

**Kaiser-Hill**

# **PROJECT BASELINE DESCRIPTION**

## **776/777 Closure Project**

### **Rocky Flats Environmental Technology Site Closure Project**

**June 30, 2000**

**Approved:**

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**Project Manager**

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**date**

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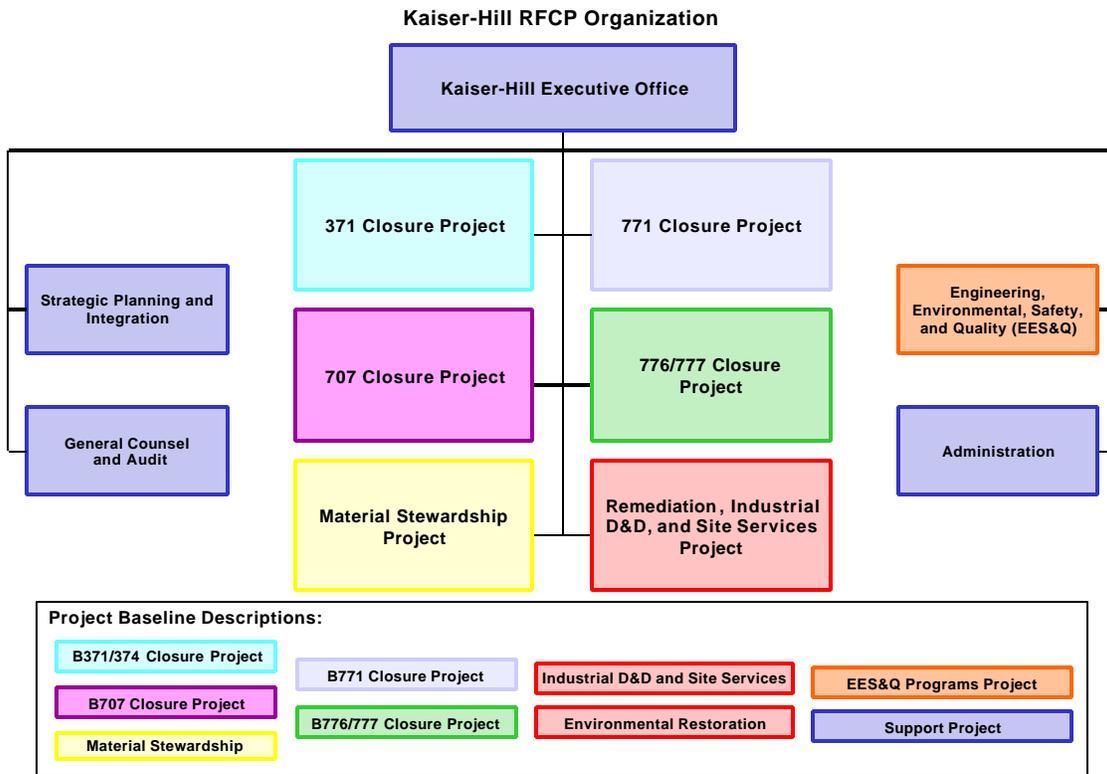
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# PROJECT BASELINE

This Project Baseline Description (PBD) addresses the 776 Closure Project. The scope of the information with this PBD provides a basis for detailed planning. The scope of the 776 Closure Project includes the following:

- SNM removal and deactivation of the Building 776/777 and associated facilities
- Decommissioning of Building 776/777 and other associated facilities

The Rocky Flats Environmental Technology Site (RFETS or Site) projects supporting closure by 2006 is depicted in (Figure 1).



**Figure 1: Kaiser-Hill RFCP Organization**

## 1. Scope

The scope of the Rocky Flats Closure Project is established in the Statement of Work (SOW) in the Rocky Flats Closure Contract. The scope of work for the 776 Closure Project is summarized below and detailed to the cost account level in this section.

- D Building 776/777 Project
- DA Building 776/777 Project Closure
- DAA\* Building 776/777 Project Management
- DAB\* Building 776/777 Building Operations
- DAC\* Building 776/777 SNM Removal Operations/Deactivation
- DAD\* Building 776/777 Decommissioning
- DAE\* Building 776/777 Material Stewardship
- DAF\* Building 776/777 Technologies

\*Indicates a cost account per Section H of the Closure Contract.

### 1.1.1 DAA, Project Management

This element includes project management, oversight, administration, project controls and planning, procurement, document control, human resource management, and communication support.

### 1.1.2 DAB, Building Operations (Facility Landlord)

Five elements comprise this WBS element:

- DAB01 Compliance Surveillances - Conduct authorization basis (AB), environmental and other surveillances to ensure the building is operating in a safe and compliant manner. Compliance with the approved AB is accomplished through the performance of surveillances that are prescribed either in the Building 776/777 Basis for Interim Operations (BIO) or the Nuclear Criticality Safety Manual. Compliance with environmental requirements is assured by the performance of inspections specified in applicable permits, consent orders, and environmental regulations. Compliance with other safety, safeguards and security, and other requirements are assured through successful completion of required inspections, inventories, and assessments.
- DAB02 Cluster Maintenance – Corrective, routine and preventative maintenance activities are conducted to ensure that Vital Safety, facility support, security, and environmental systems are in proper working order. This element also includes major equipment repairs.
- DAB03 Operations Technical Support – Specialized technical expertise is required in many different areas, primarily in the field of health and safety, radiological control, radiological engineering, industrial hygiene, emergency preparedness, and other engineering disciplines.
- DAB04 Operations Management – Operations Management includes the basic infrastructure to operate the building. The largest portion of operations management resources are dedicated to the constant, safe operation and monitoring of the utilities and ventilation systems necessary to control radioactive material and associated contamination.

- DAB05 Building 776/777 BIO Annual Update – This element includes the maintenance of a DOE Order 5480.23 compliant AB document, implementation costs, and the development of Unreviewed Safety Question Determinations.

### **1.1.3 DAC, SNM Removal Operations/ Deactivation**

The scope of SNM removal involves the removal of Category I and II SNM holdup from Building 776/777 to eliminate the Material Access Area (MAA) security requirements and proceed with deactivation and decommissioning. Specific quantities and types of materials are available in classified building-specific inventory reports. SNM holdup removal after the MAA is closed is part of decommissioning. Deactivation activities only occur in Type 3 facilities as defined in the Rocky Flats Cleanup Agreement (RFCA). Building stabilization involves similar activities to those performed on Type 1 and 2 facilities. This WBS element has been divided into the following two subsets:

- DAC01 SNM Holdup Removal and PA/MAA Closure – This element includes the activities to remove quantities of SNM (containerized and holdup) to close the MAA and to support the closure of the Protected Area (PA). Activities within this element are planned to be completed in the early part of FY01.
- DAC02 Deactivation – This element includes activities to drain and remove tanks and ancillary piping that are covered by the consent order. There are no activities scheduled within this element beyond FY00.

### **1.1.4 DAD, Decommissioning**

Decommissioning safely removes a building, in a manner that minimizes hazards and ensures adequate protection to the workers, the public, and the environment. Building 776/777 has been sub-divided into 84 work sets. A brief description of the Work Sets can be found at the end of this section. The Decommissioning Operations Plan (DOP) has a more detailed description of the sets. These descriptions are intended to be used as guidelines; the exact scope of each set will be defined during the Integrated Work Control Process. Within each work set, there are five major work activities. These activities are planning and engineering; project-specific long-lead procurement; initial decommissioning; isolation and containment; and dismantlement. Planning and engineering includes the preparation of engineering orders, work control packages. Project-specific long-lead procurement involves ordering unique parts and equipment for the dismantlement of a particular set. Initial decommissioning involves glovebox sets only, and includes activities to prepare the glovebox for dismantlement (i.e. lead removal). Isolation and containment include activities to disconnect the glovebox or other system from the Building's power supply and/or ventilation system. Dismantlement activities include size reduction and waste packaging for all items within the set.

Regulatory approval for decommissioning precedes the physical execution of decommissioning tasks. The decommissioning process, as implemented at RFETS, results in each building and contents being dispositioned in accordance with the applicable regulations and requirements, whether as waste, recycled material, or reused property. Specific physical decommissioning activities include the following:

- Characterization, stripout, removal and size reduction of process equipment (gloveboxes, tanks, process piping, ducting, etc.) and distribution systems (lighting, power, heating, water, sewer, etc.);
- Isolation of the building from the rest of the Site infrastructure;
- Packaging of contaminated wastes generated during the decommissioning effort, performing holdup removal; and dispositioning property and waste;
- Decontamination;
- Building disassembly and dismantlement; and
- Demolition.

Waste chemical removal, disposition of excess property, chemical hazard reduction and stabilization or closure of RCRA units may occur either during deactivation or decommissioning.

Site preparation includes the establishment of laydown, shipping and material processing areas; set-up of size reduction, monitoring, waste staging areas, and step-off pads; and the removal of stored wastes. Decontamination areas include interior and exterior surfaces or other fixed structures, equipment, drains, gloveboxes, tanks, process piping, and ducting. Removal of hazardous and toxic substances may be performed as a decontamination activity.

Demolition includes the dismantlement of the walls, roofs, non-structural and structural components, and foundations and connecting structures (tunnels, breezeways, overhead walkways, etc.). Demolition activities are conducted after decontamination, size reduction, and component removal activities are complete. Unless specified differently in the building RFCA decision document, subsurface concrete is removed to a depth of three feet below the final proposed grade. Demolition rubble is properly dispositioned.

Characterization activities supply the data necessary to minimize hazards and ensure adequate protection to workers, the public and the environment. Characterization involves four phases: scoping; reconnaissance; in-process; and pre-demolition (including independent verification, if required). Decommissioning characterization does not cover the characterization associated with Individual Hazardous Substance Site (IHSS) remediation, which is part of Environmental Restoration (ER) or any process characterization of SNM.

In order to perform these physical activities, planning and engineering resources prepare the following major documents (as needed):

- Reconnaissance Level Characterization Report (RLCR);
- Pre-Demolition Survey Report (PDSR);
- Decision Document (Decommissioning Operations Plan (DOP); Proposed Action Memorandum (PAM); Interim Measures/Interim Remedial Actions Document (IM/IRA), or RFCA Standard Operating Protocol (RSOP));
- RCRA Unit Closure Plan;
- Health and Safety Plan (HASP);
- IWCP packages;

- Waste Management Plan;
- Training Plan;
- Utility relocation design documents;
- Building demolition design documents; and
- Equipment removal design documents.

The development of these work packages and plans requires the use of multiple support services such as: training; procurement and contract administration; security and fire protection; quality assurance/quality control (QA/QC); waste management and inspection; transportation and construction departments; radiological operations and engineering; Radiation Control Technician (RCT); medical and health; safety and industrial hygiene; shipping and receiving and warehousing; legal; regulatory interface; laundry; analytical laboratory; toxic and hazardous material handling; utilities; excess property; telecommunications and information resources; finance and administration; and planning and integration.

Completion of decommissioning activities results in the assignment of the building footprint to the ER organization for any required remediation. Unless specified differently in the building RFCA decision document, all buildings will be demolished, all wastes will be removed, and building foundations, utilities or other remaining structures, will be removed to a depth of three feet below the final proposed grade. For each project, a Project Completion Report will be completed, approved by the regulators, and placed in the Administrative Record in accordance with RFCA and other applicable requirements.

Set #	Set Description
1	Room 125 and Dimensional Metrology Lab Glovebox
2	Rooms 126,132,133,137B
3	Hydraulic Oil System,2 <sup>nd</sup> floor in Room 233A
4	Portion of room 131, East/West D-Line-Gloveboxes 601, 602, 604, 605, 608, and 612, (including Tanks DL-776 and V-605)
5	Portion of room 131, East/West D-Line-Gloveboxes 614-617, and 619-621 (including Tanks V-614, V-616 V-618 and V-620)
6	Portion of room 131, North/South D-Line-Gloveboxes 626-628, 630, 632, 636, and 642 (including Tanks V-626 V-627)
7	Tanks 1103,1104,1106 and associated ancillary equipment in room 131
8	Rooms 120,130B, 131, (RCRA Units 90 and 49), 131A and Dock 1.
9	Room 134E, excluding Gloveboxes
10	Rooms 134E, Gloveboxes 505, 509, 751, 752, 624 and associated M-Line & north/south D-Line (including Tank V-752)
11	Room 134E, Gloveboxes 746-749, and associated M-Lines (including Tanks T-7, V-746, V-747, V-748 and V-749)
12	Room 401, 402, 402A, 403, 404, 405, 406, 407, 409, 410, and 411
13	Room 416, 416B, 417, 418, 419, 420, 429, 431, 431A, 431B
14	Room 415 and gloveboxes 201-205 and 207-214, and 216-222
15	Room 416A (Vault)
16	Rooms 426, 427, 427A and 428

Set #	Set Description
17	Room 430, glovebox 481 – Completed
18	Room 430, gloveboxes 360-362, 370-373, 368, and 465
19	Room 154A
20	Room 430, gloveboxes 401,402 Hood area and Room 424
21	Room 430, gloveboxes 403, 404, 405, 408, 409, 413, 426, 427, 450, and associated A-Line
22	Room 430, gloveboxes 439, 440-448, 451, 452, 454, & 456, 457, 458, 459, 462, 464, and associated A-Line
23	Room 430, glovebox 515, and associated R-Line and gloveboxes 318, 320, 321, 323, 324, and 327-331
24	Room 430, glovebox 756, 758-764 and associated M-line
25	Room 430, RCRA units 90.67, 95.017, 95.018 and 90.45
26	Tanks T1, T2, FL1-Room 430, RCRA Units 56.06 and 56.08
27	Rooms 432, 432A,B,C,D, 440 and glovebox 461 and RCRA unit 17
28	Room 433
29	Room 437 gloveboxes A1, A2, A3 and associated conveyor lines
30	Room 442 (Vault)
31	Room 433 and NDT Line
32	Room 436, 444, 446-450, 436 and RCRA unit 90.86
33	Room 445, gloveboxes 494, 495, and 499-502
34	Rooms 452 and 475, gloveboxes 522, 548, 022, 027, 029, 034, 035 and associated H-Line
35	Rooms 452 and 475, gloveboxes 026, 523-528, 530, 532, 537, 538, 541, and associated H-Line
36	Rooms 452 and 475, gloveboxes 536, 544 and 543 and machining equipment
37	Rooms 453, 454, 460 and south end of 445
38	Rooms 301, 455-458, and 461
39	Rooms 459 and 459A
40	Room 462 -A Vault
41	Room 463, gloveboxes A4, A-5, A-6, A-7, A-8, A9,and A11
42	Rooms 464, 477, 477A, 463A and 463B
43	Rooms 465, 465A and the north end of 445
44	Rooms 466-472, 474 and 474D
45	Rooms 473 and 476
46	Room 478 - B Vault
47	Rooms 479, 481-483, 483A, 483B and RCRA unit 90.68
48	Kathabar System (excluding inside plenums)
49	Modulab in north end of room 445
50	Office Area - Rooms 101, 102, 103A, 104 (A, B, C, & E), 106A, 107, 107D, 107E, 108, 108B, 108C, 109, (A, C, & D), 110, 112, 112A, 112B, 113, 113B, 113C, 114, 116B, 117, 119, 120, 121, 129, 140, 149
51	Room 154A, gloveboxes 046, 494 (cold box off glovebox 496), 495, 496, 499, 501, 502, 503, and 505-507
52	Room 134, Tanks T360 and T370, gloveboxes 361 and 371, and RCRA units 94.007 and 94.008
53	Room 152 - Vault, RCRA unit 90.85
54	Rooms 153, 154, 154B, 155, 161B, RCRA units 94.001, 94.002 and 94.003

Set #	Set Description
55	Room 134, Tanks SRV3-5, glovebox 0001, RCRA units 94.001, 94.002, 94.003
56	Rooms 161 and 161A
57	Rooms 156, 159, 159A, 159B, 159C, 160, and enclosed portion of Dock 5)
58	Rooms 157 and 158
59	Rooms 002, 138, 139, 144, 147
60	Rooms 146, 146A,B,C
61	Room 135 (pilot FBI) RCRA unit 49.02
62	Tanks FBI-1, FBI-2 and RCRA units 44.01 and 44.02 – complete
63	Rooms 118, 118A,B,C,D,E,F,G,H and RCRA unit 49.01
64	Supercompactor and Repackaging Facility (SARF) in Room 134, including gloveboxes 512, 513, 515, 517, 518, 521-1, 521-2 and RCRA Unit 74
65	Rooms 127J, 136, 141, 148, 150, and 150A
66	Advanced Sized Reduction Facility (ASRF) in Room 134 including gloveboxes, J-176, J-177, J-270, J-340, J-341, J-357
67	Rooms 123, 134, 137, and RCRA units 49.02, 11
68	Room 001, 127, 127A, 127B, RCRA unit 90.66
69	Room 127, Tanks T1A, T1B, T2A, T2B, T3 and RCRA units 40.70, 40.71, 40.72, and 40.73
70	Rooms 205, 206, 208, 219, 232, 233, 233B, 241, 242, 243, 244, 247, 247A, 247B, 252, 253, 254, 255, 256,
71	Superdry air drying system second floor
72	Glovebox dry air drying system second floor
73	Remainder of second floor equipment not in other sets
74	Buildings 702, 712, and 712A
75	Building 781
76	Building 701
77	Room 150, Chillers #2 and #3
78	Miscellaneous unused piping (e.g. machine coolant, carbon tetrachloride, process waste and argon recirculation piping)
79	Criticality accident alarm system and deluge system
80	Plenum and associated ductwork for Zone 1 ventilation
81	Miscellaneous external items (cargo containers, exterior piping, and transformers)
82	Building 776/777 Shell
83	Plenums and associated ductwork for Zone 2, supply fans S1-S9, health physics vacuum system, plant air and nitrogen systems, sanitary drains, domestic water, electrical, UPS batteries, LS/DW batteries, rooms 230A, 231, 231A and 232A, fire systems, and Buildings 703, 713, and 713A
84	Floors and below-grade features filled with concrete, including equipment from the 1969 fire cleanup

### 1.1.5 DAE, Material Stewardship

This WBS element includes supporting the closure of the Building 776/777 facility through the safe and compliant management of waste, from packaged form to shipment. This activity involves the tracking of material using appropriate databases, the procurement and supply of waste storage and shipping

commodities, and the scheduling of waste material transport. Additional functions include maintaining the security and safeguards posture at acceptable levels.

### **1.1.6 DAF, Decommissioning Technologies**

This WBS element includes the preliminary technology review, procurement, facility readiness, installation and operation of size reduction units acquired for contained size reduction operations or large contaminated items size reduction. The 776/777 Closure Project currently has two units in the design/development phase, the Remote Operated Size Reduction System (ROSRS) and the inner-tent chamber (ITC). In addition, special applied technology reviews, such as state of the art decontamination technologies are included in this WBS element. These technologies include items such as carbon dioxide blasting, vacuum blasting, and other new technologies.

### **1.1.7 Boundaries**

The 776/777 closure project includes; decommissioning and demolition of the 11 facilities listed below, removal of the Building 776/777 slab; and properly packaging waste and shipping the waste to a Building 776/777 dock. Inter-related scope excluded from the Building 776/777 project is; the under building contamination, the tunnel connecting Building 776 to Building 771/774, and waste treatment.

The 776/777 Closure Project includes the following structures:

- Building 776/777 (224,600 ft<sup>2</sup>);
- Building 701, research and development (5,170 ft<sup>2</sup>);
- Building 702, pump house for 712 (924 ft<sup>2</sup>);
- Building 703, pump house for 713 (1,080 ft<sup>2</sup>);
- Building 710, steam pit (352 ft<sup>2</sup>);
- Building 712, #1 cooling tower (3072 ft<sup>2</sup>);
- Building 713, #2 cooling tower (2425 ft<sup>2</sup>);
- Building 712A, natural gas building (90 ft<sup>2</sup>);
- Building 713A, #2 cooling tower valve pit (250 ft<sup>2</sup>);
- Building 730, process waste pit (698 ft<sup>2</sup>); and
- Building 781, Helium compressor for 777 (440 ft<sup>2</sup>).

In addition, there is one buried 5,000-gallon diesel fuel oil tank, which has been emptied and foamed; one buried 1000 gallon emptied-and-foamed diesel fuel tank (formerly served #5 Air Compressor diesel engine), an empty 1000 gallon diesel fuel tank in a concrete bunker (formerly served the FBI Compressor), an abandoned steam chase under the northwest area of the facility (under Room 158), a tunnel on the north west end of Building 776, which connects to Building 771; and access to Building 778 hall through room 120 in Building 777. Except for Buildings 776/777 and 701, all other Building 776/777 Complex buildings and structures are not normally occupied and are usually under lock and key.

## **2. Budget**

Table 1 is a summary of the Project budget.

**Table 1. 776/777 Closure Project Baseline Budget**

*Burdened Cost (\$000)*

<i>Project/Cost Account</i>		<i>F00</i>								<i>Total</i>
		<i>Feb-Sep</i>	<i>F01</i>	<i>F02</i>	<i>F03</i>	<i>F04</i>	<i>F05</i>	<i>F06</i>	<i>F07</i>	
<b>D</b>	<b>776/666 Closure Project</b>									
	<b>DA 776/666 Closure Project</b>									
	<b>DAA Project Management</b>	1,728	6,427	6,791	7,524	6,485	4,660	5,113	0	<b>38,728</b>
	<b>DAB Facility Management</b>	8,850	11,855	11,958	13,074	9,397	4,860	0	0	<b>59,994</b>
	<b>DAC Deactivation/SNM Holdup Removal</b>	3,039	245	0	0	0	0	0	0	<b>3,284</b>
	<b>DAD B776/777 Decommissioning</b>	4,867	12,294	19,032	21,315	20,122	40,265	13,226	83	<b>131,204</b>
	<b>DAE B776 Material Stewardship</b>	2,026	4,084	4,191	4,642	2,390	3,217	14	0	<b>20,564</b>
	<b>DAF B776 D&amp;D Technology</b>	1,253	3,602	3,345	2,332	1,824	0	0	0	<b>12,356</b>
	<b>Project D Totals:</b>	<b>21,764</b>	<b>38,507</b>	<b>45,317</b>	<b>48,887</b>	<b>40,217</b>	<b>53,002</b>	<b>18,354</b>	<b>83</b>	<b>266,129</b>

Thursday, June 22, 2000

rev. 3

Source: Cost Account Flash Price Spread Report, Kaiser-Hill P&I Reporting System (rpt\_fps\_ca, Project: BaslDevl\_0622a)  
 FY00 Actuals from P&I Reporting System, FY00 May Database 6/28/00

### **3. Schedule**

The baseline schedule is presented on the following page.



#### **4. Assumptions**

The following assumptions were used during the development of the baseline for the Building 776/777 closure project.

- A containment may be required for at least a portion of the facility during demolition.
- The decommissioning of Zone I ventilation systems will generate transuranic waste and Zone II ventilation systems will generate low level waste.
- There will no waste processing operations in Building 776/777 after September 30, 2000.
- The activity reviews conducted on Sets 23 and 26 will demonstrate readiness to complete decommissioning activities on all glovebox sets.
- Management reviews will be required to demonstrate readiness for the Inner Tent Chamber and the Remote Operations Size Reduction System (ROSRS).
- Scabbling will be required for 105,000 square feet of floor and wall space, which doesn't cover the entire facility.

