

ROCKY FLATS CLOSURE LEGACY

ACCELERATED CLOSURE CONCEPT



SUNRISE OVER ROCKY FLATS AND THE NEARBY ROCKY FLATS COMMUNITIES. THE GROWTH OF SUBURBAN DENVER RESULTED IN LARGE POPULATIONS CLOSE TO THE ROCKY FLATS SITE AND WAS ONE FACTOR SUPPORTING THE ACCELERATED CLOSURE OF ROCKY FLATS.

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**Figure 1-1: Rocky Flats Environmental technology Site
1995 versus 2005.**

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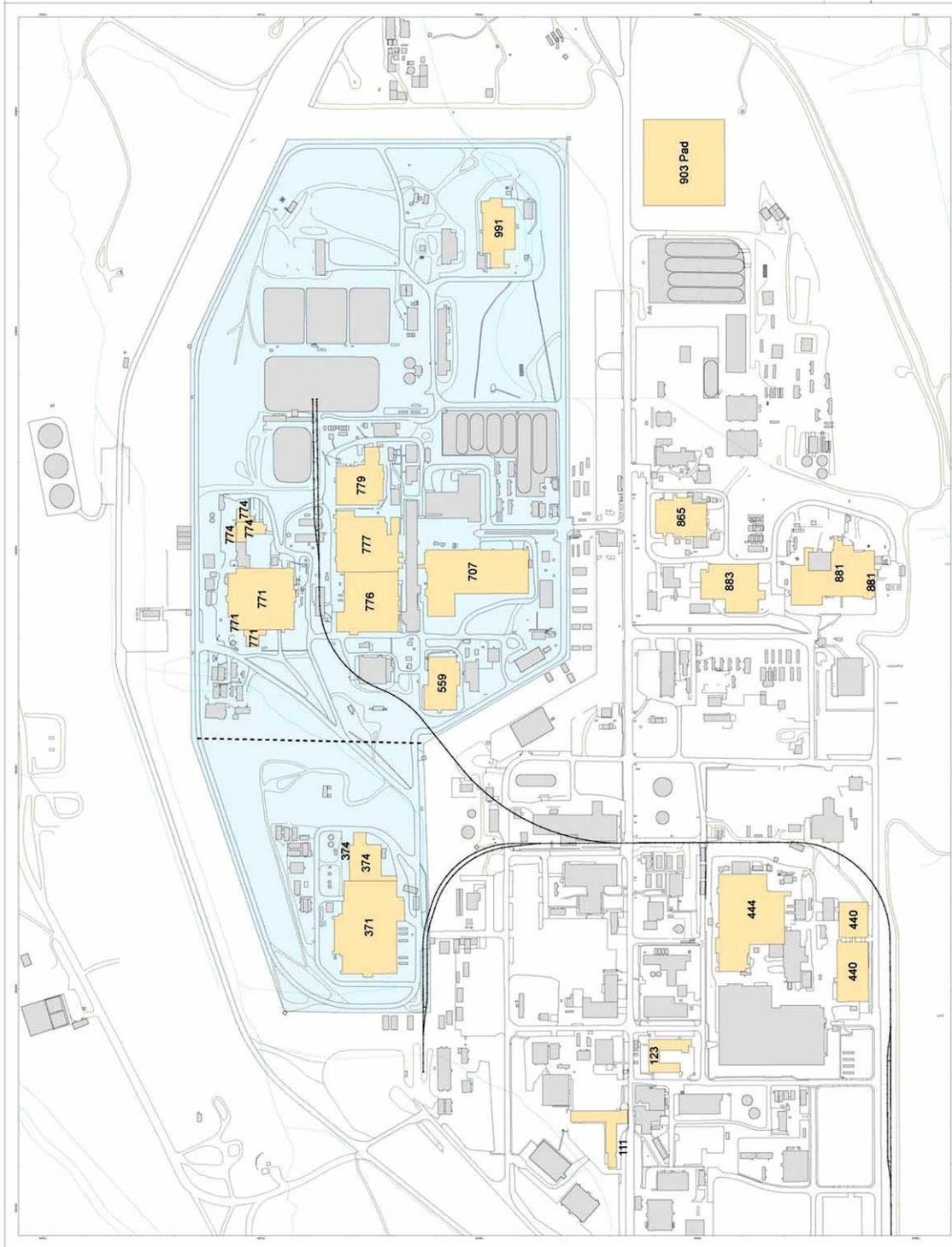


Figure 1-3: RFETS Location Map: major facilities within the former industrial area (DOE Retained Lands).

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INTRODUCTION

From 1952 to 1993, the Rocky Flats Site produced components for the nation's nuclear weapons arsenal. When production of nuclear weapons components ended at Rocky Flats, its mission changed to one of cleanup and closure. As a result of operational problems during the Site's history and its abrupt shutdown in 1989 for environmental and safety concerns, substantial plutonium and beryllium contamination of facilities existed, plutonium liquids were left in process piping and in tanks in unknown quantities and chemical configurations, and classified materials were left where they were being used or processed. The Department of Energy (DOE) was faced with one of the most significant and challenging environmental cleanups in the history of the United States. Closure seemed a distant dream in early 1995, when the DOE estimated the cleanup of Rocky Flats would take approximately 65 years and cost over \$37 billion.

For cleanup and closure of the Site to become a reality, a new vision was needed. This section, the first of the overall Legacy report, discusses the preconditions and building blocks of the Accelerated Closure Concept. The concept refers to a process that spans development of the accelerated closure vision through the establishment of the closure project. The accelerated closure vision and resulting project, while ultimately successful, did not evolve smoothly, easily or directly. Establishing and implementing the accelerated closure concept was only possible through innovative and groundbreaking strategies for political support (among the DOE Site leadership, contractor leadership, the DOE political leadership and key congressional committees), regulatory applications and relationships, project management and control, and contract development and management. These accelerated closure project "pillars" are individually discussed in the next four sections of this document: *Congressional and Executive Administration Support*; *Regulatory Framework*; *Contract Approach*; and *Creating and Implementing a Closure Project*.

Breaking down the closure project into these four areas does not mean that these areas or activities occurred independently of each other. Nor was the progress in each area straightforward, progressive or inevitable. Each of these areas was mutually interdependent. Their development was iterative over time, and in many cases the process was inefficient and difficult. Although the purpose of this document is lessons learned, the lessons related to the political, regulatory, project, and contracting pillars are interwoven and complex. To get at those lessons, the narrative provides some context so that the reader can understand the constraints and influences that may have affected the key decision makers at the time.

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CONGRESSIONAL SUPPORT
REGULATORY FRAMEWORK
CONTRACT APPROACH
PROJECTIZATION

SAFETY INTEGRATION
SPECIAL NUCLEAR MATERIAL
DECOMMISSIONING
WASTE DISPOSITION
ENVIRONMENTAL RESTORATION
SECURITY RECONFIGURATION
TECHNOLOGY DEPLOYMENT
END STATE AND STEWARDSHIP
FEDERAL WORKFORCE
STAKEHOLDER INVOLVEMENT

In hindsight, the four pillars of the cleanup project were Congressional support, a regulatory framework that provided a bias for action, projectization by the contractor and DOE and the CPIF Contracting Approach.

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Also, some information was neither known or knowable when the decisions were being made and can only be evaluated with the passage of time. Application of these lessons to another site is not straightforward, but will require intellectual consideration of the events, circumstances, outcomes, and most difficult of all, synthesis and extrapolation into current circumstance.

Part of the success story of the Rocky Flats closure is due to the confluence of interests that worked together to make accelerated closure at Rocky Flats a reality. The circumstances at Rocky Flats prior to closure are in some ways unique compared to other DOE sites. No other site in the nuclear weapons complex had attempted a cleanup effort of this size and complexity under an accelerated schedule. Several principal parties, including DOE, its closure contractor, regulators, congress and stakeholder groups were engaged and committed to seeking solutions to safely cleanup and close Rocky Flats. Because of the groundbreaking nature of attempting a first of-its-kind accelerated cleanup and closure project, Rocky Flats had to pioneer processes, many of which have now become standard DOE approaches. However, all sites faced with closure encounter their own unique set of circumstances with their associated advantages and disadvantages, and it is the responsibility of site management to effectively manage the closure.

All sites faced with closure encounter their own unique set of circumstances with their associated advantages and disadvantages.

The importance of leadership, both within and outside the DOE, is evident in each of the pillar areas. The Rocky Flats senior management began to realize through a [strategic planning process in 1992¹](#) that any progress would require alignment of interests of the Site, headquarters, regulators, contractors, Congress, and multiple stakeholders. After that realization, Rocky Flats institutionalized processes to not just inform, but to actively engage the leadership of these widely varied interests. Thus the changes in leadership that occurred through time, internal and external to DOE, marked some of the key events that influenced the accelerated closure effort. The Rocky Flats Site Managers played the most influential roles and their tenure and primary focus is described below. Following that is a table ([Figure 1-5](#)) of the key leadership changes over time within DOE and the other key interest organizations. At the beginning of this section several figures are included to provide a backdrop for the narrative in the sections to follow: [Figure 1-1](#), a photo comparison of the Site from 1995 to 2005, [Figure 1-2](#), the proposed division of the Site between those lands that will be retained by DOE, and those that are planned to be turned over to the Fish and Wildlife Service as a Wildlife Refuge, [Figure 1-3](#), a Site Location map, and [Figure 1-4](#), a timeline of key events in the history of Rocky Flats.

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Mark Silverman (October 1993 – June 1996): The first manager not tagged with “Acting” since the June 1989 raid. Mr. Silverman recognized the dysfunctionality of existing regulatory and contractual systems, and proposed bold strategies to reverse the downward trends. He also provided the leadership and statesmanship to align senior executives to the first Site closure vision, and rallied the Rocky Flats staff toward its new mission.

Jessie Roberson (June 1996 – October 1999): The first manager with a performance based contract, and a contractor determined to break with M&O past practice. She executed major organizational, personnel, and process changes to institutionalize systems that would implement the closure vision. The accelerated closure concept was developed and new regulatory agreement signed under her leadership, and groundwork laid for the final closure contract.

Paul Golan (October 1999 – June 2000): A Deputy Manager who served acting manager during the transition to the closure contract. Provided management continuity to complete the negotiation for the closure contract, sign the contract, manage the contract transition, and begin implementation of the first-of-a-kind contract for accelerated closure.

Barbara Mazurowski (June 2000 – August 2002): The manager who fully implemented the final closure contract. She championed safety and quality as prime requirements to ensure that the contractor incentives for cost and schedule performance did not overshadow safety. Many detailed administrative and technical processes were developed to implement the new and unfamiliar contract structure and obtain the desired contractor behavior and performance.

Gene Schmitt (August 2002 – October 2003): The manager who further defined and re-focused the attention of the Site to the final closure scenario. He established a clear direction toward the endpoint as DOE and contractor staff were struggling with the details of some of the most difficult closure work. He developed comprehensive transition plans for the DOE staff, planned the first reduction-in-force, and championed creative benefits and placement techniques.

Frazer Lockhart (October 2003 – Present): The manager who completed the physical cleanup and ensured completion of the entire closure mission and transition. He developed plans for contract performance verification, transition to Legacy Management, and office downsizing, executing these plans to move toward the final mission completion. Regulatory and administrative processes are continuing to complete every aspect of the Site closure and transition.

Some of these events were known to be pivotal at the time, while the importance of others only became clear in hindsight.

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Although people were the driving force behind the creation and execution of the accelerated closure at Rocky Flats, certain events internal and external to DOE, mark the progress of the closure project. Some of these events were known to be pivotal at the time, while the importance of others only became clear in hindsight. The event timeline below serves as an additional reference point for understanding the situational context of the other sections in this report.

Rocky Flats is the most successful example to date of the accelerated closure of a former nuclear weapons facility. Rocky Flats had a vision, a flexible regulatory agreement, a quasi-fixed price closure contract and a very clear cost, schedule and scope. Rocky Flats management often learned on the go, sometimes moving piece-meal through processes as may policies to facilitate accelerated closure were not yet developed and key decisions had not yet been made. Various strategies and activities were conducted without a complete game plan and without a coherent notion of how the pieces would fit together at the end. It is hoped that describing how the accelerated closure concept was actually developed and implemented at Rocky Flats will help other sites avoid repeating all of the Rocky Flats painful lessons and mistakes, and go straight to the most desirable strategy for achieving successful accelerated closure.

DISCUSSION

Contract Reform and Performance-based Expectations

Accomplishment of the accelerated closure vision was made possible, in part, by a change in the DOE approach to contracting. In 1994, the DOE established the [Contract Reform Initiative](#),² to pursue a performance-based approach to contracting and to incentivize contractor execution and completion of work, consistent with clearly established performance expectations. In this context, the Rocky Flats contractor could be incentivized to accept aggressive but clear performance measures for the cleanup and closure. While severely limiting reimbursement of contractors who did not meet performance expectations, it also provided contractor management flexibility and incentives for exceptional performance. In 1995, the DOE selected Kaiser-Hill, LLC (K-H), an environmental cleanup contractor under a [performance-based contract](#)³⁷ who was confident and willing to accept the challenge of the accelerated closure vision, given the incentives associated with accomplishing this challenge. The contract reform initiative was a motivating influence to incentivize execution and performance of the Rocky Flats cleanup and closure. In this contracting environment, and given the flexibility to

The Contract should have maximum fixed price scope, with a different project risk strategy for areas of greater uncertainty.

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Rocky Flats Site Managers

Mark Silverman	1993-1996
Jessie Roberson	1996-1999
Paul Golan-(Acting)	1999-2000
Barbara Mazurowski	2000-2002
Eugene Schmitt	2002-2003
Frazer Lockhart	2003-Present

Rocky Flats Contractor Managers

Jim Zane [EG&G]	1990-1993
Anson Burlingame [EG&G]	1993-1995
George O'Brien [K-H]	1995-1996
Marvin Brailsford [K-H]	1996
Robert Card [K-H]	1996-1998
Alan Parker [K-H]	1998-2002
Nancy Tuor [K-H]	2002-Present

Assistant Secretary for Environmental Management

Leo Duffy	1991-1993
Thomas Grumbly	1993-1996
Alvin Alm	1996-1998
Caroline Huntoon	1999-2001
James Owendoff (Principal Deputy)	1999-2002
Jessie Roberson	2001-2004
Paul Golan (Acting)	2004-2005
James Rispoli	2005-Present

Secretary of Energy

James Watkins	1989-1993
Hazel O'Leary	1993-1997
Federico Peña	1997-1998
William Richardson	1998-2001
Spencer Abrams	2001-2005
Samuel Bodman	2005-Present

State of Colorado Executives

Roy Romer	1987-1999
Gail Schoetter [Lt. Governor]	1995-1999
Bill Owens	1999-2007

U.S. Senators (Colorado)

Ben Nighthorse Campbell	1993-2005
Wayne Allard	1997-Present
Ken Salazar	2005-Present

U.S. Congressmen (Colorado)

David Skaggs	1987-1999
Wayne Allard	1991-1997
Mark Udall	1999-Present

RFCA Principals (CDPHE and EPA)

Jack McGraw [EPA]	1995-2004
Max Dodson [EPA]	2004-Present
Tom Looby [CDPHE]	1995-1997
Patti Shudyer [CDPHE]	1997-1999
Doug Benevento [CDPHE]	1999-2005
Howard Roitman [CDPHE]	2005-Present

RFCA Coordinators

Tim Rehder [EPA]	1996-2003
Mark Aguilar [EPA]	2003-Present
Steve Tarlton [CDPHE]	1996-1998
Steve Gunderson [CDPHE]	1998-2005
Carl Spreng [CDPHE]	2005-Present

Figure 1-5, Key Leaders Impacting the Rocky Flats Site Closure

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define project-based approaches to accomplish the overall Rocky Flats closure vision, K-H was willing to assume greater risks for closure responsibility and share in greater rewards for closure performance.

Consensus on the Accelerated Closure Vision

The performance-based contract concept focused on closure goals and provided performance measures that allowed K-H to propose an accelerated closure approach. There was a broad desire, supported by numerous efforts, to make real progress with the actual cleanup of Rocky Flats. Shortly after assuming management and integration responsibilities for Rocky Flats in August 1995, K-H and the DOE Rocky Flats Field Office proposed a new paradigm for a practical and achievable Rocky Flats end state condition called Interim End State. Working together, the Rocky Flats Field Office and K-H developed an aggressive approach to accelerate real progress toward the cleanup and closure of Rocky Flats. The vision to drastically change the previous approach to closure included shared risks and rewards, accountability, consolidation of material, stabilization and focused cleanup of the Site, with active involvement of stakeholders up front as well as throughout the process.

Congressional support was essential to achieving mandated funding levels. It was achieved, in part, due to the alignment of regulators, stakeholders and DOE to a common vision.

Before this accelerated closure vision was developed and articulated, no general expectation existed that Site closure could be accomplished in the near term or as a defined project with specified schedules. Traditional approaches to Site management and DOE contracting had been based on an operational culture (i.e., process work). In contrast, the accelerated closure vision articulated the possibility that Rocky Flats closure could be accomplished in a short enough time frame, and within an established budget, to represent a legitimate planning horizon.

The development of the closure vision took place at a time when there was not a coherent or unified planning process. In 1995 alone there were at least four distinct initiatives emanating from the Site that all sought to offer a global framework for identifying the new vision and strategy for Site cleanup. Each of these initiatives included the involvement of the workers, stakeholders, regulators and DOE headquarters. The lack of coherence, consistency and coordination among these initiatives was a key, defining feature of the Site's operations and public profile in 1995.

The four major initiatives were:

[The Rocky Flats Cleanup Agreement \(RFCA\)](#) The objective of the RFCA³ negotiations was to streamline and coordinate regulatory processes

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and requirements. To be effective, the agreement needed to be based on a strategic vision for site closure, so the effort to craft such a vision for the Site became a part of the negotiations. This vision, associated with an enforceable regulatory agreement, was critical to defining the strategy for cleanup and the Site's relationship with its regulators and stakeholders. Numerous issues critical to the Site's overall cleanup strategy were addressed in RFCA: onsite waste disposal, interim soil and water standards, facility reuse, plutonium disposition and others. RFCA also included a schedule, one that was more aggressive than the [Baseline Environmental Management Report \(BEMR I\)](#)⁴ process, but not as aggressive as the more ambitious projections of the K-H planning process.

The Kaiser-Hill Accelerated Closure Planning Process. This initiative was largely internal to DOE and K-H to address out-year technical and management issues that had to be evaluated before concrete baselines could be developed. It included some interactions with the community while the other processes were still unfolding. This planning process was not associated with any specific DOE or regulatory process, but due to the momentum behind the new Performance-based Integrating Management Contract, it had a positive impact both on and off Site.

Future Site Use Working Group (FSUWG). Convened in 1994 as part of a DOE HQ initiative, this group, comprised of local stakeholders, met for over a year to provide future use recommendations to DOE. [The group issued its final recommendations in 1995](#), and presented them to DOE amidst much public fanfare.⁵ DOE funded this group and participated in the meetings. Although the FSUWG planning assumptions were based on BEMR I cleanup estimates (65 years and \$37 billion), the FSUWG report included a broad community consensus recommendation for open space as the ultimate end use of the Site. While the "open space" designation was widely interpreted, it provided an important community consensus and the basis for more focused discussion on open space uses in the future. DOE prepared and provided detailed responses to the FSUWG recommendations, but had no formal mechanism at that time to provide the new accelerated closure expectations to the FSUWG for their consideration.

Sitewide Environmental Impact Statement (EIS). DOE was in the midst of revising an overall sitewide EIS to reflect the operational plans at that time. The EIS effort was staffed by a subcontractor (Parsons Brinkerhoff) who initiated a wide range of stakeholder meetings, including scoping the alternatives the community wanted to analyze and produced a [Comment Response Document](#).⁶ At the same time the EIS was being developed to evaluate the impact of resuming nuclear operations, the FSUWG was finishing its recommendations, RFCA was being negotiated, and K-H was

The lack of coherence, consistency and coordination among cleanup and closure initiatives was a key, defining feature of the Site's operations and public profile in 1995.

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undertaking initiatives to develop a strategy to accelerate closure. Unfortunately, the EIS ended up bringing more confusion than clarity to the situation and was never finalized.

A few common threads were pervasive in the accelerated closure planning initiatives during the 1994 – 1995 timeframe. First, all of these initiatives sought to put forward a global vision and strategy for Site closure. Second, all of these initiatives demanded community involvement, including scheduled public meetings and interactions. Third, these initiatives were managed by different organizations on Site, within both DOE and K-H. Fourth, DOE lacked the means to ensure consistency among these initiatives. Fifth, each of these initiatives had a separate and distinct constituency so that none of these initiatives could be discontinued without causing considerable consternation.

It is worth noting that these “global initiatives” co-existed with, and were influenced by numerous other, more specific, initiatives. These included: responses to Defense Nuclear Facilities Safety Board (DNFSB) recommendations, close out of the DOE-EH Plutonium Vulnerabilities Report, and the annual exercise for the budget. These specific initiatives also required public meetings and involved messages, policy commitments and strategies that may or may not have been consistent with all or any of the major initiatives. As a result, the closure process, that in hindsight appears to have been efficient and focused, was in fact initially very disjointed and disordered.

The Rocky Flats Manager addressed these multiple efforts in the fall of 1995, with the creation of a strong central Planning & Integration Division to provide order, consistency, and a single strategic path forward. The lesson for other sites is clear. Maximum effort must be made to have a consistent strategy and vision that is reflected in the budget, planning, regulatory, contract and public processes. To succeed, there must be alignment between the DOE Field Office, DOE HQ and the contractor on the strategy and vision, and the initiatives to create them. To the extent feasible, even independent entities such as the DNFSB and DOE-EH need to be sufficiently engaged so that their initiatives remain consistent with the overall plan and strategy. This process took years to work out at Rocky Flats and involved a great deal of injured stakeholder relationships and wasted staff hours. Other sites should strive to avoid this by making a much greater centralized effort up front to ensure coherence and consistency among the various elements of site vision and strategy, and its implementation.

Establish a clear and common vision for the Site with the community and regulators.

DOE and K-H recognized that for accelerated closure to be achieved, a consensus on the vision for closure was needed by all involved parties.

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That is, the DOE Field Office, DOE HQ, contractors, regulators, elected officials and the community needed to share a common vision for closure. The first steps toward consensus with Rocky Flats cleanup occurred during a 1995 stakeholders summit where agreement was reached to “Make It Safe – Clean It Up.” Clearly, the consensus on cleanup and closure did not mean that all parties agreed to the accelerated closure approach, schedule or endstate. As the consensus developed (i.e., the agreement on the concept among the various groups), the specific details needed to accomplish the vision were worked out as an evolving process. Sufficient clarity was established to initiate more specific discussions of cost, scope, schedule and regulatory end points. In addition, this shared vision and openness in communication allowed difficult regulatory and closure issues to be discussed and resolved between DOE, K-H, the regulators, and the stakeholders. The various parties began to recognize that major benefits could be achieved if common closure expectations were developed and accomplished.

Partner with regulators to align regulatory and project milestones consistent with the vision.

The [Interim End State Document](#),⁷ developed in August 1995 as the K-H initial input into the policy arena, proposed a new paradigm for the practical, accelerated, achievable and interim Rocky Flats end state condition. The interim end state led to the first [Accelerated Site Action Project \(ASAP I\)](#),⁸ which proposed a vision of demolishing the buildings in place, with much of the existing radioactivity remaining onsite after closure. When initially shared with the broader community, there was significant surprise and concern because the new vision was so strikingly different from the previous discussions of cleanup.

During a “Rocky Flats Workout” session with DOE and regulators on October 10 - 11, 1995, an “Agreement in Principle” was developed that helped complete a revised regulatory agreement to accomplish work in a quicker and more cost-effective manner. The session focused on identifying a conceptual vision for an interim and final closure of Rocky Flats and resolved several issues to allow a new, comprehensive regulatory agreement to be reached. This vision included the substantive removal of building radioactivity and waste from the site. On February 19, 1996, officials at the Site released a working draft version of the accelerated closure “vision statement” ([Choices for Rocky Flats](#),⁹ also known as [ASAP II](#)), that was intended to guide future activities at Rocky Flats, including cleanup, plutonium consolidation, safety, conversion and land use. This vision provided choices to the community and allowed the accelerated closure concept to proceed.

Know enough about Site characterization to develop a realistic baseline consistent with regulatory endpoints and the vision.

Specifics on the endstate vision, engagement and relationship building with stakeholders and regulators, and the regulatory approach are discussed in the section entitled [Regulatory Framework](#).

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Achievability of the Closure Vision

To be achievable, the closure vision needed to establish what the cleanup would look like. The vision, while not initially specific, was clear enough to bound certain closure options. In addition, the vision needed to be achievable within a reasonable cost and schedule and within existing technological capabilities. A consensus vision that required 65 years and \$37 billion (e.g., BEMR I and the FSUWG) would have been incompatible with accelerated closure, and most likely would not have convinced regulators and stakeholders that a project of such extended duration could be achieved. Similarly, a consensus vision that presumed a technological silver bullet for success would not have been compatible with the existing understanding and technical complexity of accelerated or achievable closure.

Developing a Closure Project

Over time, the accelerated closure vision developed into the concept of a closure project and a closure baseline took shape. In contrast to the previous “business as usual” approach to operations that had projected a 65 year and \$37 billion closure effort, the accelerated closure vision established the expectation that closure could be accomplished using a “project” format with specifically established near-term closure milestones and endpoints. In addition, senior DOE and K-H management established a unified closure project message: “Get it done!” The project concept defined closure scope, schedule and cost expectations on a realistic and achievable format. Closure activities were explicitly defined, resources were not diverted to activities that did not directly support closure of the Site, and the workforce (both DOE and the contractor) transitioned from an operations/production culture to cleanup/closure culture. A discussion of project baseline development and project management tools is provided in the section on *Creating and Implementing a Closure Project*.

A critical subset of players supported the concept of the closure vision, and were passionately and energetically committed to accomplishing the vision.

Intensity of Commitment

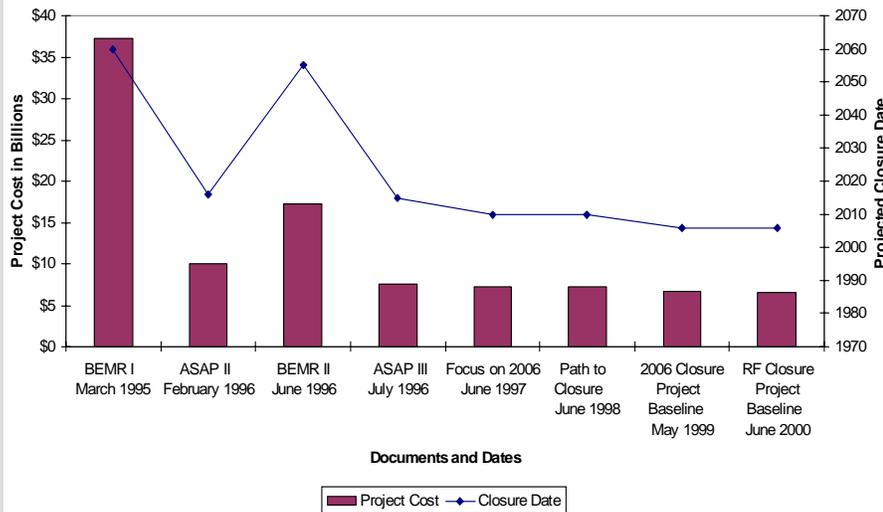
Continual interface and communication among Rocky Flats DOE, K-H, regulators, stakeholders and DOE HQ personnel over a period of several years eventually allowed a consensus to develop on the concept and achievability of the Rocky Flats closure vision. However, developing and achieving consensus on the vision was only a beginning. Successful

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closure of Rocky Flats required a singular intensity of commitment to the vision to sustain progress and result in closure.

This intensity was highlighted by a critical subset of players who not only supported the concept of the closure vision, but also were passionately and energetically committed to accomplishing the vision. For Rocky Flats, this intense and sustained commitment was provided by a number of key parties: The DOE Rocky Flats Manager (initially Mark Silverman and then Jessie Roberson), the K-H senior manager (Bob Card), DOE Headquarters managers (DOE Assistant Secretaries Grumbly and Alm, and Secretaries O’Leary and Peña) and, importantly, the Office of the Governor of Colorado (Lt. Gov. Gail Schoettler). The energy and focus to succeed provided by these key individuals overcame initial uncertainty on the part of regulatory agencies such as the Colorado Department of Public Health and Environment (CDPHE) and the U.S. Environmental Protection Agency (EPA). Bob Card, especially, provided a major source of energy on the closure vision that led to increased support from other sources,

Accelerated Closure Evolution



Closure Legacy Experience -
ASEM Briefing

Figure 1-6, Accelerated Closure Evolution

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including Congress. At a time when the DOE was adopting new contract mechanisms that focused on and rewarded performance, Card (as the head of the K-H organization responsible for the cleanup and closure of Rocky Flats) was able to reinforce the credibility of the contractor team and demonstrate a willingness to share risks for closure performance and costs.

Singularity of Institutional Focus

The vision for Rocky Flats was cleanup and closure, period. Resources were singularly focused on what it would take to get the job of closure accomplished. Any competing missions or activities were systematically eliminated. Personnel focused on the end goal of closure, acknowledging that success would mean that they were working themselves out of a job. In addition, many functions previously being carried out for potential return to operations and production missions were eliminated. Although for a few years (until 1997) there was some lingering thought of potential building reuse, this was minor. A community/DOE working group analyzed the situation and concluded, based upon a market and infrastructure analysis, that re-use was not economically viable. The clarity of focus enabled difficult complexities (e.g., funding, regulatory, technology) to be overcome, and first time approaches such as single source funding to be obtained.

DOE must manage to the contract, not the contractor. Do not create or entertain additional scope items.

Reaffirmation of the Closure Vision

The overall vision of cleanup and closure was constantly repeated and reaffirmed in management behavior and in writing. It was incorporated in the Rocky Flats Cleanup Agreement, in the Collective Bargaining Agreement with the American Federation of Government Employees local union, in the Rocky Flats Closure Contract and funding, and in every budget testimony before Congress. It became the dominant element of Site “corporate culture”. This was not some bureaucratic program, nor was it one more planning document to gather dust on a shelf. The Rocky Flats accelerated closure vision was repeated like a mantra over weeks, months and years by managers, workers, regulators and stakeholders. The paradigm change of “Make It Safe – Clean It Up – Close It Down” became a guiding principle of behavior.

The economic vitality of the local region is often overlooked in the overall success of Rocky Flats.

Economic vitality of region

While Rocky Flats was one of the larger employers in the Denver-Boulder area, it represented a small fraction of the large and generally growing Colorado Front Range economy. Thus, local concerns over the loss of jobs due to the eventual closure of the Site never became an issue or a persistent topic in the local media. Site closure also represented a gradual

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loss of jobs over a number of years. The political success of the closure mission would have been far more difficult if unions, communities, businesses, contractors, and congressional delegations had pushed back on the closure mission with pressure to keep jobs and playing to local concerns about the economic impacts of closure. The timing of the growth of the local economy was fortuitous; if Rocky Flats closure had been attempted a decade earlier or later, economic issues might have been a factor. The economic vitality of the local region is a key factor when pursuing accelerated closure of DOE sites, and is often overlooked in the overall success of Rocky Flats.

KEY SUCCESS FACTORS

Why was the development and implementation of an accelerated closure vision possible at Rocky Flats? Success at Rocky Flats was possible, in part, because the DOE Contract Reform Initiative provided for the selection of a contractor willing to assume the risks and incentives for performance-based cleanup work. In addition, the contractor possessed the credibility and ability to work with the DOE, State regulators, elected officials and the public to obtain a workable agreement that allowed closure to proceed and unnecessary scope to be eliminated. DOE and the contractor were committed to treat closure of the Site as a “project” with a defined endpoint, schedule and budget. This allowed them to develop a Work Breakdown Structure and validated Lifecycle Baseline that could be used for performance measurement. Both the DOE and the contractor were eager for and committed to this changed approach to close Rocky Flats. They changed the “corporate culture” of the Rocky Flats Site to “get closure done.” Finally, significant growth in the local economy minimized community concerns relative to the need for a continued Rocky Flats mission.

Based on the experiences of the Rocky Flats closure legacy it is possible to discern the challenges and approaches that led to closure success, and to suggest how DOE may transform other closure sites into accelerated closure sites. While the process at Rocky Flats was not necessarily as straightforward as described below, the lessons of the Rocky Flats closure legacy indicate the following are necessary:

1. A clear vision of the desired cleanup end state should be established. Gain support for this vision from groups that will allow the vision to be achieved (e.g., DOE HQ, regulators, elected officials and the community). At any given site, the importance of specific groups will vary. The vision need not initially be specific, but it needs to be clear enough to bound

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certain options. The vision needs to be achievable in a short enough time frame to represent a legitimate planning horizon.

2. DOE and regulators should work together to align the closure end state vision and establish regulatory processes that include appropriate end points based on the vision. This should lead to a fixed or bounding set of objectives for the cleanup end state.

3. There should be sufficient site characterization to establish a baseline and scope of work needed to achieve the vision and the regulatory end points. A scope of work should be developed, based on this characterization. The scope should be specific enough to develop a cost, schedule and project plan. The scope should include a schedule for Government Furnished Services and Items (GFS&I) necessary and sufficient to close the site.

4. Congressional support is required to establish mandated funding that reduces the annual internal DOE budget review effort and provides single source funding (rather than traditional DOE-HQ program funding).

5. DOE should develop a contract that is attuned to the level of certainty and uncertainty in the scope of work. This contract should be as fixed-price as possible for the scope that is known, but perhaps with a different project risk strategy for areas of greater uncertainty. The contract should include specific schedules for GFS&I delivery and should incentivize the contractor for total project performance.

6. DOE and the contractor must achieve a sufficient level of regulatory certainty. They should resolve technical issues to allow the development of a comprehensive closure baseline (with independent review) to build credibility and provide the framework for the closure project measurement.

7. DOE should reassess its oversight role and change its traditional approaches to managing contract execution (i.e., manage the contract, not the contractor).

8. The fundamental focus of the DOE and the contractor must be on closure. Activities that do not support and add value to the closure mission should be critically reviewed prior to being pursued.

In each of these areas there is an evolution towards greater flexibility and less micro-management. In the regulatory framework, there is the effort to establish joint goals with the regulators, but to reduce the number of enforceable milestones that constrain a site's flexibility to accomplish the

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work. In planning and project management there is the move away from annual re-baselining drills and towards viewing each year as simply one moveable slice of an established multi-year project. In the contract approach, there is the effort to remove DOE from managing how the contractor does work and to focus on letting the contractor do the work in the most flexible way possible. There is also a continual move towards greater integration, sometimes seen as an effort to avoid stovepiping. This is seen in the move towards a single source of funds from congress and DOE HQ, the move to integrate safety into the projects, the move to understand the entire Site as one project and the move to integrate nuclear work into environmental work in the RFCA.

Successfully pursuing an accelerated closure vision means that individuals needed to throw away old paradigms regarding DOE site operations and question strategies and activities which exist because “that’s how it has always been done.” Success in implementing an accelerated closure vision at Rocky Flats, because it was different, required that all parties maintain the will to “break the DOE mold” and sustain the focus and resources on what it took to achieve closure. Accelerated closure also required a focus on transitioning the culture of the workforce, both DOE and contractor, from production to closure. The concept of project management (“projectization”) became a reality, in that there was a defined start and end date for the Rocky Flats cleanup, with specified milestones, budgets and performance.

Focusing on and committing to an accelerated closure vision provides a new basis for dialogue that affects everything including budget decisions, project performance expectations, approaches to regulatory compliance and application of human resources. It allows the alignment of interests among organizations and individuals in achieving and accelerating closure. The initial vision, presented in *Choices for Rocky Flats* (ASAP II), provided clear expectations for closure efforts, resulting in savings of over \$27 billion in closure costs and 44 years in the closure schedule. The accelerated closure vision resulted in a paradigm shift in closure thinking and demonstrated that previous estimates and approaches were unnecessary. The vision provided a realistic sense of urgency and became a catalyst for a culture change in the way the DOE and the public viewed Rocky Flats closure. Based on subsequent refinement and implementation of the accelerated closure vision, savings of over \$30 billion in closure costs and 54 years in the closure schedule have come to fruition.

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