deviations From the Decision Document

Not applicable to this report.

IX. Description of Site Condition at End of Decommissioning

Except for the floor slab and pit the building was demolished and removed. Underground utilities were removed to a minimum of 4 feet below surrounding grade. The portion of the site disturbed during demolition was re-graded to match surrounding grades, and will be seeded with natural

plant life in the spring following removal of the slab and pit by K-H Environmental Restoration Group.

X. Demarcation of Wastes Left in Place

The floor slab, approximately 30' wide X 40' long, and a 12" diameter test pit previously filled with concrete were believed to be radiologically contaminated and left in place for Kaiser- Hill Company, L.L.C. Environmental Restoration Group to remove. The approximate quantity of concrete and reinforcing bar material anticipated as waste in the Reconnaissance Level Characterization Report (see Appendix 3, Article 1) was 5,000 cubic feet (~ 141.6 m³).

XI. Dates and Duration's of Project Activities

ACTIVITIES	START DATE	END DATE	DURATION
B993 Planning & Engineering	8/19/02	10/14/02	54 Work Days
B993 Characterization	2/1/02	10/2/02	157 Work Days
B993 Dismantlement	9/23/02	9/24/02	2 Work Days
B993 Decontamination	9/23/02	9/24/02	2 Work Days
B993 Final Surveys	9/23/02	9/24/02	2 Work Days
B993 Demolition & Disposal	10/23/02	11/14/02	14 Work Days

XII. Final Disposition of Wastes

See Section VII.

XII. Next Steps for Building 993

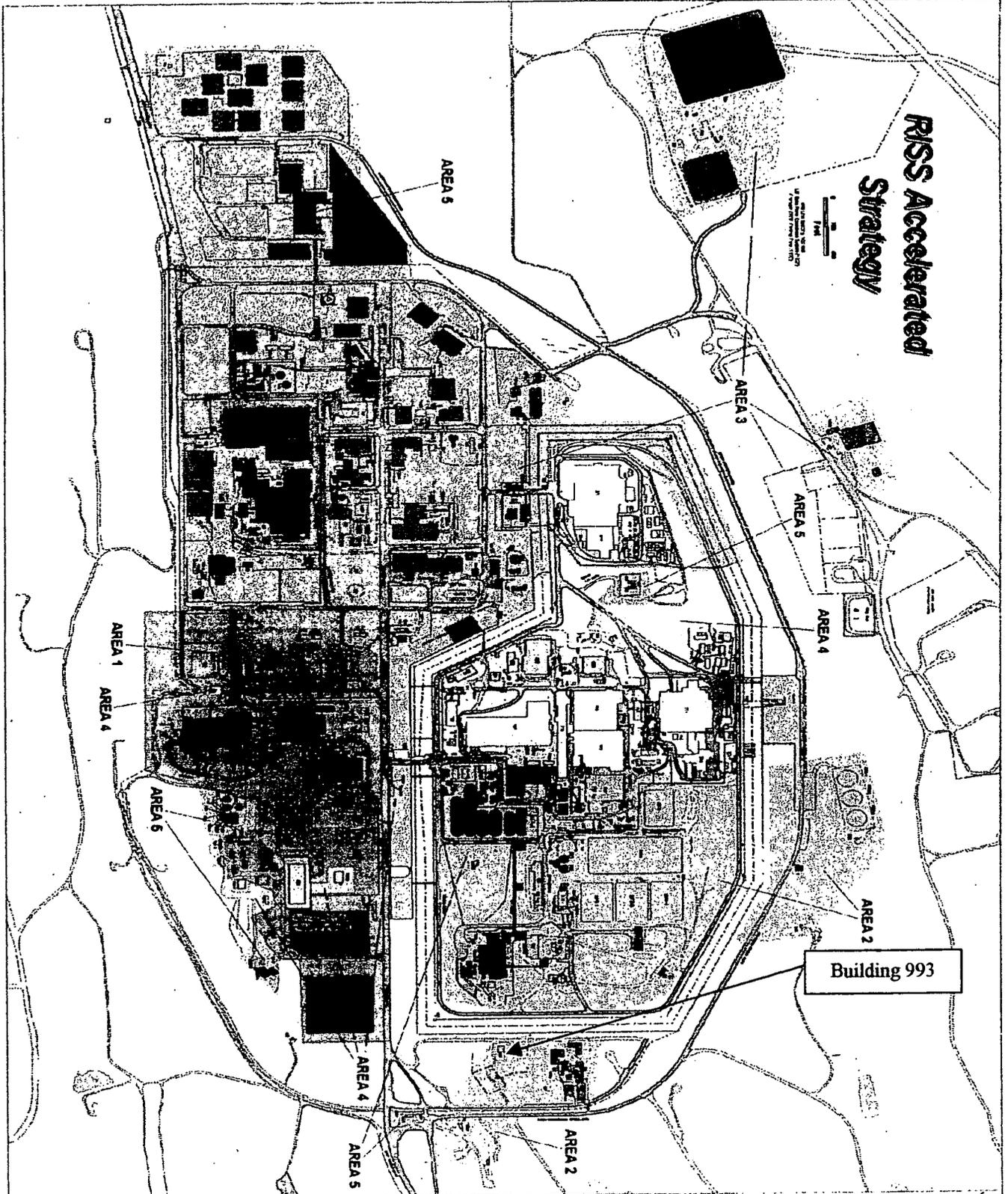
The Building 993 site was turned over to K-H Environmental Restoration Group with the floor slab and pit undisturbed. K-H Environmental Restoration Group will remove the floor slab and pit and dispose appropriately as radioactive waste.



Appendix 1

Article 1 RFETS Area Plot Plan

Article 2 Building 993 Plot Plan



RISS Accelerated Strategy

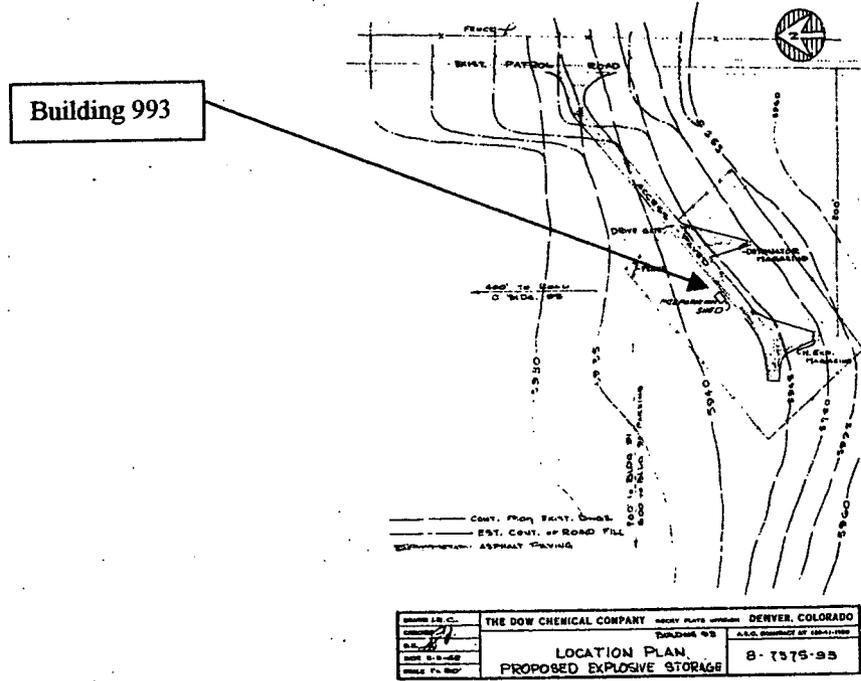
1" = 100'

Area Decontamination Legend

Area	Description
AREA 1	Completed
AREA 2	Completed
AREA 3	Completed
AREA 4	Completed
AREA 5	Completed
AREA 6	Completed

Best Available Copy

Final Project closeout Report
 Building 993 Closure Project
 Appendix 1, Article 2





Appendix 2

There were no contact records generated in the course of this project

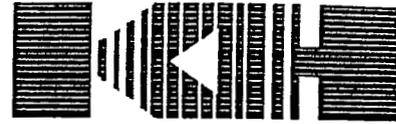


Appendix 3

Reconnaissance Level Characterization Report (RLCR)

Article 1 RLCR, Building 989, 992 & 993 Closure Project,
Revision 0, Dated August 20, 2002

Appendix 3
Article 1



Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR)

BUILDING 989, 992 & 993 CLOSURE PROJECT

REVISION 0

August 20, 2002

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

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- D Chemical Data Summaries and Sample Maps
- E Data Quality Assessment (DQA) Detail

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 Buildings 989, 992 & 993. Because these facilities are anticipated to be 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 and roofs]. 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 PDSP unrestricted release limits of DOE Order 5400.5. Although all accessible portions of the 993 slab were less than the PDSP unrestricted release limits of DOE Order 5400.5, there is historical knowledge that the 12 foot diameter, 8 foot deep, under-grade pit in the slab 993 may potentially contain depleted uranium contamination. Since the under-grade pit has been filled in with concrete making the pit inaccessible for surveys and sampling, the 993 under-grade pit is assumed to be radiologically contaminated and will be managed as such during demolition and environmental restoration.

Category 1 and 2 non-friable asbestos containing building materials were identified in Building 992. No asbestos containing building materials were located in Buildings 989 and 993. All beryllium sample results were less than $0.1 \mu\text{g}/100\text{cm}^2$. Fluorescent light ballasts may contain PCBs. Any PCB ballasts, asbestos containing materials, 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 PCB Bulk Product Waste (40 CFR 761), and Environmental Compliance Guidance #27, *Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal*, as applicable. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete, except for the 12 foot diameter under-grade pit located in the slab of 993.

Based upon this RLCR and subject to concurrence by the CDPHE, 989 and 992 facilities are considered to be Type 1 facilities, and 993 facility is considered to be Type 2 facility. To ensure that the facilities remain free of contamination and that RLC data remain valid, isolation controls have been established, and the facilities have been posted accordingly.

1 INTRODUCTION

A Reconnaissance Level Characterization (RLC) was performed to enable compliant disposition and waste management of Buildings 989, 992 & 993. Because these facilities were anticipated to be 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 and roofs]. As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are the 989, 992 and 993 facilities. The locations of these facilities are shown in Attachment A. These facilities no longer support the RFETS mission and need to be removed to reduce Site infrastructure, risks and/or operating costs.

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

1.1 Purpose

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

1.2 Scope

This report presents the final radiological and chemical conditions of the 989, 992 and 993 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 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.

explosive bonding testing during the 1960's and 1970's, and was later filled in with concrete in the 1970's. Depleted uranium alloys were sometimes used during the explosive bonding testing. Since the under-grade pit has been filled in with concrete, thus making the pit is inaccessible for surveys and sampling, the 993 under-grade pit is assumed to be radiologically contaminated and will be managed as such during demolition and environmental restoration.

Initial surveys on at several locations on the exteriors of B989, B992 and B993 indicated elevated activity. Subsequent investigations showed that all of the elevated activity meets the PDSP unrestricted release limits for both transuranics and uranium. Refer to the applicable data summaries in Attachment C, Radiological Data Summary and Survey Maps, for details on the investigation results.

Isolation control postings are displayed on affected structures to ensure no radioactive materials are introduced.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

The 989, 992 and 993 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 Package (refer to RISS Characterization Project files) was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. Contaminants of concern included asbestos, beryllium, RCRA/CERCLA constituents, and PCBs. Refer to Attachment D, Chemical Data Summaries and Sample Maps, for details on sample results and sample locations.

4.1 Asbestos

A survey of building materials suspected of containing asbestos was conducted in the aforementioned buildings in accordance with the 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.

not contain lead or other RCRA metals. There is no remaining acid on the 989 slab and the pH of the affected area is not a RCRA concern, therefore no sampling was required.

Building 993 contained a "Special Material Storage" area listed on "The Master List of RCRA Units" as a Permitted Area, Unit 993.1. Also, Dynamite was used in the explosive-forming tests performed in a 12 foot diameter pit in the floor. There is no evidence of residue from these activities on the building surfaces, and residues concealed within the explosive test pit are not a RCRA/CERCLA concern, therefore no sampling was required.

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 CHWA.

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

4.4 Polychlorinated Biphenyls (PCBs)

Based on the HSAR, interviews and facility walkdowns of the 989, 992 and 993 facilities, no PCB-containing equipment or wastes were ever present in the buildings, making the potential for PCB contamination resulting from spills highly unlikely. Therefore, PCB sampling was not performed. Based on the age of buildings (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 on site backfill 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.

Because some 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.

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)
989	3,200	None	240	None	None	None	Pipe insulation – 60
992	2,500	None	1,200	None	300	270	Window glass – 400 Mercury vapor lights – 4 Pipe insulation – 60 Wall/ceiling insulation – 200
993	5,000	30	800	3,500	None	None	Window glass – 30 Mercury vapor lights – 4 LLW Under-grade Pit (concrete) – 905

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, 989 and 992 facilities are classified as RFCA Type 1 facilities, and the 993 facility is classified as a RFCA Type 2 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). These Type 1 and 2 classifications are based on a review of historical and process knowledge, and newly acquired RLC data, and will be subject to concurrence by the Colorado Department of Public Health and the Environment (CDPHE).

The RLC of the 989, 992 and 993 facilities was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Except for the 993 under-grade pit, these facilities do not contain radiological waste. The 12 foot diameter, 8 foot deep, under-grade pit located in the slab of 993 will be managed as radiological waste during demolition and environmental restoration. Any PCB ballasts, asbestos containing materials, and hazardous-waste items will be removed prior to demolition 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. All concrete associated with these facilities meet the criteria for recycling concrete per the RFCA RSOP for Recycling Concrete, except for the under-grade pit located in the slab of 993. 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 that the facilities remain free of contamination and that PDS data remain valid, isolation controls have been established, and the facilities are posted accordingly.

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ATTACHMENT A

Facility Location Map

991 Cluster
Group 4

Standard Map Features

Buildings and other structures



Solar Evaporation Ponds (SEPs)



Lakes and ponds



Streams, ditches, or other drainage features

Fences and other barriers

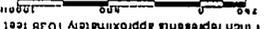
Paved roads

Dirt roads

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



Scale = 1 : 12450
1 inch represents approximately 1038 feet



State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD27

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

015 DWR. 003-968-770

Prepared for:



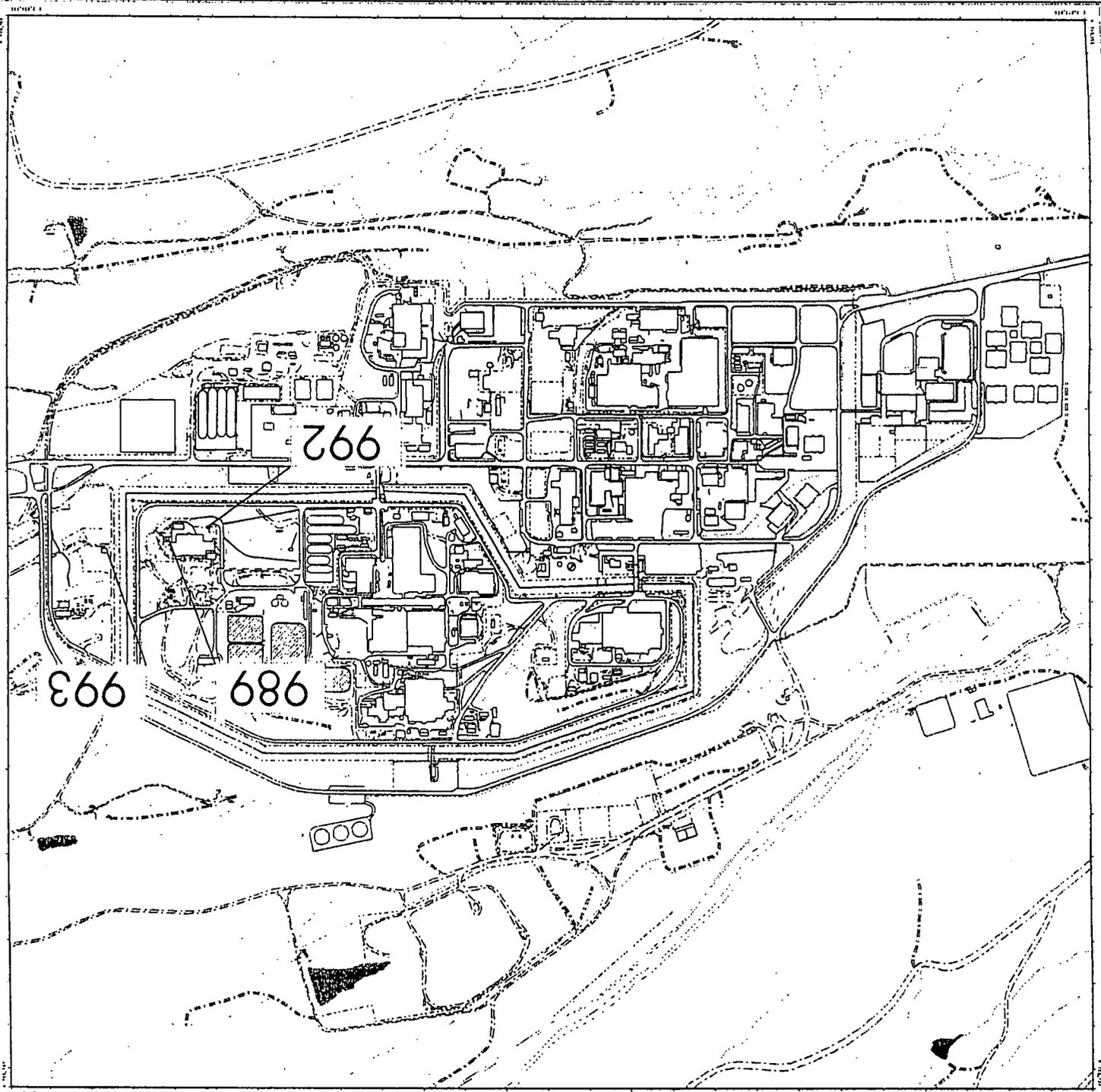
KAISER-HILL

April 15, 2002

Prepared by:
DynCorp

THE ART OF TECHNOLOGY

MAP ID: PY 2002



ATTACHMENT B

Historical Site Assessment Report

**D&D RISS Facility Characterization
Historical Site Assessment Report
May 7, 2002, Rev. 1**

Facility ID: Area 2 – Group 2 Building 991 Cluster Type 2 and Type 1 Facilities which includes: Building 991 Product Warehouse, Building 984 Shipping Container Storage Facility, Building 985 Filter Plenum for B996/B997/999, 991TUN Tunnels Between Facilities, Building 992 Guard Post, Building 993 Security Storage Vault, Building 996 Storage Vault for B991, Building 997 Storage Vault for B991, Building 998 Storage Vault for B991, Building 999 Storage Vault for B991, Building 989 Emergency Generator for B991

Anticipated Facility Type (1, 2, or 3): Building 991 Type = 2, Building 984 = Type 1, Building 985 Type = 1, 991TUN = Type 2, Building 992 = Type 1, Building 993 = Type 1, Building 996 Type = 2, Building 997 Type = 2, Building 998 Type = 2, Building 999 Type = 2, Building 989 Type = 1

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 991 is listed as the Product Warehouse for RFETS on the Closure Projects Facility List. Building 991 was constructed and put into service in 1952. Building 991 sits on the east side of the Plant, approximately 100 yards north of Central Avenue. Building 991 was constructed in a land depression or natural valley. Building 991 has steel-reinforced poured concrete superstructure. The size of Building 991 is approximately 165 feet wide by approximately 375 feet long which includes the Shipping Dock Area and open covered storage area on the west. Building 991 is approximately 22 feet above ground at the top of the concrete parapet (a low wall or concrete rail/wall above the roof/deck to protect the roof) for the south office and old lab areas. The north part of Building has an additional 14 feet of height which is the high-bay old process area of the building. Building 991 has approximately 37,880 square feet of floor space. Building 991 has a U-shaped Utility Tunnel which provides steam, cooling water, electrical and other utilities to the building. The Building 991 has steel-reinforced poured concrete floors, walls and roof-deck. Many of the Building 991 office hallways and office rooms have Transite® partition walls. Floor tile and carpeting are used in many offices and hallways of Building 991. A section in the Basement Utility Tunnel also has very old floor tiles that probably contain asbestos. The process and storage areas of Building 991 have steel-reinforced poured concrete walls and concrete block walls. The Building 991 east-west high-bay area has 24-inch-steel-reinforced poured concrete walls that support an overhead Crane Rail that was originally used to move heavy objects and/or equipment. The Building 991 concrete roof deck has an additional poured light-weight concrete flat roof with the BUR flat roof design sealed with tar and gravel. The Building 991 East Dock and west covered storage area have a steel roof decks. Including these two roofs Building 991 has seven different roof sections.

The Building 991 utilities at one time included steam, but the Building 991 heating system has been converted to a natural gas re-circulating hot water heating system. Building 991 has electrical power, fluorescent lighting, some sodium and/or mercury vapor lighting exist both inside and outside. Building 991 also has hot and cold running water, LSDW System, Criticality Detector and Alarm System, a CAM/SAAM System including Health Physics Air Sampling Vacuum System, telephones, Fire Sprinkler and Alarm Systems, and various building utility heating and ventilation control systems.

Building 984 the Shipping Container Storage Facility, also known as the TRU Waste Storage Facility for RFETS, is located directly south of Building 991. Building 984 has a steel I-beam support structure and it is constructed from corrugated metal sandwiched over insulation. Building 984 is constructed on two concrete slabs, as the building was constructed at two different construction phases. The original Building 984 was 24' wide X 30' long X 16' high at the roof eave. The east section or addition section of Building 984 is approximately 40' wide X 75' long X 22' high at the roof eave. The floor space for Building 984 is approximately 3,700 square feet. Both Building 984 sections are supported by steel I-beams. Building 984 was constructed in 1986 and it has approximately 3200 square feet of floor space. Building 984 has a heat-pump heating system, it has electricity for lighting, air exhausters, a Criticality Detector and Alarm System, and a LSDW System.

**D&D RISS Facility Characterization
Historical Site Assessment Report
May 7, 2002, Rev. 1**

Physical Description (Con't):

Building 993 is Security Storage Vault Facility is located approximately 150 yards east of Building 991. Building 993 is a steel framed Butler®-type metal building constructed on a concrete slab. Building 993 has electrical power for lighting and various alarms. Building 993 has two personnel access doors, one on the south end of the west wall corner and one on the east end of the south wall. The south wall also has a large truck access sliding-door, which is now boarded up inside with plywood. Building 993 is approximately 30' wide X 40' long X 15' high at the roof eave and slopes to the north for roof drainage. Building 993 has approximately 1,200 square feet of floor space. The Building 993 roof is also corrugated metal. Building 993 has four exterior mercury-vapor lights for night operations, which is included in the Building 991 Cluster. The floor has a 12 in diameter concrete pit, which was used for explosive bonding testing. In the late 1970s this pit was filled with concrete.

Building 996 is an underground Storage Vault Facility for Building 991 and it is located directly north of Building 991/885. The access tunnel, 991TUN, to Building 996 goes northeast from Building 991 and directly underneath Building 985. Building 996 was constructed in 1952 at the same time Building 991 was built. Buildings 996 and 997 are of identical design whose dimensions are 60' wide X 68' long X 16' high (underground). These two storage vaults have exterior walls of steel-reinforced concrete that are approximately 14' thick and roof/ceilings of steel-reinforced concrete that are 12' thick. The underground footprint of Building 996 is approximately 4,100 square feet, but the underground floor space is approximately 1,400 square feet. The Building 996 is equipped with air ventilation from Building 985 and a Criticality Detector/Alarm System, a CAM/SAAM System including Health Physics Air Sampling Vacuum System, a Fire Sprinkler/Alarm System, and a LSDW System. The walls, floors and ceiling of Building 996 are painted. Building 996 is partitioned into six different vault-type rooms and each room has a bank-type vault solid-steel door on it.

Building 997 is an underground Storage Vault Facility for Building 991. Building 997 is the underground Storage Vault Facility at the west end of the 991TUN which is approximately 600 feet directly west of Building 996 with Building 999 halfway in between Buildings 997 and 996. Buildings 996 and 997 are of identical design whose dimensions are 60' wide X 68' long X 16' high (underground). These two storage vaults have exterior walls of steel-reinforced concrete that are approximately 14'-thick and roof/ceilings of steel-reinforced concrete that are 12' thick. The underground footprint of Building 997 is approximately 4,100 square feet, but the underground floor space is approximately 1,400 square feet. Building 997 is equipped with air ventilation from Building 985 and a Criticality Detector/Alarm System, a CAM/SAAM System including Health Physics Air Sampling Vacuum System, a Fire Sprinkler/Alarm System, and a LSDW System. The walls, floors and ceiling of Building 997 are painted. Building 997 is partitioned into six different vault-type rooms and each room has a bank-type vault solid-steel door on it.

Building 998 is an underground Storage Vault Facility for Building 991. Building 998 is located underground, approximately 180' directly north of the northwest corner of Building 991. Building 998 has its own dedicated access tunnel, Corridor A. Building 998, also designated Room 300, is approximately 20' wide X 43'9" long X 12 feet high and the walls, floor and the roof/ceiling of steel-reinforced concrete that are 4' thick. The underground floor space of Building 998 is approximately 2,640 square feet which includes the 180' long Corridor A, Access Tunnel. Building 998 is equipped with air ventilation from Building 991, a Criticality Detector/Alarm System, a CAM/SAAM System including Health Physics Air Sampling Vacuum System, a Fire Sprinkler/Alarm System, and a LSDW System. The walls, floors and ceiling of Building 998 are painted.

Building 999 is an underground Storage Vault Facility for Building 991. The facility is located directly northwest of Building 991 and contains approximately 384 square feet of floor space. Building 998, also designated Room 500, is approximately 33' wide X 49' long X 12 feet high and the walls and floor are 18" thick steel-reinforced concrete; and the roof/ceiling of steel-reinforced concrete that are 4' thick. The underground floor space of Building 999 is approximately 2,000 square feet. Building 999 is equipped with air ventilation from Building 985 and a Criticality Detector/Alarm System, a CAM/SAAM System including Health Physics Air Sampling Vacuum System, a Fire Sprinkler/Alarm System, and a LSDW System. The walls, floors and ceiling of Building 999 are painted. Building 999 is partitioned into four different storage rooms.

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Contaminants of Concern

Asbestos

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

All of the Building 991 Facilities might have some asbestos containing materials (ACM) of construction because the facilities were constructed in 1952-1974 time frame except Building 984 which was constructed in 1986. All of the Building 991 Cluster Facilities have partition walls, roof, and pipe insulation might contain asbestos. Although the waste stored in Buildings 991, 996, 998, and 984 may have contained trace amounts of asbestos the waste was not regulated as a TSCA waste. Building 992 (The Guard Post) might have some ACM material of construction in wall, roof, and pipe insulation.

Beryllium (Be)

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

Building 991 is on the RFETS Beryllium (Be) Areas Historical and Present list in Rooms 2 (Basement Tunnel), 110, 122, 134, 140/140A/141, 122A, Building 991 has other potentially Beryllium contaminated systems, and Building 991 Main Plenum exhausted (historically) beryllium operations to the Building 991 Roof.

Building 984 stores Low Level and TRU Wastes drums that are beryllium contaminated.

Building 985 contains Plenum 601 for Building 991 that historically exhausted beryllium operations. Building 985 has a potential for beryllium contaminated systems (internally).

Building 996 stores Low Level and TRU Wastes drums that are beryllium contaminated.

Building 997 historically stored Low Level and TRU Wastes drums that are beryllium contaminated.

Building 998 stores Low Level and TRU Wastes drums that are beryllium contaminated.

Building 999 historically stored Low Level and TRU Wastes drums that are beryllium contaminated.

One interviewee said that at one time beryllium parts, beryllium assemblies, and beryllium testing was conducted throughout Building 991. In addition low-level waste drums/crates containing Be were stored in Building 991.

Summarize any recent Be sampling results:

The Industrial Hygiene Department collects frequent Be samples from many of the facilities in the 991 Cluster. See the Industrial Hygiene Department for a list of recent Be samples collected. No known beryllium contamination exists in the Building 991 Cluster Type 1 Facilities, Buildings 989, 992, and Building 993.

Lead

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

Most of the Building 991 Cluster Facilities were constructed in 1952-1974 time frame, therefore it may contain lead-based paints. No lead operations were known to have occurred in Building 991. Historically lead shielding and/or lead-shielded gloveboxes and/or hoods may have been used in Building 991, but currently the facility has no gloveboxes or hoods. All of the other Building 991 Cluster Type 1 and Type 2 Facilities that have paint on them, might have been painted with lead-based paints; this includes 991TUN, Buildings 996, 997, 998, 999, and Building 989.

**D&D RISS Facility Characterization
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Radiological Contaminants

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

Building 991 has radiological contaminated drums stored in most rooms is the back area, behind the locked entry doors. Building 984 stores low-level contaminated waste drums and low-level contaminated waste crates from Building 991 and the U/Pu contaminated buildings at RFETS until shipments can be made out of the facility. Buildings 991 and 984 are currently posted as a RMA. The pit in the floor slab (which was filled with water during the testing) of Building 993 was used to test the forming of flat pieces of various metal. Depleted uranium alloys were sometimes used in these tests, there is no known building contamination resulting from these tests.

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

Small volume spills and occasional cross-contamination from the exterior of the waste containers stored in these building may have occurred, but no large volume spills have been documented in any of the Building 991 Cluster facilities. See the Environmental Concerns section for additional release information related to IHSSs, PACs and UBCs.

Describe methods in which spills were mitigated, if any:

Spills were cleaned up to the standards of the day.

Describe any potential, likely, or known isotopes of concern (e.g., weapons grade plutonium, uranium isotopes, pure beta emitters, mixed fission products, etc.): Isotopes of concern include but are not limited to plutonium, enriched uranium, and depleted uranium. No pure beta emitters or mixed fission products are not known to have been handled in any of the facilities addressed in this HSA. Building 991 has several sealed radioactive-sources that are stored and routinely used in the facility. These sealed sources are stored in five different locations in Building 991. The sealed radioactive sources include Pu-238, Pu-239, Cf-252, Cs-137, Sr-90, Ir-192, and Eu-152. None of the sealed sources were known to have leaked.

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 "Environmental Restoration Concerns" section below.

Environmental Restoration Concerns

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

Building 991 has UBC-991 which includes Buildings 991, 996, 997, 998, and Building 999 that historically had a lot of different materials and components stored and assembled in them.

Building 991/992 has PAC 900-184, a Steam Cleaning Area for radioactively-contaminated equipment and drums, that is an area of concern.

Building 991 has PAC 900-173 South Dock Area, Building 991 and the associated Buildings 996, 997, 998, and 999, incidents involving very small quantities of plutonium, uranium, and beryllium. Small spills likely occurred in these areas and small parts and equipment were washed in the Building 991 dock area.

Building 991 has PAC 900-1301, enclosed 50 feet wide along the south side of storage of various radioactive contaminated waste and materials is an area of concern.

Building 991 has PAC 900-1302, Gasoline Spill, NFA Recommendation approved by EPA, 1992⁴.

Building 991 has PAC 900-1303, Natural Gas Leak, NFA Recommendation approved by EPA, 1992⁴.

Building 991 has PAC 900-1304, Chromic Acid Spill, NFA Recommendation approved by EPA, 1992⁴.

Building 991 has PAC 900-1305, Building 991 Roof, NFA Recommendation approved by EPA, 1992⁴.

Building 991 has PAC 900-1306, Transformers 991-1 and 991-2, Recommended for NFA in 1996 HRR Annual Update.

Building 993 has PAC 900-1307 because of an Explosive Forming/Bonding Pit experiments. These experiments involve the use of dynamite to bond depleted uranium alloys with stainless steel.

**D&D RISS Facility Characterization
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May 7, 2002, Rev. 1**

18,000	None	980	None	None	TBD	900 cu ft pipe Insulation 400 cu ft fiberglass insul. 600 cu ft asbestos membrane roofing material
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Waste Volume Estimates and Material Types For Area 2 – Group 2, Building 991 Facilities, Building 989, Type 1

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
3,200	None	240	None	None	TBD	60 cu ft pipe insulation

Waste Volume Estimates and Material Types For Area 2 – Group 2, Building 991 Facilities, 991TUN, Type 2

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
37,000	None	2,500	None	None	TBD	None

Waste Volume Estimates and Material Types For Area 2 – Group 2, Building 991 Facilities, Building 992, Type 1

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
2,500	None	1,200	None	300	TBD	400 cu ft window Glass 4 cu ft Mercury Vapor Lights 60 cu ft pipe insulation 200 cu ft wall/ceiling insul

Waste Volume Estimates and Material Types For Area 2 – Group 2, Building 991 Facilities, Building 993, Type 1

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
5,000	30	800	3,500	None	TBD	30 cu ft window Glass 4 cu ft Mercury Vapor Lights

Waste Volume Estimates and Material Types For Area 2 – Group 2, Building 991 Facilities, Building 996, Type 2

Concrete (cu ft)	Wood (cu ft)	Metal (cu ft)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM	Other Waste (cu ft)
55,000	600	120	None	None	TBD	None

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ATTACHMENT C

Radiological Data Summaries and Survey Maps

SURVEY UNIT 991-A-002
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B989 (Interior)

**SURVEY UNIT 991-A-002
TSA - DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra
Model:	DP-6	DP-6
Instrument ID#:	7	8
Serial #:	394	1379
Cal Due Date:	1/12/03	11/20/02
Analysis Date:	7/30/02	7/30/02
Alpha Eff. (c/d):	0.226	0.173
Alpha Bkgd (cpm)	2.7	2.0
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/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	7	4.0	17.7	5.3	23.5	-4.8
2	7	6.0	26.5	2.7	11.9	4.0
3	7	4.7	20.8	1.3	5.8	-1.7
4	8	6.0	34.7	3.3	19.1	12.2
5	8	2.7	15.6	5.3	30.6	-6.9
6	8	6.7	38.7	8.7	50.3	16.2
7	8	7.3	42.2	6.7	38.7	19.7
8	8	10.7	61.8	5.3	30.6	39.3
9	7	2.7	11.9	1.3	5.8	-10.6
10	7	7.3	32.3	4.0	17.7	9.8
11	8	4.7	27.2	4.3	24.9	4.6
12	7	2.7	11.9	4.0	17.7	-10.6
13	8	10.0	57.8	5.3	30.6	35.3
14	7	3.3	14.6	3.3	14.6	-7.9
15	8	6.7	38.7	2.8	16.2	16.2

¹ - Average LAB used to subtract from Gross Sample Activity

22.5	Sample LAB Average
MIN	-10.6
MAX	39.3
MEAN	7.6
SD	15.7
Transuranic DCGL _w	100

QC Measurements

QC	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
EQC	7	8.7	38.5	2.7	11.9	19.2
LSQC	7	6.7	29.6	6.0	26.5	10.4

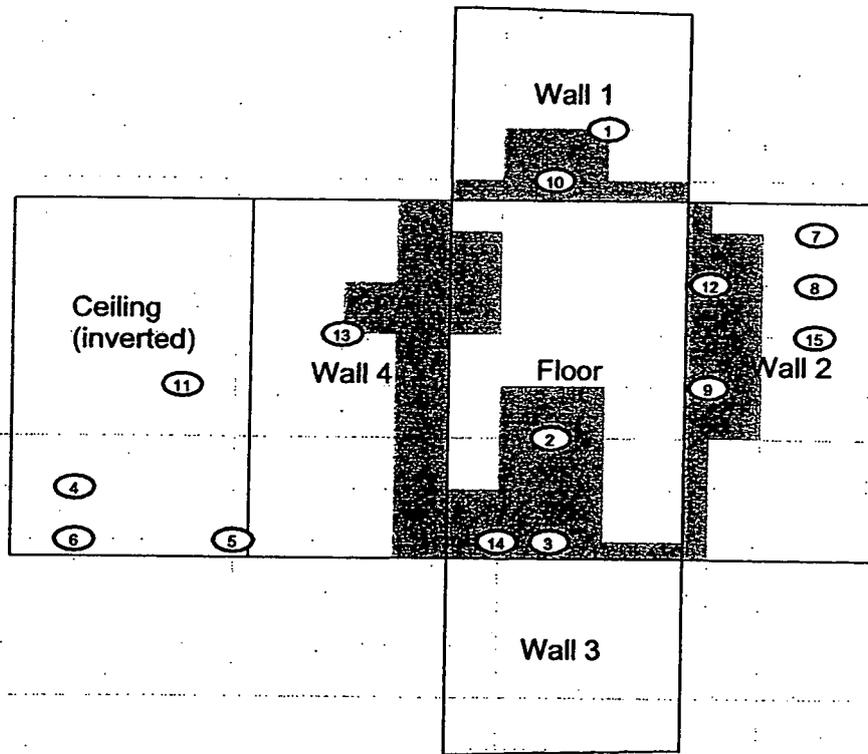
¹ - Average QC LAB used to subtract from Gross Sample Activity

19.2	QC LAB Average
Transuranic DCGL _w	100

PRE-DEMOLITION SURVEY FOR 991 CLUSTER

Survey Area: A Survey Unit: 991-A-002 Classification: 3
 Building: 989
 Survey Unit Description: Interior of Building
 Total Area: 147 sq. m. Total Floor Area: 31 sq. m.

B989

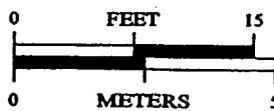


Scan Area

SURVEY MAP LEGEND

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

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

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

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

Prepared by: GIS Dept. 303-968-7707

Prepared for:

DynCorp

THE ART OF TECHNOLOGY



MAP ID: 02-355/989-IN-SC

August 7, 2002

SURVEY UNIT 991-A-003
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B992 (Interior)

**SURVEY UNIT 991-A-003
TSA - DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra
Model:	DP-6	DP-6
Instrument ID#:	7	8
Serial #:	1379	394
Cal Due Date:	11/20/02	1/12/03
Analysis Date:	7/26/02	7/26/02
Alpha Eff. (c/d):	0.173	0.226
Alpha Bkgd (cpm)	5.0	2.0
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/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	7	4.0	23.1	4.7	27.2	0.8
2	8	2.7	11.9	1.3	5.8	-10.4
3	7	5.3	30.6	4.7	27.2	8.3
4	8	8.7	38.5	6.0	26.5	16.2
5	8	3.3	14.6	2.0	8.8	-7.7
6	7	3.3	19.1	2.0	11.6	-3.2
7	7	6.7	38.7	4.0	23.1	16.4
8	8	5.3	23.5	5.3	23.5	1.1
9	7	4.7	27.2	6.0	34.7	4.9
10	8	8.0	35.4	4.7	20.8	13.1
11	7	14.7	85.0	11.3	65.3	62.7
12	8	6.0	26.5	6.7	29.6	4.2
13	8	1.3	5.8	0.7	3.1	-16.6
14	7	6.7	38.7	2.7	15.6	16.4
15	8	4.7	20.8	2.7	11.9	-1.5

¹ - Average LAB used to subtract from Gross Sample Activity

22.3	Sample LAB Average
MIN	-16.6
MAX	62.7
MEAN	7.0
SD	18.4
Transuranic DCGL _w	100

QC Measurements

¹³⁷ Cs	7	3.3	19.1	2.0	11.6	3.8
¹³⁷ Cs	7	6.0	34.7	3.3	19.1	19.4

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

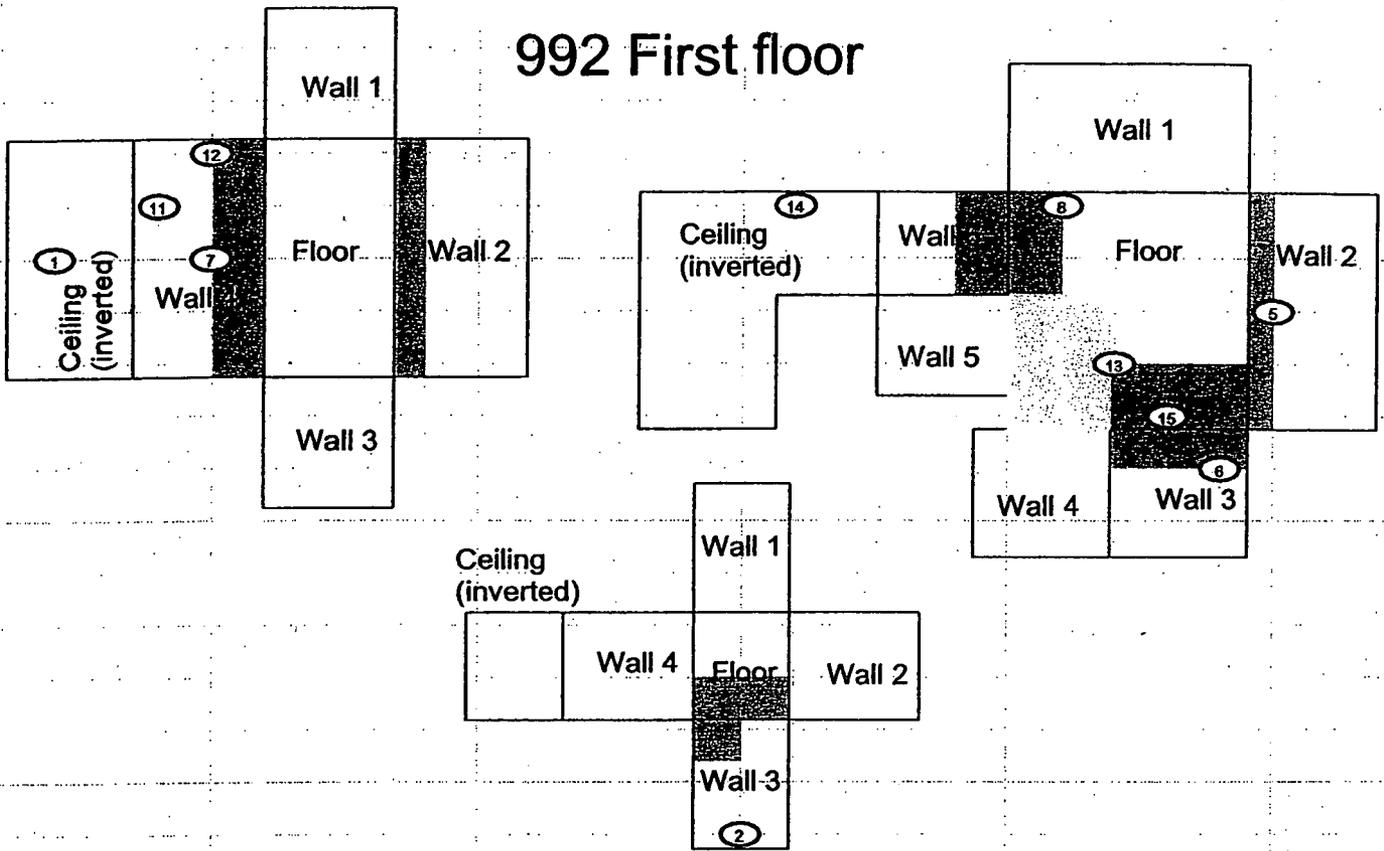
15.3	QC LAB Average
Transuranic DCGL _w	100

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PRE-DEMOLITION SURVEY FOR 991 CLUSTER

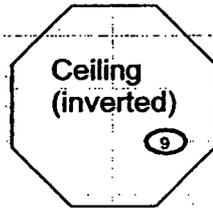
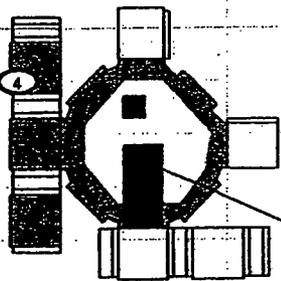
Survey Area: A Survey Unit: 991-A-003 Classification: 3
 Building: 992
 Survey Unit Description: Interior of Building
 Total Area: 203 sq. m. Total Floor Area: 38 sq. m.

992 First floor

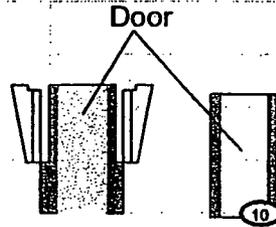


992 Second floor

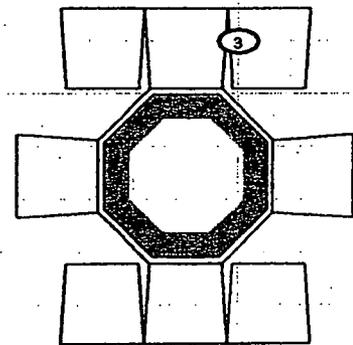
Floor and lower-walls



Ladder to 2nd floor



Shelf and upper windows



Scan Area					
SURVEY MAP LEGEND					U.S. Department of Energy Rocky Flats Environmental Technology Site
<ul style="list-style-type: none"> Smear & TSA Location Smear, TSA & Sample Location Open/Inaccessible Area Area in Another Survey Unit 	Neither the United States Government nor Kaiser Hill Co., nor DynCorp LAET, 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.		Prepared by: GIS Dept. 303-666-7707 DynCorp THE ART OF TECHNOLOGY		Prepared for:
Scan Survey Information Survey Instrument ID #(s): 7, 8, 9 RCT ID #(s): 1, 2, 4		1 inch = 12 feet 1 grid sq. = 1 sq. m.		MAP ID: 02-0355992-IN-SC July 31, 2002	

SURVEY UNIT 991-A-004
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B993 (Interior)

**SURVEY UNIT 991-A-004
TSA - DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9
Serial #:	1250	1271	1366
Cal Due Date:	10/10/02	2/1/03	2/1/03
Analysis Date:	8/7/02	8/7/02	8/7/02
Alpha Eff. (c/d):	0.213	0.211	0.204
Alpha Bkgd (cpm)	0.0	2.0	3.0
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/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ¹
1	7	4.0	18.8	0.7	3.3	4.1
2	8	8.0	37.9	7.3	34.6	23.2
3	7	3.3	15.5	3.3	15.5	0.8
4	7	4.0	18.8	4.0	18.8	4.1
5	7	9.3	43.7	2.0	9.4	28.9
6	8	2.7	12.8	1.3	6.2	-1.9
7	8	7.3	34.6	2.7	12.8	19.9
8	8	5.3	25.1	7.3	34.6	10.4
9	7	6.0	28.2	1.3	6.1	13.4
10	7	2.0	9.4	1.3	6.1	-5.3
11	8	3.3	15.6	3.3	15.6	0.9
12	7	3.3	15.5	0.7	3.3	0.8
13	9	5.3	26.0	4.0	19.6	11.3
14	7	1.3	6.1	2.7	12.7	-8.6
15	8	8.7	41.2	4.7	22.3	26.5

¹ - Average LAB used to subtract from Gross Sample Activity

14.7	Sample LAB Average
MIN	-8.6
MAX	28.9
MEAN	8.6
SD	11.8
Transuranic DCGL _w	100

QC Measurements

SQC	9	4.7	23.0	3.3	16.2	-1.5
BOC	9	4.7	23.0	6.7	32.8	-1.5

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

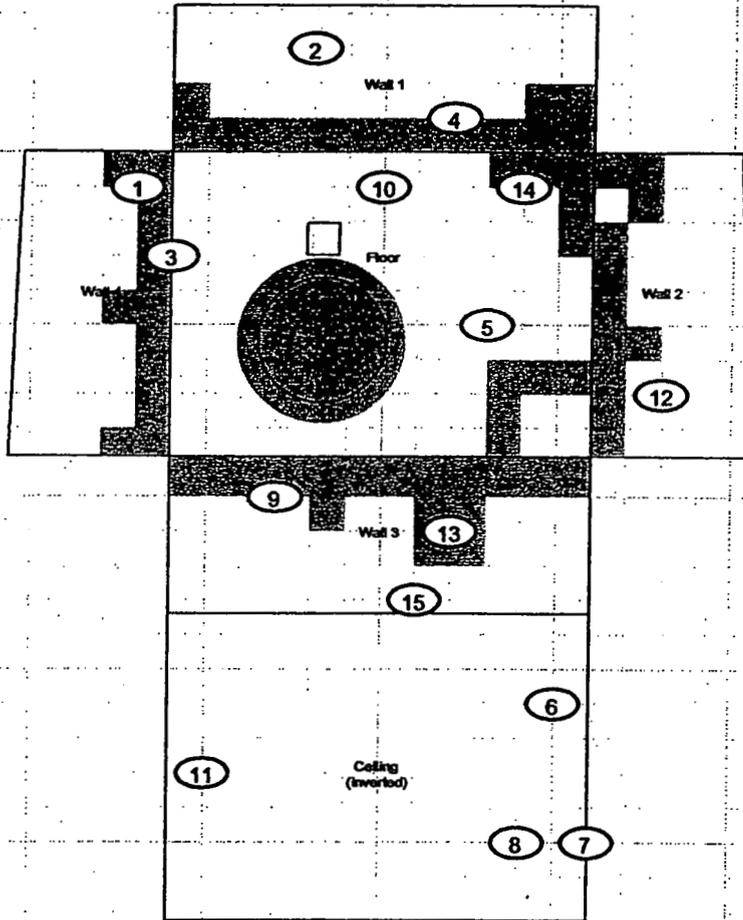
24.5	QC LAB Average
Transuranic DCGL _w	100

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PRE-DEMOLITION SURVEY FOR 991 CLUSTER

Survey Area: A Survey Unit: 991-A-004 Classification: 3
 Building: 993
 Survey Unit Description: Interior of Building
 Total Area: 396 sq. m. Total Floor Area: 106 sq. m.

Building 993



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&HT, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p> <p>Scan Survey Information Survey Instrument ID #(s): 8 RCT ID #(s): 4</p>	<p style="text-align: center;">N ↑</p> <div style="text-align: center;"> <p>0 FEET 25</p> <p>0 METERS 8</p> </div> <p>1 inch = 18 feet 1 grid sq. = 1 sq. m.</p>	<p style="text-align: center;">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-666-7707 Prepared for:</p> <p style="text-align: center;">DynCorp THE ART OF TECHNOLOGY</p> <div style="text-align: right;"> KAISER HILL </div> <p style="text-align: center;">MAP ID: 02-0355/B993-IN-SC August 12, 2002</p>
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SURVEY UNIT 991-B-006
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B989 (Exterior)

**SURVEY UNIT 991-B-006
TSA - DATA SUMMARY**

Manufacturer:	NE Electra	NE Electra	NE Electra	NE Electra
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	8	9	10	11
Serial #:	1379	1250	394	1271
Cal Due Date:	11/20/02	10/10/02	1/12/03	2/1/03
Analysis Date:	7/29/02	7/29/02	7/29/02	7/29/02
Alpha Eff. (c/d):	0.173	0.213	0.226	0.211
Alpha Bkgd (cpm)	1.3	1.3	4.0	2.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm 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
1	10	12.7	56.2	4.7	20.8	41.2
2	10	10.0	44.2	2.0	8.8	29.2
3	10	6.7	29.6	1.3	5.8	14.6
4	10	8.7	38.5	3.3	14.6	23.5
5	8	9.3	53.8	5.3	30.6	38.7
6	8	5.3	30.6	4.0	23.1	15.6
7	10	9.3	41.2	1.3	5.8	26.1
8	8	11.3	65.3	6.0	34.7	50.3
9	10	8.0	35.4	2.0	8.8	20.4
10	9	2.0	9.4	2.7	12.7	-5.7
11	10	7.3	32.3	4.0	17.7	17.3
12	10	4.7	20.8	0.0	0.0	5.8
13*	8	22.7	131.2	4.0	23.1	116.2
14	8	10.7	61.8	1.3	7.5	46.8
15	8	10.7	61.8	2.0	11.6	46.8

¹ - Average LAB used to subtract from Gross Sample Activity

* - Location 13 (metal flashing) had initial alpha activity greater than the transuranic DCGL_w (100dpm/100cm²). A coupon sample was collected and analyzed using the Canberra ISOCS gamma spectroscopy system. Gamma spectroscopy results indicated only uranium contamination and other naturally occurring isotopes. No DOE-added isotope activity was greater than the applicable unrestricted release levels (transuranic or uranium), therefore no further investigation is required and all data meets the PDSF unrestricted release criteria.

15.0	Sample LAB Average
MIN	-5.7
MAX	116.2
MEAN	32.4
SD	28.2
Transuranic DCGL _w	100

QC Measurements

4QC	9	4.0	18.8	5.3	24.9	-7.7
2QC	9	4.0	18.8	6.0	28.2	-7.7

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

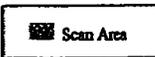
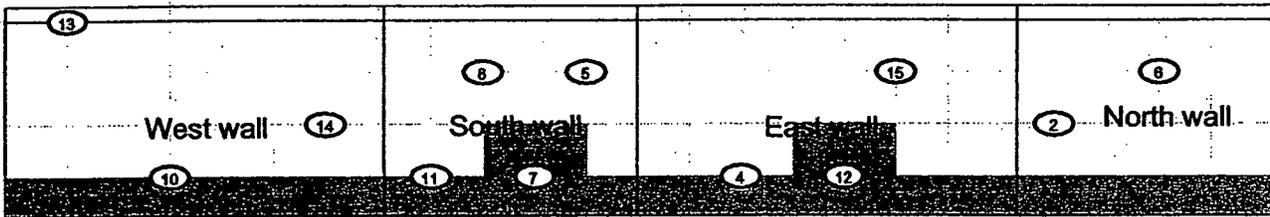
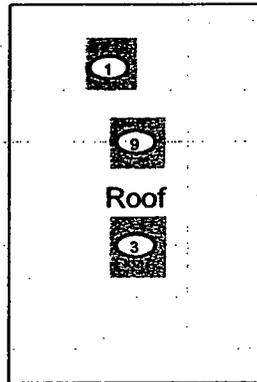
26.5	QC LAB Average
Transuranic DCGL _w	100

38

PRE-DEMOLITION SURVEY FOR 991 CLUSTER

Survey Area: B Survey Unit: 991-B-006 Classification: 3
 Building: 989
 Survey Unit Description: Exterior of Building
 Total Area: 134 sq. m. Total Roof Area: 36 sq. m.

B989



<p>SURVEY MAP LEGEND</p> <ul style="list-style-type: none"> Smeat & TSA Location Smeat, 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 style="text-align: center;">N</p>	<p>0 FEET 15</p>	<p style="text-align: center;">U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-688-7707 Prepared for:</p>
			<p>0 METERS 5</p> <p>1 inch = 12 feet 1 grid sq. = 1 sq. m.</p>	<p style="text-align: center;">DynCorp</p> <p style="text-align: center;">THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-0355/B989-EX-SC August 12, 2002</p>
<p>Scan Survey Information</p> <p>Survey Instrument ID #(s): <u>8,10</u></p> <p>RCT ID #(s): <u>2, 3</u></p>				

SURVEY UNIT 991-B-006
CANBERRA GAMMA SPECTROSCOPY RESULTS

Survey Unit Description: B989 (Exterior)

***** GAMMA SPECTRUM ANALYSIS *****
** Canberra Mobile Laboratory Services **

Report Generated On : 8/15/2002 11:00:36 AM

RIN Number : 02S0210
Analytical Batch ID : 0208124732
Line Item Code : RC10B019

Filename: A:\G1900052.CNF

Sample Number : 02S0210-019.001
Lab Sample Number : CMLS-1593
Sample Receipt Date : 8/12/2002
Sample Volume Received : 2.23E+001 Grams

Result Identifier : N/A

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 100 - 8192
Peak Area Range (in channels) : 100 - 8192
Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 2.234E+001 Grams
Sample Quantity Error : 0.000E+000
Systematic Error Applied : 0.000E+000

Sample Taken On : 8/09/2002 2:45:00 PM
Acquisition Started : 8/13/2002 12:48:31 PM

Count Time : 3600.0 seconds
Real Time : 3602.8 seconds
Dead Time : 0.08 %

Energy Calibration Used Done On : 7/01/02
Energy = -0.102 + 0.250*ch + -3.87E-008*ch^2 + 2.95E-012*ch^3

Corrections Applied:

None

Efficiency Calibration Used Done On : 8/13/02
Efficiency Geometry ID : 02S0210-019.001

Analyzed By: Marilyn Umbaugh Date: 8/15/02

Reviewed By: Larry Umbaugh Date: 8/15/02

SURVEY UNIT 991-B-007
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B992 (Exterior)

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**SURVEY UNIT 991-B-007
TSA - DATA SUMMARY**

Manufacturer:	NE Electra				
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	10	11
Serial #:	1379	1250	394	1271	1250
Cal Due Date:	11/20/02	10/10/02	1/12/03	2/1/03	10/10/02
Analysis Date:	7/22/02	7/22/02	7/22/02	8/7/02	8/7/02
Alpha Eff. (c/d):	0.173	0.213	0.226	0.211	0.213
Alpha Bkgd (cpm)	3.0	3.0	1.0	2.0	0.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	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
1	7	8.0	46.2	7.0	40.5	26.0
2	8	8.7	40.8	2.7	12.7	20.6
3	7	11.0	63.6	5.0	28.9	43.3
4	7	6.0	34.7	5.0	28.9	14.4
5	8	4.0	18.8	1.3	6.1	-1.5
6	9	4.7	20.8	1.3	5.8	0.5
7	7	15.0	86.7	2.0	11.6	66.5
8	7	8.0	46.2	8.0	46.2	26.0
9	9	10.7	47.3	5.3	23.5	27.1
10	7	16.0	92.5	5.3	30.6	72.2
11*	11	4.7	22.1	3.3	15.5	1.8
12	8	17.3	81.2	0.7	3.3	61.0
13	8	9.3	43.7	2	9.4	23.4
14	9	23.3	103.1	2.7	11.9	82.9
15	7	11.0	63.6	5.0	28.9	43.3

¹ - Average LAB used to subtract from Gross Sample Activity
 * - The initial Sample Net Activity for Sample Location 11 was 133.8 dpm/100cm².
 Location 11 was allowed to decay. The re-survey results are reported.

20.2	Sample LAB Average
MIN	-1.5
MAX	82.9
MEAN	33.8
SD	26.8
Transuranic DCGL _w	100

QC Measurements

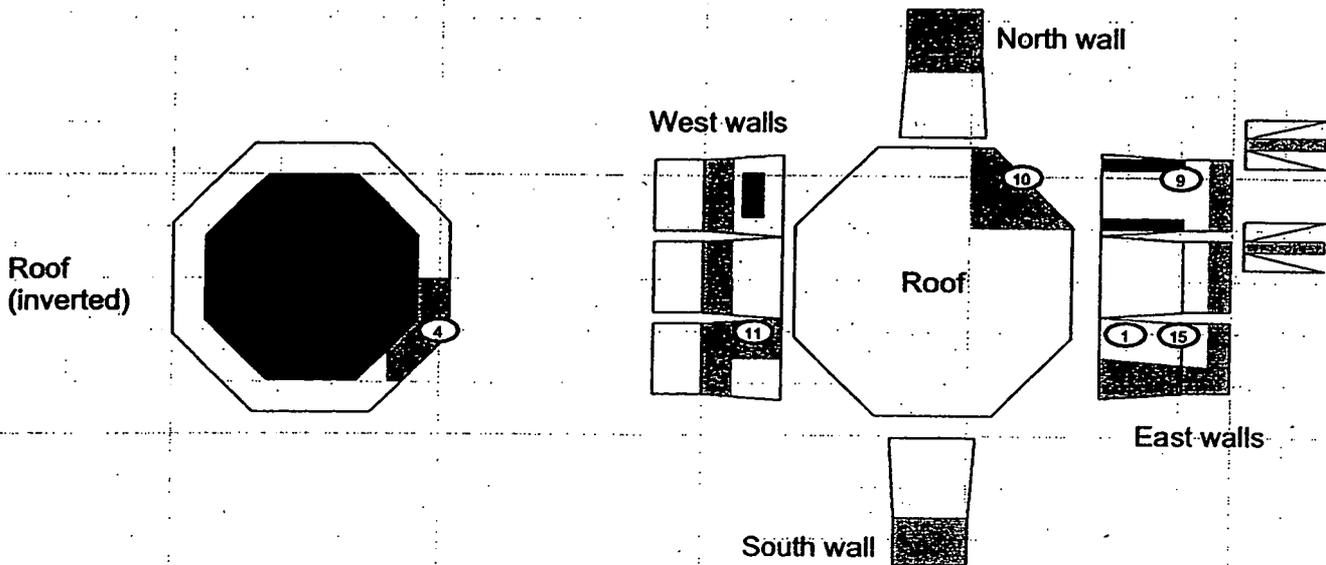
J3QC	9	8.0	35.4	1.0	4.4	21.2
3QC	9	8.0	35.4	5.4	23.9	21.2
					14.2	QC LAB Average
					Transuranic DCGL _w	100

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

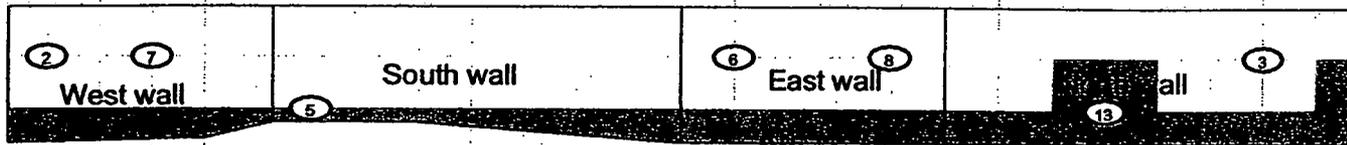
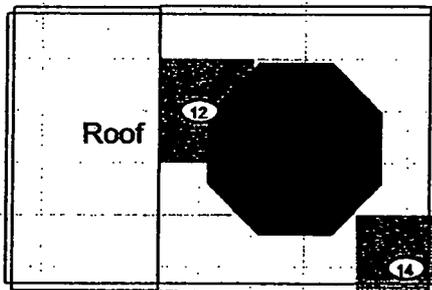
PRE-DEMOLITION SURVEY FOR 991 CLUSTER

Survey Area: B Survey Unit: 991-B-007 Classification: 3
 Building: 992
 Survey Unit Description: Exterior of Building
 Total Area: 160 sq. m. Total Roof Area: 67 sq. m.

Second level



First level



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 L&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 15</p> <p>0 METERS 5</p> <p>1 inch = 12 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. 303-668-7707 Prepared for:</p> <p>DynCorp THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-0335/B992-EX-SC KAISER HILL July 31, 2002</p>	
<p>Scan Survey Information Survey Instrument ID #(s): 7, 8, 9 RCT ID #(s): 1, 2, 4</p>													

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SURVEY UNIT 991-B-008
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B993 (Exterior)

**SURVEY UNIT 991-B-008
TSA - DATA SUMMARY**

Manufacturer:	NE Electra				
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	8	9	10	11
Serial #:	1260	1250	394	1379	1366
Cal Due Date:	8/27/02	10/10/02	1/12/03	11/20/02	2/1/03
Analysis Date:	7/22/02	7/22/02	7/22/02	7/22/03	8/7/02
Alpha Eff. (c/d):	0.221	0.213	0.226	0.173	3.000
Alpha Bkgd (cpm)	4.0	3.0	1.0	3.0	3.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	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
1	10	13.3	76.9	4.7	27.2	58.4
2*	7	30.7	138.9	1.3	5.9	120.5
3	8	8.7	40.8	4.7	22.1	22.4
4	9	5.3	23.5	2.0	8.8	5.0
5*	10	28.7	165.9	5.3	30.6	147.5
6	8	4.7	22.1	4.0	18.8	3.6
7	8	10.0	46.9	1.3	6.1	28.5
8*	7	30.0	135.7	0.0	0.0	117.3
9	10	14.7	85.0	1.3	7.5	66.5
10	10	14.0	80.9	3.3	19.1	62.5
11	10	18.0	104.0	8.0	46.2	85.6
12	10	13.3	76.9	4.0	23.1	58.4
13*	10	23.3	134.7	6.0	34.7	116.2
14*	7	34.0	153.8	0.0	0.0	135.4
15	9	12.7	56.2	6.0	26.5	37.8

¹ - Average LAB used to subtract from Gross Sample Activity

* Elevated Alpha activity was detected at these 5 locations.

Location	Initial dpm/100cm ²
2	120.5
5	147.5
8	117.3
13	116.2
14	135.4

18.4	Sample LAB Average
MIN	3.6
MAX	147.5
MEAN	71.0
SD	47.4
Transuranic DCGL _w	100

* The above locations had initial alpha activity greater than the transuranic DCGL_w (100dpm/100cm²). A coupon sample was collected at the highest elevated activity location (#5) and analyzed using the Canberra ISOCS gamma spectroscopy system. Gamma spectroscopy results indicated only uranium contamination and other naturally occurring isotopes.

No DOE-added isotope activity was greater than the applicable unrestricted release levels (transuranic or uranium), therefore no further investigation is required and all data meets the PDSP unrestricted release criteria.

QC Measurements

30C	9	12.7	56.2	4.0	17.7	45.7
150C	8	16.0	75.1	0.7	3.3	64.6

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

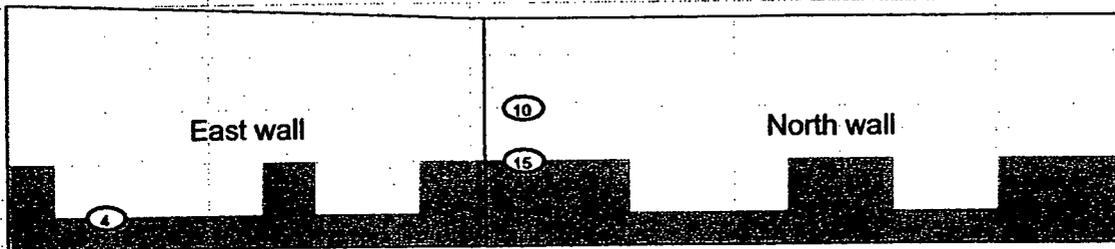
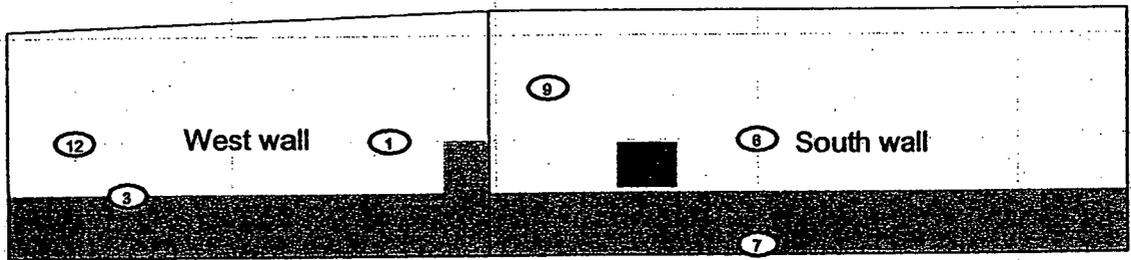
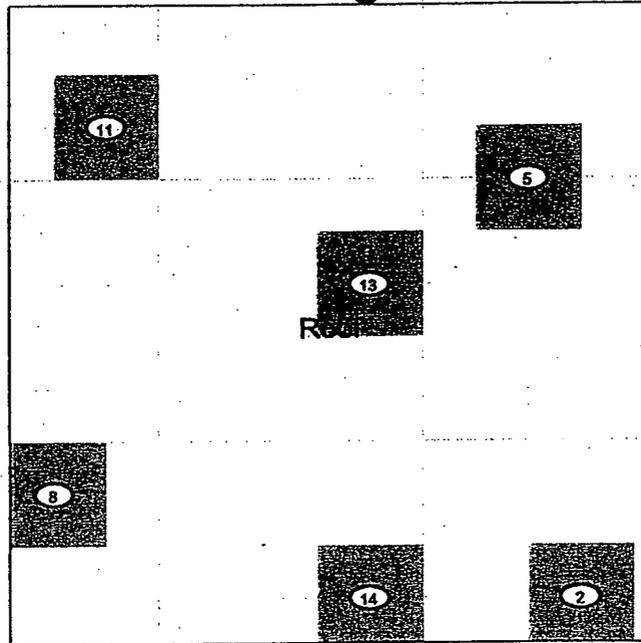
10.5	QC LAB Average
Transuranic DCGL _w	100

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PRE-DEMOLITION SURVEY FOR 991 CLUSTER

Survey Area: B Survey Unit: 991-B-008 Classification: 3
 Building: 993
 Survey Unit Description: Exterior of Building
 Total Area: 340 sq. m. Total Roof Area: 148 sq. m.

Building 993



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>N</p>	<p>0 FEET 15</p> <p>0 METERS 5</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-866-7707 Prepared for:</p> <p>DynCorp THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-0355/B993-EX-SC August 12, 2002</p>

SURVEY UNIT 991-B-008
CANBERRA GAMMA SPECTROSCOPY RESULTS

Survey Unit Description: B993 (Exterior)

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Analysis Results Header

8/15/2002 11:00:36 AM

Page 1

 ***** GAMMA SPECTRUM ANALYSIS *****
 ** Canberra Mobile Laboratory Services **

Report Generated On : 8/15/2002 11:00:36 AM

RIN Number : 02S0210
 Analytical Batch ID : 0208124732
 Line Item Code : RC10B019

Filename: A:\G1900052.CNF

Sample Number : 02S0210-019.001
 Lab Sample Number : CMLS-1593
 Sample Receipt Date : 8/12/2002
 Sample Volume Received : 2.23E+001 Grams

Result Identifier : N/A

Peak Locate Threshold : 3.00
 Peak Locate Range (in channels) : 100 - 8192
 Peak Area Range (in channels) : 100 - 8192
 Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 2.234E+001 Grams
 Sample Quantity Error : 0.000E+000
 Systematic Error Applied : 0.000E+000

Sample Taken On : 8/09/2002 2:45:00 PM
 Acquisition Started : 8/13/2002 12:48:31 PM

Count Time : 3600.0 seconds
 Real Time : 3602.8 seconds
 Dead Time : 0.08 %

Energy Calibration Used Done On : 7/01/02
 Energy = -0.102 + 0.250*ch + -3.87E-008*ch^2 + 2.95E-012*ch^3

Corrections Applied:
 None

Efficiency Calibration Used Done On : 8/13/02
 Efficiency Geometry ID : 02S0210-019.001

Analyzed By: Marilyn Umbaugh Date: 8/15/02

Reviewed By: Larry Umbaugh Date: 8/15/02

ATTACHMENT D

Chemical Data Summaries and Sample Maps

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Asbestos Data Summary

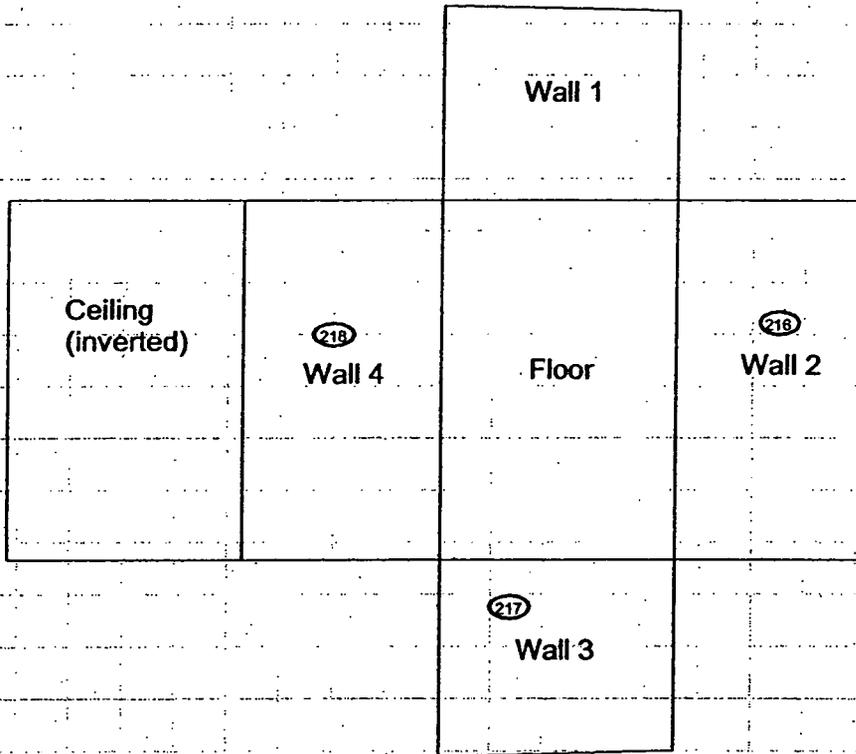
Sample Number	Map Survey Point Location	Material Sampled & Location	Analytical Results
Building 992			
992-06262002-315-202	202	First floor – Light green transite wall panel	27% Chrysotile
992-06262002-315-203	203	First floor – Green and white 12" vinyl floor tile with black mastic, SE corner	Trace Chrysotile; <0.25% by Point Count
992-06262002-315-204	204	First floor – White and tan 12" vinyl floor tile with dark brown mastic, SE corner	None Detected
992-06262002-315-205	205	First floor – Black base cove with black mastic, SE corner	None Detected
992-06262002-315-206	206	First floor – White paint on CMU, west wall	None Detected
992-06262002-315-207	207	First floor – White paint on CMU, west wall	None Detected
992-06262002-315-208	208	Second floor – Tan 9" vinyl floor tile with black mastic	Tile, 15% Chrysotile; Mastic, None Detected
992-06262002-315-209	209	Second floor – Tan 9" vinyl floor tile with black mastic	Tile, 15% Chrysotile; Mastic, None Detected
992-06262002-315-210	210	Second floor – Exterior AC insulation with black fibrous tar and silver paint	25% Chrysotile
992-06262002-315-211	211	Second floor – Tan stucco exterior wall	None Detected
992-06262002-315-212	212	Second floor – Tan stucco exterior wall	None Detected
992-06262002-315-213	213	Second floor – Tan base cove with brown mastic	None Detected
992-06262002-315-214	214	First Floor – Window caulking, north window	2% Chrysotile; 2.5% by Point Count
992-06262002-315-215	215	First floor – Window caulking, east window	None Detected
Building 989			
989-06262002-315-216	216	Beige paint on CMU, east wall	None Detected
989-06262002-315-217	217	Beige paint on CMU, south wall	None Detected
989-06262002-315-218	218	TSI white fitting < 6" OD, west wall	None Detected
989-06262002-315-219	219	Gray textured paint, west exterior wall	None Detected
989-06262002-315-220	220	Gray textured paint, east exterior wall	None Detected
Building 993			
993-0622002-315-221	221	Bead window caulking at base of window, west exterior wall	Trace Chrysotile; 0.5% by Point Count

CHEMICAL SAMPLE MAP

Building: 989

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B989



SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRACERCLA Sample Location
- PCB Sample Location

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

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

Prepared by: GIS Dept. 303-668-7707

Prepared for:

DynCorp

THE ART OF TECHNOLOGY



MAP ID: 02-355/989-IN

August 8, 2002

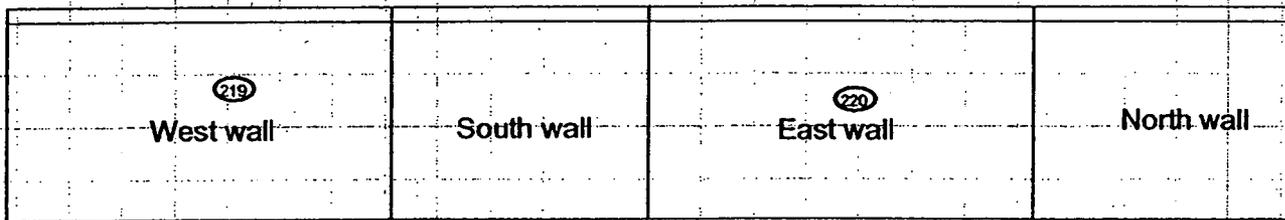
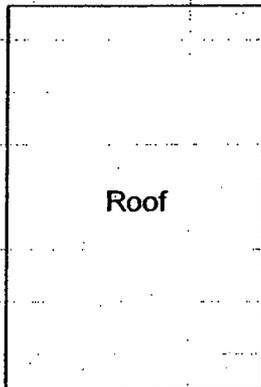
52

CHEMICAL SAMPLE MAP

Building: 989

PAGE 1 OF 1

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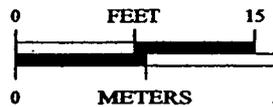


SURVEY MAP LEGEND

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

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- Open/Inaccessible Area
- Area in Another Survey Unit



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

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

Prepared by: GIS Dept. 303-966-7707

Prepared for:

DynCorp
THE ART OF TECHNOLOGY



MAP ID: 02-0355/B989-EX

August 8, 2002

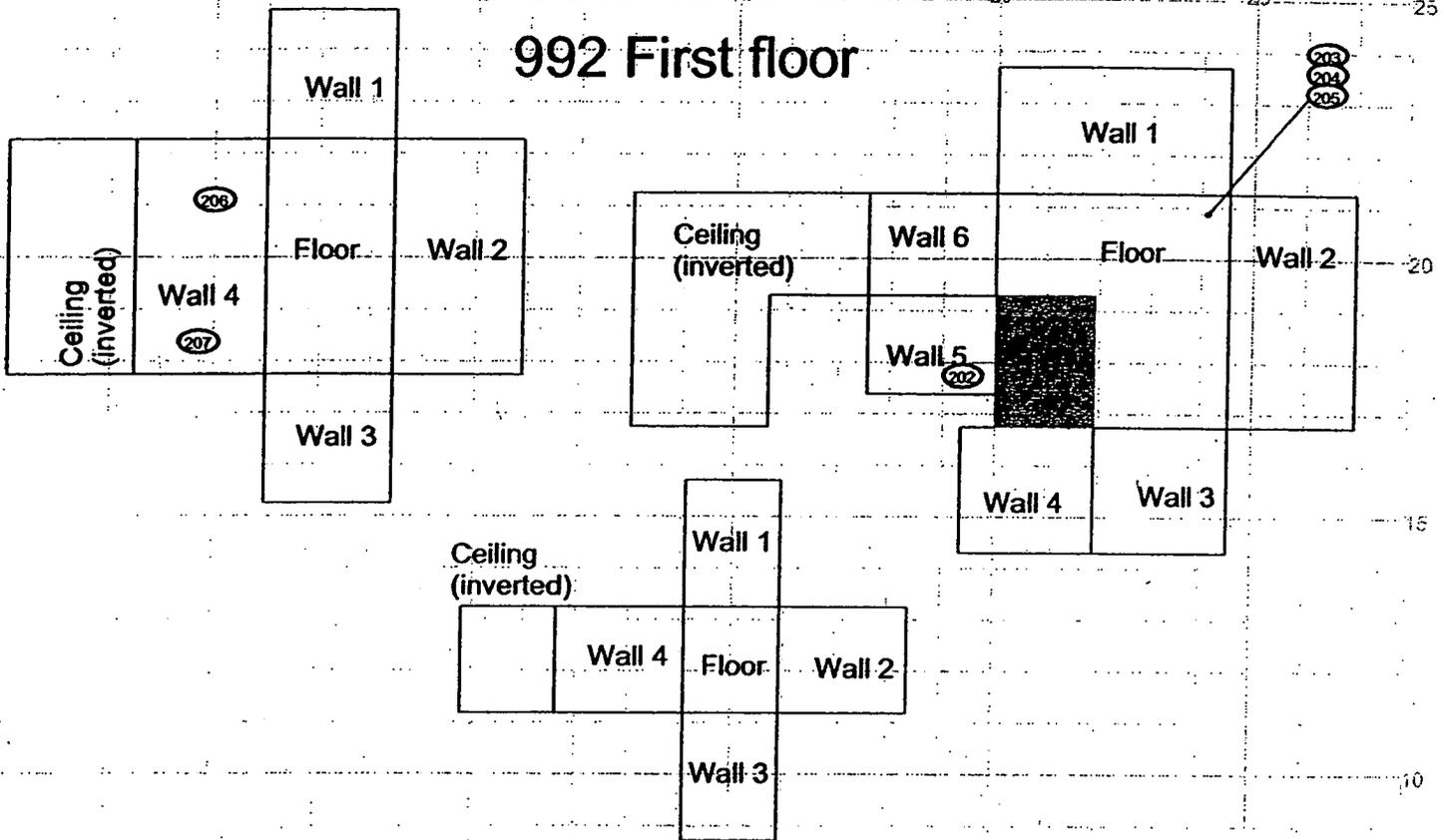
53

CHEMICAL SAMPLE MAP

Building: 992

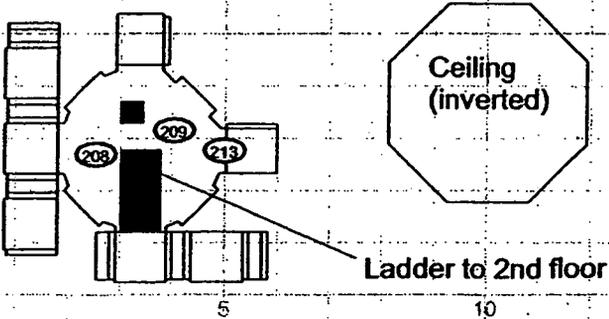
PAGE 1 OF 1

992 First floor

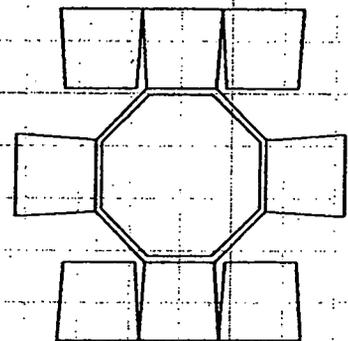


992 Second floor

Floor and lower walls



Shelf and upper windows

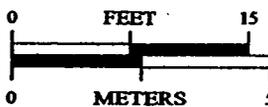


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRACERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



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

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

Prepared by: GIS Dept. 303-666-7707

Prepared for:

DynCorp

THE ART OF TECHNOLOGY



MAP ID: 02-0355/992-IN

August 8, 2002

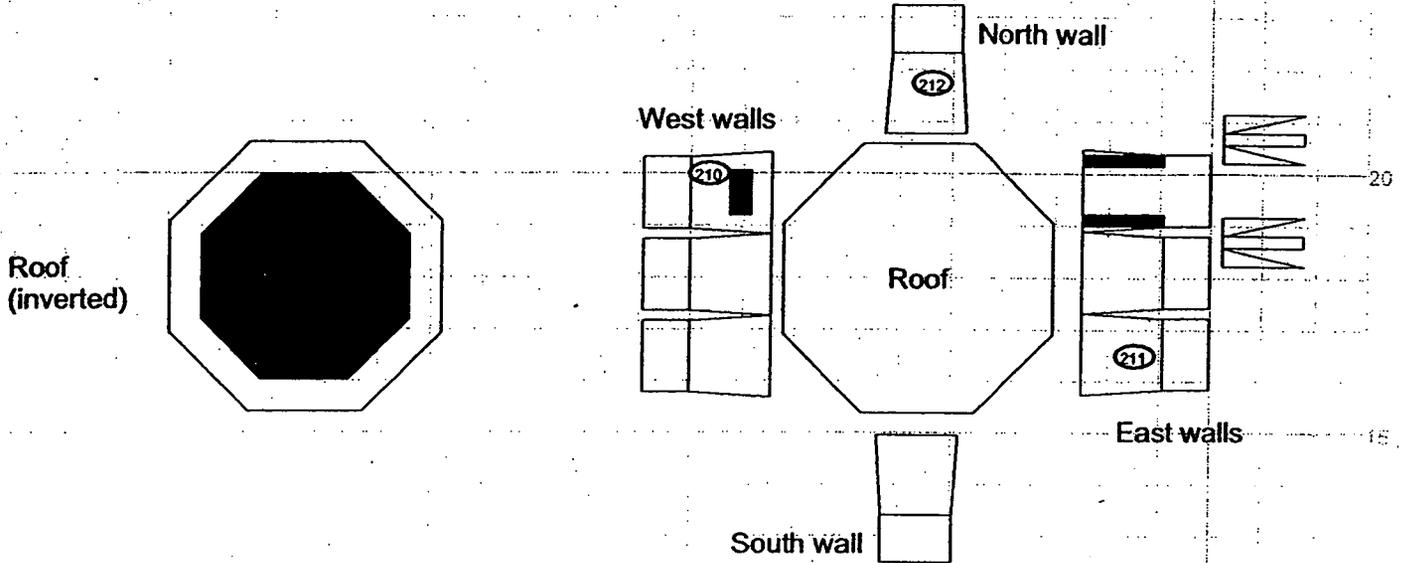
54

CHEMICAL SAMPLE MAP

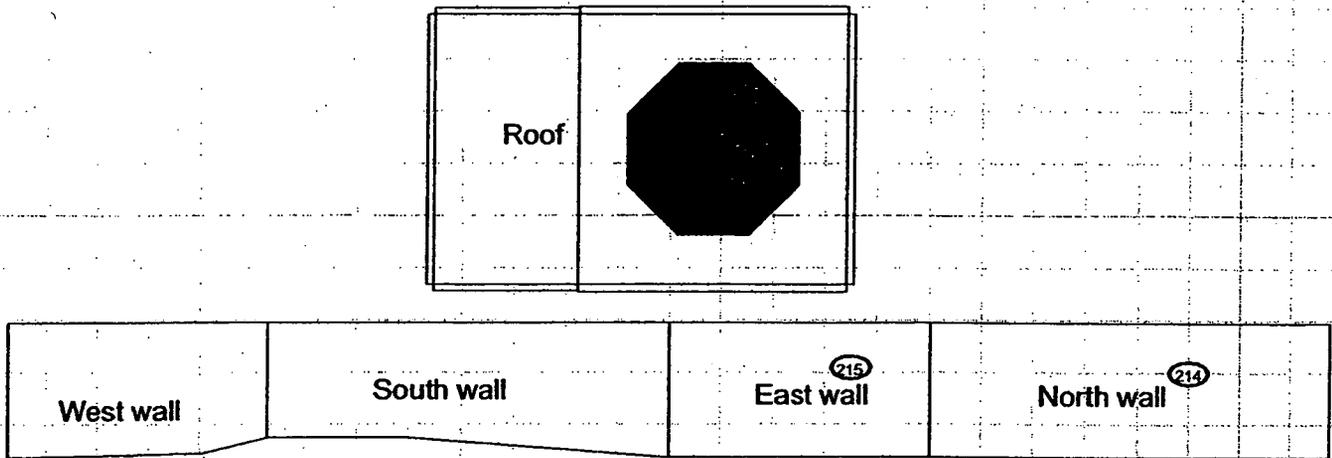
Building: 992

PAGE 1 OF 1

Second level



First level

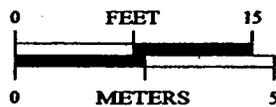


SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRACERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



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

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MAP ID: 02-0335/B992-EX

August 8, 2002

CHEMICAL SAMPLE MAP

Building: 993

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Building 993

Roof

West wall

(21)

South wall

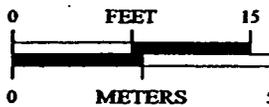
East wall

North wall

SURVEY MAP LEGEND

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

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

-  Open/inaccessible Area
-  Area in Another Survey Unit

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MAP ID: 02-0355/B993-EX

August 8, 2002

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15

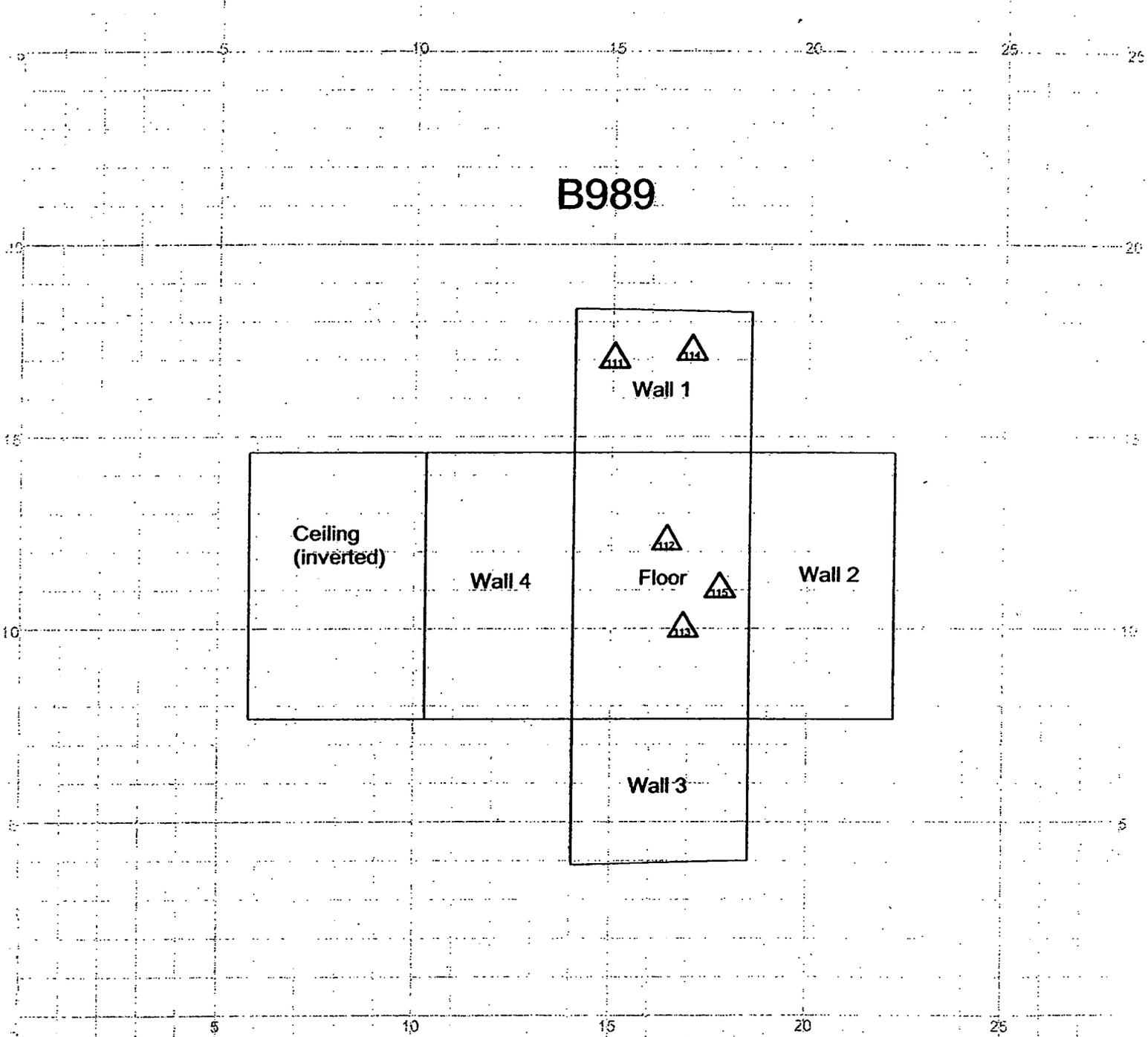
Beryllium Data Summary

Sample Number	Map Survey Point Location	Sample Location	Result (Bq/100cm ²)
992-06262002-315-106	106	First floor - Top of green tile, SE corner	< 0.1
992-06262002-315-107	107	First floor - Top of white tile, middle of room	< 0.1
992-06262002-315-108	108	First floor - By lockers on concrete floor	< 0.1
992-06262002-315-109	109	Second floor - Top of electric heater, east wall	< 0.1
992-06262002-315-110	110	Second floor - Wooden shelf, west wall	< 0.1
Building 989			
989-06262002-315-111	111	Top of J-Box, north wall	< 0.1
989-06262002-315-112	112	Top of KATO AC generator	< 0.1
989-06262002-315-113	113	Top of green Brine Supply pipe	< 0.1
989-06262002-315-114	114	Top of Generator Control Panel, north wall	< 0.1
989-06262002-315-115	115	Top of Flexi-glass case over battery bank, east wall	< 0.1
Building 993			
993-06272002-315-116	116	Top of horizontal I-beam brace, middle of north wall	< 0.1
993-06272002-315-117	117	Top of horizontal I-beam brace, middle of north wall	< 0.1
993-06272002-315-118	118	Top of "Disc. 16 - 480 V Heater" electrical box, west wall	< 0.1
993-06272002-315-119	119	Top of horizontal I-beam brace, middle of south wall	< 0.1
993-06272002-315-120	120	Top of horizontal I-beam brace, middle of south wall	< 0.1

CHEMICAL SAMPLE MAP

Building: 989

PAGE 1 OF 1



<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 15</p> <p>0 METERS 5</p> <p>1 inch = 12 feet 1 grid sq. = 1 sq. m.</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GIS Dept. 303-968-7707 Prepared for:</p> <p>DynCorp THE ART OF TECHNOLOGY</p> <p>MAP ID: 02-355/989-BE</p>
	<p> Open/Inaccessible Area</p> <p> Area in Another Survey Unit</p>			<p> KAISER HILL</p> <p>August 8, 2002</p>

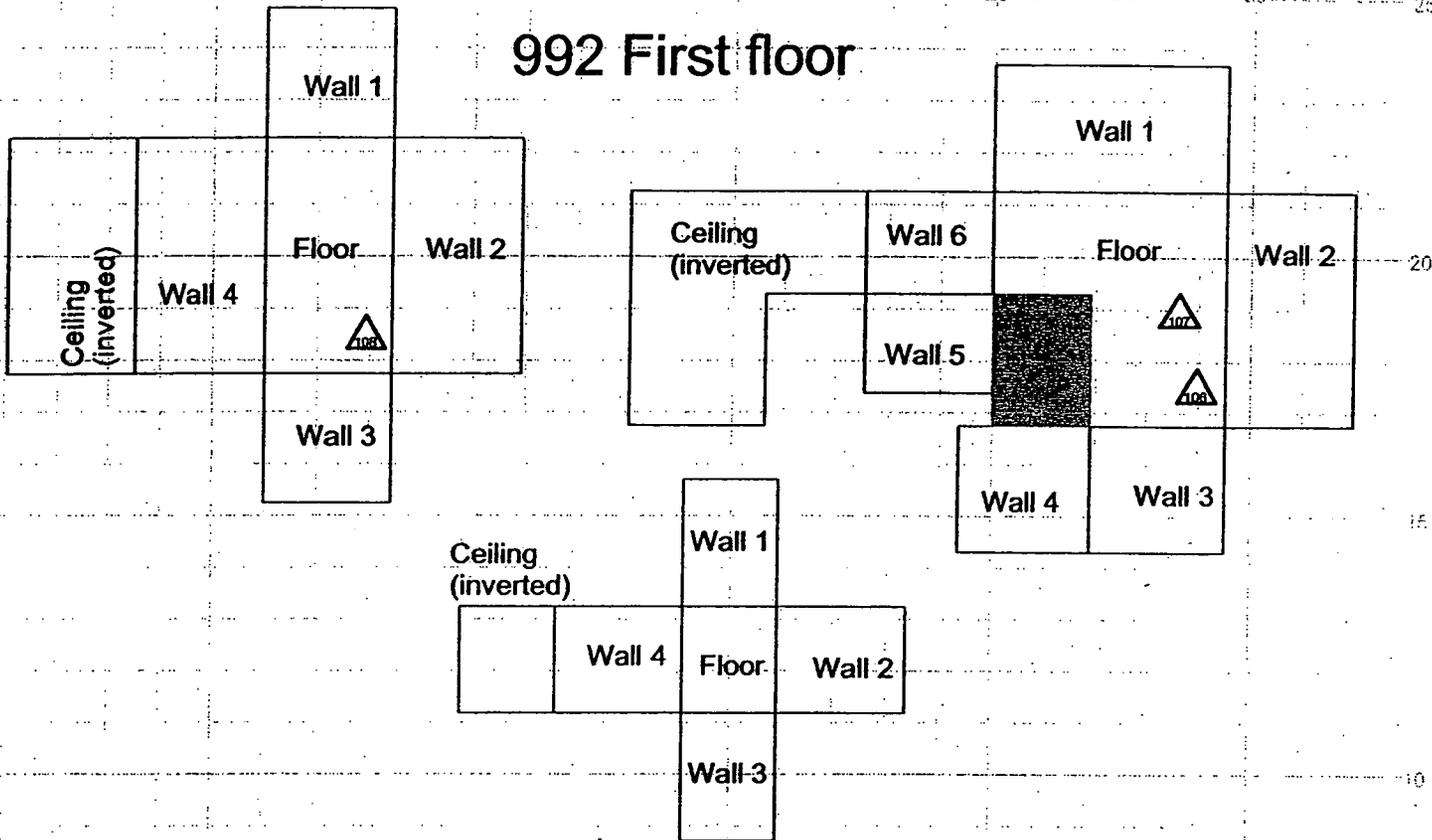
58

CHEMICAL SAMPLE MAP

Building: 992

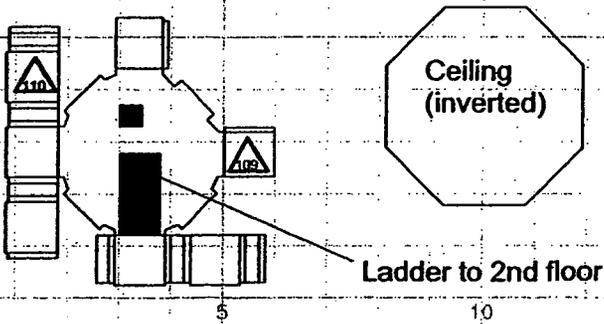
PAGE 1 OF 1

992 First floor

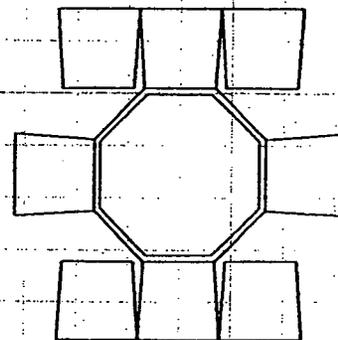


992 Second floor

Floor and lower walls



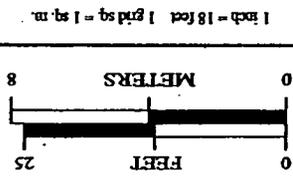
Shelf and upper windows



<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 Open/Inaccessible Area Area in Another Survey Unit 	<p>Neither the United States Government nor Kaiser E&H Co., nor DynCorp M&ET, nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights.</p>	<p>N</p> <p>↑</p>	<p>0 FEET 15</p> <p>0 METERS 5</p> <p>1 inch = 12 feet 1 grid sq. = 1 sq. m.</p>	<p>U.S. Department of Energy Rocky Flats Environmental Technology Site</p> <p>Prepared by: GES Dept. 303-968-7707 Prepared for:</p> <p>DynCorp THE ART OF TECHNOLOGY</p> <p>KAISER HILL</p> <p>MAP ID: 02-0355/992-BE August 8, 2002</p>
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SURVEY MAP LEGEND

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Kaiser Hill
August 8, 2002

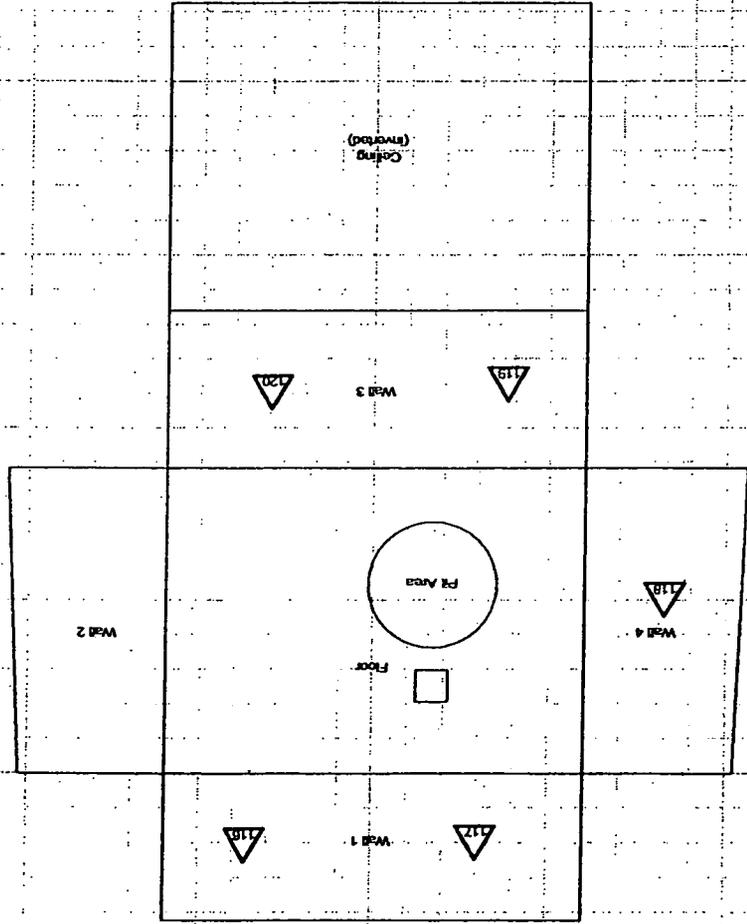
MAP ID: 02-0355/B993-BE
1 inch = 18 feet 1 grid sq. = 1 sq. m.

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

Area in Another Survey Unit

Open/Inaccessible Area

Building 993



CHEMICAL SAMPLE MAP

Building: 993

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 E-2 and beryllium in 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 approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for the 989, 992, and 993 facilities based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Stated differently, based on the well-established suite of actinides historically used at the RFETS, all of these actinides would emit alpha radiation in exceedance of the applicable transuranic DCGLs before other DCGLs would be exceeded for their respective Uranium species – Technical Basis Document 00162, Rev. 0, *Technical Justification for Types of Surveys Performed During Reconnaissance Level Characterization Surveys and Pre-Demolition Surveys in RISS Facilities*, corroborates the use of this approach.

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, except the following anomalies and/or contaminated areas:

Table E-1 V&V of Radiological Surveys

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 gridding methodology (Survey Units: 991-A-002, 991-A-003, 991-A-004, 991-B-006, 991-B-007 and 991-B-008)	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm 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. RLC performed to PDS criteria.

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Table E-3 V&V Of Chemical Results-Beryllium

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville, Littleton, Co.	
	QUALITY REQUIREMENTS		RIN ----> RIN02D1443	
		Measure	frequency	
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 1 facility 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-4 Data Completeness Summary

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 B Survey Unit: 991-B-006 B989 (exterior)	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	No contamination at any location; all values below unrestricted release levels	No results above DCGL _w or DCGL _{EMC} action level (20 dpm/100cm ² removable, 100 dpm/100cm ² average, and 300 dpm/100cm ² maximum). Elevated activity (TSA) at sample location #13 (116.2 dpm/100cm ²) greater than the DCGL _w (100 dpm/100cm ²). One coupon sample was taken and analyzed using gamma spectroscopy. Gamma spectroscopy results indicated only uranium contamination and other naturally occurring isotopes. No DOE-Added isotope activity was greater than the applicable unrestricted release levels (transuranic or uranium), therefore, no further investigation is required.
Radiological	Survey Area A Survey Unit: 991-A-003 B992 (interior)	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	No contamination at any location; all values below unrestricted release levels	No results above DCGL _w or DCGL _{EMC} action level (20 dpm/100cm ² removable, 100 dpm/100cm ² average, and 300 dpm/100cm ² maximum).
Radiological	Survey Area A Survey Unit: 991-A-004 B993 (interior)	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	15 α TSA and 15 α Smears (random) 2 QC TSA 5% scan	No contamination at any location; all values below unrestricted release levels	No results above DCGL _w or DCGL _{EMC} action level (20 dpm/100cm ² removable, 100 dpm/100cm ² average, and 300 dpm/100cm ² maximum).