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EM-53 Lessons
Learned Bulletin

Lessons Learned on Upfront Planning and Design after CD-3, from the PFP Demolition Project



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Statement:

This report captures and describes the up-front project planning and design lessons learned following approval of Critical Decision-3 (CD-3) for the Plutonium Finishing Plant (PFP) Demolition Project (RL-001 I.C2) in accordance with DOE O 413.3B, Program and Project Management for the Acquisition of Capital Assets. Approval of CD-3 was obtained concurrently with approval of CD-1 and CD-2 on September 22, 2015, by the Project Management Executive (PME). The PFP Demolition Project (RL- 0011.C2) total project cost (TPC) is less than \$100M, allowing the U.S. Department of Energy (DOE), Richland Operations Office (RL) Manager to be the PME approval authority for critical decisions and other project documentation.

The PFP Demolition Project (RL-001I .C2) is the final sub-set activity for completing the overall Project Baseline Summary (PBS) RL-0011, "Nuclear Materials Stabilization and Disposition of PFP." Completion of RL-001 I.C2 will result in the remaining PFP set of facilities becoming 'slab-on-grade' and allow transition of the PFP complex to long-term surveillance and maintenance (S&M). Deactivation and Decommissioning (D&D) of PFP has been ongoing for several years as both an Operations Activity (OA) and as Capital Asset Project (CAP) work. PBS RL-0011 work scope is being conducted as a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) removal action, with the Washington State Department of Ecology (Ecology) as the lead regulatory agency. The Tri-Party Agreement (TPA) milestones associated with the PFP work scope are primarily the M-083 series. Milestone M-083-00A, Complete PFP Facility Transition & Selected Disposition Activities, is the final milestone and is required to be completed by September 30, 2016.

Discussion:

PLANNING:

A white paper was prepared by the RL Federal Project Director (FPD) describing the tailored approach that the PFP Demolition Project would pursue to meet the intent of CD-1, -2, and -3 documentation requirements. The tailoring strategy primarily considered the current stage of the PBS RL-0011 lifecycle, existing regulatory and safety documentation, and prior DOE-Headquarters (HQ) direction and approvals. The white paper was shared with RL Management and HQ Environmental Management (EM) staff, and subsequently formed the basis for documentation supporting the DOE-HQ Peer Review Team. For example, as a subset activity of the overall PBS RL-0011 work effort, many key documents had already been developed and approved. These existing documents streamlined the planning for the RL-001 I.C2 project by providing content directly applicable to the demolition effort. In particular, the Engineering Evaluation/Cost Analysis, PFP Action Memorandum, Removal Action Work Plan, End Point Criteria Document, update of existing Documented Safety Analysis, and Safety Evaluation Report were used as equivalent alternatives to their construction project documentation counter-parts (e.g., alternative analysis, project design, Technical Independent Project

Review, etc.) to support CD-1, -2 and -3. An independent "deconstructability" technical review/assessment (equivalent to a constructability review to support CD-3) was also completed as part of the PFP Demolition Plan preparation.

CD-4 will include an RL verification of the Key Performance Parameter completion, TPC, applicable regulatory requirements, and transition and turn over to S&M.

During the planning phase there was differing guidance within DOE concerning the definition of a CAP (as well as OA type work), and related TPC and scope. As a result, contract direction proceeded cautiously and contractor planning and implementation was negatively affected. Contract direction occurred during the annual baseline update guidance, but follow-through was lacking causing contract confusion and reluctance by the contractor to proceed at perceived risk. In addition, this situation resulted in negative, but recoverable impacts to an annual Key Performance Goal regarding standing up the demolition project and successfully establishing a defensible baseline to gain PME approval of the CAP.

The overall PFP closure project has been primarily an OA since D&D began more than 10 years ago. The transition of specific components of the OA work scope to a CAP while concurrently maintaining safe operations strained and detracted resources, and management focus on preparing project supporting documentation needed to meet DOE O 413.3B project requirements.

DESIGN

The PFP Demolition Plan developed by the contractor covered pre-demolition through waste disposal and includes a description of the demolition structural analysis, electrical and mechanical isolation, temporary power and lighting, and water management activities. Also addressed in this document are the various plans that will support demolition (e.g., security plan, criticality controls plan, waste characterization strategy and waste handling plan, traffic control plan, heavy equipment list, and turnover to S&M). In addition, an animated video showing the major components of the demolition process from start to finish was created as a communication tool and to improve understanding of the demolition sequence.

SUMMARY

Although opportunities to make improvements in the planning and design phase were identified in the specific lessons learned, none are considered actionable at this time. The project team has demonstrated that they can work through the many issues that have arisen, and successfully tailor planning and design activities for a complex environmental cleanup demolition project to meet current DOE project management, safety and regulatory requirements.

Actions:

1. Planning: Implementation of a tailored approach to the requirements of DOE O 413.3B by using CERCLA equivalent supporting documentation allowed a successful beginning of the project.
2. Planning: Establishment of the Demolition CAP (RL-0011.C2) occurred very late in the lifecycle of PBS-0011 making it more challenging and demanding to "stand-up" the project than it had to be. For similar projects where there is a transition from OA to CAP, DOE should provide clear direction to better communicate the requirements and expectations earlier in the planning phase.
3. Planning: To support both internal/external reviews and critical decision actions, DOE and its contractor should focus increased management attention and oversight on key DOE O

413.3B project deliverables to ensure understanding of project scope, successful integration of work activities, rigor and timely development of required supporting documentation.

4. Design: Utilization of the PFP Demolition Plan and supporting references as equivalent design media normally encountered during traditional construction projects was beneficial in establishing the Demolition CAP.

Critical Decision(s): CD-2 to CD-4

Facility Type(s): All

Work Functions(s): Contracts, Project Management

Technical Discipline(s): All

References:

1. PFP Demolition Project, RL-0011.C2 POST CRITICAL DECISION-3 LESSONS LEARNED, December 18, 2015