Development of the 2012 Accelerated Cleanup Plan

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ABSTRACT

During the summer and fall of 2008, the Office of Environmental Management (EM) developed a series of Business Case Proposals which identified opportunities for acceleration of EM workscope with significant footprint reduction and Return on Investment. These proposals focused on reducing the overall EM footprint and small sites and as well as the large sites with significant footprint reduction by 2015. These proposals became the basis for work that was funded thru the American Recovery and Reinvestment Act (ARRA). With the acceleration of this work, EM is in the process of re-evaluating what the overall EM plan will be once these ARRA projects are completed at the end of FY2011. As part of this, EM is establishing what the end states are for each of the ARRA projects and how that workscope folds back into the EM base program at the completion of the ARRA. EM is focusing on continuing to accomplish a 2015 cleanup plan that has major footprint reduction while continuing to make significant progress in the longer term program of disposition of High Level Waste, Spent Nuclear Fuel and Special Nuclear Materials; programs that require a major portion of the annual appropriations for the EM program. As part of the 2015 cleanup plan, EM will again develop a portfolio of business plans for acceleration of EM cleanup to achieve these goals. This will include examination of what follow up ARRA work (tails of ARRA projects) is needed to continue to move towards footprint reduction. This is due to some of the ARRA work cleaning out facilities but not completing the Decontamination and Decommissioning as well as soil cleanup. This would be necessary to continue towards the footprint reduction goal to be able to have land in a condition to turn over to other uses such as Energy Parks. In addition to this follow up work, EM will also be examining what other workscope can be accelerated. This will also include new excess facilities that are being identified by other DOE programs for inclusion in the EM workscope as new scope. All of these efforts will be conducted within the context of the overall management of the EM lifecycle cost and schedule with the objective of continuing to reduce to cost of the cleanup program.

INTRODUCTION

Fifty years of nuclear weapons production and energy research in the United States during the Cold War generated large amounts of radioactive wastes, spent nuclear fuel, (SNF), excess plutonium and uranium, thousands of contaminated facilities, and contaminated soil and groundwater. During most of that half century, the Nation did not have the environmental regulatory structure or nuclear waste cleanup technologies that exist today. The result was a legacy of nuclear waste that was stored and disposed of in ways now considered unacceptable.

The Office of Environmental Management (EM), established in 1989, spent the first decade of its inception in the stabilization of special nuclear materials and spent nuclear fuel into a safe storage condition, characterizing hundreds of acres to determine the extent of contamination that had occurred from past practices, stabilization of (and in some cases removal) of tank wastes, and determining methods to decontaminate and decommission (D&D) aging, contaminated buildings. The focus during this time
period was addressing the most urgent risks and maintaining safety at each site while negotiating state and Federal environmental compliance agreements. In addition, EM began the construction and operation of major treatment and disposal facilities such as the Defense Waste Processing Facility and the Waste Isolation Pilot Plant. By the late 1990s, EM had made significant progress in identifying and characterizing the extent of contamination and cleanup required and began transitioning from a characterization and stabilization program to an active cleanup and closure program. In the early to mid 2000s, EM began to complete major site cleanups such as Rocky Flats and Fernald and to significantly move forward in the disposal of transuranic and low level waste from around the complex. As more sites became fully characterized and the technologies available to begin tank waste removal, it has become clear that EM needs a strategic planning tool in order to examine tradeoffs between business sectors to determine the best mix for accelerating the EM cleanup.

STRATEGIC PLANNING PROCESS

EM began a strategic planning initiative in order to examine methods to optimize implementation of cleanup projects. This strategic planning effort concentrated on the technical and programmatic challenges facing EM. The objective was to identify innovative solutions to drive cleanup outcomes and reduce risks faster. As part of this effort, EM analyzed program costs to determine the percent spent to achieve progress in completing cleanup and risk reduction and the percent spent to maintain existing facility status (i.e., costs that are generally accepted as fixed costs). The ability to understand the relationship between progress and maintenance costs helped EM gain a better understanding of how much of the program’s funding each year is focused on either maintaining a safe and secure posture or directed toward the actual completion of cleanup. EM used this analytical tool to examine areas of the program that could be accelerated in order to reduce overall lifecycle costs. EM determined that about half of its program resources are required for management of tank waste, surplus special nuclear material (SNM), and spent nuclear fuel (SNF). These activities are associated with the larger sites and are fraught with technical, regulatory, and political uncertainties.

EM began to examine the possibility of pursuing footprint reduction at its larger reservations as a means of reducing lifecycle costs. This footprint reduction was associated with environmental cleanup activities such as transuranic (TRU) waste and low-level waste (LLW) disposal, soil and groundwater remediation, and deactivation and decommissioning (D&D) for which EM has demonstrated successful performance using proven technologies within a well-defined regulatory framework. In order to leverage that success, EM directed its sites to identify footprint reduction and near-term completion opportunities (Figure 1, 2, 3 and 4). EM then examined each of these opportunities from a return on investment analyses. A suite of projects were developed that were necessary to achieve major footprint reduction by 2015. As the planning process evolved, two specific advantages were apparent from footprint reduction: 1) reduction of the surveillance and maintenance costs associated with managing large tracts of land, and 2) makes large tracts of government land with existing infrastructure for re-industrialization such as Energy Parks. A significant number of these projects were proposed and accepted for American Recovery and Reinvestment Act (ARRA) funds which allowed EM to begin the footprint reduction initiative. Although the ARRA required funds to be expended by 2015, EM established criteria for its recommended projects that they be executable by the end of 2011. Therefore, it is crucial that EM examine what work will be completed by the ARRA projects by 2011 and what follow-on work is necessary to achieve the goal of footprint reduction by 2015. EM is now utilizing the same strategic planning process to examine its 2012 portfolio and to determine what projects are necessary to achieve its goals.
Fig. 1. Savannah River Site Footprint Reduction Proposal

Fig. 2. Hanford Footprint Reduction Proposal

Fig. 3. Idaho National Laboratory Footprint Reduction Proposal
SUMMARY

EM is in the process of conducting a strategic planning analyses of its cleanup portfolio in order to determine what projects are necessary to achieve its goal of footprint reduction by 2015 at its large sites. This planning process will build off of the successful process which defined the cleanup projects which became the EM ARRA portfolio. This process will define those projects which EM would recommend to pursue as part of the FY2012 portfolio of workscope for the cleanup program.

Fig. 4. Oak Ridge Reservation Footprint Reduction Proposal