
Oak Ridge Performance Management Plan

• • • • • • • • • •

*U.S. Department of Energy
Oak Ridge Operations
Environmental Management Program*

Proposed Oak Ridge Performance Management Plan approved by the Assistant Secretary for Environmental Management, Jessie Roberson, submitted to the Office of Management and Budget as EM request, August 2002.

This document has been approved for release to the public by the Classification and Information Control Office at East Tennessee Technology Park.

Rev. 6

August 28, 2002

Oak Ridge Performance Management Plan

*U.S. Department of Energy
Oak Ridge Operations
Environmental Management Program*

EXECUTIVE SUMMARY

INTRODUCTION

The U.S. Department of Energy (DOE) Oak Ridge Operations has developed a plan to accelerate completion of the Oak Ridge Environmental Management (EM) Program by 6 years and reduce approximately \$2 billion in total lifecycle costs, which is 35% lower than the current estimate. The EM Program mission in Oak Ridge will be complete when cleanup has safely reduced risks to the public, workers, and the environment at the East Tennessee Technology Park (ETTP), Oak Ridge National Laboratory (ORNL), Y-12 National Security Complex (Y-12), and Off-site Areas. These risks include potential exposure to contamination and industrial hazards resulting from decades of uranium enrichment (ETTP), research (ORNL), and weapons-related operations (Y-12).

This *Oak Ridge Performance Management Plan* provides DOE Headquarters, the Office of Management and Budget, Congress, our regulators, and other stakeholders our plan to achieve accelerated completion by implementing the recommendations of the *Top to Bottom Review* issued by the DOE Assistant Secretary for Environmental Management in February 2002. Following public and other stakeholder input, this plan will be finalized in August 2002.

Accelerated completion will be enabled by several key technical changes to our technical approach and will be stimulated through additional funding allocated from the Cleanup Reform Account. The Cleanup Reform Account was established by DOE Headquarters to foster a sense of urgency to finish cleanup across the DOE Complex. The investment of additional funding for Oak Ridge from the Cleanup Reform Account will yield dividends immediately. Our plan features several significant, near-term milestones that will be completed by 2008. This includes remediation of the highest risk sites on the Oak Ridge Reservation (by 2006), final disposition of one of the largest legacy low-level waste inventories in the DOE Complex (by 2005), and closure of the ETTP site (by 2008).

Closure of the ETTP site is the next Complex-wide opportunity for the EM Program to divest itself of a major liability and add to the growing list of closed sites. While risk reduction is the major driver of our plan, we have also built into the schedule logic the rapid reduction of ETTP site mortgage costs to free the money for reinvestment in near-term risk reduction projects. The table below summarizes the major features of our plan for accelerated completion compared to the existing plan.

Major Features of the Oak Ridge Performance Management Plan

| Oak Ridge Reservation Today | Oak Ridge Reservation Vision |
|---|---|
| Complete entire scope in 2021 | Complete entire scope in 2015 |
| Complete ETTP in 2016 | Complete ETTP in 2008 |
| Complete Melton Valley in 2015 | Complete Melton Valley in 2006 |
| Burdened with responsibility for waste from non-EM generators | Divested of responsibility for waste from non-EM generators |
| Managing year-to-year | Managing to closure end-date |
| Total Cost \$6.2 Billion | Total Cost \$4 Billion |

OAK RIDGE ACCELERATED COMPLETION STRATEGY

Our cleanup strategy is a risk-based approach that focuses first on those contaminant sources that are the greatest contributors to risk. The overall strategy is based on surface water considerations, encompassing five distinct watersheds that feed the Clinch River and are impacted by the DOE industrial sites. To date, key records of decision have been signed for four of these watersheds.

While risk reduction is the major cleanup driver, other factors that must be considered to achieve risk reduction are execution logic and mortgage reduction. The reduction of mortgage costs provides a dramatic benefit due to the reinvestment of these saved funds into accelerated risk reduction and reduces amount and duration of funding needed from the Cleanup Reform Account.

Having established the risk-based prioritization for the work, we assembled a number of substantive changes to our work practices that will facilitate work execution. These can be categorized as either improved work flow or alternative technical approaches, and we consider these to be enabling innovations for our plans to accelerate closure.

OAK RIDGE COMPLETION

We have a clear picture of what the Reservation will look like when cleanup is complete. A citizens' group—the End Use Working Group—made recommendations for end uses for contaminated areas, provided the rationale for their recommendations, and discussed the need for long-term stewardship. These end uses provide the vision that is being implemented via the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) decision-making process. The final plans for the contaminated portions of the Reservation are summarized below.

- **ORNL** will continue to operate as a world-class research facility. The EM mission is to reduce remaining risks and complete cleanup as quickly and safely as possible.
- **Y-12** will continue to operate, fulfilling its national security mission. The EM mission is to reduce remaining risks and complete cleanup as quickly and safely as possible.
- **ETTP** will be available for use as a private-sector industrial park.

To achieve completion, the execution of the work will be on the following schedule.

High Priority Risk and Mortgage Reduction Projects for Completion and Closure by 2008

- **Melton Valley: Completion by 2006** – The Melton Valley actions have been widely reviewed and accepted by the public through the CERCLA process and a signed interim record of decision is in place. The Melton Valley burial grounds are the highest risks on the Reservation, and therefore this project provides the opportunity for early and significant risk reduction. Completion actions include: hydraulic isolation through installation of multilayer caps; retrievable transuranic (TRU) waste removal, treatment, and disposal; soil and sediment excavation and disposal; small facilities demolition; in situ grouting; hydrofracture well plugging and abandonment; and spent nuclear fuel and legacy waste disposition.
- **ETTP: Closure by 2008** – ETTP consists of hundreds of facilities, including 50-year-old gaseous diffusion process buildings and other site infrastructure, that require nearly \$60 million per year in landlord costs. Therefore, this project provides the greatest opportunity for significant mortgage reduction which frees funding to be applied to further risk reduction. Closure actions include: demolition of all facilities; off-site disposition of uranium hexafluoride (UF₆) cylinders; excavation of burial grounds and highly contaminated soils; completion of groundwater contamination actions in accordance with the CERCLA process; and disposition of legacy waste.
- **Y-12** – Specific high risk reduction actions are mitigation of off-site mercury surface water releases; bioremediation of an off-site volatile organic compound release; and, excavation of uranium hot spots and hydraulic isolation of other contaminant sources in the Boneyard/Burnyard.
- **Bethel Valley at ORNL** – Specific high risk reduction actions are to complete an engineering evaluation to identify further sources of groundwater contamination; complete the Corehole 8 removal action; excavate highly contaminated sediment from surface impoundments in the center of ORNL; and remove the Molten Salt Reactor Experiment fuel salts
- **Offsite Areas** – For the David Witherspoon and Atomic City Auto Parts sites, actions are to remove contaminated structures, debris, soil, and sediment.
- **Accelerate Disposition of All Legacy Waste** – All legacy waste will be dispositioned by 2005 with priority given to those waste streams in Melton Valley and ETTP that are on the critical path for completion of that work. A key element to accelerating the disposition of legacy low-level waste is onsite disposal in EMWMF for nearly 60% of the legacy low-level waste inventory that is stored outdoors at ETTP.
- **Accelerate Transfer of Newly Generated Waste Responsibility** – All facilities and systems that the EM Program currently operates to manage waste actively generated by the National Nuclear Security Administration and the Office of Science will be returned to those programs. EM funds will be used only to address EM legacy and remediation waste.

Remaining Risk Reduction Projects for Completion by 2015

All of the remaining actions to complete the EM mission are briefly summarized below.

- **Y-12** – Actions are the demolition of Alpha 4, two recently transitioned facilities, and remaining waste management facilities; final mercury and polychlorinated biphenyl contaminated soil and sediment removal; hydraulic isolation of subsurface mercury contamination beneath facilities in the West End Mercury Area; removal and disposal or closure in place of materials at Chestnut Ridge; and, hydraulic isolation of remaining buried materials in Bear Creek Valley.
- **ORNL** – Actions are the demolition of inactive buildings, facilities, and reactors; removal of surface soil with contamination above remediation levels in the controlled industrial area; remediation of White Oak Lake and White Oak Creek; hydraulic isolation of Solid Waste Storage Areas 1 and 3; and selected groundwater actions for Corehole 8 and East Bethel Valley.
- **Long-term Stewardship** - The CERCLA process will determine any necessary final actions for groundwater in the five watersheds subsequent to completion of the actions described above. All of the major remedial actions require the need for long-term stewardship actions, including surveillance and maintenance of installed structures and systems.

REGULATORY FRAMEWORK

The DOE, the U.S. Environmental Protection Agency, and State of Tennessee signed the Oak Ridge Accelerated Cleanup Plan Agreement June 18, 2002. The purposes of this Agreement are to describe a streamlined decision making process to facilitate the accelerated implementation of cleanup, to resolve the current Oak Ridge Reservation Federal Facility Agreement milestone dispute, and to establish future actions needed to complete the plan for accelerated cleanup.

The streamlined decision-making process and the anticipated funding increase from the Cleanup Reform Account will be incorporated into the Lifecycle Baseline. Compliance with the Federal Facility Agreement will continue to provide the overall regulatory framework for remediation. The streamlined process incorporates better definition of key roles and responsibilities among the parties and establishes the commitment to an ongoing review of practices to identify further efficiencies.

MANAGEMENT FRAMEWORK

The Oak Ridge EM Team utilizes a well-established project controls system, that takes the cleanup vision and, based on programmatic strategy, subdivides the work into manageable projects. A detailed Lifecycle Baseline is being updated to document the plan for accelerated closure. The Project Team then executes the work. The critical path schedule will distinguish between those activities that are constrained by execution logic and those activities that are constrained by funding. Any activity that is on the critical path and is also funding-constrained would be the first priority to receive additional funding. The funding profile to support accelerated closure needs increased funding in the near-term to accelerate mortgage reduction opportunities so that the savings can be reinvested into accelerated cleanup.

In addition to the traditional systems used to manage baseline cost, schedule and scope, a structured process is being developed to ensure that the actions outlined in the Responsibility Assignment Matrix (Appendix A) are tracked through completion. The Responsibility Assignment Matrix identifies

critical prerequisites to success for each major project, assigns the responsible party (DOE or contractor), describes the associated risks and impacts of not completing the prerequisite task on time, and establishes mitigation strategies to manage the risk.

Oak Ridge Operations envisions a closure contract for completion of the work identified in this plan. The contract would tie cost and schedule fee incentives to the closure milestones and would set the expectations for environment, safety, and health performance. Contractor decisions whether to subcontract or self-perform cleanup work will be made on a case-by-case basis. This provides needed flexibility to balance labor resources, subcontractor resources, and time. The preponderance of subcontract support will be competitively procured, fixed-price and fixed-unit-rate subcontracts based on well-defined, performance-based scopes of work.

CONCLUSION: THE OAK RIDGE EM PROGRAM IS POISED FOR SUCCESS

Over the last four years the nature and pace of cleanup work has changed significantly in Oak Ridge. Key elements required for accelerated closure are in place. The cleanup team has:

- Transformed the overall program management from level-of-effort to project management—working to discrete work scopes, end-dates, and budgets.
- Created a detailed, resource-loaded Lifecycle Baseline coupled with proven project management systems to measure performance.
- Converted the primary method of accomplishment from self-performance to execution using fixed-price and fixed-unit-rate best-in-class subcontractors.
- Reduced the ETTP landlord costs (fire protection, utilities, etc.) by almost half (freeing up roughly \$50 million for accelerated risk reduction).
- Completed construction and started operations at an on-site disposal cell (EMWMF) that will handle the majority of the remediation waste.
- Received approval of key watershed-level records of decision for Melton Valley, Bethel Valley, Upper East Fork Poplar Creek, and Bear Creek Valley.

With these elements in place the Oak Ridge EM Program is poised for success. With stable funding in the near-term, the payback from these investments is realized when:

- The reduction in mortgage costs supplements the additional requested funding to further accelerate completion.
- The most significant risks are eliminated 8–9 years earlier and completion of the EM Program mission is accelerated by 6 years.
- Costs are reduced by 35% for a total reduction of \$2.2 billion.

TABLE OF CONTENTS

| | |
|--|------|
| Executive Summary..... | ES-1 |
| Introduction..... | 1 |
| Background | 3 |
| Oak Ridge Accelerated Completion Strategy | 7 |
| Oak Ridge Completion..... | 13 |
| Melton Valley Completion Project | 16 |
| East Tennessee Technology Park Closure Project | 25 |
| Balance of Program Completion Projects | 34 |
| Regulatory Framework | 41 |
| Management Framework..... | 44 |
| | |
| Appendix A: Responsibility Assignment Matrix | A-1 |
| Appendix B: Government-Furnished Services and Information..... | B-1 |
| Appendix C: Preliminary Schedule..... | C-1 |