

C.10 ROCKY FLATS FIELD OFFICE SUMMARY

NOTE: This site summary provides information and data for sites under the Department's Rocky Flats Field Office. The data for this summary were collected in 1999 and do not necessarily reflect funding or completion profiles for the site. The data do not include changes that resulted from actual FY 2000 appropriations or anticipated changes as a result of both FY 2000 supplemental and FY 2001 budget requests. The Department is in the process of updating its life-cycle information for the EM program.

The 1999 data were the basis for DOE's *Status Report on Paths to Closure* (March 2000). The costs in the "Cost and Completion Date" section of this summary are the sum of the project planning baselines prepared by the field office and generally do not include estimates of project uncertainty. On the other hand, the cost range in the national status report includes an estimate of the cost resulting from project uncertainties, and EM's overall estimate of life-cycle costs of \$151-195 billion from FY 2000 to FY 2070 (or \$168-\$215 billion if the costs incurred between FY 1997 and FY 2000 are included in the cost range estimate).

The Rocky Flats Field Office Site Summary does not include the details of the revised strategy reflected in the new closure contract with Kaiser-Hill, LLC, which became effective on February 1, 2000. The contract formalizes the commitment of the Department and Kaiser-Hill to achieve site closure by the target date of December 15, 2006. The contract also reflects a target cost for the remaining cleanup (approximately \$4 billion), which assumes stable annual funding. The 2006 Closure Project Baseline is currently being revised to reflect the terms and conditions of the contract and will be submitted by June 30, 2000.

The Rocky Flats Environmental Technology Site (RFETS) is located approximately 15 miles northwest of Denver, Colorado. Construction of the site started in 1951. Facilities at the site are located on approximately 385 acres of an industrial area, surrounded by a buffer zone of approximately 5,800 acres of prairie terrain. RFETS has over 700 permanent structures that were built to support its mission. The primary mission of the site was to manufacture and assemble nuclear and non-nuclear weapons components, as well as to recover plutonium. In January 1992, the nuclear weapons production mission of the site was terminated formally; the non-nuclear mission of the site was completed in October 1994. The remaining mission of the site is cleanup and remediation. The potential risks to health and safety at RFETS arise principally from the large amounts of special nuclear materials, residues contaminated with

plutonium, and radioactive wastes that are stored at the site.

The RFETS baseline includes revised FY 2001 budget formulation data, which are based on a contractor proposal to close the site by the end of calendar year 2006—an acceleration from the 1998 *Paths to Closure* report, which was based on the 2010 Closure Baseline. Closure by 2006 requires a shift in strategy to achieve four years of closure acceleration at a cost of approximately \$6.3 billion. Post-closure costs are estimated at \$1.4 billion for a total project cost of \$7.7 billion (constant 1999 dollars). Both the Department of Energy (DOE) and the Integrating Management Contractor (IMC) believe closure by 2006 is attainable; however, the goal is optimistic and requires many things to break favorably in the project's direction.

RFETS remains committed to the challenge of closing the site by the end of 2006. This commitment is tied to DOE's ability to overcome complex-wide barriers, and to facilitate resolution of national issues of inter-site integration for off-site shipment of special nuclear materials and radioactive waste for storage, treatment, and disposal.

C.10.1 End State

Intermediate site condition expectations for RFETS were developed through a detailed discussion, negotiation, and approval process that were codified in the Rocky Flats Cleanup Agreement (RFCA). Approved in July 1996, this agreement establishes a legally binding relationship between the DOE, the U.S. Environmental Protection Agency, and the Colorado Department of Public Health and Environment, which governs cleanup at the site.

The assumed land use at the completion of cleanup remains open space with possible industrial reuse of the industrial area. This land use forms the basis for the interim end state assumptions, including cleanup levels. The final end state for RFETS will be determined through the ongoing public and regulatory processes. The site continues both internal and external discussions about the end state, future use, and stewardship of RFETS. Discussions to identify the process for determining future use and defining long-term stewardship roles and responsibilities are in the early stages. A new citizen's organization, the Rocky Flats Coalition of Local Government, was formed to facilitate transition of the site to its future use. The Coalition applied for and has been granted designation of the community reuse organization for RFETS.

According to the RFCA, planned cleanup levels will permit open space use of the site's buffer zone, and the industrial area will be cleaned up for restricted open space or industrial reuse. Certain areas of the site are proposed to be capped. These include contaminated areas in the former industrial area, the solar ponds, and sanitary landfills. The caps would reduce waste infiltration and direct runoff in the area, thereby preventing migration of contaminants. Additional cleanup may be conducted should technological advances or increased funding allow. Decisions regarding caps will be made through the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process. These decisions are expected in the next few years.

C.10.2 Cost and Completion Date

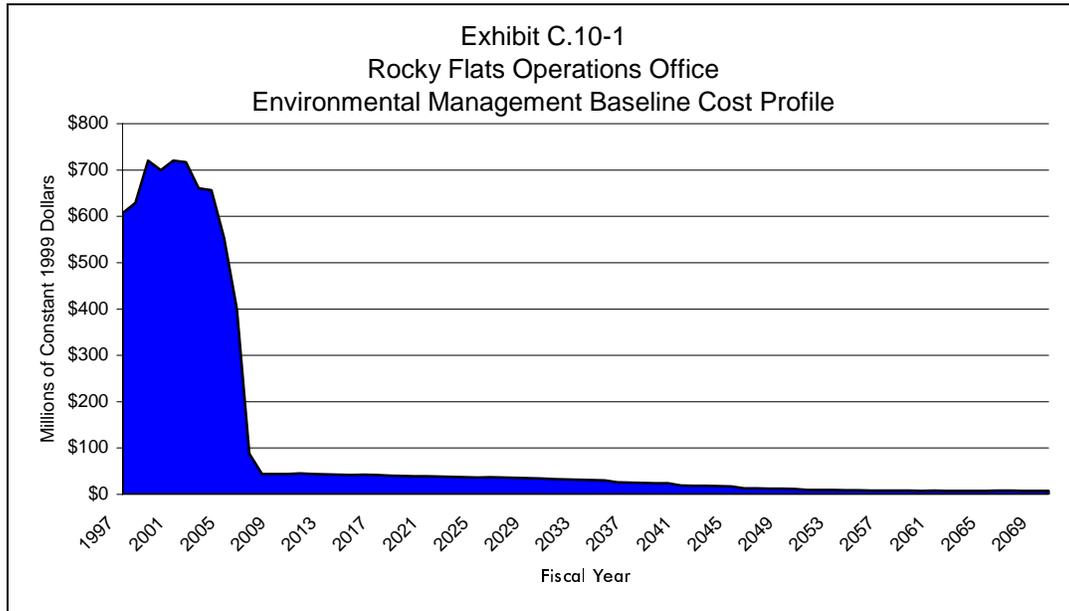
The Rocky Flats Field Office currently separates its closure activities into 28 discrete projects. The Project Baseline Summary (PBS) developed for each project sets forth detailed strategies for completion of the project and programmatic information that includes cost, schedule, scope, end state, and interim milestones. Additional information is available in each PBS.

The sum of the costs of the planning baselines for individual projects managed by the Rocky Flats Field Office is \$7.7 billion (constant 1999 dollars), which includes \$1.4 billion in post-closure costs that will be incurred after cleanup activities are completed. Given the uncertainty associated with out-year costs (2007-2070 costs)—specifically the cost and duration of stewardship activities—these costs will continue to be refined.

While the 1998 *Paths to Closure* report indicated that the site completion date for RFETS was FY 2010, both EM headquarters and the Rocky Flats Field Office have undertaken the challenge of completing all closure work by the end of calendar year 2006.

The Rocky Flats Field Office has developed a Project Management Plan (PMP) for closure of the site by December 2006. Ernst and Young, LLP performed a Confidence Review of the PMP and summarily concluded that closure by 2006 could be achieved if a number of issues and concerns are quickly addressed. The IMC's 2006 Closure Project Proposal passed review, and the proposal was put under configuration control on October 1, 1999. The RFFO authorized the FY 2000 piece of the proposal.

The projected cost profile associated with the closure of RFETS was developed by combining the cost estimates presented in each PBS (based on the initial 2006 Closure Project Baseline). Exhibit C.10-1 displays the resultant baseline cost profile.



C.10.3 Accomplishments Since the 1998 *Paths to Closure* Report

During FY 1999, RFETS achieved the following major accomplishments:

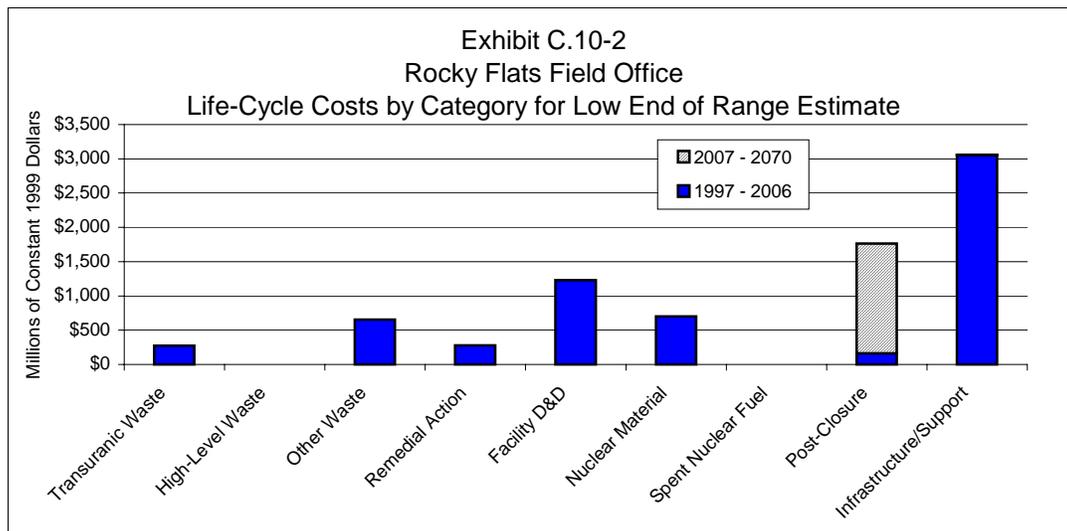
- ❑ Completed 12 shipments to the Waste Isolation Pilot Plant that included 282 Pipe Overpack Components and 26 drums of graphite molds;
- ❑ Transferred plutonium pits to Pantex and completed shipments of enriched uranium to Oak Ridge;
- ❑ Removed the last 133 contaminated gloveboxes from Building 779 (a former weapons research and development facility);
- ❑ Completed removal of approximately 9,200 cubic meters of pondcrete waste from the site;
- ❑ Demolished Building 779;
- ❑ Completed the environmental assessment on interim on-site storage of transuranic waste;

- Deployed two passive reactive barrier systems to collect and treat contaminated groundwater; and
- Formed a partnership with U.S. Fish and Wildlife to create the Rock Creek Reserve to protect threatened and endangered wildlife along central Colorado's Front Range.

C.10.4 Work Scope Summary

The scope of work necessary to achieve closure as defined in the RFCA includes the stabilization and management of plutonium metals, oxides, residues, and solutions; enriched uranium metals and oxides; and wastes generated from closure activities. Existing waste and materials, as well as the waste generated from the cleanup, will be treated (if required), packaged, and transported according to off-site waste acceptance criteria and all applicable laws and regulations. More information about work scope can be found at the following websites, which contain links to the conceptual summary disposition maps (<http://emi-web.inel.gov/summary.html>) and the detailed disposition maps (<http://emi-web.inel.gov/dmaps.html>) in PDF format.

At RFETS, the bulk of costs over the next few years are driven by continued storage of special nuclear material, residues, and wastes. Under the current PBS structure, each building closure and infrastructure project integrates all activities necessary to continue safe operations and to eliminate buildings, including maintaining safety envelopes, deactivation, decontamination (to the extent necessary), decommissioning, dismantlement, and environmental remediation of the land under the buildings. The remainder of the work scope includes environmental remediation of land areas outside building footprints, including the buffer zone. Groundwater will be passively remediated and post-closure environmental monitoring will be required after site closure. The scope of the post-closure requirements will be described in the CERCLA ROD at closure. Exhibit C.10-2 displays RFETS site closure costs by major work scope category.



C.10.5 Critical Closure Path and Programmatic Risk

The critical closure path schedule presented in Exhibit C.10-3 (based on the May 1999 2006 Closure Project Baseline) sets forth the estimate for completing the closure activities at RFETS. The highlighted activities show the critical closure path, which represents the series of events that drive the overall completion date for the site.

The primary key for RFETS to close on schedule is the ability to ship materials and wastes to receiver sites. The site is consolidating nuclear materials into fewer buildings to minimize operations and costs and maximize the funding available for closure activities. However, the key activity on the critical closure path in the early years is the stabilization of nuclear materials and their packaging in configurations certified for shipping. RFETS has developed a closure plan that minimizes the total cost by balancing the nuclear materials preparation activities (risk reduction) with building elimination ("mortgage" reduction). In an effort to further accelerate the closure schedule, activities that have the potential to improve the efficiency of those two efforts are being identified and evaluated for implementation.

Completion of the EM mission at RFETS as scheduled will depend on the timely accomplishment of critical activities and events, some of which are external milestones (milestones that are beyond the ability of the site to resolve). Exhibit C.10-4 presents a summary of waste disposition data on the critical closure path that have high programmatic risk (programmatic risk scores of 4 or 5 in any

category). These risk scores are based on the data within the initial 2006 Closure Project Baseline. They are and will continue to be addressed in revisions and updates to the closure baseline. In addition to those high programmatic risk milestones, several other external milestones have an effect on the site's ability to achieve its closure goal. Those milestones include the ability of potential receiver sites to accept materials from RFETS and the availability of safe, secure transport of the materials to receiver sites.

Exhibit C.10-3 Rocky Flats Field Office Critical Closure Path

Activity Description	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10	FY 11
EXTERNAL CONSTRAINTS															
EXTERNAL CONSTRAINTS (2006 Critical Path)															
EXTERNAL CONSTRAINTS (Non-Critical Path)															
2006 Critical Path															
2006 Money Critical Path															
Internal Milestone															
Money Critical Path or Critical Path Milestone															
Reduction Milestone															
Mortgage Reduction Milestone															
Slip or Acceleration															
Complete															
Completed Milestone															
Legend															
External Constraints (2006 Critical Path)															
External Constraints (Non-Critical Path)															
2006 Critical Path															
2006 Money Critical Path															
Internal Milestone															
Money Critical Path or Critical Path Milestone															
Reduction Milestone															
Mortgage Reduction Milestone															
Slip or Acceleration															
Complete															
Completed Milestone															
PROJETS															
NUCLEAR OPERATIONS															
Pu Liquid Stabilization Project															
Building 779 Cluster Closure Project															
Pu Metal and Oxides Stabilization Project															
Pu Solid Residue Stabilization Project															
SNM Consolidation Project															
SNM Shipping Project															
D&D															
Building 771/774 Cluster Closure Project															
Building 371/374 Cluster Closure Project															
Building 707/750 Cluster Closure Project															
Building 776/777 Cluster Closure Project															
Building 881 Cluster Closure Project															
ENVIRONMENTAL RESTORATION															
Buffer Zone/LZ Closure Projects/Contract Closeout															
Closure Caps Project															
WASTE MANAGEMENT															
Waste Management Project															
SITE SUPPORT															
Utilities and Infrastructure Project															

Exhibit C.10-4
Rocky Flats Field Office
Summary of High Programmatic Risk Waste Disposition Data

Stream Name	Waste Stream Activity Name	Programmatic Risk Categories*		
		Technological	Work Scope Definition	Intersite Dependency
Decontamination & Decommissioning (D&D) Waste (Hazardous, Low-Level Waste, Mixed Low-Level Waste, Transuranic (TRU) and Mixed-TRU, and Uncontaminated)	Collect & Treat	1	5	1
Sorted D&D Low-Level Material	Other Processing	1	5	1
Sorted Routine Ops/ Deactivated Solids to Disposal	Disposal	1	4	5
Treated Routine Ops/ Deactivated Solids to Disposal	Disposal	1	4	5
Polychlorinated Biphenyl (PCB) Organic Liquids	Treatment	1	4	1
Combustible Solids	Treatment	1	4	4
Contact-Handled TRU New Gen to Off Site Treatment	Treatment	3	4	4
Waste Isolation Pilot Plant Ready TRU	Disposal	1	1	5
PCB Organic Solids	Treatment	1	4	1

*For a discussion of programmatic risk categories, see Appendix D on the Internet site <http://www.em.doe/closure/>.