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D&D Lessons Learned from the Mound Plant:

Re-engineering the Facility Disposition Process

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In evaluating the risks to the site meeting its mission of site cleanup and exit by 2005, the Department of Energy's Mound Environmental Management Project (Mound) recognized that it was not conducting its facility disposition projects efficiently. Because of limited communication between the parties responsible for the safe shutdown and decontamination and decommissioning (D&D) processes, Mound was conducting several redundant or overlapping activities. For example, Mound collected the same data in two separate characterization efforts, once for the safe shutdown program and another time for the D&D program. Similarly, Mound conducted risk/hazard identification and closeout activities twice under these separate programs. In addition, Mound was conducting activities that once were required to transfer facilities from Defense Programs to Environmental Management but that became unnecessary when Environmental Management took responsibility for the entire site. By re-engineering its facility disposition process and integrating the safe shutdown and D&D programs, Mound estimates that it has improved the efficiency of facility disposition projects by approximately 30 percent, thereby saving and estimated $142 million in total project costs. The re-engineered facility disposition process fulfills all key objectives and meets all regulatory requirements of the former safe shutdown and D&D programs.[1]

ISSUE

There are a number of factors that pose a risk to the Department of Energy's Mound Environmental Management Project (Mound) meeting its mission of site cleanup and exit by 2005. Availability of funding and of national waste disposal sites are just a few examples. Mound identified facility disposition projects as having a high probability of prolonging the site's baseline schedule. Primarily, the facilities that posed a risk to the exit schedule were ones that Mound planned to complete just prior to site exit. A delay in completion of these projects could, in turn, postpone exit of the site. However, the risk posed by these projects was one that Mound could proactively reduce. Namely, Mound determined that the site could improve the overall efficiency of the facility disposition process by integrating safe shutdown and decontamination and decommissioning (D&D) programs. DOE established the two distinct processes of safe shutdown and D&D when Environmental Management (EM) and Defense Programs (DP) operated independently. EM and DP each had its own process to ensure that the program met its responsibilities associated with one phase of disposition. Through its safe shutdown program, DP conducted those activities necessary to stabilize a facility following the end of its mission. Stable facilities were then transferred to EM, where the final disposition for the facility was selected, planned, and implemented through the D&D program. This division of responsibilities became obsolete when EM took total responsibility for the site; however, Mound continued to implement the two processes separately, resulting in inefficiencies.

Developed under distinct programs, the activities conducted under safe shutdown and D&D were not well coordinated, partially due to limited communication between parties responsible for these two phases of facility disposition. Consequently, the safe shutdown and D&D processes included several overlapping or redundant activities. For example, Mound was collecting the same data two different times

[1] *Facility Disposition Lessons Learned from the Mound Site (DOE/EH-413-9909; July 1999)* provides detailed descriptions of each of the innovative facility disposition approaches developed by Mound and presents guidelines that may be followed in implementing similar approaches at other sites. *http://www.eh.doe.gov/oepa/guidance/cercla/mmono.pdf*

because it was performing characterization for safe shutdown and D&D separately. Also, Mound conducted risk/hazard identification and closeout activities under each process. Further, the site was continuing to conduct activities that are no longer necessary because EM now has full responsibility for the site (i.e., activities conducted to facilitate transfer of facilities from DP to EM).

In its re-engineering effort, Mound also wanted to ensure that its facility disposition process was consistent with the joint DOE / EPA initiative to conduct facility disposition projects as CERCLA non-time critical removal actions.[2] Mound recognized that it was not working under the CERCLA framework as efficiently as possible.

APPROACH

Mound developed an approach for reengineering its facility disposition process to eliminate redundant activities, and ensure sharing of information across both phases of facility disposition. The streamlined process is designed to reduce costs and minimize the risk that facility disposition projects pose to Mound achieving its exit deadline. The site determined that it could improve its process by (1) integrating safe shutdown and D&D so that all facility disposition activities are conducted as a single process; (2) focusing the process on those decisions that must be made to disposition a facility; (3) organizing disposition activities so that they support these key decisions as efficiently as possible; and (4) eliminating unnecessary documentation. In order to develop this approach, Mound:

1) ***Defined the mission/objectives of facility disposition.*** Mound began its reengineering effort by defining specific ways that it could improve its facility disposition process to more effectively fulfill its mission (i.e., objectives of reengineering). Achievement of these objectives served as the focus of the reengineering effort.

2) ***Defined the existing facility disposition processes.*** Mound determined that its process would be more efficient and flexible by focusing the process on making key disposition decisions rather than conducting a set series of activities. In order to pinpoint these key decisions, Mound identified all of the activities conducted under both safe shutdown and D&D, and defined the purpose and intent (i.e., objective) of each activity. Based on this evaluation, Mound defined two separate decision-making frameworks for safe shutdown and D&D (i.e., the series of decisions made in each process and the activities that support each decision). These frameworks served as the basis for identifying opportunities for improvement.

3) ***Identified opportunities for improvement.*** Mound identified all areas where activities did not efficiently support facility disposition decisions. For example, Mound was conducting a series of activities to facilitate the administrative transfer of facilities from DP to EM. In other words, these activities previously were conducted to make the decision that facilities were ready for transfer. Since EM now has responsibility of facilities throughout the dispositioning process, these activities were unnecessary and were not supporting any current facility disposition decisions.

By comparing the decision-making frameworks for safe shutdown and D&D, Mound also identified overlap and redundancy in the decisions and activities conducted under these programs. For example, the safe shutdown program conducted surveys to identify radioactive materials in both radiologically and non-radiologically controlled areas. Mound performed this data collection to evaluate fixed and removable levels of contamination in order to focus any safe shutdown-related decontamination efforts. Similarly, the D&D program conducted

[2] EPA/DOE Memorandum dated May 22, 1995, subject: *Policy on Decommissioning Department of Energy Facilities Under CERCLA* http://www.eh.gov/oepa/guidance/cercla/d&d.pdf

sampling and analysis activities to determine the methods and extent of D&D required. Mound recognized that there was an opportunity to reduce the needed characterization by simply sharing information across the two phases of disposition.

Having identified inefficiencies, Mound eliminated redundant decisions and activities, organized key decisions in a logical, streamlined framework consistent with its mission, and then determined how the necessary activities should be conducted to support these decisions. Mound also incorporated the core team approach and early identification of an appropriate disposition into its revised approach. For example, the first step in the re-engineered facility disposition process is to identify appropriate participants and ensure their involvement. After compiling and reviewing existing information, the next step in the facility disposition process is to determine if a preferred end use is defined and approved. If it is not, Mound identifies what additional information is needed to assist decision-makers in making this determination.

Finally, Mound determined how it could demonstrate compliance with DOE orders through the CERCLA process. In order to streamline compliance activities, Mound compared DOE Orders applicable to facility disposition with requirements under the CERCLA. By determining where the CERCLA removal action process and DOE Order requirements overlap, Mound identified opportunities to incorporate the substantive requirements of DOE orders into CERCLA activities. For example, the "Policy for Demonstrating Compliance with DOE Order 5820.2A for On-site Management and Disposal of Environmental Restoration Low Level Waste" states that the CERCLA process should "be used to demonstrate compliance with the requirements and intent of DOE Order 5820.2A with regard to the safe management and disposal onsite of environmental restoration LLW."

BENEFITS

Through its reengineering effort, Mound developed an approach for integrating safe shutdown and D&D and improving the general efficiency of its existing process. The reengineered facility disposition process fulfills all key objectives and meets all regulatory requirements of the former safe shutdown and D&D programs. By sharing information throughout the facility disposition process, focusing on the decisions that must be made to disposition a facility, and elimination of unnecessary and redundant activities, Mound estimates that this approach is capable of improving the efficiency of facility disposition by approximately 30 percent, thereby saving $142 million in total project costs.

For more information about streamlining approaches applied at Mound, please contact Art Kleinrath (DOE-Mound Environmental Management Project) at (937) 865-3597, Timothy Fischer (USEPA) at (312) 886-5787, Brian Nickel (Ohio EPA) at (937) 285-6468, or Richard Dailey (DOE/EH-413 at (202) 586-7117.