

RECEIVED

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Benevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado
<http://www.cdphe.state.co.us>

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090



Colorado Department
of Public Health
and Environment

February 25, 2005

Mr. Joseph A. Legare
Director, Project Management Division
U.S. Department of Energy, Rocky Flats Project Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

Dear Mr. Legare:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division has received your letters dated February 25, 2005 which transmit the remaining 35 of the 46 total final survey unit reports and the Final Pre-Demolition Survey (PDS) Summary Report for Building 776/777. Edd Kray of our staff has reviewed these survey unit reports and concur that they adequately reflect the current radiological status of the units. CDPHE also approves the Final PDS Summary Report.

Based upon acceptance of these reports, CDPHE hereby provides approval for the initiation of demolition of Building 776/777.

Preparation of this building for demolition has been a long and difficult process. We applaud the hard and careful work of hundreds of Rocky Flats employees who decontaminated this structure to "As Low as Reasonably Achievable" levels. Their routine and timely collaboration with CDPHE staff made the regulatory oversight process and our agreement on the final building condition much easier than we had predicted when we began scoping this D&D project a few years ago.

The demolition of this contaminated building will require both careful execution and the use of numerous special controls. Weather conditions, especially the wind, will be a critical factor in the control of dust during the demolition. We anticipate close collaboration between our respective staffs during the process.

ADMIN RECORD

1/32

5400

B776-A-000316

If you have any questions regarding this correspondence, please contact me at (303) 692-3367, or Edd Kray at (303) 966-2115.

Sincerely,

A handwritten signature in black ink, appearing to read "Steven H. Gunderson", with a long horizontal flourish extending to the right.

Steven H. Gunderson
RFCA Project Coordinator

cc: Edd Kray, CDPHE
Sam Garcia, EPA
Administrative Record, T130G

Mark Aguilar, EPA
Dave Shelton, Kaiser-Hill

**ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE**

**Decommissioning
Closeout Report
for the
776/777 Closure Project**

Revision 0

July 21, 2005

Reviewed for Classification

Name: *W. J. [Signature]*

Date: *7/21/05*

1.0 Introduction

In accordance with the Building 776/777 Closure Project Decommissioning Operations Plan (DOP), a closeout report is required upon completion of decommissioning activities. In accordance with the Building 776/777 DOP, Section 4.18.4, this closeout report will consist of a brief description of the work completed, including:

- Verification that remedial action goals have been met;
- Remedial action description;
- Dates and duration of specific activities;
- Any modifications to the original DOP;
- Final sampling and analysis reports;
- A description of the quantity and characteristics of the wastes generated and how the wastes were stored or disposed;
- Site reclamation; and
- Demarcation of wastes left in place.

The Building 776/777 Closure Project comprises Building 776/777 and various support facilities located within the Site's Industrial Area. The DOP identified Building 776/777 as a Type 3 facility; Building 730 as a Type 2 facility; and Buildings 701, 702, 703, 710, 712, 712A, 713, 713A, and 781 as Type 1 facilities. Building 701 was re-characterized to a Type 2 facility as a result of the pre-demolition survey process as documented in Minor Modification #11 to the Building 776/777 DOP. This closeout report addresses all facilities within the Building 776/777 Closure Project. Figure 1 provides a map showing the locations of the Building 776/777 Project facilities.

Documentation that was submitted as part of this project, such as Pre-Demolition Survey Reports (PDSRs), will not be included in this report; instead, references to these documents are provided and a copy of the Administrative Record (AR) index for this project is included in Appendix A of this report. When completed and approved by DOE and the Lead Regulatory Agency (LRA), this Decommissioning Closeout Report will be submitted to the 776/777 Closure Project Administrative Record Post-decisional File.

1.1 Building Descriptions

Building 776/777 (Type 3) was a two-story structure with a partial basement and common wall separating Buildings 776 and 777. A tunnel located at the northwest corner of Building 776 connected to Building 771, an above-ground crossover on the east side of Building 777 connected to Building 779, and two hallways on the south side of Building 776 connected to Building 778.

The total floor area of both buildings was 224,600 ft²; this includes ten additions to the building that occurred since construction. The original Building 776/777 was constructed in 1955; the

3.2.3 Pre-Demolition Survey

For Building 776/777, the pre-demolition survey was performed in accordance with the approved *Radiological Pre-Demolition Survey Plan* dated August 8, 2003 and with the *Project-Specific Non-Radiological Characterization Plan for Building 776/777* dated September 16, 2003. For other facilities within the 776 project, final radiological surveys were conducted in accordance with the site Pre-Demolition Survey Plan (PDSP) prior to demolition. The results of these surveys demonstrated that Buildings 702, 703, 710, 712, 712A, 713, and 713A met the unrestricted release limits specified in the PDSP prior to demolition. These facilities were all managed as sanitary waste for disposal. Part of Building 701 did not meet unrestricted release, and this portion was managed as low level waste. All of Building 730 was managed as low level waste. The Building 777 annex met unrestricted release levels and was managed as sanitary waste, with the remainder of Building 776/777 managed as low level waste. As previously stated, although Building 781 met unrestricted release levels, it was managed as low level waste due to its small volume and location below ground immediately adjacent to Building 777.

The PDSRs included information on chemical contamination as well as radiological. Hazardous substances and wastes were removed from all buildings prior to demolition (with two exceptions noted below) and all RCRA units were appropriately closed. RCRA unit closures are summarized in Appendix B. Asbestos abatement was also completed prior to demolition in accordance with Colorado Air Quality Control Commission (CAQCC) Regulation No. 8, as certified in the Demolition Notification submitted to CDPHE. Beryllium surveys demonstrated that the buildings met the unrestricted release levels. Two instances were documented where hazardous constituents were not removed prior to demolition:

1. The Building 777 annex had a non-friable skim-coat of asbestos over the concrete block walls.
2. A 6,000 pound lead collar in the wall of room 430 was too large to remove prior to demolition, so permission was received to remove it during demolition and manage as low level mixed waste.

4.0 Waste Disposition

The 776/777 Closure Project generated the following waste types: sanitary, non-hazardous non-radioactive, hazardous, low level, low level mixed, TSCA, low level TSCA, transuranic (TRU), and transuranic mixed. Table 2 documents the quantity and disposal sites for these waste types and materials for all the buildings in the 776/777 cluster. Wastes generated from November 1999 when the 776/777 DOP was approved until June 2005 at the completion of demolition are included in these waste totals. A small percentage of the low level waste totals shown below include soil from B-Pond, Building 776/777 ER soil remediation, and Building 559 ER soil remediation that was co-loaded with Building 776/777 demolition debris in gondola rail cars.

In addition to the site RAAMP samplers, the project conducted local workplace air monitoring using eleven air samplers in close proximity to the Building 776/777 demolition activities. The air filters were collected daily throughout the entire demolition timeframe, and were counted for alpha contamination. All samples were below the minimum detectable activity (MDA).

2.6 Project Milestones

All work activities were conducted using the Integrated Work Control Program (IWCP). The following outlines the actual sequence of events and major milestones:

- November 5, 1999 – 776/777 DOP Revision 0 approved
- May 23, 2000 – Approval of DOP Modification #4 allowed management of hazardous remediation waste under CERCLA, rather than RCRA.
- August 9, 2000 – completed draining four mixed residue tanks to a physically empty status (T-344, T-345, T-360, T-370).
- October 11, 2000 – initial entries were made into the Size Reduction Vault (SRV) in supplied breathing air to clean out loose debris and verify RCRA stable status of three mixed residue tanks in the vault.
- December 2000 – Completed draining and raschig ring removal from the final three mixed residue tanks (SR-3, 4, and 5) and verified that the mixed residue tanks in the SRV were empty.
- August 29, 2001 – Contact record documents CDPHE permission to manage legacy gloveboxes (i.e. removed from service prior to approval of DOP) as remediation waste and permission to transfer remediation waste from Building 707 to Building 776/777 for size reduction.
- September 2001 - The Pre-Demolition Survey Report (PDSR) for the Type 1 outbuildings/cooling towers was approved by DOE and CDPHE. This includes buildings 702, 703, 712, 712A, 713, and 713A.
- December 2001 – completed demolition of the Type 1 outbuildings/cooling towers (702, 703, 712, 712A, 713, and 713A.)
- January 2002 - In-process radiological characterization was initiated on the first floor using gamma spec technology.
- April 30, 2002 - Downgraded the 776/777 limited area to a property protection area.
- May 2002 - A significant accomplishment was completion of set 51, Molten Salts, ahead of schedule.
- June 2, 2002 – CDPHE approved the extension of the Mixed Residue Consent Order Commitment date for B776/777 from December 31, 2002 to February 28, 2005.
- June 10, 2002 – Notification provided to CDPHE to cease effluent air sampling for all stacks and vents in B776/777 due to entering active decommissioning, per the site monitoring agreement.

July 2002 - Set 78 (RCRA overhead piping) was completed in July. This set included the majority of the remaining mixed residue piping.

- August 2002 - The final mixed residue tank in B777 was removed and packaged. Tank DL-776 was previously located in Room 131, Set 4.
- September 2002 - Removed the pilot and production RCRA Fluidized Bed Incinerators (sets 61 and 63); the supercompactor (set 64), the Size Reduction Vault (set 60), a glovebox line in Room 131 (set 4), and the glovebox dry-air system on the 2nd floor (set 72).
- December 2002 - The major accomplishment was the completion of set 84, buried equipment, which included characterization of below grade features filled with concrete or gravel where equipment from the 1969 fire was believed to be buried.
- December 2002 - Closed by removal two RCRA mixed residue tanks: T-344 and T-345, associated with the Advanced Size Reduction Facility (ASRF). These were the last two remaining mixed residue tanks in B776.
- July 1, 2003 - Major modification to DOP for demolition approved by CDPHE.
- August 18, 2003 - CDPHE approved the Building 776/777 Radiological Pre-Demolition Survey Plan.
- September 2003 - Completed Set 66 (Advanced Size Reduction Facility), and completed draining and removing the remaining equipment subject to the Mixed Residue Consent Order.
- September 26, 2003 - CDPHE approved the Pre-Demolition Survey Report (PDSR) for Buildings 710 and 781. This PDSR confirmed that these buildings are Type 1 facilities.
- September 30, 2003 - CDPHE approved the Project Specific Non-Radiological Characterization Plan for Building 776/777, which addressed characterization prior to demolition.
- December 2003 - Completed Set 69 (RCRA process waste T-Tanks).
- December 2003 - Liquid and sludge were pumped out of Building 730 pit, Tank T9 east and T9 west into holding tanks, and all concrete surfaces inside the tanks were painted. Electrical and mechanical equipment was stripped out of the vault above the tanks, and this area was also encapsulated. This completed stabilization of Building 730 in preparation for transfer to ER.
- January 2004 - Transite wall panel removal/replacement was begun for asbestos abatement purposes. Approximately 60% of the exterior walls were constructed of two layers of transite panels. These were removed as part of the asbestos abatement effort prior to demolition, and were replaced with non-asbestos panels.
- June 2004 - Completed decontamination of the B776/777 main plenum (PL-250). Also completed asbestos abatement of the exterior transite panels.
- June 11, 2004 - Closeout of mixed residue compliance order on consent was approved by CDPHE following removal of final mixed residue piping system from Building 776.
- September 2004 - Completed decontamination, final surveys and encapsulation in Areas I, II and III (north, east and central portions of B777). Completed the removal of highly contaminated walls and floors from the Size Reduction Vault (SRV). Completed the demolition of B701 and B710. ER initiated demolition of the B730 under-ground storage tank north of B776.

- December 2004 - Construction began on the B776 water retention basin to be used for collection of contaminated dust suppression water and precipitation during demolition.
- December 2004 – ER completed demolition of the B730 under-ground storage tank north of B776 and remediation of the carbon tetrachloride source.
- January 26, 2005 - The final RCRA secondary containment area (room 131) was closed as documented in a Contact Record with CDPHE.
- February 2005 - Completed removal of highly contaminated floors in portions of Rooms 118, 134W, 134E, and 154. Demolished many interior non-load-bearing cinderblock walls to aid with dust control during demolition. (Rubble remained to be loaded out with building.) Completed core-boring vault walls and some buried equipment pits and placed expanding grout to fracture concrete. Completed decontamination, final surveys, and encapsulation in the remaining survey units.
- February 25, 2005 – CDPHE approved final B776/777 PDS Summary Report and gave approval for initiation of demolition
- March 2, 2005 – Demolition of B777 annex began.
- March 4, 2005 – Demolition of contaminated portion of B776/777 began.
- May 5, 2005 – Demolition of above-grade portions of B776/777 was completed.
- June 17, 2005 – Mobile water treatment system began treatment of 776 retention basin water.
- June 23, 2005 – Demolition of below-grade portions of B776/777 was completed. Two large metal pieces from buried equipment pit D were hoisted into rail cars.
- June 27, 2005 – Demolition area was downposted from a Contamination Area (CA) to a Soil Contamination Area (SCA).

3.0 Project Documentation

This section describes the documentation that was prepared to satisfy the requirements in the Rocky Flats Cleanup Agreement (RFCA) for decommissioning the Building 776/777 cluster. Documentation that was submitted as part of this project is referenced; a copy of the AR index for this project is included as Appendix A of this report.

3.1 DOP Modifications

As previously stated, the Building 776/777 DOP was approved by CDPHE on November 5, 1999. There were eleven minor modifications and one major modification made to the DOP:

DOP Modification #1 was approved by CDHPE on December 15, 1999. The modification included unit specific closure information for the RCRA Units located in set 62 (i.e., the interim status Fluidized Bed Incinerator [FBI] Oil Storage Tanks T-1 and T-2).

DOP Modification #2 was approved by CDPHE on February 24, 2000. The modification included addition of an agreement that partial closure of a RCRA-regulated unit may be conducted prior to the submittal of the unit-specific closure information required by Section 4.5.2 of the DOP, provided approval is received from the LRA and the agreement is documented via a Contact Record.

Rocky Flats Environmental Technology Site

BUILDING 776/777 CLOSURE PROJECT DECOMMISSIONING OPERATIONS PLAN

REVISION 0

November 3, 1999

GENERAL

REVISION 0

Reviewed for Classification/UCNI

By: /s/ S.G. Mathiasmeier

Date: 06/12/00

RECORD OF MODIFICATIONS

Revision 0	11/3/99	Revision 0 contains 271 pages
Modification #1 (minor modification)	12/15/99	<p>Appendix H has been inserted to provide for the addition of RCRA unit-specific closure information for SET #62.</p> <p><u>List of revised/new pages:</u></p> <ol style="list-style-type: none"> 1. Cover page (revised to show total of 279 pages) 2. Page 2 (revised to track modifications to this DOP) 3. Page 8 (revised to show addition of Appendix H) 4. Pages 272-279 (added to provide RCRA unit-specific closure information)
Modification #2 (minor modification)	02/24/00	<p>Section 4 has been revised to provide for the partial closure of a RCRA-regulated unit upon engagement of the consultative process and approval of the LRA.</p> <p><u>List of revised pages:</u></p> <ol style="list-style-type: none"> 1. Page 41, Section 4.5.2 (second paragraph)
Modification #3 (minor modification)	03/03/00	<p>RCRA unit-specific closure information for SETs 7, 11, 26, and 61 has been added to Appendix H.</p> <p><u>List of revised/new pages:</u></p> <ol style="list-style-type: none"> 1. Cover page revised to show total of 290 pages. 2. Closure information sheets and drawings for SETs 7, 11, 26, and 61 added to Appendix H (11 pages)
Modification #4 (minor modification)	05/23/00	<p>This modification to the DOP provides the framework for managing remediation wastes generated during decommissioning</p> <p><u>List of revised/new pages:</u></p> <ol style="list-style-type: none"> 1. Cover page revised to show total of 287 pages. 2. Page 12 of the Executive Summary, third full paragraph - reference to development of site-wide strategy for managing remediation waste deleted (information added to OO-776-374, Management Requirements for Remediation Waste). 3. Page 75, Section 6.1, RCRA/CERLA Transition - reference to development of site-wide strategy for managing remediation waste deleted; reference to OO-776-374 added. 4. Page 84, Section 6.5, Waste Accumulation, Staging, Storage, and Treatment - deleted (information moved to OO-776-374). 5. Page 87, Section 7.2 - reference to development of a "sitewide strategy for managing remediation and to on-site treatment deleted (information moved to OO-776-374).

Modification # and Type	Effective Date	Notes
Modification #5 (minor modification)	09/13/00	<p>Table 6 has been revised to add 7 container storage units, and RCRA unit-specific closure information for SET 55 has been added to Appendix H.</p> <p><u>List of revised/new pages:</u></p> <ol style="list-style-type: none"> 1. Cover page (revised to show total of 290 pages) 2. Page 39, Section 4.5 – Seven container storage units added to Table 6. 3. Pages 288-290 - Closure information sheet and drawing for SET 55 added to Appendix H.
Modification #6 (minor modification)	<p>02/22/01 CDPHE approval.</p> <p>03/15/01 Document Control effective date</p>	<p>Table 6 has been revised to add mixed residue tank V-747A, and RCRA unit-specific closure information has been added to Appendix H for SETs 4,5,6, 10,11,18,21,22,27,29,34,35,36, and 52.</p> <p><u>List of revised/new pages:</u></p> <ol style="list-style-type: none"> 1. Cover page (revised to show total of 337 pages) 2. Page 39, Section 4.5 – Tank V-747A added to Table 6. 3. Page 271, Appendix H cover sheet – added SETs 4,5,6, 10,11,18,21, 22,27,29,34,35,36, and 52. 4. Pages 291-337 - Closure information sheets and drawings for SETs 4,5,6,10,11,18,21,22,27,29,34,35,36, and 52 added to Appendix H.
Modification #7 (minor modification)	06/27/01	<p>This modification to the DOP includes updates to sections 4.5.2 and 6.3 concerning RCRA closures and CERCLA treatment units, respectively.</p> <p><u>List of revised pages:</u></p> <ol style="list-style-type: none"> 1. Page 3 (revised to track modifications to this DOP) 2. Pages 4-10 (updated Table of Contents) 3. Page 41, Section 4.5.2 (revised language) 4. Page 83, Section 6.3 (revised language) 5. Page 84 (revised typos in section numbers 6.3 and 6.4)

11.1	Roles and Responsibilities	109
11.1.1	Internal Organizations.....	109
11.1.2	External Organizations.....	110
11.1.3	Working Relationships	110
11.2	Team Organization Structure	111
11.3	Team Processes	113
11.4	Responsibilities	113
11.5	Team Interfaces	114
12.0	COMMENT RESPONSE SUMMARY	117
13.0	REFERENCE INFORMATION	119
13.1	Acronyms and Abbreviations	119
13.2	Definitions.....	122
13.3	References.....	130

APPENDICES:

Appendix A	Set Descriptions, Endpoints, and Hazard Matrix.....	133	
Appendix B	Ground Water Action Levels	187	
Appendix C	Building 776/777 Closure Project Administrative Record	191	
Appendix D	Building 776/777 Closure Project Schedule.....	193	
Appendix E	Weekly Waste Chemical Inspection Log	229	
Appendix F	Building 776/777 Closure Project ARARs.....	235	
Appendix G	Comment Response Summary	247	
Appendix H	RCRA Unit-Specific Closure Information Sheets	271	Mod#1
	- SET 62	273	
	- SETs 7, 11, 26, 61	277	Mod#3
	- SET 55	288	Mod#5
	- SETs 4, 5, 6, 10, 11, 18, 21, 22, 27, 29, 34, 35, 36, 52	291	Mod#6

the contaminated material will be managed under the RFETS Chronic Beryllium Disease Prevention Program (CBDPP), (Ref. 11).

4.4.4 Polychlorinated Biphenyls

If a material meets the definition of "PCB bulk product waste," it may be disposed of as TSCA waste at a permitted solid waste disposal facility without further characterization. If the disposal facility is not an approved commercial PCB storage or disposal facility, the generator must provide written notification to the facility in accordance with 40 CFR 762.62.

If a material meets the definition of "PCB remediation waste" (i.e., potentially containing PCBs from historical releases), the free-release concentration is 1 ppm PCBs for high-occupancy areas, as determined in accordance with the requirements of 40 CFR 761.61, Subpart G. Higher release levels for PCB remediation waste are permissible, but carry specific restrictions on how the material may be dispositioned.

4.4.5 Asbestos Containing Material

ACM will be managed in compliance with 5 CCR-1001-10, Regulation No. 8. If any one sample of a sample set representing a homogeneous medium results in a positive detection (i.e., > 1% by volume), the material is considered ACM; otherwise the material is considered non-ACM.

ACM that is friable or will be made friable during demolition activities will be removed prior to demolition. An asbestos removal action will be considered complete when, based on five air samples ($\geq 1,199$ liters/sample for a 25 millimeter filter or $\geq 2,799$ liters/sample for a 37 millimeter filter), the average concentration of asbestos, as analyzed by transmission electron microscopy, does not exceed 70 asbestos fibers/mm².

4.5 Closure of RCRA-Regulated Units

RCRA-regulated units located within the Building 776/777 Cluster will be closed in compliance with the closure performance standards described in this section. Table 6 presents a list of the RCRA-regulated units in the Building 776/777 Cluster, including unit number and associated SET number, location, permit status, the type of closure currently planned for each unit. Closure activities for RCRA-regulated units located in the basement of Building 776/777 will begin during deactivation and continue through decommissioning. Details concerning the disposition of the basement foundation/slab(s) will be provided in the demolition modification to this DOP, which will be submitted for a public comment period equivalent to that for the initial Building 776/777 DOP.

4.5.1 Closure Options

Closure may be conducted in two stages: first by rendering a unit or portion of a unit "RCRA stable" (if a permitted or interim status unit) or "physically empty" (if a mixed residue tank), then by completing the activities associated with the closure options described below.

Table 6. Building 776/777 RCRA-Regulated Units

Room #	RCRA Unit	SEI #	Description	Status	Proposed Closure Ø
134	776.1	67	Container Storage Area	Permitted	RCRA Stable/Removal
134 (ASRF)	776.1	66	Container Storage Area (ASRF)	Permitted	RCRA Stable/Removal
154	776.1	54	Container Storage Area	Permitted	RCRA Stable/Removal
159	776.1	57	Container Storage Area	Permitted	RCRA Stable/Removal
237	776.1	70	Container Storage Area	Permitted	RCRA Stable/Removal
208	776.1	70	Container Storage Area	Permitted	RCRA Stable/Removal
127	776.1	68	Container Storage Area	Permitted	RCRA Stable/Removal
127	776.2C	69	Process Waste Tank T-2A	Permitted	RCRA Stable/Removal
127	776.2D	69	Process Waste Tank T-2B	Permitted	RCRA Stable/Removal
127	776.2A	69	Process Waste Tank T-1A	Permitted	RCRA Stable/Removal
127	776.2B	69	Process Waste Tank T-1B	Permitted	RCRA Stable/Removal
134	776.3	66	ASRF (Treatment)	Permitted	RCRA Stable/Removal
118	44.01	62	Oil Storage Tank T-2	Interim Status*	RCRA Stable/Removal
118	44.02	62	Oil Storage Tank T-1	Interim Status *	RCRA Stable/Removal
118	49.01	63	FBI Production Unit (Treatment)	Interim Status	RCRA Stable/Removal
135	49.02	61	FBI Pilot Unit (Treatment), including Tanks T-1 & T-2	Interim Status*	RCRA Stable/Removal
146	61	60	SRV (Storage)	Interim Status	RCRA Stable/Removal
146	61	60	SRV (Treatment)	Interim Status	RCRA Stable/Removal
134	74	64	SARF	Interim Status	RCRA Stable/Removal
152	90.85	53	Container Storage (Vault)	Mixed Residue	RCRA Stable/Removal
1	90.99	68	Container Storage (Basement)	Mixed Residue ⊕	RCRA Stable/Removal
134	94.001	55	Tank SRV-3	Mixed Residue ⊕	Physically Empty/Removal
134	94.002	55	Tank SRV-4	Mixed Residue ⊕	Physically Empty/Removal
134	94.003	55	Tank SRV-5	Mixed Residue ⊕	Physically Empty/Removal
134	94.005	66	Tank T-344	Mixed Residue ⊕	Physically Empty/Removal
134	94.006	66	Tank T-345	Mixed Residue ⊕	Physically Empty/Removal
134	94.007	52	Tank T-360	Mixed Residue ⊕	Physically Empty/Removal
134	94.008	52	Tank T-370	Mixed Residue ⊕	Physically Empty/Removal
146	94.009	60	Ball Mill Washer (Treatment)	Mixed Residue ⊕	Physically Empty/Removal
146	94.010	60	Collection Pan	Mixed Residue ⊕	Physically Empty/Removal
146	94.011	60	Annular Tank	Mixed Residue ⊕	Physically Empty/Removal
432C	777.1	27	Container Storage	Permitted	RCRA Stable/Removal
430 (3)	777.1	25	Container Storage	Permitted	RCRA Stable/Removal
430 (2)	777.1	25	Container Storage	Permitted	RCRA Stable/Removal
483 (8)	777.1	47	Container Storage	Permitted	RCRA Stable/Removal
433	777.1	31	Container Storage	Permitted	RCRA Stable/Removal
208	777.1	70	Container Storage	Permitted	RCRA Stable/Removal
448	777.1	32	Container Storage (NDT)	Permitted	RCRA Stable/Removal
416	777.1	13	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)

Mod #5

416B	777.1	13	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)
427	777.1	16	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)
442	777.1	30	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)
462	777.1	40	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)
477/477A	777.1	42	Container Storage	Permitted (added in RCRA Permit Mod #00-02)	Clean Closure (documenting absence of contamination)
443	777.1	31	Container Storage	Permitted	RCRA Stable/Removal
430	95.015	26	Tank T-1	Mixed Residue ⊕	Physically Empty/ Removal
430	95.016	26	Tank T-2	Mixed Residue ⊕	Physically Empty/ Removal
131	90.49	8	Container Storage	Mixed Residue ⊕	RCRA Stable/ Removal
131	95.006	7	Tank 1103	Mixed Residue ⊕	RCRA Stable/Removal
131	95.007	7	Tank 1104	Mixed Residue ⊕	RCRA Stable/ Removal
131	95.008	7	Tank 1106	Mixed Residue ⊕	RCRA Stable/ Removal
134E	95.014	11	Tank T-7	Mixed Residue ⊕	RCRA Stable/ Removal
131	95.019	4	Tank DL-776	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	4	Tanks V-605 (2)	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	5	Tank V-614	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	5	Tank V-616	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	5	Tank V-618	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	5	Tank V-620	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	6	Tank V-626	Mixed Residue ⊕	Physically Empty/ Removal
131	N/A	6	Tank V-627	Mixed Residue ⊕	Physically Empty/ Removal
452	N/A	34	Tank V-022	Mixed Residue ⊕	Physically Empty/ Removal
452	N/A	36	Tank V-543	Mixed Residue ⊕	Physically Empty/Removal
134E	N/A	11	Tank V-746	Mixed Residue ⊕	Physically Empty/ Removal
134E	N/A	11	Tank V-747	Mixed Residue ⊕	Physically Empty/ Removal
134E	N/A	11	Tank V-747A	Mixed Residue (identified 12/05/00)	Physically Empty/ Removal
134E	N/A	11	Tank V-748	Mixed Residue ⊕	Physically Empty/ Removal
134E	N/A	11	Tank V-749	Mixed Residue ⊕	Physically Empty/ Removal
134E	N/A	10	Tank V-752	Mixed Residue ⊕	Physically Empty/ Removal

Mod #5

Mod #6

• Interim status tank Units 44.01, 44.02, and 49.02 are governed by the terms and conditions of a Compliance Order on Consent and the Hazardous Waste Tank Management Plan (HWTMP), which required the tanks to be taken to a RCRA Stable status by March 31, 1998. This commitment was met.

⊕ Mixed residue tanks managed in accordance with the Mixed Residue Tank Plan (see Section 6.2.4).

⊘ The type of closure for a unit may change from the type of closure listed; however, all closures will be conducted in accordance with this DOP.

N/A Mixed residue tank does not have a RCRA unit number.

4.5.1.1 Clean Closure

RCRA-regulated units may be "clean closed" either by documenting the absence of contamination or by decontaminating the unit. For units having a complete, detailed operating history, clean closure will be demonstrated when the following criteria are met:

- An administrative review of the RCRA Operating Record indicates hazardous or mixed waste was never spilled in the unit, or if a spill did occur, it was cleaned up and the spill area was decontaminated; and
- A visual inspection of the unit and associated ancillary equipment notes an absence of hazardous or mixed waste stains and/or residuals.

Units to be "clean closed" by decontamination will be flushed and washed with a suitable decontamination solution to remove visible waste residuals and contaminants of concern, then rinsed with clean water. The final rinsate will be tested to determine whether:

- The pH of the rinsate is between 6 and 9, and
- The concentrations of priority pollutants and heavy metals identified as being managed in the unit are below the Tier II action levels for ground water defined in Attachment 5 of RFCA [Ref. 1], and listed in Appendix B). Rinsate meeting the Tier II action levels for listed waste constituents associated with the unit and the LDR standards for characteristic waste will be deemed to be "no longer contained in" and will be managed as LLW.

For external surfaces, the final rinsate will not exceed a volume of two gallons per 100 ft² of surface area rinsed, and for internal surfaces, the final rinsate will not exceed a volume of 5% of the capacity of the tank system. If test results indicate the standard has been met, the unit equipment will be considered "clean closed." In the event the standard is not met, the LRA will be consulted to determine whether the results are protective of human health and the environment.

4.5.1.2 Unit Removal in Conjunction with "Debris Rule" Treatment

Alternatively, RCRA-regulated units may be closed by removal and treatment under the "debris rule." The "debris rule" applies to unit equipment or structures that have no intended use or reuse, and are slated for removal and discard. To meet the "debris rule" standard, decontamination will be conducted using the "abrasive blasting" physical extraction technology, or other appropriate technology identified in Part 268.45 of 6 CCR 1007-3 (Table 1, Alternative Treatment Standards for Hazardous Debris).

If, after "debris rule" treatment, the equipment or structure meets the standard for a "clean debris surface," and it does not exhibit a hazardous waste characteristic, it will no longer be considered a hazardous waste and will be managed as a solid waste.

In the event the standard is not met, the equipment or structure will be removed and managed as hazardous or mixed waste. Treatment residuals generated from extraction and/or destruction technologies used in the closure of units in the Building 777/776 Cluster (including rinsates) will be characterized in compliance with 6 CCR 1007-3, Part 262.11, and managed accordingly. Treatment residuals do not meet the definition of debris.

4.5.1.3 Unit Removal without Onsite Treatment

Unit equipment or structures that are not decontaminated to meet either the "clean closure by decontamination" or "debris rule" standard will be removed, size-reduced (if necessary), and packaged to meet the waste acceptance criteria (WAC) of the approved disposal facility. In the

event this waste cannot be shipped directly to a disposal facility, it will be stored in an approved on-site storage unit until shipment can be scheduled.

4.5.2 Closure Documentation

Prior to the decommissioning of each SET, RCRA unit-specific closure information will be submitted to the LRA for review and approval as a minor modification to this DOP under ¶127 of RFCA. The unit-specific information will include drawings and/or photographs of the RCRA-regulated unit or units in the SET, applicable EPA Waste Codes, the selected closure option(s), and closure requirements. For clean closure of container storage units by documenting the absence of contamination in accordance with Section 4.5.1.1, a letter may be submitted to the LRA, in lieu of a minor modification to the DOP, detailing the results of the operating record review and visual inspection, and requesting concurrence that the unit has been closed.

Mod
#7

Consistent with Section 1.1.4 of the DPP, portions of a RCRA-regulated unit may be removed prior to submittal of the required unit-specific closure information upon engagement of the consultative process and concurrence of the LRA. In such cases, LRA concurrence will be documented in an RFETS Regulatory Contact Record, which will be filed in the Project Record.

Mod
#2

A description of the closure activities completed for each RCRA-regulated unit will be included in the Final Closeout Report, which will be prepared for the Building 776/777 Closure Project upon completion of decommissioning activities. All RCRA units will be closed prior to building demolition.

4.6 Pre-Demolition Survey

A pre-demolition survey will be conducted to identify areas requiring additional decontamination before the building is demolished. The pre-demolition survey will be performed on an on-going basis in areas that have been stripped out and released for final survey to verify the waste disposal path for building rubble. Per ¶60(a) of RFCA, the LRA may take samples and obtain duplicate, split, or sub-samples of any DOE samples.

The pre-demolition survey will be conducted in accordance with the Pre-Demolition Survey Plan, which will be prepared in conformance with the DDCP (Ref. 3) prior to the initiation of demolition activities. The Pre-Demolition Survey Plan will be submitted to the LRA for review and approval. A Pre-Demolition Survey Report will be prepared to document the results of the pre-demolition survey and included in the Project's administrative record (AR). Per Sections 3.3.10 through 3.3.13 of the DPP, the Pre-Demolition Survey Report will be forwarded to the LRA for review.

4.7 Independent Verification

An independent party, selected by DOE, will perform a verification assessment of the final survey methodology. This assessment will include a review of survey procedures, survey instrument calibration and operation procedures, and the Pre-Demolition Survey Plan. Also, the independent party may obtain additional survey measurements for comparison with the RFETS measurements to ensure proper correlation of survey data.

Final Summary Report for the Radiological and Non-Radiological Characterization
of Building 776/777

Executive Summary

The decommissioning process for Building 776/777 involves decontamination, removals, and application of controls inside the building before demolition and application of controls outside the building during demolition. The Building 776/777 Decommissioning Operations Plan (DOP) addressed the activities associated with preparing the facility for decontamination and demolition. Following decontamination and/or removal efforts, a final characterization was conducted to verify that residual contamination was consistent with the objectives of the DOP and ALARA-based decontamination efforts. Final surveys were conducted in accordance with the project-specific characterization plans; this document summarizes the results of the characterization efforts.

Kaiser-Hill (K-H) has completed the radiological and non-radiological characterization of Building 776/777. This survey was performed in accordance with the approved "Radiological Pre-Demolition Survey Plan" dated August 8, 2003 and with the "Project-Specific Non-Radiological Characterization Plan for Building 776/777" dated September 16, 2003.

In accordance with the 776/777 DOP, Appendix I, the preparation of the facility for demolition is conducted in consultation with the Colorado Department of Public Health and Environment (CDPHE) and is based on a series of decisions primarily related to maintaining releases to the environment and doses to the workers as low as reasonably achievable (ALARA).

As agreed through a consultative process, a final Average Surface Contamination Value (ASCV) in disintegrations per minute per 100 square centimeters (dpm/100 cm²) has been calculated from the 46 remediated survey units within Building 776/777. The final calculated ASCV is 45,550 dpm/100 cm². This ASCV has the potential during the demolition of 776/777 to result in a conservative offsite dose at the Site fence line of 0.00163 millirem (mrem), which is below the 0.1 mrem maximum dose goal for this project. This fence line dose is calculated using an air-modeling program developed by the USEPA titled "Industrial Source Complex Short-Term (ISCST3)." This air-modeling is described in the K-H developed "Buildings 776/777 Air Modeling Technical Doeument."

An independent verification (IV) of the 776/777 pre-demolition survey activities has been performed by the Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) to verify the process implemented by the project to characterize the building. The ESSAP survey efforts will be documented in a separate report to DOE/RFPO.

The non-radiological characterization effort has verified that hazardous wastes, chemicals, beryllium, PCBs, and asbestos have been removed from the facility, with the

exception of a large lead collar in the wall between rooms 430 and 443, which will be removed during demolition.

1. Introduction/Scope

A 1969 fire in Building 776/777 caused extensive radiological contamination throughout the building. Although efforts to decontaminate the building resulted in resumption of operations, substantial radiological contamination could not be removed and was fixed in place. The extensive nature of the contamination and structural integrity of Building 776 precludes bringing the facility to the unrestricted release criteria.

Through an established consultative process between CDPHE, DOE/RFPO, and K-H, it was determined that 776/777 would be decontaminated through ALARA-based efforts to less than $455 \mu\text{Ci}/\text{m}^2$, averaged over the entire building surfaces. This value is based on ensuring the building average will comply with the 0.1 mrem maximum dose goal during demolition of 776/777. In order to support the decontamination and decommissioning of Building 776/777, the following documents were developed:

- Building 776/777 Closure Project Decommissioning Operations Plan (DOP)
- Project-Specific Radiological Pre-Demolition Survey Plan (Project PDSP)
- Project-Specific Non-Radiological Characterization Plan for Building 776/777
- Buildings 776/777 Air Modeling Technical Document
- Demolition Work Package

This report summarizes the results of the radiological and non-radiological pre-demolition characterization process in support of the demolition of Building 776/777.

2. Radiological Characterization

Radiological characterization of Building 776/777 was conducted in accordance with the Project PDSP. The following sections present the survey results, address areas requiring special controls for demolition, and discuss building modifications made after the final surveys were conducted:

2.1. Final Survey Results

In support of the radiological pre-demolition survey, Building 776/777 was divided into 46 survey units. For most of these survey units, an in-process (pre-remediation characterization) survey report and a final (post-remediation) survey report were developed to document the overall radiological survey process through the remediation process to final encapsulation. This process was the documentation of the ALARA-based decontamination effort, and the approval and consultation for each survey unit was documented in contact records, which are included in the project administrative record.

In a few cases, a survey unit only required a single survey report due to little or no remediation within the survey unit. Survey unit reports were discussed and evaluated through the consultative process with CDPHE prior to final status or encapsulation.

Upon completion of the initial ALARA-based decontamination efforts and the final characterization surveys for each survey unit, Radiological Engineering calculated an average surface contamination value for the unit (ASCV_U). Although the ALARA based decontamination effort was not based on a specific decontamination level, the Project PDSP indicated that the ASCV for the building had to be less than 455 $\mu\text{Ci}/\text{m}^2$ averaged over the entire building. This ACSV was derived from extrapolating data (linearly) from the Building 776/777 Air Modeling Technical Document based on the day-to-day (four month release) scenario.

The ASCV in the Project PDSP coincides with the commitment made in the Building 776/777 major modification to the Decommissioning Operations Plan (DOP, Appendix I). The ASCV was not used to make decisions with respect to decontamination and removals in the building; these decisions were made using the work process outlined in the DOP. The ASCV is an upper bounds that indicates the absolute maximum allowable contamination level.

Table 1 outlines the pre-remediation and post-remediation Average Surface Contamination Value (ASCV) for each of the 46 survey units and the final overall ASCV for Building 776/777. Table 1 also lists the dates of the CDPHE Contact Records prepared for each survey unit, describing the radiological and non-radiological pre-demolition conditions and documenting CDPHE concurrence.

Survey Unit	Contact Record Date	Pre-remediation ASCV (dpm/100 cm ²)	Post-remediation ASCV (dpm/100 cm ²)
1	9/30/03	196,000,000	420,246
2	1/20/05	70,676	8,214
3	2/15/05	2,469,011	33,984
4	1/13/05	752,360	14,604
5	11/17/04	survey unit was removed	survey unit was removed
6	2/9/05	35,964	35,964
7	1/17/05, 1/19/05	264,158	11,343
8	2/7/05	34,608	34,608
9	1/26/05	6,299,302	50,715
10	11/17/04	1,452,603	86,806
11	2/2/04	4,364,707	40,028
12	12/9/04	6,058,986	111,694
13	1/13/05	2,720,445	37,361
14	2/2/05	1,270,082	13,534
15	2/9/04	60,313	23,310
16	6/24/04	1,655,542	43,125
17	2/7/05	18,019	18,019
18	2/9/04	532,841	17,424
19	6/17/04	448,154	48,157
20	6/8/04	111,132	17,185
21	4/7/04	243,707	13,077

Table 1 - Final Source Term Values

Survey Unit	Contact Record Date	Pre-remediation ASCV (dpm/100 cm ²)	Post-remediation ASCV (dpm/100 cm ²)
22	3/15/04	23,053	8,946
23	4/28/04	37,611	47,563
24	2/9/04	9,201	4,311
25	3/15/04	18,445	12,099
26	1/24/05	67	67
27	12/13/04	97,468	10,655
28	1/19/05	14,765	14,765
29	12/28/04	177,496	25,246
30	12/28/04	32,858	33,627
31	11/29/04	315,782	36,914
32	1/7/05	264,158	46,500
33	1/19/05	27,081	27,081
34	1/19/05	17,189	17,189
35	11/17/04	34,814	9,452
36	11/17/04	50,317	16,786
37	11/17/04	17,316	15,605
38	2/15/05	1,301,121	108,408
39	12/8/03	31,182	19,504
40	6/24/04	248,610	174,213
41	11/17/04	16,705	16,705
42	1/24/05	44,400	44,400
43	12/9/04	1,453,262	995,034
44	N/A	4,892,880	N/A*
45	N/A	1,152,180	N/A*
46	N/A	297,469	N/A*
Total Building ASCV		5,454,655 dpm/100 cm² 245.7 μCi/m²	45,550 dpm/100 cm² 2.052 μCi/m²

* The underslab buried equipment data is not included in the building shell ASCV calculations. Pursuant to consultative process agreements and approved building PDS plan, all underslab contamination is excluded from the ASCV inventory and will be remediated after building demolition by KH Environmental Restoration.

NOTE: Survey units which required minimal or no remediation are shown in the above table with the same ASCV for pre- and post-remediation data.

As indicated, the final calculated ASCV for Building 776/777 is 45,550 dpm/100 cm². This final ASCV will support compliance with the 0.1 mrem offsite dose goal at the Site fence line during demolition of 776/777. An analysis of the potential radionuclide emission modeling was completed for the Building 776/777 demolition and slab remediation project. The USEPA ISCST3 model was used for the model to estimate the dose to the most impacted public receptor. The highest modeled dose was 0.00163 mrem/year, which is far below the monitoring threshold of 0.1 mrem/year in the Site Integrated Monitoring Plan and the 10 mrem/year standard from 40 CFR 61, Subpart H.

2.2. Areas Requiring Special Controls

A total of nineteen areas were identified through the ALARA decontamination process that require additional or special controls during demolition. These areas had inaccessible areas, structural issues, or under slab conditions that impacted the remediation effort. These nineteen areas have been identified in the building with a distinctive color (orange or blue) to allow appropriate special handling and controls during final building demolition. These special controls are contained in the demolition work package for building 776/777 which include, but are not limited to the use of increased dust suppression, waste segregation and handling, and special demolition equipment cutting and shearing techniques.

2.3. Pre-Demolition Building Modifications

As the final survey process evolved, it became necessary to perform minor internal building modifications to support ongoing building remediation. Since these modifications occurred after the review and concurrence of the final survey reports by CDPHE and DOE/RFPO, these modifications were not documented in individual final survey reports. Therefore, CDPHE and DOE/RFPO concurrence was obtained on the internal modifications through frequent building status meetings, and it was agreed that the modifications would be documented in this final summary report without revision to the individual final survey reports. The following is a listing of these modifications identified by survey unit.

Survey Unit	Modification	Reason for Modification
15, 21, 22, 23, 24	interior walls removed	dust control during demolition
9, 11, 13	interior walls removed	access for demo equipment
10 (basement)	ceiling pushed into basement	temporary storage of rubble
3, 4	interior walls removed	staging of waste containers

3. Non-Radiological Characterization

Non-radiological characterization was conducted in accordance with the Project-Specific Non-Radiological Characterization Plan for Building 776/777. This plan specified that the final characterization report will include details on hazardous wastes, beryllium, PCBs, and asbestos characterization. These items were addressed in detail in the CDPHE contact records for each survey unit, listed in Table 1, and included in the project administrative record. Brief summaries are provided in the following sections.

3.1. Hazardous Wastes

RCRA regulated hazardous waste management units have been closed in accordance with the Building 776/777 DOP. The CDPHE contact records prepared for each survey unit provide details of regulated units within each area and the methods of closure, along with references to required approvals received from CDPHE. In some cases, such as closure by removal, CDPHE approval is not required, but the method of closure is documented in the contact records.

In addition to RCRA units requiring formal documentation of RCRA closure activities (i.e., RCRA permitted units, interim status units, and mixed residue units), Building 776/777 contained numerous RCRA satellite accumulation areas, 90-day storage areas, universal waste storage areas, and CERCLA storage areas. These areas have been appropriately closed, and no evidence of releases from these areas was observed.

In addition to closure of RCRA units, chemicals and hazardous substances have been removed from the facility, including gas cylinders, batteries, light bulbs and tubes (with the exception of a minimal number that will remain for safety purposes), mercury switches, poured lead piping joints, lead shielding and flashing, and chemicals that were previously stored in the building. One exception is a lead collar in the wall between Rooms 430 and 443 that will be removed during demolition; this is documented in a CDPHE contact record dated January 7, 2004.

3.2. Beryllium

Beryllium regulated and controlled areas have been closed. Details of the beryllium surveys, including numbers and locations of samples as well as final results are included in the CDPHE contact records listed in Table 1 for each survey unit.

3.3. PCBs

PCB hazards and equipment have been removed, including ballasts, capacitors, and transformers. The notification to the receiving facilities that will accept PCB bulk product wastes from demolition are on file at the site.

3.4. Asbestos

Asbestos abatement has been successfully completed in accordance with CAQCC Regulation No. 8. The required certification will be provided in the Demolition Notification submitted to CDPHE prior to demolition.

4. Conclusion

The non-radiological characterization has resulted in the successful removal of hazardous wastes and substances, beryllium, PCBs, and asbestos from the facility. With one exception, a lead collar located in room 430 will be removed during demolition. Waste from the building demolition will be compliantly managed as low-level debris for disposal and the lead collar will be managed as low-level mixed waste.

In summary, ALARA based decontamination of building 776/777 has been completed. Based on the final survey results presented in each survey unit report, the principles of ALARA established in the DOP were successful in reducing the final source term below the ASCV of 455 uCi/m². Further decontamination of the building at this point increases the risks (industrial and radiological) to workers without much benefit in source term reduction. Final encapsulation activities have been completed and the building is ready

for demolition. Approved methods to control the remaining contamination will be applied during demolition.

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE REGULATORY CONTACT RECORD

Date/Time: January 26, 2005

Site Contact(s): Carolyn Hicks
Phone: (303) 994-9555

Regulatory Contact: Harlen Ainscough
Phone: (303) 692-3337

Agency: CDPHE

Purpose of Contact: Approval of rinsate standard results for contingent closure of floor in Building 776/777 Room 131

Discussion:

Room 131 in Building 777 was washed and rinsed for RCRA Closure. Room 131 provided secondary containment for a mixed residue container storage area, Unit 90.49, and for the following mixed residue tanks and associated piping:

- T-A1, T-A2 (Units 95.001, 95.002)
- T-1103, T-1104, and T-1106 (Units 95.006, 95.007, 95.008)
- DL-776 (Units 95.019)
- Vacuum accumulators V-605, V-614, V-616, V-618, V-620, V-626, and V-627 (no RCRA unit numbers)
- Oil/solvent transfer line and trichloroethane transfer line from Building 707 to Building 777

Only the portions of the floor associated with the container storage area and the tanks/piping were washed and rinsed. A map showing the areas that were washed is included in the closure plan for Set 82 in Appendix H of the B776/777 DOP.

Rinsate samples were analyzed and compared to the closure performance standard in Section 4.5.1.1 of the B776/777 Decommissioning Operations Plan (DOP). Three metals (antimony, cadmium, and lead) had levels above the RFCA Tier II standards but below the RCRA UTS. All organics were below the Tier II and UTS standards.

The DOP states, "In the event the standard is not met, the LRA will be consulted to determine whether the results are protective of human health and the environment." On January 21, 2005, a summary of the rinsate results was provided to Mr. Ainscough via email, with a request to evaluate if the results were adequately protective, given that the concrete will go offsite as low level waste for disposal.

Mr. Ainscough concurred that the area has been closed, contingent on final disposition of the building by removal, as is required in the approved Demolition Plan for the facility. The waste will be managed as non-hazardous low-level debris for disposal.

Contact Record Prepared by: Carolyn Hicks

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFPO
B. Birk, DOE-RFPO
C. Deck, K-H Legal
D. Foss, K-H 707/776/777
S. Garcia, USEPA
C. Gilbreath, K-H 771/774
S. Gunderson, CDPHE
J. Legare, DOE-RFPO

R. Leitner, K-H 371/374
J. Mead, K-H ESS
G. Morgan, DOE-RFPO
S. Nesta, K-H RISS
K. North, K-H ESS/MS
R. Schassburger, DOE-RFPO
D. Shelton, K-H ESS
C. Zahm, K-H Legal

Additional Distribution:

H. Ainscough, CDPHE
E. Kray, CDPHE
G. Schuetz, DOE
D. DelVecchio, K-H 707/776/777
T. Vaughn, K-H 707/776/777

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE REGULATORY CONTACT RECORD

Date/Time: November 15, 2004 / 12:50 pm

Site Contact(s): Carolyn Hicks
Phone: (303) 994-9555

Regulatory Contact: Harlen Ainscough
Phone: (303) 692-3337

Agency: CDPHE

Purpose of Contact: Approval of rinsate standard results for contingent closure of floors in Building 776/777 Rooms 134 East, 152, 159, 208 (Area 10) and 237

Discussion:

The following RCRA areas in B776/777 were washed and rinsed for RCRA Closure:

- Room 134 East (portions under mixed residue piping)
- Room 152, Unit 90.85
- Room 159, Unit 776.1
- Room 208 (Area 10), Unit 777.1
- Room 237, Unit 776.1

Rinsate samples were analyzed and compared to the closure performance standard in Section 4.5.1.1 of the B776/777 Decommissioning Operations Plan (DOP). Seven metals (antimony, arsenic, cadmium, chromium, lead, mercury, and nickel) had levels above the RFCA Tier II standards for one or more samples. All these metals were below the RCRA UTS except one lead sample, which was still well below hazardous characteristic levels. Two samples had a methylene chloride level slightly above the RFCA Tier II level but an order of magnitude below the RCRA UTS.

The DOP states, "In the event the standard is not met, the LRA will be consulted to determine whether the results are protective of human health and the environment." On November 8, 2004, a summary of the rinsate results was provided to Mr. Ainscough via email, with a request to evaluate if the results were adequately protective, given that the concrete will go offsite as low level waste for disposal.

Mr. Ainscough has concurred that the areas in question have been closed, contingent on final disposition of the building by removal, as is required in the approved Demolition Plan for the facility. The waste will be managed as non-hazardous low-level debris for disposal.

Contact Record Prepared by: Carolyn Hicks

Required Distribution:

M. Aguilar, USEPA
S. Bell, DOE-RFPO
B. Birk, DOE-RFPO
C. Deck, K-H Legal
D. Foss, K-H 707/776/777
S. Garcia, USEPA
C. Gilbreath, K-H 771/774
S. Gunderson, CDPHE
J. Legare, DOE-RFPO

R. Leitner, K-H 371/374
J. Mead, K-H ESS
G. Morgan, DOE-RFPO
S. Nesta, K-H RISS
K. North, K-H ESS/MS
R. Schassburger, DOE-RFPO
D. Shelton, K-H ESS
C. Zahm, K-H Legal

Additional Distribution:

H. Ainscough, CDPHE
E. Kray, CDPHE
G. Schuetz, DOE
D. DelVecchio, K-H 707/776/777
T. Vaughn, K-H 707/776/777

A	B	C	D	E	F	G	H	I	J
Unit No.	Building	Unit Description	Regulatory Status	Closure Status	Closure Date	Closure Document Approval	SET	Closure document submittal	CDPHE approval
38	37	776	Low-Laval Mixed Waste Baler	WITHDRAWN - Never used for haz. waste	WITHDRAWN 4/12/95 (ref. 95-DOE-09335)	NA	NA	NA	NA
104	44.01	776	Fluidized Bed Incinerator Oil Storage Tank T-2 (FBI-2)	INTERIM STATUS - CLOSED per RFCA decision document. Partially CLOSED per 6CCR 1007-3, Part 265 and Closure Plan	CLOSED BY REMOVAL in accordance with the B776/777 Decommissioning Operations Plan (DOP), (1/29/00); packaged as LLM SCO in cargo container X17321. Secondary containment to be closed under the DOP, Set 82.	1/29/2000	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
105	44.02	776	Fluidized Bed Incinerator Oil Storage Tank T-1 (FBI-1)	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED BY REMOVAL. Closure plan approved (set 63) with DOP Mod #8 on May 1, 2002. Secondary containment was washed and rinsed in May 2004. Per the contact record dated 07/28/04 between Carolyn Hicks and Harlen Ainscough, the containment will be managed as non-hazardous low-level debris.	FBI - 9/30/2002 containment - 7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
111	49.01	776	Fluidized Bed Incinerator Unit (Production) Rm. 118	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in accordance with the B776/777 Decommissioning Operations Plan (DOP). Closure plan approved (set 61) with DOP Mod #8 on May 1, 2002. Secondary containment was washed and rinsed in May 2004. Per the contact record dated 07/28/04 between Carolyn Hicks and Harlen Ainscough, the containment will be managed as non-hazardous low-level debris.	FBI - 9/30/2002 containment - 7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
112	49.02	776	Fluidized Bed Incinerator Unit (Pilot) Rm. 135	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in accordance with the B776/777 Decommissioning Operations Plan (DOP) and Compliance Order on Consent #00-02-25-01, (3/29/00); packaged as LLM SCO in cargo container X19504.	FBI - 9/30/2002 containment - 7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
113	49.02	776	Fluidized Bed Incinerator Unit (Pilot), Tanks T-1 and T-2	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in accordance with the B776/777 Decommissioning Operations Plan (DOP) and Compliance Order on Consent #00-02-25-01, (3/29/00); packaged as LLM SCO in cargo container X19504.	FBI - 9/30/2002 containment - 7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
116	52	776	Oil/Water Separator	WITHDRAWN - Never installed	WITHDRAWN 11/13/92	3/29/00	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
151	61	776	Size Reduction Vault (Container Storage)	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED using debris treatment (hydroclasing) in accordance with the B776/777 Decommissioning Operations Plan (DOP). Closure plan approved (set 82) with DOP Mod #9 on October 1, 2002.	NA	NA	NA	NA
152	61	776	Size Reduction Vault (Miscellaneous Treatment Unit)	INTERIM STATUS - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in accordance with the B776/777 Decommissioning Operations Plan (DOP). Closure plan approved (set 60) with DOP Mod #8 on May 1, 2002.	5/31/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
153	74	776	Supercompaction and Repackaging Facility (SARF)	INTERIM STATUS - CLOSED per a RFCA decision document	Closure plan approved (set 64) with DOP Mod #8 on May 1, 2002. The unit was successfully cleaned using the debris rule in May 2002 and closed by removal.	9/30/02	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
154	75	776	TRU Waste Shredder	WITHDRAWN - Never installed	WITHDRAWN	5/15/02	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
158	90.108	776	Container Storage, Glove box in Rm. 154A	WITHDRAWN - Never used for haz. waste	WITHDRAWN 2/21/95 (ref. 95-DOE-09213)	NA	NA	NA	NA
232	90.52	776	Container Storage, Dock 6	WITHDRAWN - Loading docks are excluded from permitting	WITHDRAWN 10/26/94 (ref. 94-DOE-10453)	NA	NA	NA	NA
247	90.85	776	Container Storage, Rm. 152	Mixed Residue - CLOSED per a RFCA decision document	Secondary containment closed in accordance with the B776/777 DOP, Set 82, approved in contact record dated 11/15/04, contingent on disposal of building as LLW. Closure plan approved (set 82) with DOP Mod #9 on October 1, 2002. Permission received from CDPHE to remove shelving without a minor modification to the DOP 6/20/00.	NA	NA	NA	NA
258	90.99	776	Container Storage, Rm. 127 Basement	Mixed Residue - CLOSED per a RFCA decision document	Closure plan approved (set 82) with DOP Mod #9 on October 1, 2002. Secondary containment was washed and rinsed in May 2004. Per the contact record dated 07/28/04 between Carolyn Hicks and Harlen Ainscough, the containment will be managed as non-hazardous low-level debris.	11/15/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
						7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05

A	B	C	D	E	F	G	H	I	J
Unit No.	Building	Unit Description	Regulatory Status	Closure Status	Closure Date	Closure Document Approval	SET	Closure document submittal	CDPHE approval
904	S002	776	Oil Solidification Process	PERMITTED - CLOSED per a RFCA decision document	Bottled TRM oil was solidified in drums in Unit 776.1 Room 127, repack tent. Repack tent has been CLOSED by removal.	9/30/03	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05

A	B	C	D	E	F	G	H	I	J
Unit No.	Building	Unit Description	Regulatory Status	Closure Status	Closure Date	Closure Document Approval	SET	Closure document submittal	CDPHE approval
471	94.001	776	Tank SR-3, Rm. 154						
472	94.002	776	Tank SR-4, Rm. 154	Mixed Residue - CLOSED per a RFCA decision document	Tank and some ancillary equipment CLOSED by removal in January 2001 in accordance with the B776/777 Decommissioning Operations Plan (DOP), set 55, and packaged as TRU waste. Remaining ancillary piping was closed by removal in June 2002 in accordance with B776/777 DOP, set 78. Secondary containment	1/25/01 - tank 7/2/02			
473	94.003	776	Tank SR-5, Rm. 154						
474	94.004	776	Tank T-1, Rm. 134	WITHDRAWN - Never used for haz. waste	Formerly part of the Supercompactor; tank has been removed				
475	94.005	776	Tank T-344, Rm. 134	Mixed Residue - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in November 2002. Closure plan approved (set 66) with DOP Mod #8 on May 1, 2002. Secondary containment was provided by a stainless steel catch pan that was closed under the debris rule at the time the tanks were closed.	NA	NA	COR 7/21/05	PDSR 2/25/05
476	94.006	776	Tank T-345, Rm. 134	Mixed Residue - CLOSED per a RFCA decision document	CLOSED BY REMOVAL in October 2002. Closure plan approved (set 66) with DOP Mod #8 on May 1, 2002. Secondary containment was provided by a stainless steel catch pan that was closed under the debris rule at the time the tanks were closed.	11/7/02	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
477	94.007	776	Tank T-360, Rm. 134		Tank and some ancillary equipment CLOSED by removal in March 2001 in accordance with the B776/777 Decommissioning Operations Plan (DOP). The tank and ancillary piping were packaged as LLM waste in cargo container X19537. Filter Glove box 361 and the secondary containment metal berm were treated under the debris rule to a clean debris surface and closed by removal as LLW. Remaining ancillary piping removed in November 2003 and packaged as LLM. Concrete secondary containment was washed and rinsed in April 2004. Contingent closure was approved per contact record between C. Hicks and H. Ainscough dated 7/28/04.	10/25/02	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
478	94.008	776	Tank T-370, Rm. 134	Mixed Residue - CLOSED per a RFCA decision document		3/15/01 - tank 11/2003 - piping 7/28/04 - containment			
479	94.009	776	Ball Mill Washer, Rm. 146						
480	94.010	776	Collection Pan, Rm. 146						
481	94.011	776	Annular Tank, Rm. 146	Mixed Residue - CLOSED per a RFCA decision document			DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
571	776.1	776	Container Storage, Rm. 127 (90.66)	PERMITTED - CLOSED per a RFCA decision document	CLOSED BY REMOVAL and managed as non-hazardous waste in accordance with B776/777 DOP, set 60. CLOSED Closure plan approved (set 82) with DOP Mod #9 on October 1, 2002. Concrete secondary containment was washed and rinsed in December 2003 and April 2004. Per the contact record dated 07/28/04 between Carolyn Hicks and Harlen Ainscough, the containment will be managed as non-hazardous low-level debris.	9/30/02	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
572	776.1	776	Container Storage, Rm. 208 (27)	PERMITTED - CLOSED per a RFCA decision document	CLOSED BY DEBRIS RULE RCRA STABLE (00-RF-03032, 11/02/00) approved by CDPHE 12/21/00; permission received to remove metal berms under "debris rule" closure without a minor modification to the DOP 10/25/00; to be CLOSED in accordance with the B776/777 Decommissioning Operations Plan (DOP). Closure plan approved (set 82) with DOP Mod #9 on October 1, 2002.	7/28/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05
					CLOSED BY DEBRIS RULE RCRA STABLE (00-RF-03032, 11/02/00) approved by CDPHE 12/21/00;	11/24/04	DOP 11/5/99 last Mod (11) 8/12/04	COR 7/21/05	PDSR 2/25/05

32/32

	A	B	C	D	E	F	G	H	I	J
	Unit No.	Building	Unit Description	Regulatory Status	Closure Status	Closure Date	Closure Document Approval	SET	Closure document submittal	CDPHE approval
904	S002	776	Oil Solidification Process	PERMITTED - CLOSED per a RFCA decision document	Bottled TRM oil was solidified in drums in Unit 776.1 Room 127. repack tent. Repack tent has been CLOSED by removal.	9/30/03	DOP 11/5/99 last Mod (11) 8/12/04		COR 7/21/05	PDSR 2/25/05