

PRE-DEMOLITION SURVEY REPORT (PDSR)

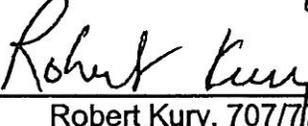
BUILDING 701

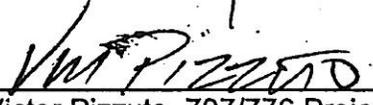
REVISION 0

August 6, 2004

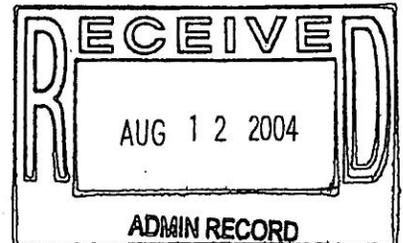
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ABBREVIATIONS/ACRONYMS

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
HEUN	Highly Enriched Uranyl Nitrate
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
PDSR	Pre-demolition survey report
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFPO	Rocky Flats Project Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds
WSRIC	Waste Stream and Residue Identification and Characterization

EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to define the final radiological and chemical condition of the facility in accordance with decommissioning objectives. This building will be surveyed and released under this PDSR. Because this building is classified as a type 2 structure and will be demolished, the characterization was performed on the interior and exterior surfaces in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Environmental Restoration.

The PDS encompassed both chemical and radiological characterization. The characterization was based on physical, chemical and radiological hazards identified in the facility-specific *Building 776/777 Closure Project Decommissioning Operations Plan and the associated Reconnaissance Level Characterization Report*.

Based upon the results of this PDSR, a majority of B701 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. A portion of the slab in room 101, and the adjacent soil is contaminated, and has been encapsulated and plated for later removal. With CDPHE concurrence, the non-contaminated portions of B701 will be demolished and the waste managed as sanitary waste, and the concrete may be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All contaminated concrete and soil will be managed as radioactive waste. Under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains free of contamination and PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

1 INTRODUCTION

A pre-demolition survey was performed to define the final radiological and chemical condition of the facility. Building 701 was initially categorized as a Type 1 facility but has been re-typed as Type 2 based on survey indication of contamination in Room 101. B776/777 DOP Minor Modification #11 added Building 701 to the DOP as a Type 2 facility. Because this facility will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). The results of this survey shall demonstrate that a majority of B701 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan prior to demolition. A portion of the slab, the footer and adjacent soil in room 101 is contaminated, and has been covered with metal plating to protect it from cross contaminating the clean portion of the building. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Environmental Restoration (ER) RSOP and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. B701 no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this structure can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for B701. 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).

1.1 Purpose

The purpose of this report is to communicate and document the results of the B701 PDS effort. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition 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 pre-demolition radiological and chemical conditions of B701. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed in accordance with the ER RSOP and in compliance with RFCA.

1.3 Data Quality Objectives

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

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. This report, *The Building 776/777 Closure Project Decommissioning Operations Plan (DOP)* and the associated *Reconnaissance Level Characterization Report (RLCR)*, Revision 0) focused on the more highly contaminated sections of the B776/777 cluster. B701 was isolated from the main building, and was used as a non-radiological support structure, and included cold laboratory work, paint shop, carpenter shop, storage area, and office area. Therefore no additional reconnaissance level characterization surveys were performed. A contaminating event was discussed in *the RLCR*. This event occurred as the result of a contaminated sanitary drain line that backed up into the restroom of B701, and resulted in contamination in the immediate area. The contaminated floor was decontaminated to levels of 1000 to 5000 dpm/100 cm² and painted.

As part of this PDS an attempt was made to bound the floor contamination with media samples. However, media samples revealed low level contamination under the paint greater than the DCGL_w. The floor of the entire building was shaved, and existing paint on the floor removed. During the floor remediation, additional contamination was discovered on the floor after the paint was removed along the north wall of room 101. The floor contamination was much higher than expected (Up to 1,500,000 dpm/100 cm² removable). Additional investigations uncovered the fact that after the 1969 B776/777 fire, drums of highly contaminated waste were stored in room 101. In order to access the contaminated area, a section of the north wall was removed. A section of the floor was highly contaminated. The contamination was detected and tracked to several locations, including portions of the concrete slab, concrete footer, and the soil beneath the slab. High level contamination in accessible locations was removed. Contamination slightly above the release limits was distributed over much of the slab. After determining that contamination still remained in the soil, and on the concrete surfaces of the footer and slab in contact with the soil, the decision was made to cover all of the contaminated portions of the slab, footer, and soil to prevent cross contamination, and remediate it later. These contaminated areas will be removed after the clean portion of the building has been demolished. Fixative was applied to the soil and contaminated slab, and plating was attached to the top of the slab to protect the area during building demolition. Investigation surveys were performed to bound the contamination, and to confirm that the remaining portion of the building meets the unrestricted release criteria. This report documents the results of the PDS.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

B701 was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon, historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan in the form of two (2) survey packages were developed during the planning phase that describes the minimum survey requirements (refer to survey package 777004 for the interior walls and ceiling of the structure and 777005 for the exterior of the structure). When contamination was detected on the floor throughout B701, a Class 1 survey package was developed for the entire floor of B701 (777006). A Survey Unit Overview Map is presented in Attachment A. Based on hazards characterization data and historical and process knowledge, as documented in Technical Basis Document 00168 "*Building 776/777 Technical Justification For Types of Radiological Surveys Performed*", transuranic isotopes are the primary contaminants of concern in the Building 776 Cluster. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 776/777 Characterization Project files.

The B701 survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), media samples, and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachments B, C, and D, *Radiological Data Summary and Survey Maps*.

B701 (Survey Unit 777004 and 777006- Interior and 777005 - Exterior)

The interior and exterior surfaces of B701 were initially classified as Class 3 survey units. The classification was based on the minimal potential for contamination due to process history. No contamination in excess of the unrestricted release limits was anticipated. A total of 15 random TSA and RSA measurements for each survey unit were collected. Surface scan surveys of >5% of the accessible wall and ceiling surfaces and 50% of the accessible floor surfaces were also performed.

After the discovery of contamination under the painted floor surfaces, survey unit 777006 was developed as part of the re-classification of the floor in B701. Additional TSA, RSA and 100% scan surveys were performed. After floor remediation, all TSA, RSA, and scan survey results in survey unit 777004, 777005, and 777006 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 777004, 777005, and 777006 are presented in Attachment B, C, and D.

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Based on a thorough review of historical and process knowledge, visual inspections, and personnel interviews, no additional chemical hazard sampling requirements were identified.

4.1 Asbestos

No asbestos-containing materials are present in these areas. Asbestos abatement was successfully completed.

4.2 Beryllium (Be)

Building 701 was not on the KH list of historical areas with potential beryllium contamination as referenced in the site Occupational Safety & Industrial Hygiene Program Manual, Chapter 28. The 776/777 Reconnaissance Level Characterization Report indicated there may be beryllium contamination from the laundry water from building 730. The building has never been posted as a Beryllium Controlled or Regulated Area.

Therefore, per the Beryllium Sampling Decision Tree in the PDSP, random beryllium smear samples were collected in accordance with the PDSP and the *Beryllium Characterization Procedure*, PRO-536-BCPR, Revision 0, September 9, 1999.

Following building strip-out and asbestos abatement, a final beryllium survey was conducted. Samples were collected in the overhead as well as the floor. All samples were below the analytical detection limit of 0.1ug/100 cm².

The discovery of radiological contamination in the northeast corner of the building prompted additional beryllium surveys of the building. All follow-up samples collected were below the analytical detection limit of 0.1 ug/100 cm².

All beryllium smear sample results were less than the investigative limit of 0.1 µg/100cm². PDS beryllium laboratory sample data and location maps are contained in Attachment E, *Chemical Data Summaries and Sample Maps-RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]*

4.3 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 776/777 Environmental Compliance Personnel walk-downs, Building 701 has never used/transferred free flowing/exposed PCB's. At one time the facility may have used PCB ballasts in its fluorescent light fixtures, however, all of these have been removed, and compliantly disposed of, resulting in no impact on demolition activities in Building 701.

4.4 Freon

Freon has been removed from air conditioning units in Building 701 by Colorado licensed technicians. Based upon personnel interviews, facility walk-downs, and historical process knowledge, as well as a review of WEMS and the Site RCRA Master List, B701 did not contain hazardous waste storage units. Building components and fixtures containing hazardous substances, such as fluorescent tubes, incandescent bulbs, and batteries, have been removed.

4.5 Concrete

All paint from the floor has been removed as described in section 2. The concrete generated from the demolition of Building 701 may be used for onsite recycling in accordance with the Concrete Recycling RSOP.

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4.6 Physical hazards

Physical hazards associated with the B701 consist of that common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the 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.

5 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of B701, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachment B, C, and D) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

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 presented in Attachment F. The DQA Checklists are provided in the individual survey unit packages (located in the Building 707 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation
& Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm ²)
NE Electra DP6	TSA	48
NE Electra AP6	Scan	300
Eberline SAC-4	Removable (Smears)	10
Bartlett FSM	Scan	300

6 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of B701 will generate a variety of wastes. All wastes with the exception of the contaminated area identified previously can be disposed of as sanitary waste. Concrete can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

7 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, B701 is classified as a RFCA Type 2 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Based upon the results of this PDSR, the B701 meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan and is ready for demolition. The PDS for B701 was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date in accordance with the ER RSOP.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on the B701 structural surfaces. Any potentially PCB-containing fluorescent light ballast and hazardous waste items (e.g., mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury-containing gauges, circuit boards, leaded glass, and lead-acid batteries) were previously removed from the building, therefore, do not impact demolition activities.

Using standard protocol, the contaminated sanitary drain, which connects to B730, has been grouted with cement, and marked appropriately. It will be carefully removed as part of the slab demolition process, and processed separately as radioactive waste.

As described previously, the contaminated portion of the floor in room 101 has been encapsulated, covered with metal plating, and marked appropriately. It will be carefully removed after the building demolition process, and processed separately as radioactive waste.

Radiological contamination in excess of the PDSP Table 7-1 limits does not exist in B701 with exception of the plated over contamination in room 101, and the sanitary drain, which was discussed above.

Based upon this PDSR, B701 can be demolished, the clean waste managed as sanitary waste, and the clean concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All remaining contaminated concrete and soil will be managed as radioactive waste. Under-slab utilities and piping systems shall be managed as radioactive waste, unless additional data collected prior to waste disposition proves otherwise. To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established, and the area posted accordingly.

8 REFERENCES

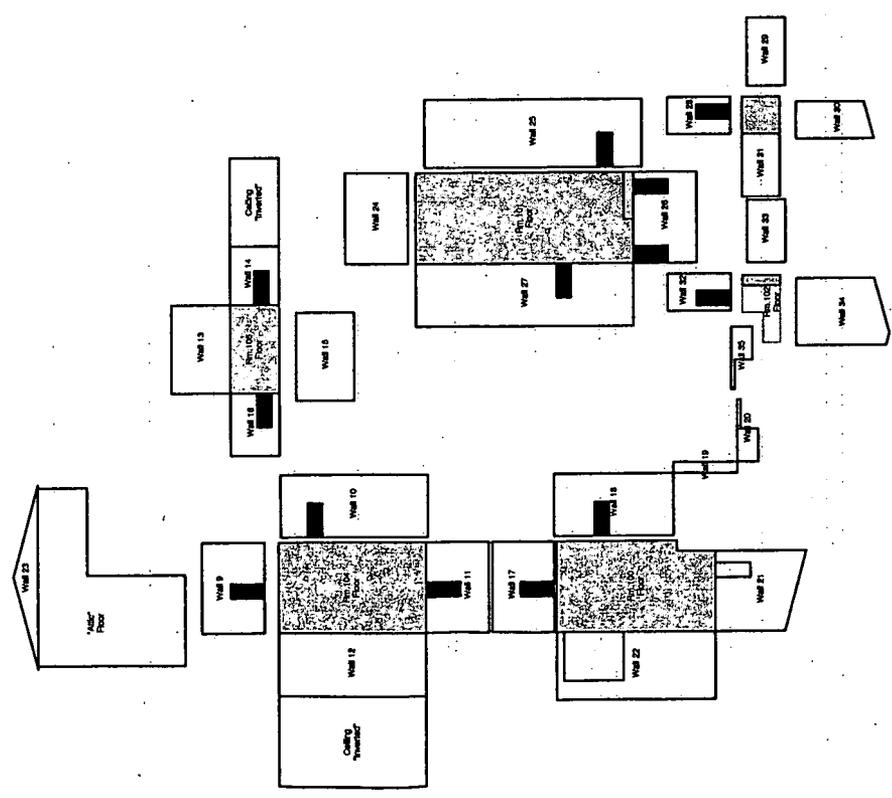
- Building 776/777 Closure Project Decommissioning Operations Plan*, Revision 1, July 1, 2003 and Minor Modification #11, approved xx/xx/04
- DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.
- DOE Order 5400.5, *Radiation Protection of the Public and the Environment*
- DOE Order 414.1A, *Quality Assurance*
- K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.
- MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.
- 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*.
- RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

ATTACHMENT A
Survey Unit Overview Map

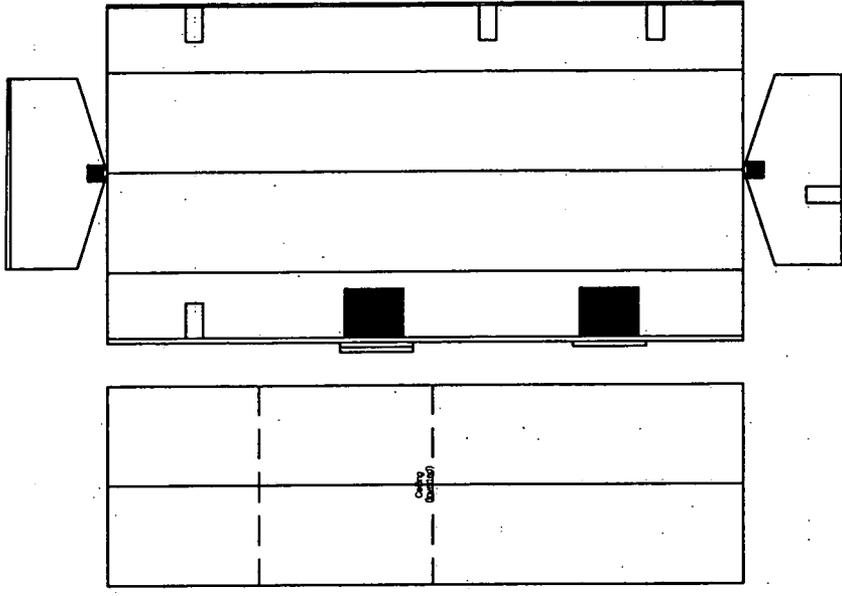
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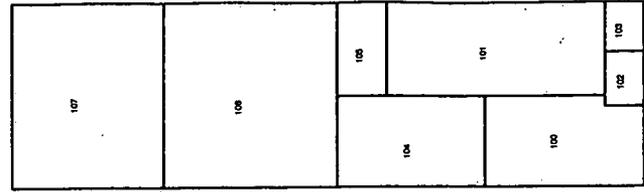
777004 Interior Walls / Ceiling



777005 Exterior Walls / Roof



777006 Interior Floors



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ATTACHMENT B

Survey Unit 777004
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776/777 CLUSTER

Survey Area: A

Survey Unit: 777004

Classification: III

Building: 701

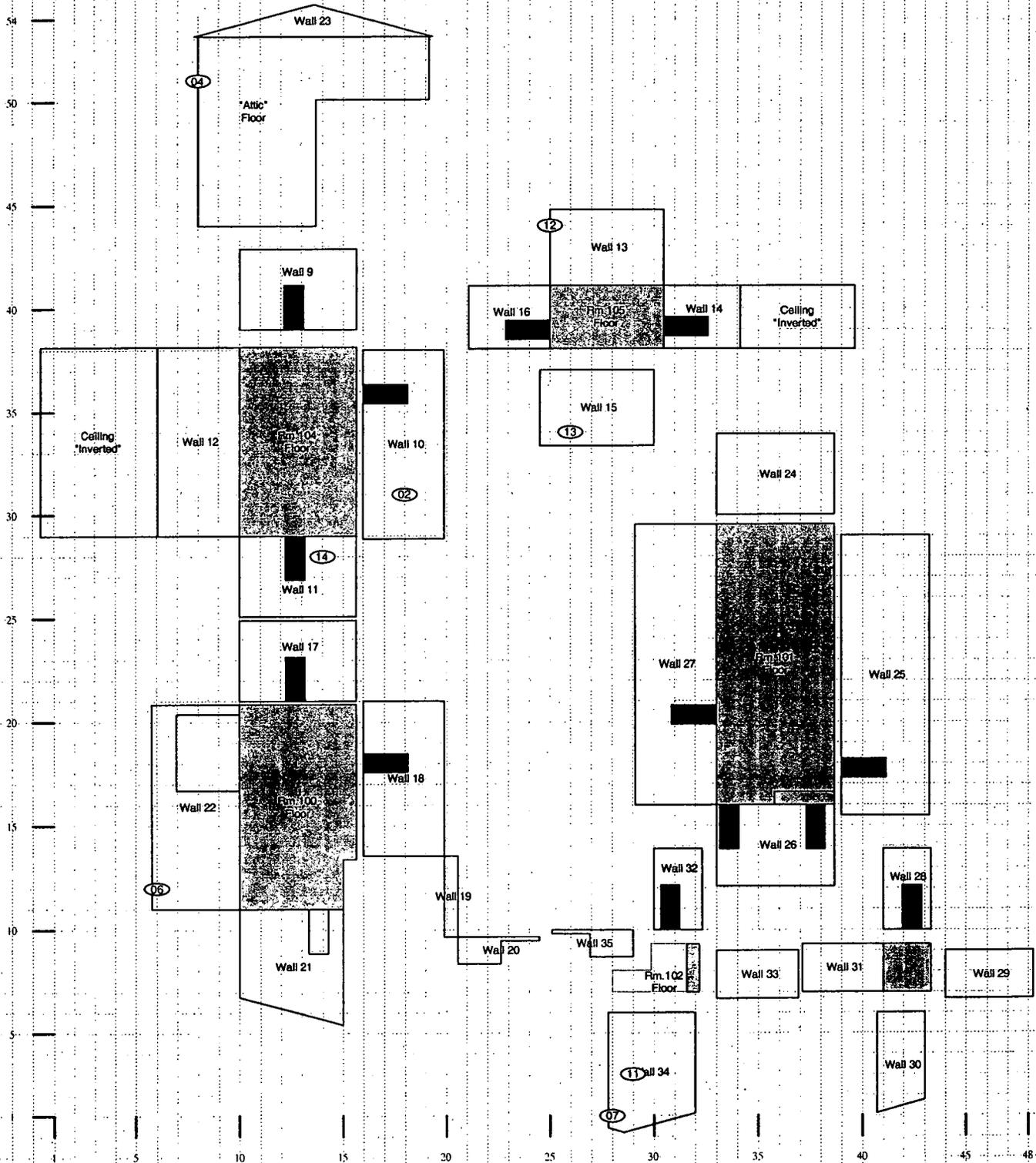
Survey Unit Description: 701 Interior

Total Floor Area: 514 sq. m

Total Area: 1989 sq. m

Grid Size: NA

SURVEY UNIT 777004 - MAP 1 OF 2



SURVEY MAP LEGEND

- Stener & TSC Location
- Stener, TSC & Sample Location
- Open/Inaccessible Area
- Area in Another Location

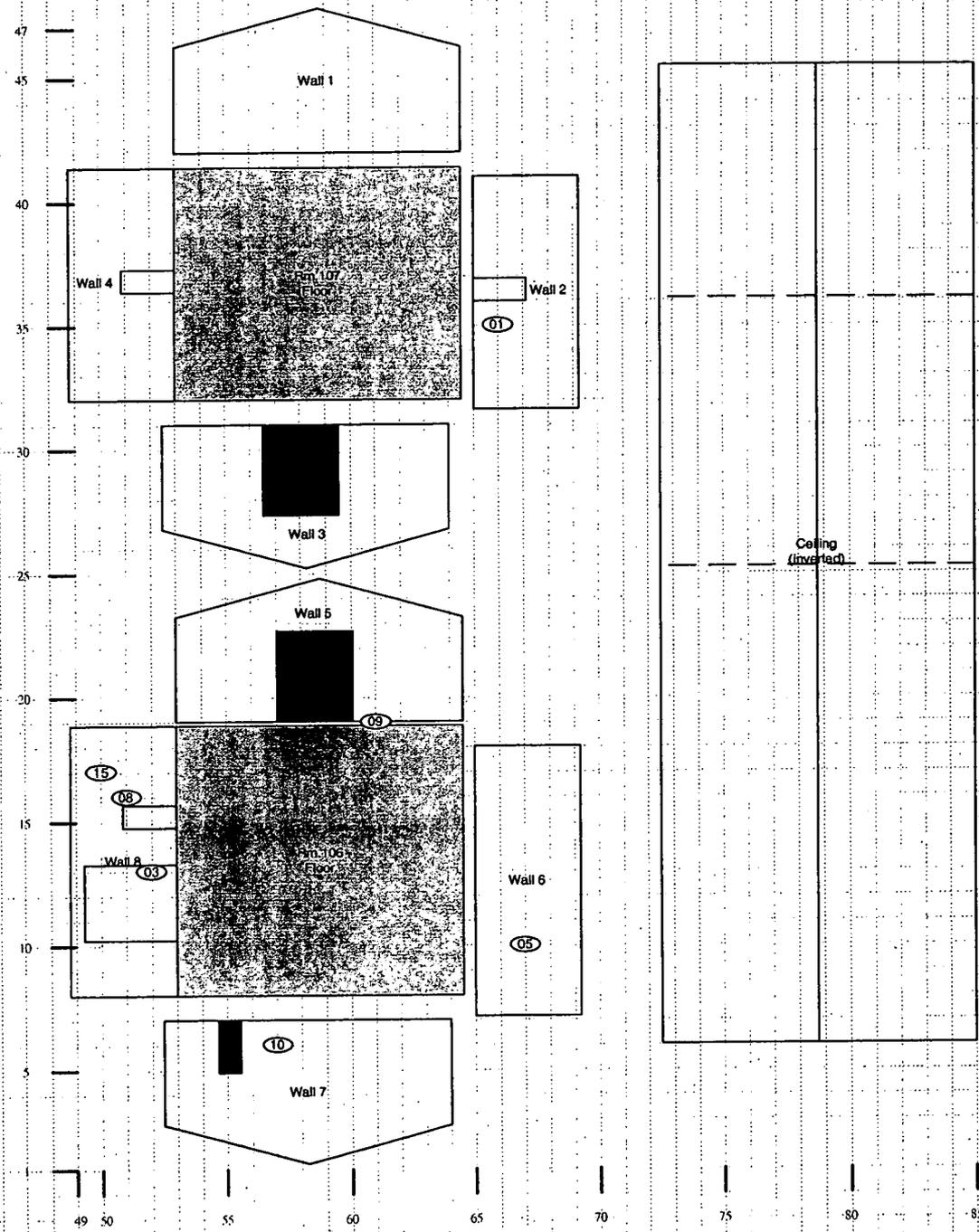
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RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776/777 CLUSTER

Survey Area: A Survey Unit: 777004 Classification: III
Building: 701
Survey Unit Description: 701 Interior

Total Floor Area: 514 sq. m Total Area: 1989 sq. m Grid Size: N/A

SURVEY UNIT 777004 - MAP 2 OF 2



SURVEY MAP LEGEND

- ⊙ # Stair & TSC Location
- ⊠ # Stair, TSC & Sample Location
- Open/Inaccessible Area
- ▨ Area in Another Location

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Survey Area: A

Survey Unit: 777004

Building: 776777

Description: The interior of B701

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 0

Nbr QC Required: 2

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 0

Nbr QC Performed: 2

Alpha

Maximum:	47.3 dpm/100cm ²
Minimum:	-13.0 dpm/100cm ²
Mean:	10.4 dpm/100cm ²
Standard Deviation:	13.8
QC Maximum:	15.2 dpm/100cm ²
QC Minimum:	-9.2 dpm/100cm ²
QC Mean:	3.0 dpm/100cm ²
Transuranic DCGL _w :	100.0 dpm/100cm ²
Transuranic DCGL _{EMC} :	300.0 dpm/100cm ²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15

Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15

Nbr Biased Measurements Performed: 0

Alpha

Maximum:	3.0 dpm/100cm ²
Minimum:	-0.6 dpm/100cm ²
Mean:	0.7 dpm/100cm ²
Standard Deviation:	1.1
Transuranic DCGL _w :	20.0 dpm/100cm ²

Media Sample Results

Nbr Random Required: 0

Nbr Biased Required: 0

Nbr Random Collected: 0

Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

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Survey Area: A

Survey Unit: 777004

Building: 776777

Description: The interior of B701

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm ²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	511510	06/09/04	Electra	400	DP-6	07/13/04	0.222	NA	48.0	NA	T
2	513185	06/09/04	SAC-4	1411	NA	09/29/04	0.333	NA	10.0	NA	R
3	513185	06/10/04	Electra	2354	DP-6	11/27/04	0.216	NA	48.0	NA	T
4	514510	06/10/04	Electra	2378	DP-6	10/05/04	0.218	NA	48.0	NA	Q
5	514510	06/10/04	SAC-4	839	NA	09/13/04	0.333	NA	10.0	NA	R
9	509552	07/02/04	Electra	4174	DP-6	12/10/04	0.216	NA	48.0	NA	T
10	509552	07/07/04	SAC-4	1469	NA	11/27/04	0.333	NA	10.0	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: A

Survey Unit: 777004

Building: 776777

Description: The interior of B701

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777004PRP-N001	2	1.5	N/A	
777004PRP-N002	5	0.9	N/A	
777004PRP-N003	2	0.0	N/A	
777004PRP-N004	2	0.0	N/A	
777004PRP-N005	10	0.0	N/A	
777004PRP-N006	2	3.0	N/A	
777004PRP-N007	5	-0.6	N/A	
777004PRP-N008	5	-0.6	N/A	
777004PRP-N009	10	1.5	N/A	
777004PRP-N010	10	0.0	N/A	
777004PRP-N011	10	0.0	N/A	
777004PRP-N012	2	1.5	N/A	
777004PRP-N013	5	0.9	N/A	
777004PRP-N014	5	2.4	N/A	
777004PRP-N015	10	0.0	N/A	

Comments:

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Survey Area: A

Survey Unit: 777004

Building: 776/777

Description: The interior of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777004PRP-N001	1	8.1	N/A	
777004PRP-N002	3	21.4	N/A	
777004PRP-N003	1	20.3	N/A	
777004QRP-N003	4	15.2	N/A	
777004PRP-N004	1	8.1	N/A	
777004PRP-N005	9	8.9	N/A	
777004PRP-N006	1	8.1	N/A	
777004PRP-N007	3	8.9	N/A	
777004PRP-N008	3	-0.4	N/A	
777004PRP-N009	9	47.3	N/A	
777004PRP-N010	9	-0.4	N/A	
777004PRP-N011	9	18.1	N/A	
777004PRP-N012	1	-13.0	N/A	
777004PRP-N013	3	2.9	N/A	
777004PRP-N014	3	-0.4	N/A	
777004QRP-N014	4	-9.2	N/A	
777004PRP-N015	9	18.1	N/A	

Comments: A 5% scan of all wall and ceiling surfaces was performed. All scan values < 300 dpm/100cm².

ATTACHMENT C

Survey Unit 777005
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776/777 CLUSTER

Survey Area: 5

Survey Unit: 777005

Classification: NA

Building: 701

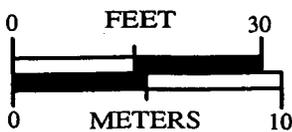
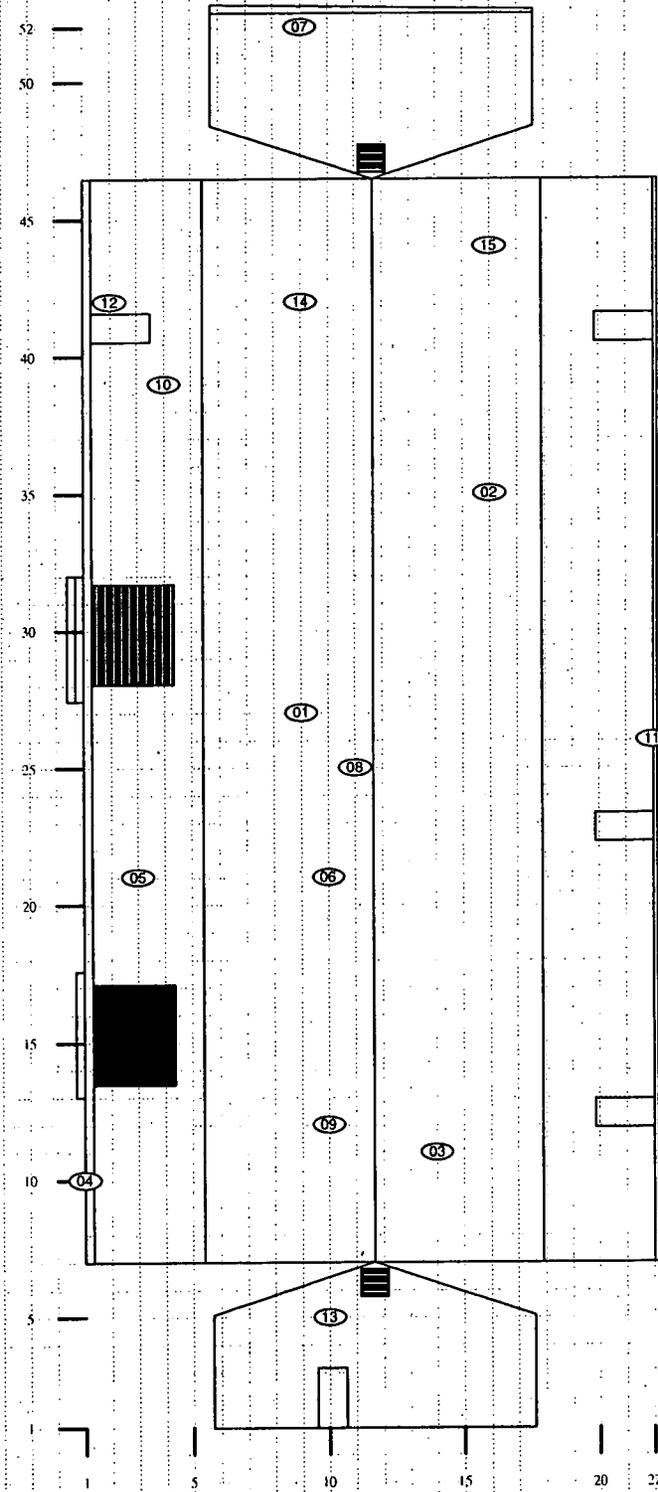
Survey Unit Description: Building 701 exterior

Total Floor Area: 0 sq. m

Total Area: 844 sq. m

Grid Size: 5 x 5 sq.m

SURVEY UNIT 777005 - MAP 1 OF 1



SURVEY MAP LEGEND

- ⊙ # - Buzzer & TSC Location
- ⊙ # - Buzzer, TSC & Sample Location
- - Open/Inaccessible Area
- - Area In Another Location

21

Survey Area: A

Survey Unit: 777005

Building: 776/777

Description: Exterior surfaces of B701

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15
Nbr Random Measurements Performed: 15

Nbr Biased Measurements Required: 0
Nbr Biased Measurements Performed: 0

Nbr QC Required: 2
Nbr QC Performed: 2

Alpha

Maximum:	70.4 dpm/100cm ²
Minimum:	1.3 dpm/100cm ²
Mean:	27.0 dpm/100cm ²
Standard Deviation:	21.0
QC Maximum:	31.1 dpm/100cm ²
QC Minimum:	20.9 dpm/100cm ²
QC Mean:	26.0 dpm/100cm ²
Transuranic DCGL _w :	100.0 dpm/100cm ²
Transuranic DCGL _{EMC} :	300.0 dpm/100cm ²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15
Nbr Random Measurements Performed: 15

Nbr Biased Measurements Required: 0
Nbr Biased Measurements Performed: 0

Alpha

Maximum:	5.4 dpm/100cm ²
Minimum:	-0.6 dpm/100cm ²
Mean:	0.9 dpm/100cm ²
Standard Deviation:	2.0
Transuranic DCGL _w :	20.0 dpm/100cm ²

Media Sample Results

Nbr Random Required: 0
Nbr Random Collected: 0

Nbr Biased Required: 0
Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

22

Survey Area: A

Survey Unit: 777005

Building: 776777

Description: Exterior surfaces of B701

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm ²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	513185	06/08/04	Electra	1399	DP-6	09/09/04	0.228	NA	48.0	NA	T
4	514510	06/08/04	SAC-4	951	NA	10/13/04	0.333	NA	10.0	NA	R
5	513185	07/07/04	Electra	2378	DP-6	10/05/04	0.218	NA	48.0	NA	T
6	511510	07/07/04	Electra	2341	DP-6	09/16/04	0.225	NA	48.0	NA	Q
7	514510	07/07/04	SAC-4	1478	NA	10/19/04	0.333	NA	10.0	NA	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

23

Survey Area: A

Survey Unit: 777005

Building: 776/777

Description: Exterior surfaces of B701

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777005PRP-N001	7	2.4	N/A	
777005PRP-N002	7	2.4	N/A	
777005PRP-N003	7	-0.6	N/A	
777005PRP-N004	4	2.4	N/A	
777005PRP-N005	4	-0.6	N/A	
777005PRP-N006	7	-0.6	N/A	
777005PRP-N007	4	-0.6	N/A	
777005PRP-N008	7	-0.6	N/A	
777005PRP-N009	7	2.4	N/A	
777005PRP-N010	4	-0.6	N/A	
777005PRP-N011	4	-0.6	N/A	
777005PRP-N012	4	-0.6	N/A	
777005PRP-N013	4	-0.6	N/A	
777005PRP-N014	7	5.4	N/A	
777005PRP-N015	7	3.9	N/A	

Comments:

Survey Area: A

Survey Unit: 777005

Building: 776/777

Description: Exterior surfaces of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777005PRP-N001	5	19.7	N/A	
777005PRP-N002	5	10.5	N/A	
777005PRP-N003	5	22.9	N/A	
777005PRP-N004	1	44.1	N/A	
777005PRP-N005	1	35.3	N/A	
777005QRP-N005	6	20.9	N/A	
777005PRP-N006	5	7.7	N/A	
777005PRP-N007	1	29.6	N/A	
777005PRP-N008	5	13.7	N/A	
777005PRP-N009	5	12.3	N/A	
777005PRP-N010	1	26.6	N/A	
777005PRP-N011	1	70.4	N/A	
777005PRP-N012	1	29.6	N/A	
777005PRP-N013	1	70.4	N/A	
777005QRP-N013	6	31.1	N/A	
777005PRP-N014	5	10.5	N/A	
777005PRP-N015	5	1.3	N/A	

Comments: 5% of the outside surfaces of B701 were surveyed. All results <300 dpm/100 cm².

ATTACHMENT D

Survey Unit 777006
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 776/777 CLUSTER

Survey Area: A

Survey Unit: 777006

Classification: 1

Building: 701

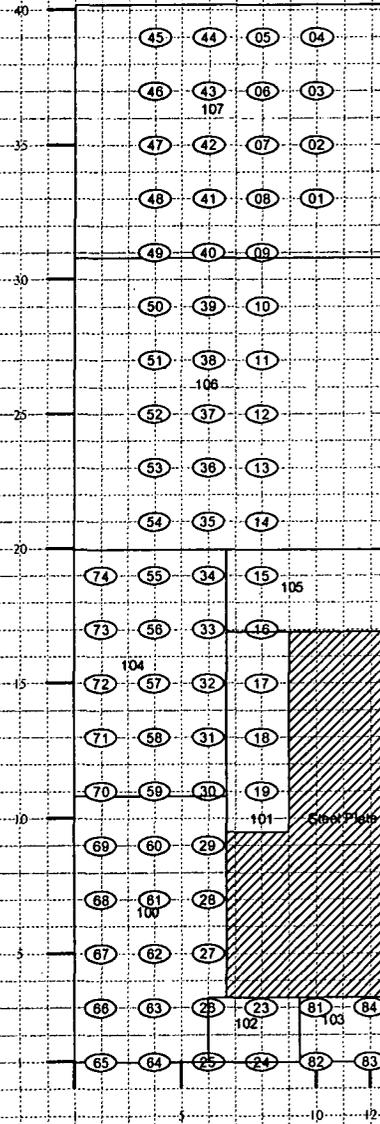
Survey Unit Description: 701 floor

Total Floor Area: 452 sq. m

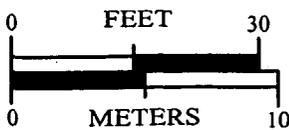
Total Area: 452 sq. m

Random Start Grid Size: 2 x 2 sq. m

SURVEY UNIT 777006 - MAP 1 OF 1



27



Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Rocky Flats Environmental Technology Site Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 75

Nbr Biased Measurements Required: 0

Nbr QC Required: 9

Nbr Random Measurements Performed: 75

Nbr Biased Measurements Performed: 0

Nbr QC Performed: 9

Alpha

Maximum:	93.4 dpm/100cm ²
Minimum:	-1.8 dpm/100cm ²
Mean:	33.9 dpm/100cm ²
Standard Deviation:	19.8
QC Maximum:	88.1 dpm/100cm ²
QC Minimum:	15.0 dpm/100cm ²
QC Mean:	45.6 dpm/100cm ²
Transuranic DCGL _w :	100.0 dpm/100cm ²
Transuranic DCGL _{EMC} :	300.0 dpm/100cm ²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 75

Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 75

Nbr Biased Measurements Performed: 0

Alpha

Maximum:	7.5 dpm/100cm ²
Minimum:	-0.3 dpm/100cm ²
Mean:	0.5 dpm/100cm ²
Standard Deviation:	1.3
Transuranic DCGL _w :	20.0 dpm/100cm ²

Media Sample Results

Nbr Random Required: 0

Nbr Biased Required: 0

Nbr Random Collected: 0

Nbr Biased Collected: 0

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm ²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	509552	07/06/04	Electra	3972	DP-6	08/02/04	0.229	NA	48.0	NA	T
3	509552	07/06/04	SAC-4	1474	NA	11/03/04	0.333	NA	10.0	NA	R
4	509552	07/07/04	Electra	1503	DP-6	07/16/04	0.216	NA	48.0	NA	T
5	509552	07/07/04	SAC-4	1469	NA	11/27/04	0.333	NA	10.0	NA	R
6	509552	07/11/04	Electra	4174	DP-6	12/01/04	0.216	NA	48.0	NA	T
7	509552	07/11/04	SAC-4	957	NA	11/05/04	0.333	NA	10.0	NA	R
8	512999	08/03/04	Electra	2172	DP-6	12/30/04	0.211	NA	48.0	NA	T
9	511798	08/03/04	Electra	3134	DP-6	11/03/04	0.219	NA	48.0	NA	T
10	512999	08/03/04	SAC-4	1469	NA	11/27/04	0.333	NA	10.0	NA	R
11	512592	08/05/04	Electra	1549	DP-6	08/24/04	0.227	NA	48.0	NA	T/I
12	508194	08/03/04	Electra	2172	DP-6	12/30/04	0.211	NA	48.0	NA	T/I

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N001	3	-0.3	N/A	
777006PRP-N002	3	-0.3	N/A	
777006PRP-N003	3	-0.3	N/A	
777006PRP-N004	3	-0.3	N/A	
777006PRP-N005	3	-0.3	N/A	
777006PRP-N006	3	-0.3	N/A	
777006PRP-N007	3	1.2	N/A	
777006PRP-N008	3	-0.3	N/A	
777006PRP-N009	3	-0.3	N/A	
777006PRP-N010	3	1.2	N/A	
777006PRP-N011	3	1.2	N/A	
777006PRP-N012	3	-0.3	N/A	
777006PRP-N013	3	1.2	N/A	
777006PRP-N014	3	-0.3	N/A	
777006PRP-N015	3	-0.3	N/A	
777006PRP-N016	3	-0.3	N/A	
777006PRP-N017	10	2.7	N/A	
777006PRP-N018	10	2.7	N/A	
777006PRP-N019	10	-0.3	N/A	
777006PRP-N023	7	1.5	N/A	
777006PRP-N024	7	1.5	N/A	
777006PRP-N025	7	3.0	N/A	
777006PRP-N026	7	1.5	N/A	
777006PRP-N027	7	0.0	N/A	
777006PRP-N028	7	0.0	N/A	
777006PRP-N029	7	0.0	N/A	
777006PRP-N030	5	0.0	N/A	
777006PRP-N031	5	0.0	N/A	
777006PRP-N032	5	0.0	N/A	

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N033	5	0.0	N/A	
777006PRP-N034	5	0.0	N/A	
777006PRP-N035	3	-0.3	N/A	
777006PRP-N036	3	-0.3	N/A	
777006PRP-N037	3	1.2	N/A	
777006PRP-N038	3	1.2	N/A	
777006PRP-N039	3	1.2	N/A	
777006PRP-N040	3	-0.3	N/A	
777006PRP-N041	3	-0.3	N/A	
777006PRP-N042	3	-0.3	N/A	
777006PRP-N043	3	1.2	N/A	
777006PRP-N044	3	-0.3	N/A	
777006PRP-N045	3	1.2	N/A	
777006PRP-N046	3	-0.3	N/A	
777006PRP-N047	3	-0.3	N/A	
777006PRP-N048	3	-0.3	N/A	
777006PRP-N049	3	1.2	N/A	
777006PRP-N050	3	-0.3	N/A	
777006PRP-N051	3	-0.3	N/A	
777006PRP-N052	3	1.2	N/A	
777006PRP-N053	3	-0.3	N/A	
777006PRP-N054	3	-0.3	N/A	
777006PRP-N055	5	0.0	N/A	
777006PRP-N056	5	0.0	N/A	
777006PRP-N057	5	0.0	N/A	
777006PRP-N058	5	0.0	N/A	
777006PRP-N059	5	1.5	N/A	
777006PRP-N060	7	1.5	N/A	
777006PRP-N061	7	1.5	N/A	

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N062	7	0.0	N/A	
777006PRP-N063	7	0.0	N/A	
777006PRP-N064	7	0.0	N/A	
777006PRP-N065	7	0.0	N/A	
777006PRP-N066	7	0.0	N/A	
777006PRP-N067	7	7.5	N/A	
777006PRP-N068	7	3.0	N/A	
777006PRP-N069	7	4.5	N/A	
777006PRP-N070	5	0.0	N/A	
777006PRP-N071	5	0.0	N/A	
777006PRP-N072	5	1.5	N/A	
777006PRP-N073	5	1.5	N/A	
777006PRP-N074	5	0.0	N/A	
777006PRP-N081	10	-0.3	N/A	
777006PRP-N082	10	-0.3	N/A	
777006PRP-N083	10	-0.3	N/A	
777006PRP-N084	10	-0.3	N/A	

Comments:

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N001	1	21.8	N/A	
777006PRP-N002	1	15.7	N/A	
777006PRP-N003	1	-1.8	N/A	
777006PRP-N004	1	15.7	N/A	
777006PRP-N005	1	4.3	N/A	
777006PRP-N006	1	24.4	N/A	
777006PRP-N007	1	44.9	N/A	
777006PRP-N008	1	33.1	N/A	
777006PRP-N009	1	30.5	N/A	
777006PRP-N010	1	41.9	N/A	
777006PRP-N011	1	44.9	N/A	
777006PRP-N012	1	30.5	N/A	
777006QRP-N012	9	48.8	N/A	
777006PRP-N013	1	44.9	N/A	
777006PRP-N014	1	44.9	N/A	
777006PRP-N015	1	41.9	N/A	
777006QRP-N015	9	88.1	N/A	
777006PRP-N016	1	10.0	N/A	
777006PRP-N017	8	56.3	N/A	
777006PRP-N018	8	46.8	N/A	
777006PRP-N019	8	72.4	N/A	
777006PRP-N023	6	67.1	N/A	
777006QRP-N023	9	54.8	N/A	
777006IRP-N024	11	35.2	N/A	
777006PRP-N025	6	36.1	N/A	
777006QRP-N026	9	33.3	N/A	
777006IRP-N026	11	23.3	N/A	

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Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N027	6	17.6	N/A	
777006PRP-N028	6	36.1	N/A	
777006PRP-N029	6	30.1	N/A	
777006PRP-N030	4	14.4	N/A	
777006QRP-N030	9	15.0	N/A	
777006PRP-N031	4	53.7	N/A	
777006PRP-N032	4	20.3	N/A	
777006PRP-N033	4	35.4	N/A	
777006PRP-N034	4	29.5	N/A	
777006PRP-N035	1	41.9	N/A	
777006PRP-N036	1	13.1	N/A	
777006PRP-N037	1	53.7	N/A	
777006PRP-N038	1	4.3	N/A	
777006PRP-N039	1	41.9	N/A	
777006PRP-N040	1	10.0	N/A	
777006PRP-N041	1	59.3	N/A	
777006QRP-N041	9	48.8	N/A	
777006PRP-N042	1	33.1	N/A	
777006PRP-N043	1	48.0	N/A	
777006PRP-N044	1	13.1	N/A	
777006PRP-N045	1	18.7	N/A	
777006PRP-N046	1	27.5	N/A	
777006QRP-N046	9	36.5	N/A	
777006PRP-N047	1	33.1	N/A	
777006PRP-N048	1	6.9	N/A	
777006PRP-N049	1	18.7	N/A	
777006PRP-N050	1	21.8	N/A	

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N051	1	65.5	N/A	
777006PRP-N052	1	24.4	N/A	
777006PRP-N053	1	65.5	N/A	
777006QRP-N053	9	63.9	N/A	
777006PRP-N054	1	15.7	N/A	
777006PRP-N055	4	41.8	N/A	
777006PRP-N056	4	41.8	N/A	
777006PRP-N057	4	5.3	N/A	
777006PRP-N058	4	5.3	N/A	
777006PRP-N059	4	35.4	N/A	
777006PRP-N060	6	8.3	N/A	
777006PRP-N061	6	30.1	N/A	
777006PRP-N062	6	39.4	N/A	
777006PRP-N063	6	42.6	N/A	
777006PRP-N064	6	30.1	N/A	
777006PRP-N065	6	14.8	N/A	
777006PRP-N066	6	24.1	N/A	
777006PRP-N067	6	39.4	N/A	
777006PRP-N068	6	24.1	N/A	
777006PRP-N069	6	30.1	N/A	
777006QRP-N069	9	21.4	N/A	
777006PRP-N070	4	56.9	N/A	
777006PRP-N071	4	35.4	N/A	
777006IRP-N072	12	90.0	N/A	
777006PRP-N073	4	35.4	N/A	
777006PRP-N074	4	32.7	N/A	
777006PRP-N081	9	44.5	N/A	

Survey Area: A

Survey Unit: 777006

Building: 701

Description: Entire floor of B701

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm ²)	Net Beta (dpm/100cm ²)	
777006PRP-N082	9	26.3	N/A	
777006PRP-N083	9	78.3	N/A	
777006PRP-N084	9	93.4	N/A	

Comments:

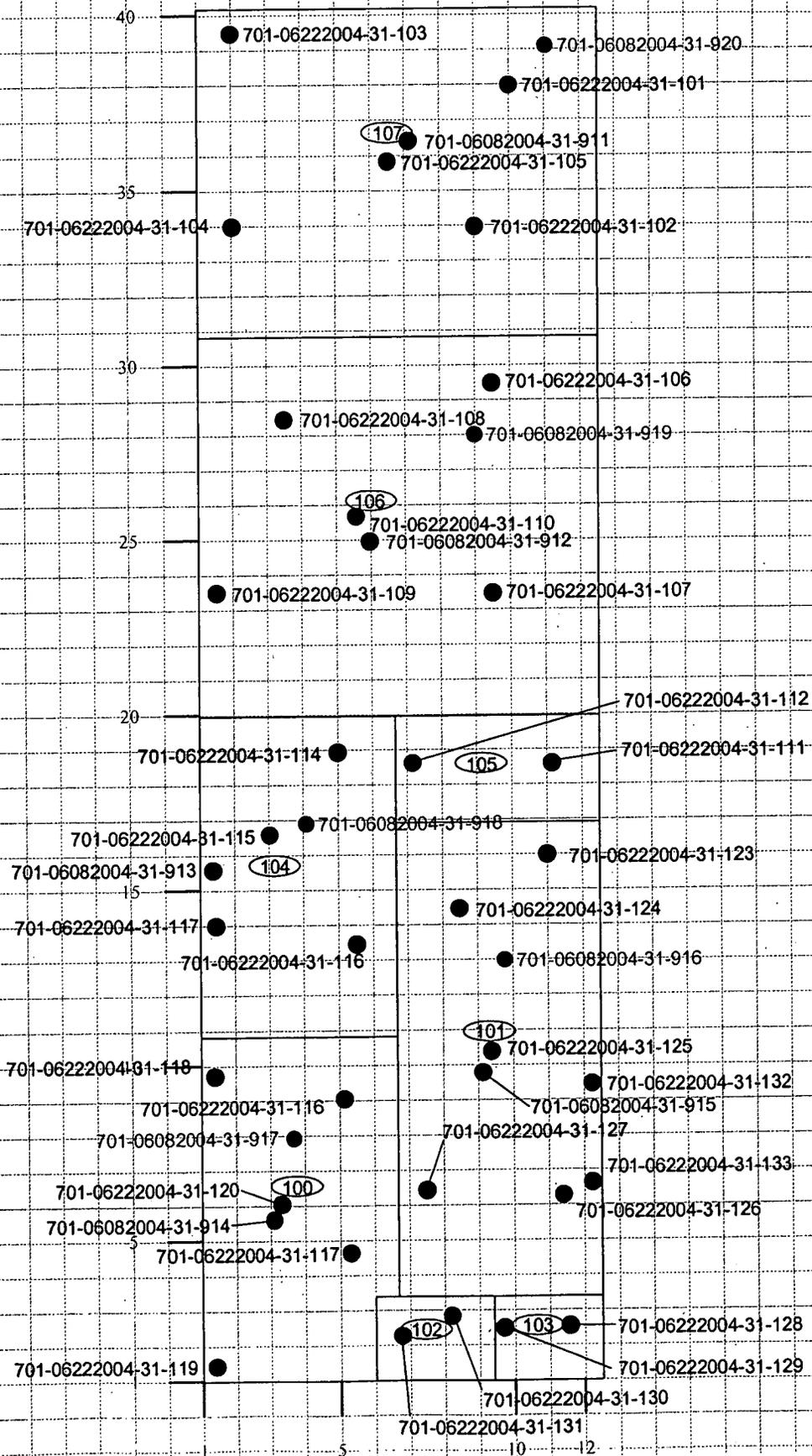
ATTACHMENT E

Chemical Data Summaries and Sample Maps

Bldg. 701

Be sample locations

- Floor smear location
- Overhead smear location



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Industrial Hygiene Information System Sample Results Report SURFACE

IHSR_SAMP...ULTS_REPORT
Date: 07/28/2004

Page: 1 of 3

Sample Number	Work Pkg	Room	Location	Type	Rln No	Analyte	Concentration
701-06082004-31-911	SURVEY	N/A	WEST ROOM CENTER	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-912	SURVEY	N/A	CENTER BAY CENTER	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-913	SURVEY	N/A	WEST OFFICE WALL FRAM	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-914	SURVEY	N/A	SE OFFICE FLOOR	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-915	SURVEY	N/A	NE OFFICE FLOOR	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-916	SURVEY	N/A	NE OFFICE AIR UNIT	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-917	SURVEY	N/A	SE OFFICE AIR UNIT	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-918	SURVEY	N/A	CENTER BAY AIR UNIT	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-919	SURVEY	N/A	CENTER WEST BAY BUSS BAR	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-920	SURVEY	N/A	WEST BAY DUCT NW CORNER	WIPE	04C0545	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06082004-31-921				BLANK	04C0545	BERYLLIUM AND B	< 0.1000 _ UG
701-06082004-31-922				BLANK	04C0545	BERYLLIUM AND B	< 0.1000 _ UG
701-06222004-31-101	SURVEY	107	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-102	SURVEY	107	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-103	SURVEY	107	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-104	SURVEY	107	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-105	SURVEY	107	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-106	SURVEY	106	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-107	SURVEY	106	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

RMRS

DOES NOT CONTAIN
OFFICIAL USE ONLY INFORMATION

Name/Org: *J. A. Meshkin/DUE* Date: *11/5/08*
Directed by: *J.A. Meshkin DUE M4713-1*

OFFICIAL USE ONLY
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Industrial Hygiene Information System

Sample Results Report

IHISR_SAMP_..._RESULTS_REPORT

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SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
701-06222004-31-108	SURVEY	106	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-109	SURVEY	106	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-110	SURVEY	106	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-111	SURVEY	105	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-112	SURVEY	105	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-114	SURVEY	104	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-115	SURVEY	104	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-116	SURVEY	104	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-117	SURVEY	104	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-118	SURVEY	100	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-119	SURVEY	100	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-120	SURVEY	100	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-121	SURVEY	100	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-122	SURVEY	100	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-123	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-124	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-125	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-126	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2

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Industrial Hygiene Information System

Sample Results Report

IHSR_SAMPLE_RESULTS_REPORT

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SURFACE

Sample Number	Work Pkg	Room	Location	Type	Rin No	Analyte	Concentration
RMRS							
701-06222004-31-127	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-128	SURVEY	103	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-129	SURVEY	103	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-130	SURVEY	102	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-131	SURVEY	102	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-132	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-133	SURVEY	101	RE-SURVEY AFTER RAD CONT FOUND	WIPE	04C0567	BERYLLIUM AND B	< 0.1000 _ UG/100CM2
701-06222004-31-134				BLANK	04C0567	BERYLLIUM AND B	< 0.1000 _ UG
701-06222004-31-135				BLANK	04C0567	BERYLLIUM AND B	< 0.1000 _ UG
701-06222004-31-136				BLANK	04C0567	BERYLLIUM AND B	< 0.1000 _ UG
Building Subtotal: 47							
Hygienist Subtotal: 47							
Company Subtotal: 47							
Grand Total 47							



ATTACHMENT F
Data Quality Assessment

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. A Data Quality Checklist was completed as required in PRO-478-RSP-16.04 *Radiological Survey/Sample Data Quality Analysis For Final Status Survey*. 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 beryllium).

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

All relevant Quality records supporting this report are maintained in the B776/777 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.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic DCGLw (100 dpm/100cm²).

Summary

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

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

Table F-1 V&V of Radiological Surveys – B701

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		COMMENTS
QUALITY REQUIREMENTS				
	Parameters	Measure	Frequency	
ACCURACY	Initial calibrations	80%<x<120%	≥1	Calibration using Alpha Group procedure and approved technicians.
	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
PRECISION	Field duplicate measurements for TSA	≥13% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units 777001, 777002 & 777003	statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random 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 ≤ ½ DCGL _w per MARSSIM guidelines.

Table F-2 V&V of Beryllium Results – B701

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
QUALITY REQUIREMENTS				
		Measure	Frequency	
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB: 	Johns Manville Corp. Denver, Co.	
		RIN: 	04C0545 04C0567	
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 2 facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	Laboratory Control Sample Duplicate	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 0.10ug/100cm ²	all measures	

Table F-3 Data Completeness Summary – B701

ANALYTE	Building/Area/Unit	Sample Number Planned (Real & QC) ^A	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Survey Area: A Survey Unit: 707004 Interior	10 Random swipe samples, 5 floor, 5 overhead	10 Random swipe samples, 5 floor, 5 overhead	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 04C0545 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²). See attached map for sample locations.
Beryllium	Survey Area: A Survey Unit: 707006 Interior floor	32 Random swipe samples on floor	32 Random swipe samples on floor	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 04C0567 No results above action level (0.2ug/100cm ²) or investigative level (0.1 ug/100cm ²). See attached map for sample locations.
Radiological	Survey Area: A Survey Unit: 707006 Interior floor	75 α TSA(75 – Random/Systematic) and 75 α Smears (75 -Random/Systematic) 9 QC TSA 100% Scan of floor	75 α TSA (75 – Random/Systematic) and 75 α Smears (75 - Random/Systematic) 9 QC TSA 100% Scan of floor.	Elevated TSAs were investigated at 3 locations. All values were below PDS unrestricted release levels without remediation No results above action level Except for plated over contamination, no elevated contamination at any location exists. All values below PDS unrestricted release levels	Transuranic DCGLs Elevated locations > DCGL _{EMC} were detected and plated over for later remediation..
Radiological	Survey Area: A Survey Unit: 707004 Interior walls and ceiling	15 α TSA (15 – Random) and 15 α Smears (15 –Random) 2 QC TSA 5% scan of all accessible surfaces	15 α RSA(15 – Random) and 15 α Smears (15-Random) 2 QC TSA 5% scan of all accessible surfaces	No elevated contamination at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level
Radiological	Survey Area: A Survey Unit: 707005 Building exterior	15 α TSA (15 – Random/Systematic) and 15α Smears (15 – Random/Systematic) 2 QC TSA 5% scan of all accessible surfaces	15 α RSA(15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 5% scan of all accessible surfaces	No elevated contamination at any location from DOE added nuclides; all values below PDS unrestricted release levels	Transuranic DCGLs No results above action level

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