Roberts, Sarah

From: David Kruchek
Sent: Monday, December 08, 2003 7:41 AM
To: SJRob@aol.com; Roberts, Sarah
Cc: Denise Onyskiw; Steve Gunderson
Subject: Re: Revised PDSR

Thanks for making the changes.

Now, except for the reference to the Maintenance Shop in the Introduction, as long as DOE and Denise are Ok with this then activities can proceed. But we should get a final official document and request for approval from DOE. Prior to this, a Contact Record would suffice for the Administrative Record. This needs to be discussed with Denise.

For your information, there also needs to be an attachment that discusses the Data Quality Assessment details associated with each PDSR as described in Section 6. This should be provided in the final PDSR. You could check with Duane Parsons, or Mike Auble (B566 PDSR Attachment E).

>>> <SJRob@aol.com> 12/04/03 12:07PM >>>
Very good catch, Dave. Not sure how that got omitted.

Attached is the revision. If you have any other concerns, please let me know.

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Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 774, North Dock Area

REVISION 0

December 4, 2003

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

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PRE-DEMOLITION SURVEY REPORT (PDSR)

BUILDING 774, North Dock Area

REVISION 0

December 4, 2003

Prepared by: _____ Date:_____
Sarah Roberts, Radiological Engineer

Reviewed by: _____ Date:_____
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Approved by: _____ Date:_____
Chris Gilbreath, B771 Deputy Project Manager

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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
RFFO	Rocky Flats Field 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 enable compliant disposition and waste management of the Building 774 North Dock Area (Rooms 212, 250, and 251). Because this Type 3 area will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS included the Rooms 250 and 251 interior floor, walls, ceiling, and exterior surfaces, and the Room 212 slab. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both chemical and radiological characterization. The characterization was built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project.*

Based upon the results of this PDSR, the 771 North Dock Area meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. Building 774 North Dock Area can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All under-slab utilities and piping systems shall be managed as radioactive waste during slab demolition, unless additional data collected during demolition proves otherwise. The common wall between the Room 250 South Wall and 774 Building Proper shall not be demolished until the Building 774 PDS is completed verifying the common wall is acceptable for demolition. 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 enable compliant disposition and waste management of the Building 774 North Dock Area. The B774 North Dock consists of rooms 212, 250, and 251. Because this Type 3 building 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 the 771 North Dock Area meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan prior to demolition. Building surfaces characterized as part of this PDS included the B774 North Dock Area interior floor, walls, ceiling, and exterior surfaces. Environmental media beneath and surrounding this area was not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is the Building 774 North Dock Area. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 3 facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for the Building 774 North Dock Area. 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 is built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

1.1 Purpose

The purpose of this report is to communicate and document the results of the Building 774 North Dock Area 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 the Building 774 North Dock Area. Environmental media beneath and surrounding the facilities are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process 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.

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2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. The Building 771 Hazards Characterization was performed in June 2001 (Refer *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0). Based on the characterization results, radiological contamination was identified in Building 774, and the Building 774 North Dock Area was identified as a Type 3 facility (primarily due to the physical proximity of the area to Building 774). Therefore, a PDS was required before demolition of the facility.

The B774 North Dock Area is considered a Type 3 facility due to its physical proximity to Building 774. However, the survey units that encompass the 774 North Dock Area are classified based on contamination potential, per Section 3.0 of the PDSP.

This report documents the results of that PDS. The hazards characterization results and historical review (refer to Attachment E) were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. Characterization documentation is located in the Building 771 Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

The Building 774 North Dock Area 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 a review of the characterization data, historical and process knowledge, in-process survey data, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to survey packages 771046 and 771102). A Survey Unit Overview Map is presented in Attachment A. Based on hazards characterization data and historical and process knowledge, transuranic isotopes are the primary contaminants of concern in Building 774. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 771 Characterization Project files.

The Building 774 North Dock Area 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 and C, *Radiological Data Summary and Survey Maps.*

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774, Rooms 250 and 251 Interior, and Room 212 Slab – (Survey Unit 771046)

The interior surfaces of Rooms 250 and 251, and the 212 slab were classified as a Class 2 survey unit. The classification was based on the potential for contamination due to process history, although no contamination in excess of the unrestricted release limits was identified during the equipment removal and room strip-out. A total of 15 random TSA and RSA measurements, and 15 media samples were collected. Surface scan surveys of 100% of the floor and lower wall surfaces (335 m^2), and 16% of the upper walls/ceiling (57 m^2) were also performed.

The 15 media samples were analyzed as one batch via gamma spectrometry. For conservatism, it is assumed that the total activity for the batch could be contained in one sample (i.e., the mass of all samples was used to calculate the total activity value, which was compared to the $DCGL_W$).

All scans, surveys, and media sample results in survey unit 771046 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771046 are presented in Attachment B, *Survey Unit 771046 Radiological Data Summary and Survey Map.*

774, 250 and 251 Exterior – (Survey Unit 771102)

The exterior surfaces of Rooms 250 and 251 were classified as a Class 3 survey unit. The classification was based on the low potential for contamination from yard area activities. A total of 15 random TSA and RSA measurements were collected. Surface scan surveys of 100% of the lower walls below 2 meters (~ 70 m^2), and 10% of the upper walls above 2 meters (~ 18 m^2) were also performed. In addition, six (6) TSA and RSA measurements were collected on the roof from three (3) locations. Measurements were collected on top of the tar media and below the tar media (base of roof).

Elevated measurements results (in excess of 100 dpm/100 cm^2) were detected along the metal flashing adjacent to the roof. Five (5) coupon samples were collected to verify the presence of Po-210, a naturally-occurring radon progeny, and the absence of plutonium isotopes.

Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771102 are presented in Attachment C, *Survey Unit 771102 Radiological Data Summary and Survey Map.*

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, with the exception of beryllium (refer to Section 4.2).

4.1 Asbestos

No asbestos-containing materials are present in these areas.

4.2 Beryllium (Be)

The B774 North Dock Area is not and has never been a beryllium-controlled area. However, current beryllium data is not available for the area. Therefore, per the Beryllium Sampling Decision Tree in the PDSP, sixteen (16) random beryllium smear samples were collected in accordance with the PDSP and the *Beryllium Characterization Procedure,* PRO-536-BCPR, Revision 0, September 9, 1999.

All beryllium smear sample results were less than the investigative limit of 0.1 $\mu g/100cm^2$. PDS beryllium laboratory sample data and location maps are contained in Attachment G, *Chemical Data Summaries and Sample Maps*.

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

Based upon the *B771 and B774 Hazards Characterization Report, 771 Closure Project*, Revision 0, dated June 12, 2001, personnel interviews, facility walk-downs, and historical process knowledge (WSRIC/WEMS), the B774 North Dock Area did not contain hazardous waste storage units. A visual inspection of the building by 771/774 Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no sampling for RCRA/CERCLA constituents is required. Analysis of paint throughout the 771/774 complex has revealed lead levels above regulatory limits in only one out of 61 samples taken, and the elevated level was only found in the stack exhaust tunnel. However, this sample was on an orange-colored sealant.

The concrete generated from the demolition of the B774 North Dock Area can be used for onsite recycling in accordance with the Concrete Recycling RSOP.

4.4 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 771/774 Environmental Compliance Personnel walk-downs, the B774 North Dock Area 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 the B774 North Dock Area.

Per the *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, PCBs are present in some applied paints (i.e., on several walls and floors within the B771 and B774 Contamination Areas, and within the 771/776 Tunnel). Because additional paint sampling was not performed in the B774 North Dock Area, and because painted surfaces remain in the area, any painted debris generated during demolition that is not recycled on-site will be disposed of a PCB Bulk Product waste.

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5 PHYSICAL HAZARDS

Physical hazards associated with the B774 North Dock Area consist of those 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, therefore, does not present hazards associated with building deterioration.

The common wall between the B774 North Dock Area and B771 Proper will not be demolished until the PDS is completed at a later date, verifying the common wall is acceptable for demolition.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Building 774 North Dock Area, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B and C) 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.

The DQA Checklists are provided in the individual survey unit packages (located in the Building 771 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 and 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

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7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Building 774 North Dock Area will generate a variety of wastes. All wastes can be disposed of as PCB Bulk Product waste or as sanitary waste, following the removal of the asbestos containing materials (ACM) discussed in Section 4.1, and the potentially contaminated drain discussed in Section 3. Concrete can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, the Building 774 North Dock Area is classified as an RFCA Type 3 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Based upon the results of this PDSR, the 771 North Dock Area meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan and is ready for demolition. The PDS for the Building 774 North Dock Area 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 Soil Disturbance Permit process and in compliance with RFCA.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist on the North Dock Area structural surfaces (refer to Attachment E, Historical Review). All beryllium results obtained during the PDS were below the investigative level of 0.1 $\mu g/100cm^2$. 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.

Radiological contamination in excess of the PDSP Table 7-1 limits was not detected in the Building 774 North Dock Area.

Based upon this PDSR, the Building 774 North Dock Area can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. All 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.

9 REFERENCES

B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.

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*

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

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

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

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

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 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

ATTACHMENT B

Survey Unit 771046
Radiological Data Summary and Survey Map

ATTACHMENT C

Survey Unit 771102
Radiological Data Summary and Survey Map

ATTACHMENT D

Chemical Data Summaries and Sample Maps

ATTACHMENT E

Historical Review