

**TOOLS FOR CLOSURE PROJECT AND CONTRACT MANAGEMENT:  
DEVELOPMENT OF THE ROCKY FLATS  
INTEGRATED CLOSURE PROJECT BASELINE**

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**ABSTRACT**

This paper details the development of the Rocky Flats Integrated Closure Project Baseline – an innovative project management effort undertaken to ensure proactive management of the Rocky Flats Closure Contract in support of the Department’s goal for achieving the safe closure of the Rocky Flats Environmental Technology Site (RFETS) in December 2006. The accelerated closure of RFETS is one of the most prominent projects within the Department of Energy (DOE) Environmental Management program. As the first major former weapons plant to be remediated and closed, it is a first-of-kind effort requiring the resolution of multiple complex technical and institutional challenges. Most significantly, the closure of RFETS is dependent upon the shipment of all special nuclear material and wastes to other DOE sites.

The Department is actively working to strengthen project management across programs, and there is increasing external interest in this progress. The development of the Rocky Flats Integrated Closure Project Baseline represents a groundbreaking and cooperative effort to formalize the management of such a complex project across multiple sites and organizations. It is original in both scope and process, however it provides a useful precedent for the other ongoing project management efforts within the Environmental Management program.

**INTRODUCTION**

The Rocky Flats Closure Contract was awarded to Kaiser-Hill, LLC on January 24, 2000, and became effective February 1, 2000. The contract was considered a first-of-kind, cost-plus-incentive-fee (CPIF) contract with a target cost of \$4.0 billion and a target fee of \$340 million. The contract was structured to provide the contractor with increased flexibility to execute the scope of the contract, while specifying deliverables that would be provided by the Department of Energy. These deliverables enable complete closure of the site by providing specific government furnished services and items (GFS/I) as detailed in Technical Exhibit A of the closure contract. The GFS/I requirements include such activities as the identification of receiver sites for wastes and special nuclear material,

shipping container certifications, container procurement or supply, transportation services, and regulatory approvals. The contract provides a significant incentive for the contractor to reduce cost and accelerate the closure date. The contract also places an unprecedented share of performance risk on the Department because failure to provide these GFS/I could lead to total project delays and costs increases. This performance risk, paired with the high level of Congressional and stakeholder interest in the Rocky Flats closure, underscored the need for a disciplined means of planning for, and delivering, the required GFS/I.

## **DEVELOPMENT OF THE ICPB**

The development of the Rocky Flats ICPB began in August, 2000 in order to formalize and manage the complex-wide efforts required to support the accelerated closure of Rocky Flats and to fulfill the Department's contractual commitments. The GFS/I requirements specified in the contract include activities characterized as "internal GFS/I", meaning those services or items that are provided by the Rocky Flats Field Office (RFFO), and "external GFS/I", meaning those services or items requiring resources from other Departmental organizations. Development of the ICPB was initiated, in part, as a result of a project management review conducted by the Office of Engineering and Construction Management. The informal findings of the consultant review stressed the urgent and critical need for an integrated management tool that not only focussed on the scope of work identified in the closure contract, but also included the integration and coordination of all of the GFS/I requirements. In August 2000, the Rocky Flats Project Office (EM-33) and RFFO jointly conducted the first ICPB development meeting, concentrating on the offsite shipment of special nuclear material (SNM). The meeting included representatives from RFFO, Kaiser-Hill, multiple Environmental Management Headquarters offices, the Savannah River Site, Y-12, the Albuquerque Operations Office, the Oakland Operations Office, the Lawrence Livermore National Laboratory, and the Los Alamos National Laboratory. The initial meeting reviewed the multiple shipping campaigns outlined in the Kaiser-Hill Closure Project Baseline and identified key technical and programmatic challenges involved with the GFS/I requirements for each shipping campaign. Over the next year, follow-on meetings were conducted with a broad group of individuals, representing all supporting organizations and receiver sites. Additional meetings were conducted to address the GFS/I requirements and organizations required to support the offsite shipment of waste material from Rocky Flats, which followed a similar collegial process.

The vision of the ICPB was to provide the discipline, structure and formality for DOE to effectively manage the total closure project and provide the tools for effective project management of the GFS/I requirements. The development of the schedules began with a review of the existing June 2000 Kaiser-Hill Closure Project Baseline to identify key interface points that represented GFS/I requirements. Kaiser-Hill had already developed the detailed project management tools required to identify the scope, cost and schedule necessary to reach the key interface points. However, the Department did not have any useful tool to identify, document, and track the scope, cost and schedule of activities

needed by the multiple Department organizations to support those specific interface points. The ICPB mirrors and complements the work breakdown structure used in the Kaiser-Hill Closure Project Baseline in order to facilitate eventual integration of the Kaiser-Hill and DOE schedules. Planning meetings identified each specific activity required to support the GFS/I requirements. Activity sequencing and schedule logic ties were then used to begin formulating the planning schedule using the Primavera Project Planning (P3) software. This software was selected to be compatible with the existing software used by Kaiser-Hill. Each activity also included schedule duration, start date, finish date, responsible organization, and predecessor/successor activities. Development of these schedules evolved over a period of nine to twelve months to ensure that all activities required to support GFS/I activities were thoroughly and accurately documented. Experience during the development of the ICPB schedules demonstrated the dynamic nature of the closure project. Still today, political and programmatic issues pose significant potential impacts to the closure project and precipitate modifications to the schedules and project logic. The ICPB is often used to generate “what-if” analysis that can be evaluated by senior DOE management during the decision making process.

From the development of the planning schedules, there was recognition for the need of a complete project management system, requiring the development of additional project management tools. Elements of the ICPB now include an integrated project management plan, detailed scope statements and work breakdown structure, integrated, resource-loaded Primavera Project Planning (P3) schedules, risk assessments and risk mitigation plans. The processes and tools comprising the ICPB have proven very useful during the first two years of contract execution. Through the process of developing detailed schedules for the SNM and waste shipping campaigns, opportunities for acceleration have been identified, as well as possible enhancements to Kaiser-Hill’s baseline activities.

As the ICPB was developed, key activity links with the K-H Closure Project Baseline were identified. Until recently, the Kaiser-Hill baseline and the ICPB have been maintained separately, with Kaiser-Hill statusing and reporting the status of the contractual portion of project only. In February 2002, the ICPB and the Kaiser-Hill baselines will be “merged” to establish a fully integrated project schedule. DOE will provide a fully statused ICPB in February that will be linked to the Kaiser-Hill baseline via the P3 software. In March 2002, the first fully integrated closure project status will be reported to the RFFO Site Manager and senior DOE officials, marking a significant accomplishment.

Even before the “merging” of the schedules, the ICPB has proven to be an invaluable tool to DOE in the administration of the closure contract. With the identification of key interface activities between the ICPB and the Kaiser-Hill baseline, DOE can conduct project analysis on the cost and schedule impacts included in requests for equitable adjustments (REAs). The compatibility with the Kaiser-Hill baseline, the planning software capabilities, and the identification of predecessor/successor relationships

between the ICPB and Kaiser-Hill baseline together comprise a powerful tool for the RFFO Contracting Officer to more accurately investigate, analyze and defend potential cost and schedule impacts to the target cost and target schedule of the contract.

## **STAKEHOLDER INTEREST**

Given the highlighted nature of the Rocky Flats Closure Project, the development of the ICPB is being monitored closely by several internal and external entities. The Office of Engineering and Construction Management and the Office of Contract Reform and Privatization have referenced the RF ICPB as a model for other sites and programs project management efforts. The General Accounting Office and key Congressional staff, including the Energy and Water Development subcommittee, have identified the ICPB process as the critical tool to completing the closure of Rocky Flats. Within the Office of Environmental Management, an effort is underway to develop comparable project management tools for other closure sites and inter-site projects.

While the development of the Rocky Flats ICPB paralleled the development of DOE Order 413.3, Project Management, the ICPB is fully consistent with the Order's requirements. Additionally, the reporting and analysis enabled by the ICPB and the Rocky Flats Closure Contract are responsive to Department's enhanced project review and reporting expectations. The Rocky Flats ICPB has repeatedly been cited as one of the Department's key project management accomplishments as the Department responds to external criticisms from organizations such as the National Academy of Science.

## **LESSONS LEARNED**

The development of the ICPB has highlighted a number of weaknesses within the DOE support system that can be improved in future acquisitions, as well as any inter-site transfer of material. The first improvement is the early identification by DOE sites for any container certification and container procurement requirements. The Department has several organizations that perform the certification necessary to transport SNM. These organizations have a high demand and limited resources for the certification process. The technical expertise needed to evaluate and certify containers can not be developed in a short period to satisfy peak demands. Unless sites can use an existing certified container for transporting SNM, the typical time needed to prepare the safety documentation, submit the application for regulatory review, and obtain a usable certificate of compliance ranged from nine to eighteen months. In several instances, procurement of the containers was done in parallel with the regulatory review process. Parallel procurement of containers was done at risk, and subject to any changes in requirements as a result of the regulatory review process. If procurement were initiated after the issuance of a certificate of compliance, fabrication and delivery of the containers would add an additional six months to the planning schedule. In all, sites expecting to ship SNM to another site without having an existing certified container for that material, should allow for an eighteen to twenty-four month lead time. Efforts are underway by the National

Transportation Office (DOE Albuquerque) and the DOE-HQ Office of Integration (EM-20) to more proactively identify and manage container requirements throughout the complex.

Another valuable lesson learned in the development of the ICPB is the need for proper planning for the actual shipment of material using Safe Secure Transports (SSTs) provided by the Office of Transportation Safeguards (OTS) at Albuquerque. There are limited number of resources -- both vehicles and agents -- available to satisfy the current transportation requirement needs throughout the DOE complex. The aggressive shipping campaign schedules needed to support site closure by 2006, and delays experienced in the stabilization and packaging of surplus plutonium at Rocky Flats, result in a peak demand for SSTs that exceeded the capability within OTS. Again, due to the strict security requirements involving the transportation of SNM and the long lead time for developing the highly technical and proficient skills of the OTS agents, increasing the resources to satisfy a short term peak demand is not possible. There were numerous coordination meetings between EM and the National Nuclear Safety Administration (NNSA) to plan for the offsite shipment of Rocky Flats material. In the end, NNSA and EM had to prioritize the requirements of the different program offices and delay certain shipments in order to support the Rocky Flats closure schedule. In addition to delaying some important defense related shipping activities, OTS conducted a thorough review of existing planning scenarios and training requirements in order to significantly improve the efficiency of the transportation operations and increase the availability of SSTs and agents.

In the area of waste disposition campaigns, the development of the ICPB highlighted the impact of changing waste acceptance criteria and permit requirements, as well as the availability of waste shipping resources. The requirements of the Resource Conservation and Recovery Act (RCRA) Part B requirement at WIPP has significant bearing on the characterization and packaging activities at the site. Pending changes in the acceptance criteria and the permit necessitate revisions to Kaiser-Hill's waste management baseline, which subsequently impact the Site shipping schedule and the resources provided by WIPP. Integrating these activities and managing the impacts are particularly critical now, as the Site is significantly increasing its shipping rate and the DOE complex is committing limited resources -- both in TRUPACT-II containers and transportation services -- to support the increased shipping campaign. Having these plans and resource requirements documented within the ICPB allows DOE to analyze the cost/benefit of accelerating shipments from Rocky Flats and potentially deferring shipments from other sites.

In some cases, the development of the waste disposition schedules highlighted the need for new permit modifications or regulatory changes, as in the case of classified TRU waste. As the disposition path was developed, ultimately leading to a programmatic decision to send the material to WIPP and the development of the requisite security plan, it was determined a permit modification was needed to document the changes in the regulators' access to the classified waste data. This permit must be integrated within the

Department's overall permit management strategy, which is implemented on a semi-annual cycle. As the permit modification is logic-tied to security-related construction activities at WIPP and WIPP's readiness to receive classified TRU, the timing of the permit modification ultimately drives the schedule for KH's shipment of classified TRU waste.

## **APPLICABILITY OF THE ICPB PROCESS AT OTHER SITES**

The basic structure and approach of the RF ICPB can easily be used as a template to be applied at other sites. Similar integrated planning efforts are underway in other DOE program areas, such as the transuranic (TRU) waste shipping program at the Waste Isolation Pilot Plant (WIPP) and the SNM shipping program in the Office of Transportation Safeguards. The same processes and techniques used to develop the RF TRU waste shipping campaign can be applied at any DOE site planning on shipping TRU waste to WIPP. Any TRU waste shipping campaign involves the same basic requirements for packaging, characterization, loading and transporting waste to WIPP.

Similarly, other DOE sites are stabilizing and packaging surplus plutonium in preparation for shipment to another DOE site, such as the Savannah River Site. These sites can use the same methodology employed at Rocky Flats to develop integrated schedules to ensure adequate near term and long term planning requirements are in place to support the eventual off-site transfer of material.

## **CONCLUSION**

The Department's success in achieving the safe, accelerated and cost-effective closure of RFETS has significant bearing on Congress' continued support for the Department's environmental management endeavors. As of January 2002, the contractor's performance is ahead of schedule and under the target cost of the contract. The closure contract concept and philosophy is working. There remains numerous and significant obstacles for both Kaiser-Hill and the Department to deliver this \$4 billion cleanup project ahead of schedule and under cost. The RF ICPB has strengthened the Department's ability to manage the Rocky Flats closure contract and make solid progress towards the site closure goals. Additionally, it has bolstered the confidence of Congress and oversight organizations in the Department's abilities to manage and complete such a complex project. The success of the ICPB to date has been the product of extensive and productive cooperation between DOE Headquarters, RFFO, Kaiser-Hill and the many DOE sites and organizations required to effectively and safely close Rocky Flats. It is a useful example for other sites and programs and marks a significant accomplishment in the project management improvements.