MEETING THE CHALLENGE OF COMPLETING THE EM PROGRAM AT THE CHICAGO OPERATIONS OFFICE

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ABSTRACT

The Chicago Operations Office (CH) continues to focus on completing Environmental Management (EM) missions at its sites by 2006. In order to meet this date, CH implemented a completion strategy in the early 1990's that involved several key concepts. These included:

- employing project sequencing approaches to ensure early completion of sites;
- deploying innovative technologies and cleanup;
- structuring regulatory agreements to provide significant flexibility;
- transforming waste management functions at CH sites to the site landlord;
- incentivizing the cleanup contractors to complete work early, and
- meeting and communicating regularly with the stakeholders.

Now as CH nears its completion goal, a number of observations are appropriate to help make the goal a reality and to assist the sites in their transition to the long-term stewardship phases.

This paper begins by highlighting the activities that have proven successful for CH in completing these sites. Then it expands on how these specific activities will be instrumental in helping CH close additional sites and achieve its goal of completing the EM mission by 2006. As a final topic, the paper will discuss some of the challenges remaining and how they will be met.

INTRODUCTION

The Chicago Operations Office (CH) is one of nine Operations Offices for the United States Department of Energy (USDOE). CH enjoys a rich history within USDOE and its predecessors dating back to the earliest days of the Manhattan Project. Today, CH continues to manage and operate the following laboratories across the country: Ames Laboratory (Iowa), Argonne National Laboratory East (Illinois), Argonne National Laboratory West (Idaho), Brookhaven National Laboratory (New York), Fermi National Accelerator Laboratory (Illinois), and Princeton Plasma Physics Laboratory (New Jersey). Much like other USDOE sites, the legacy associated with the cold war and the earliest days of energy research activities resulted in a multitude of environmental concerns. These concerns resulted in the establishment of the Environmental Management (EM) program in 1989.

Since all CH sites are laboratories and have on-going scientific missions, CH Program Managers adopted a goal in 1995 to be the first U.S. DOE Operations Office to complete the environmental cleanup of their sites. The rationale for this was rather straightforward. As operating Laboratories, the existing environmental legacies represented a significant distraction to the on-going scientific mission. Therefore, completing clean up as soon as possible would facilitate a full return to the Laboratories' focus on research.

COMPLETION STRATEGY

CH is the smallest USDOE EM program in terms of total estimated cleanup costs and annual funding. To achieve the cleanup goal, it was important to institutionalize a completion strategy for both the Federal employees and contractors. The premise for the goal was contained in Chicago's completion strategy for EM activities (Table I).

Table I. Chicago's Completion Strategy since Fiscal Year1993

1. Clearly state the completion vision for staff and contractors
2. Protect small sites from pro rata funding cuts
3. Make every dollar count and break down "stovepipes" wherever they exist
4. Always work within the existing funds
5. Create flexibility in project execution
6. Focus on work sequencing and technologies to achieve near term successes

Each of these strategies is discussed in order below.

Clearly State The Completion Vision For Staff And Contractors

In Fiscal Year (FY) 1995, CH strategically posted a chart throughout the office building used by Federal EM work force. This chart contained a simple message regarding the completion schedule for cleanup of CH sites. The message was also reaffirmed annually in the Business Plan for the EM organization at CH. Key contributing metrics were incorporated into individual employee performance plans to ensure ownership for the goal. In addition, CH notified its contractors that it envisioned continuing stewardship responsibilities following the completion of EM activities. The supporting objectives to achieve this goal included:

- Transferring the responsibility for waste management operations to the landlord organization which has responsibility for overall site operations
- Deploying all remedies identified to achieve environmental remediation cleanup of a site
- Arranging for long term stewardship responsibility for each site's respective landlord organization (i.e. Office of Nuclear Energy or the Office of Science)

Recently, the CH completion approach has matured into other implementing strategies such as the recent renegotiation of Brookhaven's environmental restoration contract with Bechtel National Inc. This renegotiated contract incorporates performance incentives that are tied

directly to schedule acceleration and cost reductions. With these incentives for both Federal staff and contractors, CH has fully implemented its completion vision in a concrete, measurable manner.

Protect Small Sites From Pro Rata Funding Cuts

EM's recent successes in building a stable or level funding profile with Congress has greatly assisted the CH completion goal. In FY 1995, EM's budget peaked at roughly $7.6 billion. Over the next few years, (i.e. FY 1996-98), Congress reduced the budget significantly. At the same time, USDOE stakeholders became increasingly aware of each individual site's funding allocations. To provide a methodology for ensuring fairness in funding for all sites, and to be consistent with the multi-party Federal Facilities Environmental Dialogue Committee report, EM implemented a series of "pro rata" funding reductions without regard to detailed program strategies. CH sensed early on that in order to maximize completions it would be important to maintain funding at its smaller sites such as Ames, Argonne West, and Princeton, regardless of the final EM funding allocation. CH's strategy proved successful in avoiding disruptions at the smaller sites and allowing them to complete on schedule. Upon completion of these sites, CH was then able to reallocate these available funds to its larger sites (i.e. Argonne East and Brookhaven). Under the stable or level funding profile, valuable extra dollars were "created" for these sites as project teams were dismantled and subcontractors were no longer required at completed sites. With the Argonne National Laboratory-East (ANL-E) scheduled for a FY 2003 completion, funds will be made available to Brookhaven increasing its funding roughly 20% beginning in FY 2004. With this approach, CH is demonstrating the concept of "creating" resources under the EM funding cap.

Make Every Dollar Count And Break Down Stovepipes Wherever They Exist

CH's EM budget is typically less than 1% of the overall EM program budget. While more money usually seems an advantage toward accomplishing more work, sometimes more can be accomplished with less money. Having a much smaller budget and, therefore, less complexity allows an entire cleanup program to be more easily understood by the stakeholders; consequently opportunities to advance the completion goal can be more readily identified. Small dollar amounts of less than $100,000 are routinely reviewed by CH managers for their most effective application, especially during the execution year. As an example, CH managers determined that dollars could be saved by having USDOE pay disposal fees directly to Hanford and Envirocare instead of having the laboratories pay the fees, which include overhead charges. While this is not rocket science, the point here is that this kind of scrutiny and management approach that even the smallest dollar savings are valued is well established within the CH program.

The effectiveness of this approach was demonstrated at the EM 1997 Mortgage Reduction Conference in Augusta, Georgia where each site presented opportunities to reduce its out year liabilities by advancing closure on existing projects. The Richland Operations Office (RL) indicated that it had a small contaminated guard shack that required $20,000 to monitor each year and $80,000 to decontaminate and dismantle the structure. The RL presenter indicated that if $80,000 of new funding were made available, Bldg. 2704C could be decontaminated and torn

down, saving USDOE the annualized surveillance and maintenance costs. Upon hearing the RL plea for additional funding, CH transferred the necessary funding so that this project could be completed during FY 1998. Figure 1 is a picture of a sign located at the former site of Bldg. 2704C with an inscription that reads, "Former site of Bldg. 2704C dismantled in the summer of 1998 with funds provided by the Chicago Operations Office".

Fig. 1. Sign situated at the former site of Building 2704C at the Hanford Site, Washington

Always Work Within The Existing Funds

During the mid-1990s, the Appropriations Committee grew increasingly concerned about EM's large uncosted balances. To offset these unspent funds, Congress acted by instituting general reductions in the EM budget. To avoid serious, negative consequences from these reductions, CH implemented an aggressive set of goals to not only reduce, but eliminate its uncosted balances. For FY 1996, CH Managers adopted a goal of "Zero Uncosted Balances" by the year-end. To accomplish this goal, CH utilized aggressive cost accruals, phased subcontracting, successfully implemented mid-year corrections, and waste liability accounts. These tools all contributed to achieving an uncosted balance of less than 1% of its budget. For that and the next fiscal three years, CH was exempted from congressional reductions, thereby making additional funding available for CH cleanup activities.

Another substantial benefit came about as a result of an effective strategy used by CH to negotiate regulatory agreements that provided enough flexibility to execute the cleanup of a site within the allotted funds. Institutionalizing this approach led to a remediation plan at Argonne West a full year ahead of the enforceable milestone schedule. Similarly, the Interagency Agreement (IAG) for the Brookhaven site between USDOE, the State of New York, and the United States Environmental Protection Agency (USEPA) calls for enforceable milestones to be negotiated through an annual "schedules document", thereby allowing sufficient latitude to meet fluctuations in funding.

Create Flexibility In Project Execution

Because the CH EM program is small in comparison to EM programs at other USDOE sites, decision-makers can more readily identify opportunities and act upon them. Two clear examples are the "early" transfer of two reactors at the Brookhaven site from the USDOE's Office of Science (SC) to EM. With the recognition that EM would eventually accept responsibility for both facilities under the provision of USDOE's Life Cycle Asset Management (LCAM) Order, CH aggressively facilitated the execution of Memoranda of Agreement (MOA) to accelerate these transfers by several years. CH's approach was for the EM program to work very closely with SC to transfer responsibility and funding. By accepting early responsibility of these facilities with adequate financial and personnel resources, the EM program was able to reallocate some of these resources to accelerate cleanup activities at the site.

As another example of CH utilizing flexibility in project execution, CH realigned its budget and schedule for the Brookhaven Graphite Research Reactor. Originally, it was scheduled to remain as a $6 million characterization program under the guidance of SC. However, CH determined that the project was more suited to be a "bias for action" D&D project under EM. CH immediately went about scheduling the D&D activities. This project has, in fact, been started as reflected in Figure 2, which shows the demolition of the Above Grade Ducts in July 2000 using SC funds provided under the transfer. This "bias for action" approach will allow CH to complete the decommissioning and decontamination project several years earlier than planned.

Fig. 2. Removal of above-ground ducts at the Brookhaven Graphite Research Reactor

In November 1999, Secretary Richardson announced a permanent shut down of Brookhaven's High Flux Beam Reactor (HFBR). On April 12, 2000, the Assistant Secretary for Environmental Management and the Directors for the Offices of Science and Nuclear Energy executed a formal MOA to transfer the facility. Included within the provisions of the transfer was the assignment for EM to directly manage approximately $29 million of SC funds for FY 2000-01. By accepting this facility much sooner than would be routinely expected under LCAM, CH has given EM a "running start" at the facility's ultimate D&D.

The FY 2001 funds allocated by Congress to SC for the HFBR are being used to demolish cooling towers, remove tanks, and more importantly to begin engineering for D&D. Also, interactions with the community have been greatly accelerated under EM's management to discuss topics such as the facility's end state. And finally, along with this "early" transfer came substantial funding from SC. CH has been successful in managing the funds such that only a minimal amount is needed for S&M and remaining funds are used for other cleanup activities at Brookhaven.

These examples of CH's program flexibility demonstrate that the ability to adjust schedules and priorities can save substantial budget dollars as well as accelerate CH cleanup goals.

Focus On Technologies To Achieve Near Term Success

The deployment of new and innovative technologies is an important aspect of completing cleanup activities. CH has been recognized for its work in instituting new technologies at its sites and in partnering with EM's Office of Science and Technology (OST). Most notably, In 1999, CH and OST received the distinguished Hammer Award from Vice President Gore for innovation in the conduct of the Large Scale Demonstration Project at Argonne East's CP-5

Reactor. Technologies first demonstrated at CP-5 have been used throughout the USDOE complex, but the Hammer Award was given based upon an innovative partnering agreement between USDOE, academia, the commercial reactor industry, commercial research and development, and the National Laboratories under CH.

More recently, CH received one of three recognition awards from the Assistant Secretary for Environmental Management for excellence in deploying technologies during FY 1999. Phytoremediation is being deployed at both Argonne West (Cesium in soils) and Argonne East (volatile organics). Currently, OST is funding the deployment of a suite of technologies designed to characterize contaminated soil beneath the BGRR Underground Ducts. Assuming the right results, CH Project Managers will be able to offer risk-informed arguments to the regulators for leaving much of these immense concrete structures in place, saving several million dollars in removal and disposal. Although the CH program is less than five years from completion, CH Program Managers continue to seek technologies that improve baseline assumptions.

REMAINING CHALLENGES TO COMPLETION

CH's Completion Strategy, as outlined above, has gone a long way in successfully implementing EM's mission. However, as CH focuses on the remaining work necessary to successfully declare geographic site completions at Argonne East and Brookhaven, several challenges are clear. These challenges are discussed below.

Skeltons, Dark Closets, and Scope Creep

Funny things happen at an operating Laboratory where EM activities are nearing completion. For example, the old magnet that was always going to be used again is declared waste. The facility that was being cleaned for reuse, suddenly has no use, instead is being demolished. Also, as labs are cleaned out discarded materials are sent to EM's waste management operations as a waste product. An impending EM completion at an on-going laboratory raises the sense of urgency to address a wide variety of issues such as these while EM funds are still available. Sometimes these issues have required the CH EM program to take unpopular positions to preserve the integrity of its program baselines and ultimately achieve site completion at Argonne East in FY 2003. For example, by CH EM program managers insisting that the approved EM scope for the CP-5 Reactor D&D project end with an industrial reuse scenario, the Laboratory is left trying to fund the now planned demolition by transferring the project back to EM. While "good" for the EM program in terms of minimizing expenses, such issues over scope do not necessarily benefit the site. The EM Program Managers' mission is to continue to manage scope wisely within allotted funds and in accordance with the formal change control procedures to preserve these site completions.

When is cleanup done?

Initially, with the Ten Year Plan and then later with the Paths to Closure, EM attempted to focus a site's cleanup activities upon completion. For CH, this meant there was an agreed upon scope and an anticipated geographic completion date for each site. One provision of a policy issued in

1998 was that EM would formally accept clean up responsibilities for facilities that had concluded their useful life under the Offices of Science, Nuclear Energy, Defense Programs, and others. With a clearly established "completion" date at sites like Brookhaven and Argonne East, CH is being asked to consider accepting additional facilities that will require cleanup activity beyond FY 2006. This becomes a difficult concept to explain within the local community. Does EM declare geographic site completions at sites and then commence new projects? Is this somehow considered EM Phase II? Can the Brookhaven site be completed in FY 2006, when the recently added HFBR project will continue until FY 2009? How do we record these completions with Congress? While there is significant on-going effort within the EM program relative to long term stewardship and residual responsibilities (i.e. post-EM completion), more planning is required to account for sites with on-going missions.

The Importance Of Management Commitment To The Goal

In October 2000, CH conducted a closure assessment of the Argonne East restoration program. CH designed the review to assess the Laboratory's likelihood of achieving its geographic site completion by FY 2003. The review team also evaluated barriers or obstacles that might lessen the chances of success. One of the team's most significant outcomes was the realization that the management of the Laboratory did not openly endorse or embrace the completion goal as critical. The lack of the open commitment meant the EM program was not an obvious priority to the support organizations, such as procurement.

On the other hand, the senior management of Brookhaven National Laboratory (BNL) bought completely into the value of a timely conclusion to the EM clean up and recommended a through renegotiation of their subcontract with Bechtel National Inc. BNL argued that without a significant restructuring of the subcontract the level of confidence in attaining the FY 2006 completion date was less than 50%. By applying incentives, reassigning field contracts directly to Bechtel, and building their own work force rather than relying on the Lab's personnel, BNL's proposal will not only raise the confidence level for the FY 2006 completion to approximately 80%, but potentially accelerates the completion to FY 2005. CH also estimates $20 million in cost savings with this approach, anticipated for execution during FY 2001. Again the commitment by both the CH manager and the BNL lab director to take on this significant change for a relatively mature program again clearly demonstrates the CH commitment to completion.

The Sleeping Giant – Long Term Stewardship

CH has been an active player in transferring activities to organizations responsible for long term stewardship. During FY 1998, CH transferred responsibility for three small sites requiring surveillance and maintenance to the USDOE Grand Junction Project Office, and the waste management programs for Fermilab and ANL West to the Offices of Science and Nuclear Energy respectively. In FY 2001 the post cleanup (i.e. monitoring) activities for Ames and Princeton labs were transferred to the Office of Science. Also in FY2001, the remaining waste management programs (Ames, Argonne East, Brookhaven, and Princeton) were likewise transferred to SC. Now efforts shift toward the issues associated with ultimately transferring long-term stewardship programs for the more complex sites, primarily Brookhaven. At Brookhaven alone, CH will be operating groundwater treatment systems 15-30 years beyond the

EM "completion" date. The operating costs of all long-term stewardship activities are expected to be in excess of $5 million annually or roughly 20% of the current clean up budget.

With so much emphasis on completing the environmental restoration program, it is easy to overlook the impacts of the "post EM" era. Consequently, CH is seeking to improve its focus on the implications associated with site operations once the EM program is declared complete. First steps must be taken to more actively engage recipient programs (i.e. SC and NE) in not only end-state decisions for facility D&D, but also with those that result in long term commitments of USDOE resources (i.e. long-term monitoring).

The transfer of responsibilities from EM to a landlord program is now more quickly evolving with the recently issued draft Long-Term Stewardship Policy, but key questions remain. For example:

- Are life cycle cost tradeoffs between potential remedies and LTS being effectively evaluated? Clean-up contractors whose scope ends with the installation of a remedy are performing much of USDOE's environmental restoration projects. Is USDOE properly incentivizing its clean up contractors to give due consideration to USDOE's LTS liabilities?
- Is USDOE positioned to evaluate emerging treatment technologies during the Operating & Maintenance phase of remediation? Whose responsibility is it to remain cognizant over the next generation of technologies? If it is an EM responsibility, how will it support non-EM sites to reduce USDOE's overall long term stewardship expenditures?
- Will regulations or standards change in the next 20-30 years? What impact would that potentially have upon existing agreements and operations?
- Can more attention to monitoring systems and sensors during remedial design and action serve to reduce LTS costs?

SUMMARY

CH's environmental management program is a view into the future for other DOE sites. The commonsense approaches and techniques discussed within this paper that were instituted as CH's completion strategy need to be considered for application to larger and more complex sites. Further as program participants buy more fully into the notion of completion, the issues of long term stewardship will take center stage. This transition is really just beginning to take shape as completion becomes more real.

CH's ability to make efficient use of its dollars and to employ a successful strategic approach to ensuring completion of its sites is testimony that previous attempts by EM to institute cleanup completion goals (i.e. Ten Year Plan and the Accelerated Closure Plan) were conceptually correct. EM's credibility with Congress and other national stakeholders is partially dependent upon its ability to demonstrate progress. Geographic site completions that have been achieved at the smaller sites are certainly one measure of program success. However, the lessons learned from the CH experience should be employed at the larger sites, which will result in cleanup completions within their boundaries, further demonstrating program achievements.