CONTINUING PROGRESS IN THE OAK RIDGE ENVIRONMENATL MANAGEMENT PROGRAM

Joseph F. Nemec, Rick D. Ferguson, David A. Starling

ABSTRACT

Fifty-years of operations history have left many sites in the DOE complex with cultures, management systems, and tools better geared for operations than closure projects. With the EM Program's success now contingent upon getting to closure, a major shift is required. DOE Oak Ridge Operations and Bechtel Jacobs Company, the Management & Integration (M&I) Contractor, have collaboratively engineered a successful transition away from operations towards closure. Summarized in this paper are key success factors and example project success stories that are indicative of the recent performance of the Oak Ridge M&I Closure Project.

INTRODUCTION

Changing a large, complex organization from an operations-focus to a closure-focus means a major paradigm change for all involved. No single, simple management recipe exists to effect this change without rigorous sustained effort. Success mandates a multifaceted approach including a strong management team with a clear closure vision and the commitment, persistence, sweat-equity and leadership-by-example skills to prevail over decades of operations inertia. Change is difficult, and major change nearly impossible, if not accompanied by a compelling vision, seasoned project managers, a rigorous, disciplined project management system, and a motivated, skilled workforce.

This paper is a synopsis of such a transformation that has taken place under Oak Ridge Operations (ORO) in the three-state, five-site ORO Environmental Management (EM) Program—one of the largest and most complex in the nation. The impetus for this change was ORO's decision and commitment to transform and elevate the performance of the implementing contractor by converting from a Management & Operations (M&O) contract to a Management & Integration (M&I) contract.

The scope of the M&I contract includes EM Program work at the East Tennessee Technology Park, Oak Ridge National Laboratory, Y-12 National Security Complex, Paducah Gaseous Diffusion Plant, and the Portsmouth Gaseous Diffusion Plant. The current Life Cycle Baseline budget for this work is roughly $6.4 billion.

M&I CONTRACT PHILOSOPHY AND BACKGROUND

In 1996, as a part of contract reform, DOE ORO initiated an effort to restructure and rebid the EM Program work. At the time, work was being performed under an M&O contract. ORO's vision was to smoothly replace the M&O contract with an M&I in order to expedite cleanup, work safely, subcontract the work, transition the workforce to subcontractors, reduce cost, and perform needed integration work. Under the M&O approach, work was baselined and executed using an operations-oriented organization. The M&I approach baselines and executes using a subproject-oriented, completion-driven and completion-rewarded organization. Subprojects have clear scope definitions, definitive durations and endpoints, and integrated estimates. The finish line for work is clear and visible. The free-market based subcontracting approach replaces the in-house self-performance model with competitively bid commercial subcontracts.

ORO's vision was implemented in December 1997 with the award of a five-year, $2.5 billion M&I contract to Bechtel Jacobs Company LLC (BJC). Following a 3-month phase-in period, BJC assumed responsibility for the work on April 1, 1998.

The integration component of the M&I approach is a significant challenge in itself. Successful integration requires carefully orchestrating EM Program work at five sites, (four of which are currently operating), in three

states, with three separate state regulatory agencies under two different EPA regions. Further complicating this is the presence of a half-dozen other prime contractors working under multiple, discrete-funding controls.

TRANSITION FROM OPERATIONS TO CLOSURE

Arguably one of the most difficult challenges that confronted Bechtel Jacobs Company was transitioning the workforce from an operations-oriented culture to a project-oriented culture. A simple example illuminates the nature of the M&I closure philosophy. Previously, for baselining purposes the M&O overhead pools were for the most part sacrosanct. Since the M&I closure approach is to invest every available dollar into fieldwork and waste disposal, the overhead budgets quickly became primary targets for cuts. Business as usual became business unusual. Under the M&I, managers were identified for overhead pool components. The work scopes constituting those pools were scrubbed, reviewed, and ultimately scoured by senior management. Zero-based budgeting became the rule, not the exception. All of the overhead work scope and associated budgets is now managed like a project, with discrete scope statements, work breakdown structures, budgets, deliverables, etc. Funding for discretionary, non-value added "support" work is redistributed to fieldwork. Using a military metaphor, closure requires putting your resources where they can score the biggest hit—on the front line, which is in the field—moving dirt. This radical change from the past is representative of the M&I philosophy. This uncompromising commitment to simplify systems, processes, procedures, and policies is balanced against a sensitivity to not cut needed core capabilities.

> ***"Everything should be made as simple as possible, but not simpler."***
> **Albert Einstein**

Consistent with the M&I philosophy, Bechtel Jacobs Company focused early efforts on:

- Safety Performance
- Credible Life Cycle Baseline
- Subcontract Procurement
- End State Planning
- Workforce Transition

Each of these areas is expounded upon below.

SAFETY PERFORMANCE

The Bechtel Jacobs Company approach to safety has four key elements:

- continuing to instill a zero accident culture,
- pre-qualifying subcontractors based on their safety record,
- implementing Integrated Safety Management, and
- holding individuals responsible for safety.

The commitment to "zero accidents" starts at the very top of the organization. It requires personal attention and a sincere concern for each employee's safety. That commitment is the foundation of each decision faced by the organization daily. To assure good communication, we have formalized a Zero Accident Council made up of a broad cross-section of represented labor that meets each month to resolve any safety-related issues or concerns.

Pre-qualifying subcontractors based on their safety record is a critical step to assuring good safety performance in a subcontracted environment. The process used during procurement is no different than any other pre-qualification criteria and our experience has been that companies that work safely also work efficiently. Therefore, it is unlikely that we are limiting competition based on this screening. The only exception has been with drilling contractors, who, as an industry, have recordable injury rates that often do not meet our pre-qualification standard.

The implementation of ISMS also takes into account our subcontracting strategy. For instance, we have elected not to require subcontractors to have their own ISMS program. Instead, all subcontractors work under the Bechtel Jacobs Company ISMS Program. Another key factor in safety management is that our subcontract specifications flow down an appropriate level of rigor and safety policies and requirements.

Finally, a strong ISMS program requires that clear roles and responsibilities be established. Since our work in Oak Ridge requires interfaces with multiple DOE prime contractors, it is imperative that roles and responsibilities are clearly defined and communicated to field personnel.

Holding individuals responsible for safety is the best way to assure that our ISMS Program works. Every individual including subcontractor staff is expected to be involved in planning the job and is expected to step back and re-plan safety activities any time there is a change in how the work is executed or a safety concern is identified.

The safety management system has been designed to accommodate the added complexities associated with the level of subcontracting built into the Oak Ridge M&I. Even with these added complexities, we have managed to improve our safety performance. This is demonstrated by a reduction in the combined OSHA recordable injury/illness rate for Bechtel Jacobs Company and our subcontractors by 63% and the combined "lost workday away" case rate by 61% since Bechtel Jacobs Company started the M&I contract. These results are illustrated below.

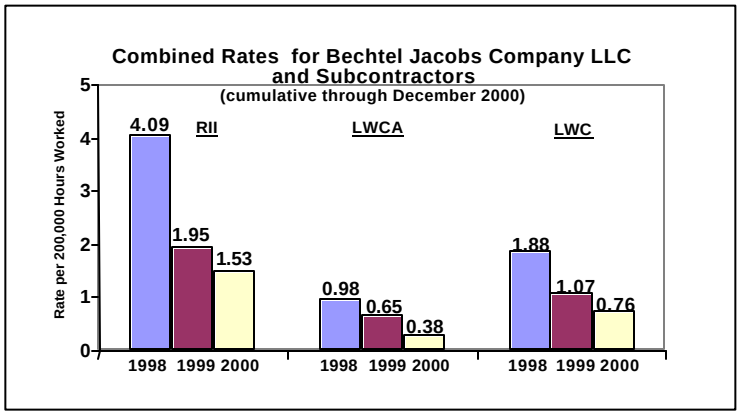

Fig. 1. Safety performance.

SUBCONTRACTING

To implement the contracting philosophy of DOE's vision, Bechtel Jacobs Company completed an aggressive effort to competitively procure 170 fixed-price or fixed-unit-price subcontracts, with an estimated value of just over $1 billion.

Figure 2 depicts the scope of the 170 subcontracts by discipline as follows.

Figure 3 summarizes the distribution of dollars.

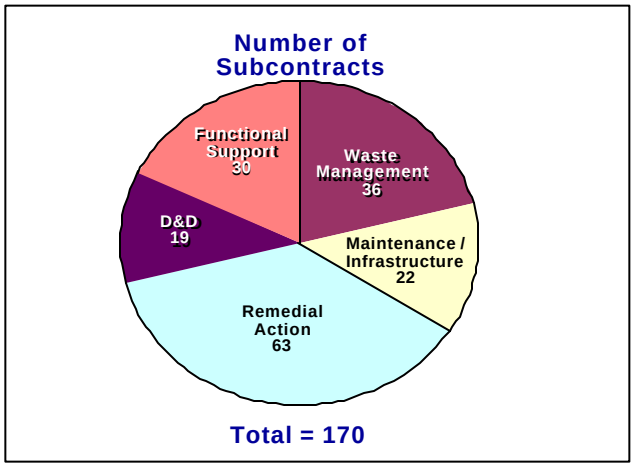

Fig. 2. Subcontract Quantities.

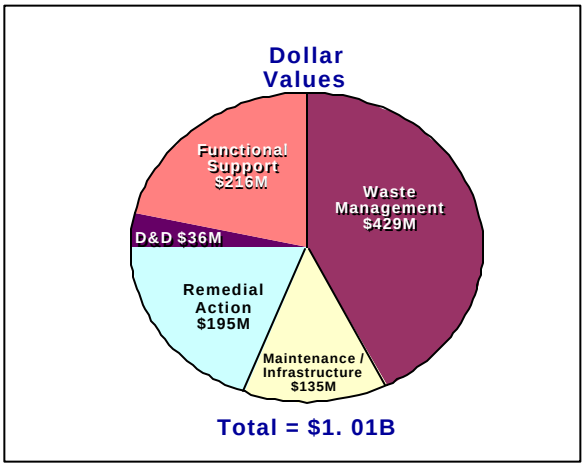

Fig. 3. Subcontract Va lues.

To date, approximately 86% of the total EM Program funding has been subcontracted. This aggressive subcontracting effort has been accomplished under an added set of complexities associated with the Oak Ridge M&I contract that:

- called for competitive procurement of subcontracts after award (no major pre-selected teaming partners);
- required transition of the incumbent workforce to the successful subcontractors at substantially equivalent pay and benefits;
- required successful subcontractors to adopt employee benefit and pension plans, and in some cases, labor agreements; and
- involves work at five distinct sites across three states.

Finally, it is important to note that this shift from self-performance to competitively procured subcontracts has provided excellent value to the government. In fact, compared to the M&O baseline, we have demonstrated a cost savings of over $450 million. These savings can be attributed primarily to competition and innovation. Instead of specifying "how" a contractor is to perform a job, our approach has been to specify the desired outcome.

WORKFORCE TRANSITION

A key provision of the M&I contract was to subcontract cleanup work to best-in-class subcontractors and transition the respective workers to the winning subcontractors. The contract specifies that, as work is subcontracted, the "grandfathered" contractor employees have right of first refusal for non-management jobs with subcontractors at substantially equivalent pay and benefits. To help set a perspective on the magnitude of the workforce transition efforts, at transition completion:

- Five labor agreements have been negotiated,
- Thirty-two subcontracts have been awarded that include workforce transition, and
- 870 employees have been transitioned to subcontractors, thus bringing to successful completion the transition efforts.

CREDIBLE LIFE CYCLE BASELINE

A significant accomplishment and requirement for closure is that of having and managing to a credible plan – a Baseline. For Bechtel Jacobs Company, the Life Cycle Baseline serves as the management tool for portraying:

- The realistic, credible plan for closure;
- The plan for generating and disposing of waste;
- The award and planned execution of subcontracts;
- Bechtel Jacobs Company and subcontractor staffing projections;
- Planned milestone completions;
- Release site assessments and completions; and
- An integrated project schedule.

To construct a realistic closure plan, Bechtel Jacobs Company and ORO built the Life Cycle Baseline under target funding assumptions. Previous efforts built the Life Cycle Baseline assuming requirements-level funding, which simply was unrealistic and greatly distorted the plan for closure.

END-STATE PLANNING

The programmatic planning process for the Life Cycle Baseline and the long-range plan is shown in Figure 4. The requisite starting point for planning is the vision. DOE-ORO, Bechtel Jacobs Company, regulators, and stakeholders have expended tremendous effort in defining, refining, communicating, and ingraining the EM Program vision into project team members, planning processes, and execution plans. With the vision in sharp focus, and after taking into account the remediation problems to be solved, the optimal execution strategy was crafted. The clear definition of the construction-logic strategy helped make obvious the definition of the projects and associated work packaging. For sequencing, the project scopes, budgets, and schedules were compared to anticipated target funding levels (as opposed to requirements) and project schedules adjusted, as needed, based on work priority and precedence constraints. The aggregation of project planning information resulting from this process is the Life Cycle Baseline. It is comprehensive, containing all of the work necessary to get to closure—sequenced over time to take advantage of construction logic, economies of scale, and priorities, while accommodating realistic budget constraints.

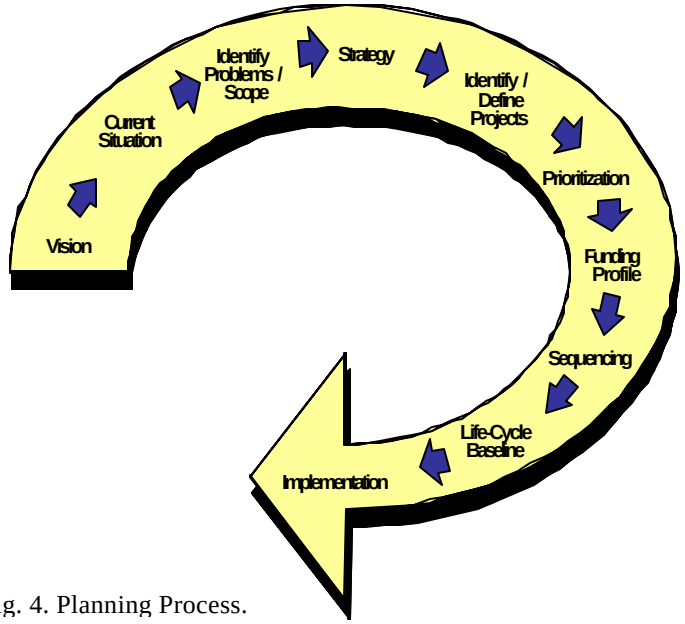

Fig. 4. Planning Process.

Bechtel Jacobs Company led a series of strategic working sessions with participation by ORO and regulators, to focus on the EM Program strategy.

The result of this two-month, daily effort was a documented, shared vision for achieving closure at each site.

The sections below provide historical background information on each of the sites and the ORR Waste Disposition Project and their respective cleanup vision.

EAST TENNESSEE TECHNOLOGY PARK

The East Tennessee Technology Park (formerly the Oak Ridge K-25 Site) was built as part of the Manhattan Project during World War II to supply enriched uranium for nuclear weapons

production. Construction began in 1943 with the K-25 Building, the first diffusion facility for large-scale separation of ^{235}U. The K-25 Building was fully operable by August 1945. Additional buildings involved in the enrichment process were operable by 1956. Through 1964, the site was used primarily for the production of highly enriched uranium for nuclear weapons. In response to the national postwar emphasis on nuclear power, plant operations were modified to include the production of uranium compatible with reactors used to generate electric power.

From 1959 to 1969, the focus shifted to the production of commercial-grade, low-enrichment uranium. Because of the declining demand for enriched uranium, the enrichment process was placed on standby in 1985 and shut down permanently in 1987. The site was also a host for centrifuge facilities constructed as part of a program to develop and demonstrate uranium enrichment technology. These facilities have also been shut down.

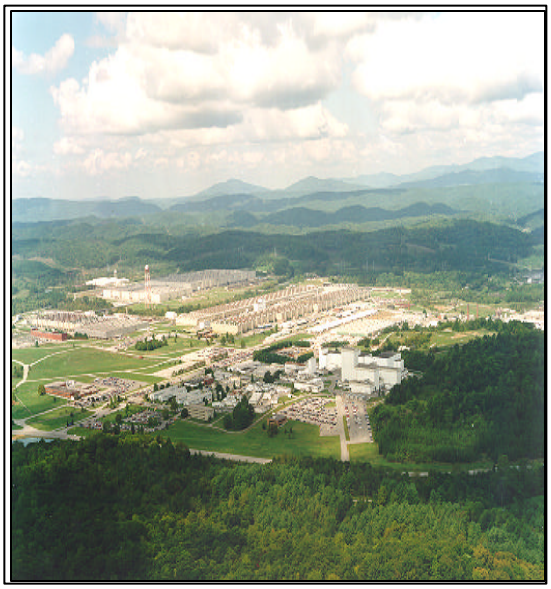

Fig. 5. East Tennessee Technology Park.

The vision for the East Tennessee Technology Park is that following cleanup it will have a mission as a private sector industrial park; therefore cleanup will be appropriate for unrestricted industrial use. An important innovative aspect of the cleanup plan strategy is to use reindustrialization and/or privatization as a tool for aggressively cleaning up the nuclear weapons legacy in Oak Ridge.

Key end-dates for major work scopes at ETTP include:

- Complete Decontamination & Decommissioning in FY 2008, and
- Complete Remedial Action in FY 2010.

Y-12 National Security Complex

Built in 1943 as part of the Manhattan Project, the original purpose of the Oak Ridge Y-12 National Security Complex was uranium enrichment and nuclear weapons production. Uranium enrichment was discontinued in 1947, but other aspects of weapons production continued until 1993. Y-12's role has matured into supporting highly sophisticated manufacturing; development engineering associated with producing, fabricating, and dismantling nuclear weapons components; and serving as the national repository for enriched uranium.

Fig. 6. Y-12 Plant.

The vision for the Y-12 National Security Complex is that it will have an ongoing production and stockpile mission in a reduced plant footprint; therefore cleanup will be appropriate for controlled industrial use in the reduced plant footprint and unrestricted industrial use outside of the reduced footprint.

Key end-dates for major work scopes at the Y-12 National Security Complex include:

- Complete Offsite work in FY 2007,
- Complete Remedial Action in FY 2011, and
- Complete Decontamination & Decommissioning in FY 2012.

Oak Ridge National Laboratory

Weapons research facilities were established at the site of the Oak Ridge National Laboratory in 1943 as part of the World War II Manhattan Project. The Laboratory's original mission was to produce and chemically separate the first gram quantities of plutonium as part of the national effort to produce the atomic bomb. As its role in the development of nuclear weapons decreased over time, the scope of work at Oak Ridge National Laboratory expanded to include the production of isotopes, fundamental research in a variety of sciences, research involving hazardous and radioactive materials, environmental research, and radioactive waste disposal.

Fig. 7. Oak Ridge National Laboratory.

The vision for the Oak Ridge National Laboratory is that it will have an ongoing research mission; therefore cleanup will be appropriate for controlled industrial use within the main plant and unrestricted industrial use in surrounding areas.

Key end-dates for major work scopes at the Oak Ridge National Laboratory include:

- Complete Remedial Action in FY 2011; and
- Complete Decontamination & Decommissioning in FY 2011.

Paducah

The Paducah Gaseous Diffusion Plant began operating in the mid-1950s, supplying enriched uranium for both government and commercial nuclear fuel needs. On October 24, 1992, the President of the United States signed the Energy Policy Act of 1992, establishing a new government corporation, the United States Enrichment Corporation, whose charter, effective July 1, 1993, was to assume responsibility for uranium enrichment production at the plant. However, the Act required the Department of Energy to retain responsibility for remedial action of past environmental releases and for decontamination & decommissioning of facilities.

Fig. 8. Paducah.

The vision for the Paducah Gaseous Diffusion Plant is that it will have an ongoing industrial mission; therefore cleanup will be appropriate for controlled industrial use inside the plant and open space/recreational outside the fence.

Key end-dates for major work scopes at the Paducah Gaseous Diffusion Plant include:

- Complete Decontamination &
- Decommissioning in FY 2007;
- Complete Remedial Action in FY 2010; and
- Complete Legacy Waste disposition in FY 2010.

Fig. 9. Portsmouth.

Portsmouth

During the cold war, the Portsmouth Gaseous Diffusion Plant was constructed to enrich uranium in support of both government and private programs. As with the Paducah Gaseous Diffusion Plant, it is currently operating under a lease agreement with the United States Enrichment Corporation, which produces low-enriched uranium for commercial applications.

The Portsmouth Gaseous Diffusion Plant's vision is that it will have an ongoing industrial mission; therefore cleanup will be appropriate for controlled industrial use inside the plant and open space/recreational use outside of the plant.

Key end-dates for major work scopes at the Portsmouth Gaseous Diffusion Plant include:

- Complete Remedial Action in FY 2005; and
- Complete Legacy Waste disposition in FY 2006.

Work associated with placing the Portsmouth Gaseous Diffusion Plant in cold standby will be added to the Life Cycle Baseline during the next update.

Waste Disposition Project (Legacy Waste)

The strategy for waste disposition is to accelerate the disposal of stored legacy waste and to achieve steady-state conditions for newly generated waste. Accelerated disposal of stored waste is key to maintain the D&D schedules for facilities currently used as waste storage areas. Steady-state conditions are achieved when the quantity of waste generated equals the quantity of waste treated and disposed of each year. Storage of waste will occur only on a temporary basis to accumulate sufficient quantity to perform treatment and disposal operations.

Fig. 10. Legacy Waste storage facility before footprint reduction.

Fig. 11. Storage vault empty and ready for closure.

To put the massive volume of Oak Ridge's legacy waste in perspective, consider that if placed into the Washington monument it would reach a height over 855 feet--three hundred feet higher than the current monument. In relation to the rest of the DOE complex, Oak Ridge alone accounts for 42% of the waste planned for disposal at the Nevada Test Site.

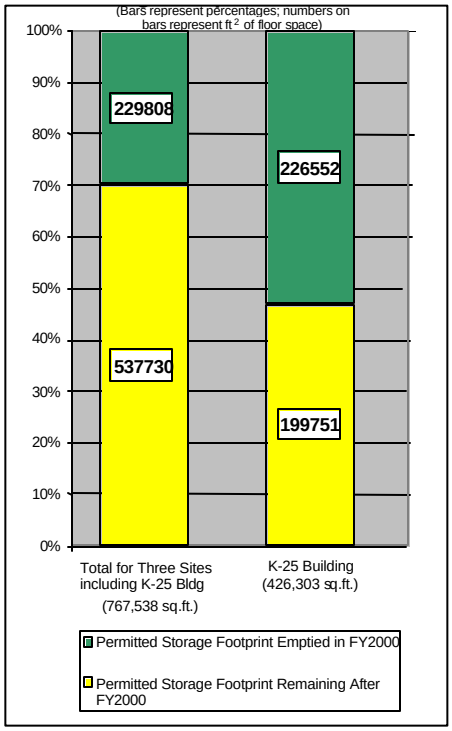

Fig. 12. Reduction in Waste Storage.

The current planned end-date for Waste Disposition work is FY 2010.

Performance

The following section highlights the accomplishments and status of the ORO EM Program and provides an advanced view of challenges on the horizon.

Progress in FY 2000

Recent Regulatory Decisions

To achieve closure, fieldwork must be complete. To complete fieldwork, regulatory decisions must be finalized. For the ORO EM Program, last year the following key regulatory decisions were made, paving the way for roughly $240 million worth of remedial actions work:

- ETTP K-1070A Burial Ground ROD-$20 Million
- ORNL Melton Valley ROD-$160 Million
- Y-12 Bear Creek Valley ROD-$30 Million

Imminent Regulatory Decisions

The following regulatory decisions are expected in FY 2001. They will pave the way for an additional $240 million worth of remedial actions work.

- Y-12 Upper East Fork Poplar Creek ROD- $40 Million
- ETTP Zone 1 ROD-$90 Million
- ORNL Bethel Valley ROD-$110 Million

Physical Accomplishments

ORNL Gunite and Associated Tanks

Beginning in the 1940s, the Gunite and Associated Tanks at ORNL were built to collect, neutralize, store, and transfer the liquid portion of radioactive and/or hazardous chemical wastes. The tanks vary in size and construction. Given the potential risks of the contaminants and the age of the gunite tanks, the remediation of these has been a high priority.

Robotics and remotely operated equipment are included in the 29 technologies that have been deployed to remove more than 86,000 gallons of transuranic mixed waste sludge from eight large underground tanks. The sludge (78,000 Curies total activity) will be treated and disposed of at the Waste Isolation Pilot Plant. Plans call for grouting the tanks in place and using the land for industrial/research use. The project is $120 million under budget and seven years ahead of schedule. In FY 2000, the radioactive sludge removal was completed which represents the completion of a ten-year effort.

Fig. 14. Workers cut old tank mixer into small pieces for disposal.

Fig. 13. Workers install waste retrieval and transfer equipment on another tank.

Fig. 15. Technician prepares to remove old waste piping from tank.

Y-12 Boneyard/Burnyard

The Boneyard/Burnyard (BY/BY) is located approximately 1.5 miles west of the Y-12 National Security Complex, in the Oil Landfarm Area. The Boneyard/Burnyard was used in the 1960s to receive refuse from plant operations. Two unlined earthen trenches were dug and then filled with solids, liquids (including solvents, oils, and laboratory chemicals) and sludges. Workers used flammable liquids to ignite the wastes in the trenches and when full, covered them with soil.

In the first remedial action under the Bear Creek Valley ROD, the Boneyard Burnyard will undergo hydraulic isolation to reduce uranium flux (currently contributing 70% of the total uranium flux to Bear Creek) to Bear Creek and prepare for waste excavation in FY 2002.

The following major activities were accomplished in FY 2000:

A french drain (trench) system was constructed between the existing road and the BYBY area to intercept and divert (hydraulic isolation) groundwater flow into and through the BYBY. This was implemented to prep the BYBY area prior to excavation of waste and thus minimize construction water during remediation.

Waste at the Landfarm area was sampled and analyzed for validation prior to excavation and shipment for disposal. Approximately 570 cubic yards of mixed waste was excavated, packaged and transported by rail for disposal at the Envirocare facility in Utah.

Fig. 16. Waste operations at the boneyard/burnyard (BY/BY), 1958.

Fig. 17. Floating dredge removes sediments from surface impoundments.

ORNL Surface Impoundments Operable Unit

Four surface impoundments were excavated at ORNL between 1943 and 1964 to serve as temporary radiological wastewater storage facilities. The bottoms of these impoundments have since become highly contaminated with various radionuclides and other hazardous substances. In addition, investigations and visual observations have confirmed that contaminants are escaping into the surrounding environment, a situation that presents risks to human health and the environment.

In FY 2000, roughly 6,500 cubic yards of radioactively contaminated sludge was dredged from two of the surface impoundments for treatment and disposal. Although twice the originally estimated volume was removed and one of the impoundments was backfilled with rock and grouted, the project budget remains roughly $16 million below the original ROD estimate.

ORNL Federal Facility Agreement Tanks

Since its establishment, ORNL has operated numerous facilities that generate radioactive liquid low-level waste (LLLW). Waste solutions are typically collected in tanks located inside the research facility and discharged into below-grade collection tanks that receive LLLW from several different facilities. Most of the LLW System was installed more than 40 years ago. The initial system and its modifications were designed to minimize radiation exposure to users and operators. As-built drawings for some of the older tank systems do not exist. The system includes features such as unvalved, gravity-drained transfer lines to prevent waste backup into generator areas; shielded pipelines and tanks; and provisions for remote operations to minimize personnel exposure.

Fig. 18. Workers remove sludge from FFA Tanks.

Fig. 19. X-747 H Contaminated scrap for disposal.

Portsmouth X-747H Scrap Yard

In FY 2000, to mitigate impacts from United States Enrichment Corporation layoffs at Portsmouth, Bechtel Jacobs Company accelerated schedule, used savings from other M&I work, and hired 49 displaced workers to implement work for the disposal of 5,200 tons of scrap metal contaminated with low-level radiation.

Waste Disposition Monoliths-Nevada Test Site

Oak Ridge has some of the largest quantities of low-level waste in the DOE complex. To eliminate storage costs and further reduce environmental risk, the plan is to dispose of the waste at off-site disposal outlets.

Fig. 20. The monolith is moved by crane to the shipping cask.

Fig. 21. Final disposition of monoliths at NTS.

In FY 2000, 60 monoliths of solidified LLW were shipped off-site for disposal. This campaign represents the first-ever ORO or Bechtel Jacobs Company shipment of waste to the Nevada Test Site (NTS) for disposal. Access to NTS is an important milestone for the Oak Ridge cleanup program since the State of Tennessee has raised state equity issues associated with their approvals to allow the TSCA Incinerator to burn out-of-state wastes.

Environmental Management Waste Management Facility (EMWMF)

The on-site waste disposal cell, or EMWMF project objective is to build a CERCLA mixed waste disposal facility for the Oak Ridge Reservation. This subproject addresses the project management, CERCLA documentation, procurements, preliminary design, waste acceptance criteria attainment plan and operations of two cells. Also included is the design and construction of a low temperature Thermal Desorption System for treatment of contaminated soils.

The EMWMF will be the safe, cost-effective disposal option for most of the waste to be generated during CERCLA remediation of the Oak Ridge Reservation. The EMWMF is central to the success of the entire Oak Ridge Reservation cleanup.

In FY 2000, site preparation began for the EMWMF. An explanation of significant difference was submitted to the regulators to include disposition of classified waste to EMWMF, which will yield additional cost savings for Oak Ridge waste disposal.

Fig. 22. Drum Mountain and shredder in July 2000.

Paducah Drum Mountain

Roughly 2,600 tons of UF_4-contaminated drums, known as "Drum Mountain," were shredded and crushed to reduce disposal costs. A savings of $1.6 million has been realized to date as a result of subcontracting this work.

Expectations for FY 2001

ORNL Metal Recovery Facility

The ORNL Metal Recovery Facility is a one-story, contaminated, deteriorating building at ORNL with seven above-grade process cells used for the recovery of uranium and other materials from fuel and waste. As part of our Disadvantaged Business Subcontracting Plan, an HBCU/MEI has been subcontracted to remove and dispose of the above-grade portion of the facility in FY 2001 to reduce overall risk at the ORNL.

ORNL Federal Facility Agreement Tanks

The overall objective of the ORNL Federal Facility Agreement Tanks Project is to evaluate and remove the contents of 19 category D liquid low-level waste tanks to the extent practical and then stabilize the tanks by filling them with concrete.

Plans for FY 2001 include:

- Complete the sludge removal and remediation of three of the remaining tanks;
- Stabilize five tanks that do not require sludge removal; and
- Submit a removal action report for the Balance of Tanks

EMWMF Complete

Completion of the on-site disposal cell is a critical component of the overall cleanup plan for the Oak Ridge Reservation.

Plans for FY 2001 include:

- Complete the waste acceptance criteria attainment plan
- Complete the remedial design report and remedial action work plan
- Perform all the earthwork associated with the first 400,000 cubic yards
- Install the secondary liner system for the cell

ETTP Main Plant D&D

For this subproject, seven of ten radioactively contaminated buildings at ETTP in the main plant area are being demolished and resulting waste disposed. This work will support reindustrialization of ETTP as well as reduce S&M costs and overall risk at the site.

Plans for FY 2001 include:

- Continue demolition of Main Plant Buildings
- Complete removal of K-1401 basement equipment items of concern
- Award a subcontract for removal of equipment from the K-1401 basement and selected areas on the first floor of K-1401
- Begin removal of equipment from the K-1401 basement and selected areas on the first floor of K-1401

ORNL Corehole 8

Corehole 8 is responsible for a major contaminated groundwater plume on the Oak Ridge Reservation. Corehole 8 began in the mid-1980s when a groundwater test well revealed an underground plume of radioactive contamination from no apparent source. In 1985, sample wells were installed around the Lab to see what groundwater contamination was present. One well at First Street, which borders ORNL's west fence, had significant levels of strontium-90. It took years of detective work to isolate the source, which has been completed.

Three coordinated actions are now underway to stop the release of contaminants. The actions to control the Corehole 8 contaminant plume and its source during FY 2001 include:

- seepage intercept control
- contaminant source control actions
- pumping from wells in the plume to control flow and remove contaminant mass

Paducah Scrap Metal

The scope of this subproject is to disposition approximately 54,000 tons of scrap material from the Paducah Gaseous Diffusion Plant. The project also involves the construction of sediment control measures at Kentucky Pollutant Discharge Elimination System outfall 001 in accordance with the decision documents.

Work planned for FY 2001 includes developing and issuing a request for proposal to obtain a subcontractor to perform scrap metal removal; develop a removal action work plan for scrap removal; and commence the removal.

Challenges

As expected with an EM Program of this magnitude and complexity, there are a host of challenges and uncertainties. Senior management remains committed to proactively resolve each of these.

- Executing the EM Program with flat budgets and obtaining adequate funding to accelerate the disposal of legacy low-level waste
- Meeting all regulatory commitments given funding constraints
- Operating the onsite Environmental Management Waste Management Facility efficiently with a potentially highly variable waste loading
- Disposing of radioactively contaminated metal given the metal recycle moratorium
- Evaluating the need for onsite disposal of cleanup waste at Paducah
- Assessing the scope, schedule, budget, and human resource impacts of shutting down the Portsmouth Gaseous Diffusion Plant
- Assessing the budget, technical, and schedule impacts of transferring surplus facilities from Defense Programs and the Office Of Science to the EM Program
- Integrating the Life Cycle Baselines for the EM Program and Uranium Programs into a focused, comprehensive Cleanup Plan

The greatest challenge may well be managing the gap between increasing regulator expectations and potentially decreasing funding levels.

Conclusion

Transitioning a cleanup program from an operations philosophy to a focused closure philosophy starts with senior management clearly articulating a credible closure vision. Frequent communication and outreach sessions with customers, employees, regulators, affected communities and other stakeholders are paramount in importance. Along with the vision, management's ability to create and instill a culture that recognizes, rewards, and celebrates closure activities, and not operations, is key. With the closure culture instilled, employees at all levels are better able and willing to focus every funding dollar possible on field cleanup, thus ensuring the success of the cleanup program. Finally, even with a clear vision and a closure culture, to realize success management must also deploy proven state-of-the-art project management tools for the workers to facilitate the momentum toward achieving the closure vision.